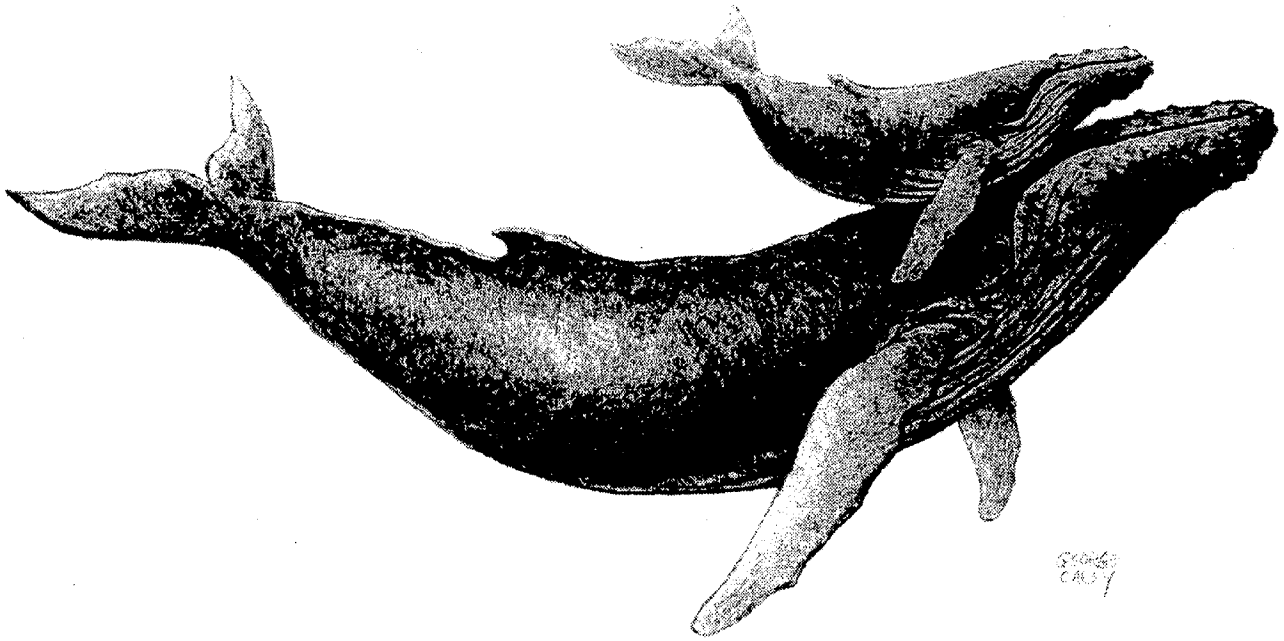
Hawaiian Islands Humpback Whale National Marine Sanctuary

NATIONAL MARINE SANCTUARIES

Final Environmental Impact Statement / Management Plan



A Federal / State Partnership for the Protection of Humpback Whales and Their Habitat

February 1997

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Ocean and Coastal Resource Management
Sanctuaries and Reserves Division
Silver Spring, Maryland

State of Hawaii
Office of Planning
Department of Business, Economic Development, and Tourism
Honolulu, Hawaii

AUTHENTICATED U.S. GOVERNMENT INFORMATION GPO

LIST OF ABBREVIATIONS

The Act ..... Hawaiian Islands National Marine Sanctuary Act
APPS ..... Act to Prevent Pollution from Ships
ATOC..... Acoustic Thermometry of Ocean Climate
CDUA ..... Conservation District Use Application, DLNR
COE..... U.S. Army Corps of Engineers
CWA..... Clean Water Act (or, Federal Water Pollution Control Act)
CZMA ..... Coastal Zone Management Act
DAR..... Division of Aquatic Resources, DLNR
DBEDT ..... Department of Business, Economic Development, and Tourism, State of Hawaii
DEIS/MP ... Draft Environmental Impact Statement/Management Plan
DLNR..... Department of Land and Natural Resources, State of Hawaii
DOBOR..... Division of Boating and Ocean Recreation, DLNR
DOC..... U. S. Department of Commerce
DOCARE... Division of Conservation and Enforcement, DLNR
DOD..... U.S. Department of Defense
DOH ..... Department of Health, State of Hawaii
DOI..... U.S. Department of the Interior
DOT..... Department of Transportation, State of Hawaii
EA..... Environmental Assessment
EIS ..... Environmental Impact Statement
EPA ..... U.S. Environmental Protection Agency
ESA ..... Endangered Species Act
EEZ ..... Exclusive Economic Zone
FEIS/MP ... Final Environmental Impact Statement/Management Plan
HAR ..... Hawaii Administrative Rules
HINMSA... Hawaiian Islands National Marine Sanctuary Act
HIHWNMS Hawaiian Islands Humpback Whale National Marine Sanctuary
HINWR .... Hawaiian Islands National Wildlife Refuge
HRS..... Hawaii Revised Statutes, State of Hawaii
IR..... Implementing Regulations
IWC..... International Whaling Commission
KIRC ..... Kahoolawe Island Reserve Commission
MFCMA.... Magnuson Fishery Conservation and Management Act
MLCD ..... Marine Life Conservation District
MMC..... Marine Mammal Commission
MMPA ..... Marine Mammal Protection Act
MMS ..... Minerals Management Service, DOI
MOU/MOA. Memorandum of Understanding/Memorandum of Agreement
MP/IR ..... Management Plan and Implementing Regulations
MP or SMP. Management Plan or Sanctuary Management Plan
MPRSA ..... Marine Protection, Research, and Sanctuaries Act of 1972, as amended
NARS ..... Natural Area Reserve System, DLNR
NEPA ..... National Environmental Policy Act of 1969, as amended
NMFS..... National Marine Fisheries Service, NOAA
NMFS-OE.. National Marine Fisheries Service-Office of Enforcement
NMS..... National Marine Sanctuary
NMSA..... National Marine Sanctuaries Act
NMSP..... National Marine Sanctuary Program
NOAA..... National Oceanic and Atmospheric Administration, DOC
NOS ..... National Ocean Service, NOAA
NPDES..... National Pollution Discharge Elimination System
NPS ..... National Park Service, DOI
OCRM..... Office of Ocean and Coastal Resource Management, NOS
OCSLA..... Outer Continental Shelf Lands Act
OP ..... Office of Planning (Formerly OSP)
OPA ..... Oil Pollution Act of 1990
ORMA..... Ocean Recreation Management Area
ORMP..... Ocean Resources Management Plan, State of Hawaii
OSP..... Office of State Planning, State of Hawaii
OTEC..... Ocean Thermal Energy Conversion
PMRF..... Pacific Missile Range Facility
PWSA..... Ports and Waterways Safety Act
RHA..... U.S. Rivers and Harbors Act
SAC ..... Sanctuary Advisory Council
SRD ..... Sanctuaries and Reserves Division, OCRM
SWG ..... Sanctuary Working Group
USCG..... U.S. Coast Guard
USFWS..... U.S. Fish and Wildlife Service, DOI
WESPAC... Western Pacific Regional Fishery Management Council

Cover Drawing: Courtesy of Mr. George Carey, Sanctuary Volunteer at the Hawaiian Islands Humpback Whale National Marine Sanctuary, Kihei, Maui, Hawaii.

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UNITED STATES DEPARTMENT OF COMMERCE
Office of the Under Secretary for
Oceans and Atmosphere
Washington, D.C. 20230

JAN 31 1997

Dear Reviewer:

In accordance with the provision of Section 102 (2) (c) of the National Environmental Policy Act of 1969, we are enclosing the Final Environmental Impact Statement/Management Plan (FEIS/MP) on the Congressionally designated Hawaiian Islands Humpback Whale National Marine Sanctuary. This document was prepared by the Sanctuaries and Reserves Division, Office of Ocean and Coastal Resource Management, National Ocean Service, National Oceanic and Atmospheric Administration, Department of Commerce.

The responsible Federal official for this project is W. Stanley Wilson, Assistant Administrator for Ocean Services and Coastal Zone Management, National Ocean Service, NOAA. Any written comments or questions regarding this FEIS/MP should be directed to the contact person identified below by March 19, 1997. Also, one copy of your comments should be sent to me in Room 5805, U.S. Department of Commerce, Washington, D.C. 20230.

CONTACT PERSON
Allen Tom, On-Site Liaison
Hawaiian Islands Humpback Whale
National Marine Sanctuary
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Telephone (808) 879-2818

Thank you for your cooperation in this matter.

Sincerely,

Donna Wieting

Donna Wieting
Acting Director
Office of Ecology and Conservation

Enclosure

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Hawaiian Islands Humpback Whale National Marine Sanctuary

NATIONAL MARINE SANCTUARIES

Final Environmental Impact Statement / Management Plan

A Federal / State Partnership for the Protection of Humpback Whales and Their Habitat

February 1997

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Title: ***Final Environmental Impact Statement and Management Plan for the Hawaiian Islands Humpback Whale National Marine Sanctuary***

Abstract: The Hawaiian Islands Humpback Whale National Marine Sanctuary was designated by the Hawaiian Islands National Marine Sanctuary Act (HINMSA or Act), Title II, subtitle C of the Oceans Act of 1992, Public Law 102-587. The Act requires the Secretary of Commerce (Secretary) to develop a comprehensive management plan with implementing regulations to govern the overall management of the site and to protect Sanctuary resources and qualities. The designated Sanctuary consists of approximately 1300 square nautical miles of Federal and State of Hawaii waters from the high water mark to the 100-fathom isobath contour adjoining the islands of Maui, Lanai and Molokai, including Penguin Bank, the deep water area of the Pailolo Channel, and the waters adjacent to the Kilauea National Wildlife Refuge on Kauai, but excluding the waters within three nautical miles of Kahoolawe. The preferred alternative in this Final Environmental Impact Statement and Management Plan (FEIS/MP) provides that the Congressionally-designated boundary be expanded to include the 100-fathom isobath around the Big Island of Hawaii, eastern Kauai, and portions of Oahu.

As expressed by Congress in the HINMSA, the purposes of the Hawaii Sanctuary are to: (1) protect humpback whales and their habitat; (2) educate and interpret for the public the relationship of humpback whales to the Hawaiian Islands marine environment; (3) manage human uses of the Sanctuary consistent with the Act and the NMSA; and (4) provide for the identification of marine resources and ecosystems of national significance for possible inclusion in the Sanctuary. Consequently, these purposes provide the foundation and focus for what is included in this Final EIS/MP and Implementing Regulations. The Act also requires that the Sanctuary Management Plan shall (1) facilitate all public and private uses of the Sanctuary (including uses of Hawaiian natives customarily and traditionally exercised for subsistence, cultural, and religious purposes) consistent with the primary objective of protection of humpback whales and their habitat, (2) set for the allocation of Federal and State enforcement responsibilities, as jointly agreed by the Secretary and the State, (3) identify research needs and establish a long-term ecological monitoring program with respect to humpback whales and their habitat, (4) identify alternative sources of funding needed to fully implement the plan's provisions, (5) ensure coordination and cooperation between Sanctuary managers and other Federal, State, and local authorities with jurisdiction within or adjacent to the Sanctuary, and (6) promote education among users of the Sanctuary and the general public about conservation of humpback whales, their habitat, and other marine resources.

Alternative elements considered within the FEIS/MP include: boundary alternatives considered by NOAA (e.g., areas of highest concentration, main Hawaiian Islands to the 100-fathom isobath, and/or expand to include waters to the 1,000-fathom isobath); scope of Sanctuary resources (e.g., identify and possibly include other resources now or later); Sanctuary administration (e.g., on-site, advisory councils); and resource protection strategies that include research and long-term monitoring, education and interpretation, coordination with existing resource management authorities, regulation and enforcement. Regulatory options range from relying on existing authorities to protect the humpback whale, to independent Federal regulations to protect humpback whales and their habitat, to a multi-species (ecosystem) regulatory scheme. The preferred boundary alternative as described in this document describes expanding the boundary to include the waters around all the main Hawaiian Islands from the shoreline to the 100-fathom isobath, but not including specified military use areas on Kauai and Oahu, specified commercial ports and small boat harbors since they are not considered humpback whale habitat, and the waters within three nautical miles around Kahoolawe. The management strategies would be applied on a statewide basis. The management plan includes the formation of a Sanctuary Advisory Council (SAC) to advise the Sanctuary Manger on the management of the Sanctuary. The SAC was designed to provide maximum representation of public and private interest groups. The SAC will play an important role in providing the broad-based guidance needed to ensure the Sanctuary's

success. A process is presented to identify additional resources of national significance for possible inclusion in the Sanctuary at some later date.

The Management Plan proposes utilization, and reliance, on existing Federal and State authorities, when possible, to manage activities that may negatively affect humpback whales and their habitat. The Hawaii Sanctuary consultations will be conducted by the National Marine Fisheries Service (NMFS) under an MOU between NOAA's SRD and NMFS to ensure that humpback whales and their habitat are comprehensively protected and managed within existing permitting, and other authorization processes. To provide supplemental protection for humpback whales, the Sanctuary proposes to adopt existing NMFS humpback whale take and approach restrictions as Sanctuary regulations. In addition, the Sanctuary proposes a regulation to ensure greater coordination and to strengthen the long-term protection of the humpback whale's habitat. Any activity not conducted in compliance with the terms or conditions of a required Federal or State permit, license, lease, or other specific authorization for discharging or depositing materials from within the Sanctuary boundary, (or from outside the boundary that enters and injures Sanctuary resources) or for altering the seabed, would be in violation of Sanctuary regulations. This regulation would apply only to those activities which are conducted without or in violation of existing and required Federal and State permits, licenses, leases, or authorizations. This habitat regulation provides a mechanism to fill existing gaps and supplement existing authorities. The regulations will supplement enforcement against certain acts of non-compliance and unlawful activities, thus strengthening overall protection of humpback whales and their habitat.

This document also analyses the environmental and socioeconomic consequences of the preferred alternatives and the other alternatives. The potential socioeconomic impacts range from no change to varying degrees of impacts depending upon which regulatory alternative is selected. The preferred regulatory alternative is anticipated to have no negative socioeconomic impacts on Sanctuary users and positive environmental impacts to humpback whales and their habitat. NOAA is not proposing any Sanctuary restrictions on fishing or fishing activities, is not recommending the imposition of user fees, and is not proposing to issue Sanctuary-specific permits.

Research, data and information collection, information exchange, and long-term monitoring will be very important in trying to better understand the humpback whales, their environmental needs, and impacts to the whales and their habitat. The research program will include baseline studies, monitoring, and analysis and prediction assessments to provide information needed in decision making, resolving management issues, and in funding appropriate management-related research. Interpretive/education programs will be directed at improving public awareness and understanding of the Sanctuary's resources, protection measures, and the need to manage them wisely to ensure their continued viability and abundance.

Lead Agency: Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service, National Oceanic and Atmospheric Administration
U.S. Department of Commerce
Silver Spring, MD; Honolulu HI; and Kihei, HI

Cooperating Agencies: State of Hawaii
Hawaii Office of Planning
Department of Business,
Economic Development and Tourism
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A. INTRODUCTION

The Hawaiian Islands Humpback Whale National Marine Sanctuary (Sanctuary) was designated by law in 1992. The Hawaiian Islands National Marine Sanctuary Act (HINMSA or Act) designated the Sanctuary and required the Secretary of Commerce to develop a comprehensive management plan and regulations to implement the designation. This Final Environmental Impact Statement/Management Plan has been developed in accordance with the HINMSA, the National Marine Sanctuaries Act (NMSA), and the National Environmental Policy Act of 1969.

B. NATIONAL MARINE SANCTUARY PROGRAM

1. The National Marine Sanctuaries Act

The National Marine Sanctuaries Act (NMSA) 16 U.S.C. 1431 et seq. authorizes the Secretary of Commerce to designate as National Marine Sanctuaries areas of the marine environment that possess conservation, recreational, ecological, historical, research, and educational, or aesthetic resources and qualities of national significance, and to provide comprehensive management and protection of these areas. The NMSA sets certain designation standards for National Marine Sanctuaries, including determination of national significance; the determination that existing State and Federal authorities are inadequate or should be supplemented to ensure coordinated and comprehensive conservation and management of the area; a determination that the designation of the area as a National Marine Sanctuary will facilitate the coordinated and comprehensive conservation and management of the area; and, the area is of a size and nature that permits comprehensive and coordinated conservation and management. National Marine Sanctuaries are routinely designated by the Secretary through an administrative process established by the NMSA, including activation of candidate sites selected from the National Marine Sanctuary Program Site Evaluation List. Sanctuaries also have been designated by an Act of Congress, as was the case with Monterey Bay, Stellwagen Bank, Florida Keys and the Hawaiian Islands Humpback Whale national marine sanctuaries.

National Marine Sanctuaries are established for the protection of nationally significant marine resources as well as the long-term beneficial use and enjoyment of these resources by the public now and in the future. To meet these objectives, the NMSA includes the following purposes and policies:

a. To enhance resource protection through comprehensive and coordinated conservation and management tailored to specific resources that complements existing regulatory authorities;

b. To support, promote, and coordinate scientific research on, and monitoring of, the site-specific marine resources to improve management decision - making in National Marine Sanctuaries;

c. To enhance public awareness, understanding, and sustainable use of the coastal and marine environment through public interpretive, educational, and recreational programs; and

d. To facilitate, to the extent compatible with the primary objective of resource protection, public and private uses of National Marine Sanctuaries.

In addition, the NMSA directs the Secretary to consult with appropriate State and Federal authorities and international governments and organizations to insure cooperation. The NMSA contains certain statutory prohibitions and the authority to enforce those prohibitions and

methods for assessing penalties in the event a prohibition is violated. Specifically, the NMSA prohibits the destruction, loss of, or injury to any sanctuary resource managed under the laws or regulations for a sanctuary; the possession, delivery, sale, transport, or shipment of any sanctuary resource taken in violation of the NMSA; interference with law enforcement under the NMSA; any violation of the NMSA, and regulations or permits issued pursuant to the NMSA. The NMSA further provides the authority to recover response costs and damages for destruction, loss of, or injury to Sanctuary resources. The NMSA appears in Appendix B.

The responsibility for carrying out the terms of the NMSA is delegated to the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), Office of Ocean and Coastal Resource Management (OCRM), Sanctuaries and Reserves Division (SRD) (Figure I-1). SRD's role in administration and management of the National Marine Sanctuary Program (NMSP) includes preparing management plans for designating marine sanctuaries, and adopting and implementing management practices to protect the conservation, recreational, ecological, historical, research, educational, and aesthetic values of these important marine areas.

SRD, on behalf of the Secretary of Commerce (Secretary), as part of the procedure for designating a National Marine Sanctuary, prepares the terms of the proposed designation; proposed mechanisms for coordination of existing authorities; a draft management plan which includes goals, objectives, management responsibilities, resource studies and programs; cost estimates for the proposed designation; a draft environmental impact statement; an evaluation of the advantages of State/Federal cooperation if all or part of the site falls within State jurisdiction; and the proposed regulations. The Management Plan and the environmental impact statement are typically developed in tandem and issued as one document.

2. The National Marine Sanctuary Program

The NMSP is a national system of 12 sites (Key Largo NMS and Looe Key NMS will be incorporated into the larger Florida Keys NMS upon the effective date of its regulations and final management plan). These sites protect over 13,000 square nautical miles of marine resources, and range in all sizes and shapes from 0.25 to 4,024 square nautical miles. An additional approximately 850 square nautical miles are currently under consideration for designation as National Marine Sanctuaries. Designed to protect natural, cultural, and/or historical features of the marine environment, they are currently found in eight of the twelve recognized biogeographical provinces in U.S. coastal waters.

Many people ask what a National Marine Sanctuary (NMS) is, what its benefits are, and how it will affect them as Sanctuary users. There are no simple answers to these questions because of the varied nature and needs of National Marine Sanctuaries and the purposes of their designation. Sanctuaries can be located in either Federal, State, or territorial waters or some combination thereof. Of the 12 existing sites, 7 encompass some Territorial or State waters within their boundaries. As such, the designation of marine sanctuaries has led to numerous cooperative agreements and partnerships among Federal, State, and local governmental agencies, as well as non-governmental organizations, to comprehensively manage National Marine Sanctuaries and ensure the cooperative attainment of the goals of enhanced resource protection and management. Sanctuaries strive to complement existing authorities and supplement local efforts when more comprehensive and coordinated protection of resources is needed.

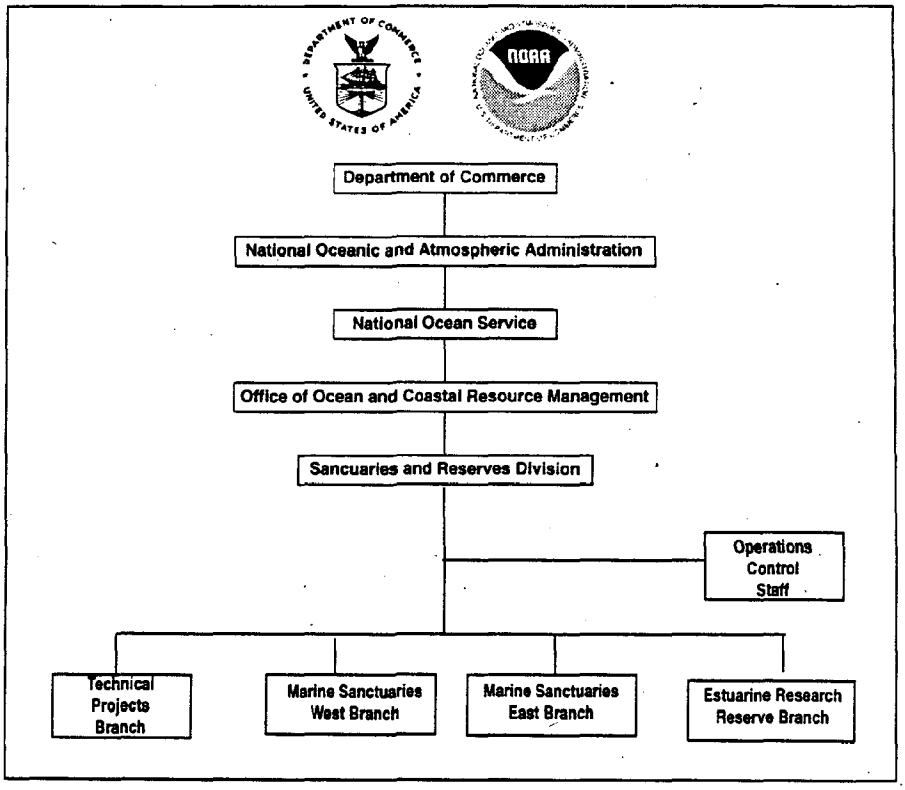


Figure I-1 Sanctuaries and Reserves Division (SRD) Organization

National Marine Sanctuaries are built around the existence of distinctive natural and cultural resources whose protection and wise use would benefit from comprehensive planning and management. Factors which are taken into account in the designation of a National Marine Sanctuary include:

- Natural resource and ecological qualities, including its contribution to biological productivity, maintenance of ecosystem structure, maintenance of ecologically or commercially important or threatened species or assemblages, maintenance of critical habitat of endangered species, and the biogeographic representation of the site;
- Historical, cultural, archaeological, or paleontological significance;
- Present and potential uses that depend on maintenance of the area's resources, including commercial and recreational fishing, subsistence uses, other commercial and recreational activities, and research and education;
- Present and potential activities that may adversely affect the area's qualities, uses, and significance;
- Existing State and Federal regulatory and management authorities and their adequacy to fulfill the purposes and policies of the HINMSA;
- Manageability of the area, including such factors as its size, ability to be identified as a discrete ecological unit with definable boundaries, accessibility, and suitability for monitoring and enforcement activities;
- Public benefits to be derived from sanctuary status, with emphasis on the benefits of long-term protection of nationally significant resources, vital habitats, and resources which generate tourism;

- Negative impacts produced by management restrictions on income-generating activities; and
- Socio-economic effects of sanctuary designation.

Benefits associated with National Marine Sanctuary designation include enhanced protection of special areas for natural, historical, or cultural values through more coordinated and comprehensive management, which supports an appropriate mixture of regulatory and non-regulatory approaches such as research, long-term monitoring, education, interpretation, information dissemination, and enforcement. There are shared benefits among levels of government including financial and logistical resources which may further the achievement of each entity's resource protection or management mandate. Through coordination, cooperation, and resource pooling, cooperating agencies may be able to mutually achieve their objectives in an efficient manner. For example, the Florida Keys NMS is working jointly with other Federal agencies [National Marine Fisheries Service (NMFS), Environmental Protection Agency (EPA), Department of the Interior (DOI), and the Army Corps of Engineers (COE)], State agencies, local governments, and academic institutions to protect the coral reef ecosystem of the Florida Keys. All of these entities have worked together and pooled resources to develop and implement a water quality protection program vital to the marine resources of the region.

Sanctuary designation in some areas has led to the creation of new education, interpretation, and visitor centers, and in other cases has enhanced existing centers. A variety of education and outreach tools are produced by the NMSP to support management goals including brochures, posters, K-12 classroom curricula, on-water programs, and instructional videos. Research and monitoring are conducted in marine sanctuaries to provide long-term data on resource health and to assist in management decision-making. Volunteer programs are vital for sanctuaries to support the education, research and monitoring, and management programs which are established and to provide avenues for local communities to participate in marine resource management.

National Marine Sanctuaries have also played an important role to ensure that when damage has been done to sanctuary resources and qualities, every attempt is made to repair, restore, and/or replace damaged and lost resources. The NMSP works with other agencies in responding to incidents of resource damage to minimize the impacts and to initiate restorative measures as soon as possible. New technologies for restoration and procedures for response have been direct results of sanctuary involvement.

One of the NMSA's policies is to facilitate public and private uses of sanctuaries when compatible with the primary objective of resource protection. As an example, the Sanctuary encourages the continued use of Hawaii's marine waters by commercial and recreational industries and has facilitated workshops between the enforcement officers and the boat captains to increase mutual awareness of each others activities and increase the boaters understanding of the resources and regulations designed to protect these resources. Moreover, the HINMSA provides that the Sanctuary shall facilitate uses of Native Hawaiians customarily and traditionally exercised for subsistence, cultural, and religious purposes. The Sanctuary has worked with various segments of the Native Hawaiian community to develop education materials, research past and present uses of the marine environment, and is working with UH-Sea Grant to develop a Native Hawaiian resource management intern program.

NOAA is also the parent agency of NMFS in addition to the NMSP. NMFS administers the MMPA and ESA, and manages fishery resources in Federal waters and some resources, including certain species of endangered marine wildlife, in both State and Federal waters. Sanctuaries rely on NMFS and state fishery management agencies to establish fishery management measures in marine waters, although in certain circumstances, the NMSP has determined that regulation of certain fishing methods or gear has been needed to protect specific

historic sites or natural resources. Prior to issuing Sanctuary fishing regulations, however, the NMSA requires that the appropriate Fishery Management Councils be provided with the opportunity to prepare such regulations [NMSA, Section 304(a)(5)]. Cooperation with local appropriate fishery management authorities (e.g., state authorities) is also required.

3. General Benefits and Costs Resulting From Sanctuary Designation

The net environmental and socioeconomic effects of designating the Sanctuary and implementing the Sanctuary Management Plan and regulations are expected to be positive. While such effects are difficult to quantify, the goal of the Sanctuary in part will be to maintain or improve the humpback whale habitat, water quality, uses of Native Hawaiians customarily and traditionally exercised for subsistence, cultural, and religious purposes, aesthetics, and tourism without causing any adverse effects. The major benefit of the Sanctuary is the integration of efforts to protect and manage the humpback whale and its habitat and corresponding human activities into one coordinated management regime. Other benefits of designation include: (1) enhancement of research and long-term monitoring; (2) promotion of public awareness of humpback whales and their marine environment; (3) public involvement in the management of the Sanctuary; (4) facilitated coordination of initiatives implemented by existing authorities; (5) formulation of long-range plans that respond to currently unforeseen threats; and (6) supplement existing regulations on activities which either pose a current risk of causing significant damage to humpback whales or their habitat, or that may later prove harmful as use of the area increases. Formal recognition of humpback whales and the habitat value of the their Hawaiian habitat should in itself focus additional attention on this area and thus encourage direct special attention on managing this area so that future generations may enjoy its beauty and rely upon its resources.

NOAA's final Sanctuary regulations will supplement existing Federal and State regulatory regimes to protect humpback whales and their habitat. Human uses in the Sanctuary will not be adversely affected because there will be no new, substantive regulatory restrictions, permits, or authorizations instituted by the Sanctuary. The Sanctuary will work with existing Federal and State authorities to ensure that Sanctuary concerns are addressed within their permit review processes, thereby eliminating the need for additional Sanctuary permits and approvals. Individual agencies administering the their permits or other approvals may or may not choose to accept Sanctuary recommendations. There may be some socio-economic impacts if a Sanctuary recommendation is adopted by a State or Federal permitting agency, but these are expected to be small in comparison to the benefits to the Sanctuary resources.

The Sanctuary regulations will provide additional authority for the Sanctuary to enforce ESA/MMPA approach regulations, and existing discharge and alteration of the seabed restrictions under other relevant laws. Under the NMSA, the Sanctuary can impose higher maximum civil penalties for violations of Sanctuary regulations than is possible under the MMPA or ESA. The maximum civil penalty would likely not be applied except possibly for repeat offenders or particularly egregious offenders. Impacted users would be limited to only those persons subject to the regulations (as opposed to all users of the Sanctuary), and of those, only those persons in violation of Sanctuary regulations. The actual impact on those persons in violation of Sanctuary regulations will be relatively small because enforcement mechanisms are not limited to civil penalties. Rather, oral and written warnings are given routinely in lieu of civil penalties. Further, with interpretive enforcement, users subject to Sanctuary regulations will be educated as to what the regulations are and why they are in place, thus increasing future voluntary compliance and decreasing those potentially subject to civil penalties. Consequently, there will be few impacts to Sanctuary users.

Education and interpretive enforcement focusing on the Sanctuary approach and habitat regulations will result in greater public compliance of the regulations which will benefit

humpback whales and their habitat, thus increasing the experience (enjoyment of the experience as well as recreational and aesthetic experience) of Sanctuary resources for all Sanctuary users Further, in those instances where a person who violated a Sanctuary regulation was assessed a civil penalty under the NMSA, those civil penalty monies will be returned to the Sanctuary for management and improvement (e g , education and outreach), as opposed to being deposited in the general U S. Treasury Finally, NMSA enforcement will be coordinated with existing State and Federal authorities to minimize the duplication of enforcement efforts, thus minimizing the potential for cumulative effects on those users in violation of Sanctuary regulations Overall the Sanctuary regulations are intended (1) to improve resource protection by instituting supplementary regulatory, surveillance and enforcement measures and authority, and (2) to minimize negative socio-economic impacts to human uses, particularly those deemed compatible with the purposes of the Sanctuary Efforts by the Sanctuary program to educate the general public about Hawaii's marine environment and the diverse array of human uses, particularly those by Native Hawaiians, will help people realize their dependence on a healthy marine environment and encourage them to take a more active role in the stewardship of these resources

4. The National Marine Sanctuary System

Fourteen National Marine Sanctuaries, including Hawaii, have been designated since the NMSP's inception in 1972 (Figure I-2) They include in order of designation:

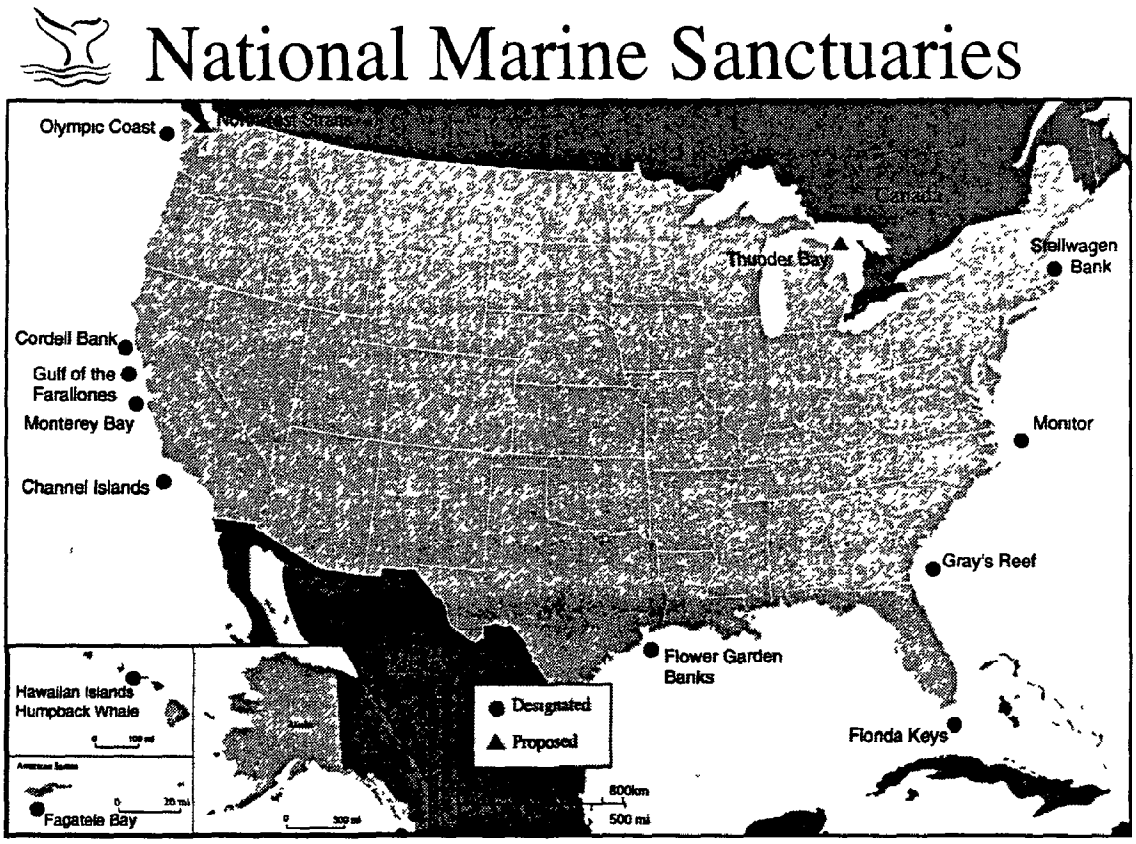
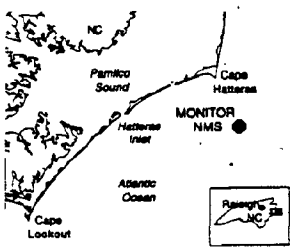


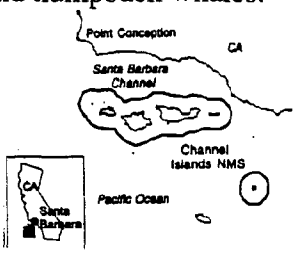
Figure I-2 Location of National Marine Sanctuaries



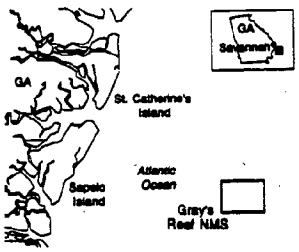
- The *Monitor* **National Marine Sanctuary** serves to protect the wreck of the Civil War ironclad, U.S.S. *Monitor*, which sank in 225 ft. of water. It was designated in January 1975, and consists of a one-square nautical mile of water (surface to bottom) located 16 miles southeast of Cape Hatteras, North Carolina. The Sanctuary regulates certain activities which might damage or destroy the historic wreck. The Sanctuary has led to increased knowledge of the Civil War and expanded exhibits in the Mariner's Museum in Virginia. (Federal waters)

- The **Key Largo National Marine Sanctuary** was designated in December 1975, and provides protection and management to a 100-square nautical mile area of tropical coral reefs and the offshore seabed south of Miami, Florida. The Sanctuary is a seaward extension of the John Pennekamp State Coral Reef Park and includes historical and cultural artifacts and shipwrecks. Regulations are designed to protect the significant natural and cultural features from removal or damage, and has resulted in the installation of a protective mooring buoy system; reef restoration projects from ship groundings; successful attempts to halt black band coral disease; and training for marine protected areas in other parts of the world. (To become part of the Florida Keys NMS; Federal waters).

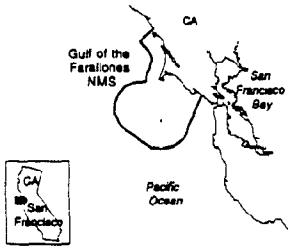
- The **Channel Islands National Marine Sanctuary** was designated in September 1980, and encompasses 1,252 square nautical miles off the coast of Santa Barbara, California. The Sanctuary surrounds the four northern Channel Islands and Santa Barbara Island. It provides protection to valuable habitats for marine mammals, including extensive pinniped and seabird assemblages, and serves as an important migration corridor for gray and humpback whales. The Sanctuary contains rich kelp forests, nearshore and benthic communities, and fisheries resources. The Sanctuary's regulatory focus is on the deposition or discharge of materials, alteration of the seabed, removal or damage of historical or cultural resources, disturbance of marine mammals and seabirds, and exploration and development of hydrocarbon (oil and gas) resources. The Sanctuary is adjacent to and works in close cooperation with the Channel Islands National Park, and has a wide range of education and research programs focusing on the resources within the Sanctuary. (Federal/State waters)



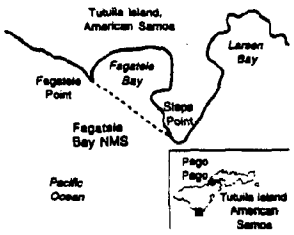
- The **Looe Key National Marine Sanctuary** was designated in January 1981, and consists of a submerged section of the Florida reef southwest of Big Pine Key. The five-square nautical mile site includes a beautiful "spur and groove" coral formation supporting a diverse marine community and a wide variety of human uses. The regulatory and non-regulatory programs are similar to the Key Largo NMS described above. (To become part of the Florida Keys NMS; Federal waters).



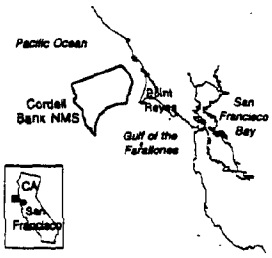
- The **Gray's Reef National Marine Sanctuary**, designated in January 1981, is a submerged live bottom (limestone reef) area located on the South Atlantic continental shelf east of Sapelo Island, Georgia. The Sanctuary encompasses about 17 square nautical miles, and protects a highly productive and unusual habitat for a wide variety of species including corals, tropical fish, and endangered and threatened sea turtles. It also provides migratory passage for the Northern right whale. Regulations prohibit alteration of the seabed, certain methods of fishing (explosives, wire traps), damage or removal of bottom formations, and discharge of substances or materials. (Federal waters)



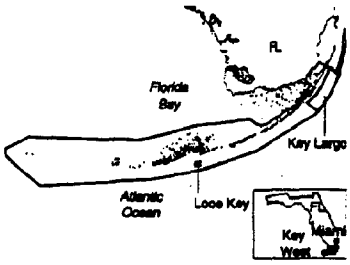
• The **Gulf of the Farallones National Marine Sanctuary** was designated in January 1981, and encompasses 948 square nautical miles off the northern coast of San Francisco, California. The Sanctuary includes important habitats for a diverse array of marine mammals (humpback, blue, and gray whales, dolphins, seals, and sea lions) and the largest concentration of breeding seabirds in the continental U.S., as well as pelagic fish, plants, and benthic biota. Regulations prohibit discharge of substances, alteration the seabed, hydrocarbon exploration and development activities, removal of historical or cultural resources, and restrict commercial vessel and aircraft activities within certain distances of specified biologically sensitive areas. (Federal/State waters)



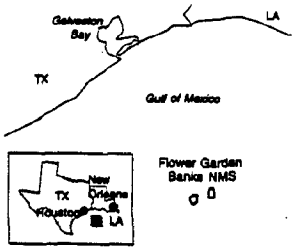
• The **Fagatele Bay National Marine Sanctuary** in American Samoa was designated in April 1986. The 163-acre bay site contains deepwater coral terrace formations in a submerged volcano that are unique to the high islands of the tropical Pacific. The Sanctuary protects habitat for a diverse array of tropical marine flora and fauna, including the endangered hawksbill sea turtle and the threatened green sea turtle. Regulations include fishing restrictions, discharges, and damage or removal of natural, historical, or cultural resources. (Territorial waters)



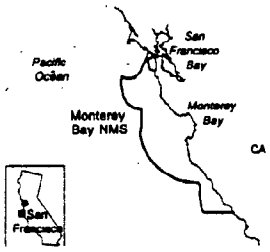
• The **Cordell Bank National Marine Sanctuary**, located approximately 20 nautical miles west of Point Reyes, California, was designated in May 1989. The 397-square nautical mile site surrounds a granitic formation, which provides habitat for an unusual assortment of marine and intertidal species, including colonies of purple hydrocorals. Abundant fish species attract feeding cetaceans and seabirds. Regulations prohibit deposition or discharged substances or materials, removal of or injury to Sanctuary resources, and hydrocarbon exploration and development activities. (Federal waters)



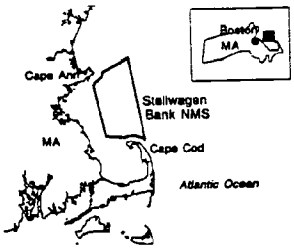
• The **Florida Keys National Marine Sanctuary** was Congressionally-designated in November 1990, and encompasses approximately 2,600 square nautical miles of coral reefs, seagrass beds, and related shoreline habitats of the Florida Keys ecosystem. The existing National Marine Sanctuaries at Key Largo and Looe Key will be incorporated into the Florida Keys NMS. In September, 1996, SRD released a Final Environmental Impact Statement and Management Plan for the site. (Federal/State waters)



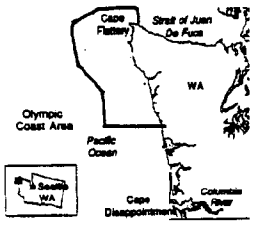
• The **Flower Garden Banks National Marine Sanctuary** encompasses approximately 42 square nautical miles surrounding two separate submerged features, the East and the West Flower Garden Banks, situated in the Gulf of Mexico over 100 nautical miles off the Texas/Louisiana coast. Designated in November 1991, the Sanctuary protects the northernmost coral reefs on the North American continental shelf by providing alternatives to anchoring (installation of mooring buoys), and prohibiting discharges and seabed alterations, hydrocarbon exploration and development activities, and injuring or taking marine organisms. (Federal waters)



- The **Monterey Bay National Marine Sanctuary** was designated in September 1992, and is the largest sanctuary in the national system, consisting of 4,024 square nautical miles off the central California coast. The most significant feature is the Monterey Canyon, the deepest and largest submarine canyon incising the continental shelf of North America. The area is rich in natural resources and serves as a breeding, feeding, and migration area for over 26 species of marine mammals. Significant prehistoric cultural sites as well as over 300 shipwrecks exist throughout the site and coastal area. Regulations include the prohibition of hydrocarbon exploration and development activities, depositing or discharging of substances or materials, taking or damaging Sanctuary historical resources, and the protection of specified biologically sensitive areas. (Federal/State waters)



- The **Stellwagen Bank National Marine Sanctuary**, designated by the Oceans Act of 1992, consists of 638 square nautical miles in Federal waters surrounding the entire Stellwagen Bank. The Bank is highly productive and provides feeding and nursery grounds for more than a dozen cetacean species, including the endangered humpback, northern right, sei, and fin whales. Current commercial whale watching activities involve more than one million visitors to the Bank annually. Mining for sand and gravel and discharging of dredged or other material is prohibited. (Federal waters)



- The **Olympic Coast National Marine Sanctuary** was designated in July 1994, and consists of 2,500 square nautical miles of State/Federal waters off the Washington Olympic Coast. The Sanctuary contains submarine canyons, marine mammals, seabirds, a diverse intertidal community, important fisheries, and serves as a gray and humpback whale migration corridor. Four Native American tribes participate on the Sanctuary Advisory Council (SAC). Significant historical and cultural resources are located both within and immediately adjacent to the sanctuary. (Federal/State waters).

Two additional sites are currently being considered for sanctuary designation: **Northwest Straits**, Washington; and **Thunder Bay**, Michigan. In addition, there are 24 natural resource sites on the Site Evaluation List (SEL) which have yet to be considered. Presence on the SEL does not guarantee a site will become a sanctuary.

C. HAWAIIAN ISLANDS HUMPBACK WHALE NATIONAL MARINE SANCTUARY

1. Designation

The Hawaiian Islands Humpback Whale NMS was designated in 1992 by the Hawaiian Islands National Marine Sanctuary Act (HINMSA) (Title II, subtitle C of the Oceans Act of 1992). In Section 2302 of the HINMSA, Congress made the following findings:

1) The Western Pacific region has many resources and ecosystems of national significance and importance.
2) There are currently no sanctuaries or potential candidates in Hawaii.
3) Hawaii's marine subtropical system is diverse and unique.

4) The Kahoolawe Island National Marine Sanctuary Feasibility Study requested by Congress indicated that biological, cultural and historical resources merited further investigation as to possible sanctuary status.
5) The Kahoolawe Study indicated that additional areas within Hawaii merited consideration and the sanctuary status could enhance resource protection.
6) Waters off the main Hawaiian Islands are important to the endangered North Pacific stock of the humpback whales.
7) The waters considered essential for breeding, calving and nursing of the humpback whale can be damaged or lose their ecological integrity from a variety of disturbances.
8) The Humpback Whale Recovery Plan recommends goals and actions to increase the abundance of the species.
9) In 1982, Hawaiian waters were considered to be an Active Candidate for marine sanctuary designation.
10) Existing regulatory and management authorities are inadequate to provide for comprehensive and coordinated management, which can be provided through the [NMSA].
11) Authority is needed to supplement and complement existing State and Federal regulatory and management programs to provide for comprehensive and coordinated conservation and management.
12) Additional support, promotion and coordination of scientific research and monitoring is essential to the survival of the humpback whale.
13) Education, awareness, understanding, appreciation and wise use of the marine environment are fundamental elements for the protection and conservation of the species.
14) National Marine Sanctuary designation is necessary for the protection and conservation of the humpback whale.
15) The Sanctuary which is designated for the conservation and management of the humpback whale could be expanded to include other marine resources of national significance which may exist within the Sanctuary.

These findings provided the basis for the Congressional designation of the Sanctuary. The objectives of the HINMSA are to: 1) protect humpback whales and their habitat within Sanctuary boundaries; 2) educate and interpret for the public the importance of humpback whales to the Hawaiian Islands marine environment; 3) manage such human uses of the Sanctuary consistent with the HINMSA and the [NMSA]; and 4) provide for the identification of marine resources and ecosystems of national significance for possible inclusion in the sanctuary.

The designation builds and compliments the efforts of NMFS in protecting the humpback whale under specialized Federal authorities, the efforts of the State of Hawaii since it has designated the humpback whale as the State Marine Mammal, and the unparalleled efforts of the County of Maui and its residents over a twenty year period during which they have conducted many activities in support of humpback whale research, education, protection and recovery. Indeed, the Congressional findings recognize the extreme importance of the Hawaiian marine environment to the perpetuation of the species, that there is an important long-term need to protect their habitat, and that the NMSA will provide resources intended to enhance these ongoing efforts. The Sanctuary will primarily rely on these existing efforts to accomplish many of the goals and objectives set out for it to achieve by law. Likewise, the Sanctuary will facilitate and support other on-going efforts by agencies, organizations and the public to enhance protection for and awareness of the humpback whale and its habitat.

While it appears that the population of the North Pacific Humpback Whale has increased, according to stock assessment estimates taken in Hawaii over the last 18 years, researchers and scientists recommend caution be used in making definitive statements regarding population

increase because of unanswered questions about the degree of mixing between humpback whale populations in Japan, Hawaii, and Mexico, the amount of inter-island movements within the Hawaiian Islands, and the different assessment methodologies used over time. Despite potential increases in the overall population, the North Pacific stock of humpback whales remains endangered. NMFS's recovery goal for the North Pacific population is 60 percent of the number of whales existing before commercial exploitation or of current environmental carrying capacity. To date there are only rough estimates of the pre-whaling population (15,000 whales) and little is known about the environmental carrying capacity in the Hawaiian Islands. There is still a great deal to learn about the humpback whale, its Hawaiian habitat, migration dynamics, and how to ensure its recovery. Other efforts in Alaska, as well as national marine sanctuaries along the California coast (Monterey Bay, Gulf of the Farallones, Cordell Bank and Channel Islands) and Washington State (Olympic Coast) will assist in the protection of the whale's migratory and feeding habitats and add to the information base. The HIHWNMS can play a coordinating role within the entire Pacific basin to integrate the monitoring and research efforts on humpback whales to elucidate the migratory patterns of humpback whales. In this capacity the HIHWNMS can integrate Pacific-wide education, monitoring, and research efforts on humpback whales.

2. History of Sanctuary Designation Proposal

a. Initial Proposal: 1977 - 1984

The establishment of a National Marine Sanctuary in Hawaii was first considered in December, 1977, when NOAA received the nomination for a proposed Humpback Whale National Marine Sanctuary in the waters between the islands of Maui, Molokai, Lanai, and Kahoolawe. This four-island area was identified as the principal breeding and calving area for the wintering population of endangered North Pacific humpback whales (*Megaptera novaeangliae*) estimated at that time to be between 600 and 800 individuals.

A workshop with scientists and resource managers was convened in December of that year resulting in the conclusion that a marine sanctuary would be most beneficial to the long-term protection of the endangered humpback whale. The workshop participants concluded that a Hawaii-statewide boundary (shoreline to the 100 fathom isobath) would provide the greatest protection for humpback whales in Hawaii given their distribution and inter-island migrations. The nomination was placed on the NMSP's List of Recommended Areas in October, 1979.

In March, 1982, NOAA declared the site an "Active Candidate" for designation as a national marine sanctuary in accordance with its regulations. Public workshops were subsequently held in Hawaii in April, 1982, to discuss the purpose and evaluate the issues related to management of the Sanctuary. There was considerable opposition to Sanctuary designation due to fears that the Sanctuary would impose additional restrictions on fishing and vessel operations. Based on comments received by NOAA from State and County agencies and the general public regarding the Draft EIS/MP that was distributed in December, 1983 (NOAA/OCRM, 1983), and at the request of the State Governor, further consideration of the site was suspended in early 1984. (For additional information see Appendix H)

b. Kahoolawe NMS Feasibility Study: 1990 - 1991

In October, 1990, in response to recommendations from the State of Hawaii and native Hawaiian groups such as the Protect Kahoolawe Ohana, President Bush directed the Secretary of Defense to immediately discontinue use of Kahoolawe as a weapons range. In conjunction with the presidential directive, Congress established the Kahoolawe Island Conveyance Commission to prepare a report that would identify future jurisdictional responsibilities and uses of the Island and its resources. Congress also directed NOAA (through Conference Report for Public Law 101-515 -- the Commerce, Justice, and State Appropriations Bill) to determine the feasibility of

establishing a national marine sanctuary in the waters around Kahoolawe Island. NOAA was instructed to give special consideration to the effects that a sanctuary would have on the population of humpback whales that inhabit the marine environment around Kahoolawe. NOAA examined the marine resources within three nautical miles around Kahoolawe Island and consulted with Federal and State agencies and the public through a series of public meetings. The results of this assessment and public input were published in a report entitled "Kahoolawe Island National Marine Sanctuary Feasibility Study."

The study indicated that while most research suggests that the waters around Kahoolawe do not appear to support large numbers of humpback whales, there is preliminary evidence of biological, cultural and historical resources adjacent to Kahoolawe which merit further investigation. The study concluded that additional information was needed before the Kahoolawe site could be considered as having resources and uses of special national significance. The study also noted with concern the presence of unexploded ordnance in the waters off Kahoolawe from Navy bombing exercises. The study recommended that additional areas within the Hawaiian Islands be considered as possible components of a multiple-site, multiple-resource NMS. The study also analyzed existing resource management authorities and concluded that a NMS could contribute to enhanced resource management in Hawaii.

c. The Oceans Act of 1992

In 1992, Congress held hearings to consider reauthorization and amendments to title III of the MPRSA. Representatives from the State of Hawaii provided testimony to Congress on the need and desirability of having a Humpback Whale NMS in Hawaii. This testimony, in addition to the findings of the Kahoolawe Feasibility Study, provided the basis for Congressional interest in designation of the Sanctuary.

On November 2, 1992, President Bush signed Public Law 102-587, the Oceans Act of 1992, which made numerous amendments to title III of the MPRSA, including: increasing in the maximum civil penalty from $50,000 to $100,000; adding the authority to establish advisory councils to assist in the designation and management of national marine sanctuaries; adding authority for the Secretary of Commerce to enter into agreements with any non-profit organization to, among others, solicit donations of funds, property, and services to carry out the purposes and policies of Title III of the MPRSA; and citing Title III as the National Marine Sanctuaries Act.

The Oceans Act also designated the Hawaiian Islands Humpback Whale National Marine Sanctuary. The Sanctuary, as designated, lies between 20°30' and 22°20' north latitude and 156°00' and 159°30' west longitude. The Congressionally-designated boundary occupies all contiguous coastal waters between the islands of Maui, Molokai, and Lanai, and extends seaward of these islands to the 100 fathom isobath, a horizontal distance ranging for a few hundred meters seaward of the shoreline on the eastern side of Maui to Penguin Bank, some 24 nautical miles southwest of Molokai. The Sanctuary also includes a small rectangular area, from the shoreline to the 100-fathom isobath adjacent to Kilauea Point on Kauai. The Act allows for boundary modifications necessary to fulfill the Sanctuary's purpose, and identified the waters around the island of Kahoolawe for automatic inclusion as part of the Sanctuary on January 1, 1996, unless the Secretary of Commerce certified the area is unsuitable for inclusion. In December, 1995, the Secretary certified to Congress that the waters around Kahoolawe are unsuitable for inclusion, and therefore, the waters around Kahoolawe are not included in the Sanctuary at this time. The HINMSA was amended in 1996 to provide a process by which the KIRC could request that NOAA include the marine waters within three nautical miles from Kahoolawe in the Sanctuary.

Under the HINMSA and the NMSA, the Governor of Hawaii has the authority to, within 45 days continuous session of Congress beginning on the date of issuance of the *Federal Register* notice containing the final implementing regulations, certify that the Management Plan, regulations, or any term of the plan or regulations is unacceptable. If the Governor makes such certification, the Management Plan, regulation(s), or term(s) thereof will not take effect in State waters within the Sanctuary. The Secretary of Commerce would then make a determination as to whether the Governor's action will affect the Sanctuary in a manner that the goals and objectives of the HINMSA cannot be fulfilled, and if so, the Secretary may terminate the entire designation. NOAA has coordinated and cooperated closely with the State of Hawaii in developing the Sanctuary's Management Plan.

d. The Draft EIS/MP

Section 2306 of the HINMSA requires NOAA to develop a comprehensive Management Plan and implementing regulations to achieve the policy and purposes of the HINMSA, following the procedures specified in sections 303 and 304 of the NMSA. Section 304(a)(2) requires the preparation of a draft environmental impact statement, as provided by the National Environmental Policy Act of 1969 (NEPA). The HINMSA also directs that opportunities be made available for the public to participate in the development of the Management Plan. To satisfy these requirements, as well as those of the NMSA and the NEPA, a series of scoping meetings were held in March, 1993, on each of the main islands and in Washington, D.C. The input received during those scoping meetings was extensive and covered a broad spectrum of issues. The impacts many people wanted addressed were those relating to potential regulatory restrictions on specific industries (e.g., fishing, vessel traffic, tourism). (For a synopsis of the scoping meetings, see the DEIS/MP's Appendix D-1.)

After the scoping meetings, and in cooperation with the Office of the Governor-Office of State Planning, SRD provided funding to support the organization of, and incidental expenses related to, the establishment of a Sanctuary Working Group (SWG) consisting of 50 individuals, representing Federal, State, and county governments, and a diverse array of interest groups. The SWG provided comments on a number of issues, management options, and a Discussion Paper, which was later used to further the public participation process for gathering input into the development of the Draft Management Plan. In March 1994, additional public meetings were held on each of the main Hawaiian Islands to gather additional input and get public reaction to such issues as: 1) the Sanctuary boundary; 2) potential regulations; 3) education and information; 4) research and monitoring; 5) administration; and 6) identification of other resources of national significance for possible inclusion in the Sanctuary. (A summary of the input received at each of those meetings is included in the DEIS/MP's Appendix D-2.)

The public has been sharply divided in their support for the Sanctuary. Those who opposed the Sanctuary were concerned that their access to marine waters may be limited by Sanctuary regulations -- a particularly emotional issue since Hawaii is an insular state and has ongoing Native Hawaiian sovereignty issues to address. Those who supported the Sanctuary saw its value in addressing multiple species in the context of an ecosystem management approach. Those who were undecided were unclear about the details of the Sanctuary such as the composition of the SAC, administration structure and location, and regulations.

Technical consultation meetings were held in February-March 1994, with different experts and interest groups to collect information for the DEIS/MP to establish a better understanding of coordination and cooperation needs and how a Sanctuary can complement and enhance existing efforts. Needs were identified for various marine users, including the military, fishing and boating interests, researchers and educators, and regulatory and enforcement personnel. SRD has attempted to reflect these concerns in the development of the Management Plan.

The DEIS/MP, published in September 1995, stated the following:

- Humpback whales use Hawaiian waters for breeding and rearing their young, and migrate throughout the Hawaiian Islands during this time. Little or no feeding occurs during this time and the whales prefer the shallower warmer waters for their activities. Scientists believe that there is an increase in the number of whales using Hawaiian waters in recent years.

  There are numerous legal protections and management plans afforded to whales, including international treaties promulgated pursuant to the International Whaling Commission, the Marine Mammal Protection Act (MMPA), the Endangered Species Act (ESA), State of Hawaii anti-harassment regulations, and the 1991 Humpback Whale Recovery Plan developed and implemented by NMFS.

- Human activities that could affect humpback whale behavior and whale habitat in Hawaii include: 1) noise from vessels, aircraft, and near-shore construction projects; 2) vessel traffic; 3) disturbance from recreational boating, tour-boating, jet skiing, and parasailing; 4) degradation to the water quality from waste disposal and non-point source pollution from coastal development; and 5) by the physical loss of habitat or activities that may cause whales to abandon their habitat and/or interfere with reproductive behaviors. For most of these activities, additional monitoring and research would be required before determinations could be made on the degree of impact on whales from such activities and any management schemes that would be necessary to help minimize the conflicts and impacts (see DEIS/MP, p. 49).

  There are a number of agencies and pieces of legislation in place offering regulatory protection to the humpback whale and the DEIS/MP identified no regulatory or management gaps in addressing these impacts. Rather, the DEIS/MP cited a lack of coordination among the agencies in management, education, research, monitoring, enforcement, and a larger ecosystem-based framework within which to assess these impacts on a cumulative basis.

- Population, tourism, and uses of the marine environment will continue to increase. Changes in the economy and associated changes in land use patterns resulting from the decline in agriculture will have impacts on the amount and type of runoff into marine waters from land. Both the number of people on the water and the pollutants entering the water from land can affect the suitability of the marine waters for breeding, birthing, and rearing of young whales.

- Hawaiian waters support many resources of national significance other than whales including intertidal communities, extensive shallow and deep water coral reefs, numerous cetaceans and seabird species, and pinnipeds. Marine areas of special significance are protected by State Marine Life Conservation Districts, Fishery Management Areas, and Ocean Recreation Management Areas.

i. DEIS/MP Preferred Alternative

The DEIS/MP proposed the following preferred alternatives for the Hawaiian Islands Humpback Whale National Marine Sanctuary:

Boundary

The preferred boundary includes the area from the shoreline to the 100-fathom isobath depth contour (600 feet) around the following areas of the main Hawaiian Islands: Maui, Lanai, and Molokai, including Penguin Bank and the deep water channels connecting them, the Big Island, eastern Kauai, and portions of north and south Oahu. NOAA did not include the area

within three nautical miles of Kahoolawe Island, select ports, harbors, and small boat basins, and military use areas off Kauai and Oahu.

Regulations

No new regulatory prohibitions were proposed for the Sanctuary. Rather, the Sanctuary will essentially incorporate the following existing restrictions to enhance enforcement effectiveness:

- existing approach and harassment regulations that protect humpback whales promulgated by NMFS under the MMPA and ESA;
- regulations prohibiting discharges into the Sanctuary, or discharges outside of the Sanctuary that subsequently enters the Sanctuary and injures a humpback whale and/or its habitat; and
- regulations prohibiting alteration of the seabed in the Sanctuary.

Future regulations not listed in the scope of regulations would require public notice and comment and, be subject to gubernatorial review and approval.

No mechanisms for requiring independent Sanctuary permits are proposed.

Management

The Sanctuary will be a year-around program (rather than seasonally implemented) that will focus on humpback whales and their habitat.

The Sanctuary will rely on an existing Memorandum of Understanding (MOU) between NMFS and the National Ocean Service (NOS) to undertake enforcement activities in the Sanctuary. Under this MOU, NMFS enforces Sanctuary regulations in consultation with the Sanctuary Manager. NMFS also has an MOU with the U.S. Coast Guard and DLNR-Department of Conservation and Recreation Enforcement which deputizes these other agencies to enforce MMPA and ESA regulations (see Appendix E).

Sanctuary staff will work with the Department of Health (DOH), the Department of Land and Natural Resources (DLNR), EPA, Coast Guard, and COE to cooperatively monitor and enforce existing water quality and alteration of the seabed activities. Sanctuary staff will also consult with the appropriate Federal, State, or county agencies on any violation of discharge and alteration of the seabed requirements and authorities. Ultimately, Sanctuary staff will seek to develop an MOU or other mutual understanding between the Sanctuary Program and other agencies regarding coordinated enforcement activities and actions in Hawaii. The intent of the enforcement program is to achieve voluntary compliance with the regulations through education.

No mandatory user fees are proposed by the Sanctuary Program in the Hawaii Humpback Whale National Marine Sanctuary.

Management Plan

Management Priorities: The Sanctuary will focus on present and potential activities that may adversely affect the whales directly (harassment and disturbance) and those factors that may impact water quality and/or modify the seafloor -- two major components of the whale's habitat.

Research and Monitoring Priorities: The research program will focus on improving the understanding of the relationship between the status of the humpback whale stocks and the quality of their environment.

Education and Outreach Priorities: The education program will focus on raising awareness of the significance of humpback whales and their habitat and other marine resources while promoting public and private uses of the Sanctuary.

Administration

Location: Based on the preferred boundary, the Sanctuary headquarters will be located in Kihei, Maui.

Staffing: Depending on the budget, the Sanctuary will hire a manager, administrative assistant, education coordinator, research coordinator, and other staff as needed. While the Sanctuary will not have its own enforcement presence, SRD will explore the possibility of funding enforcement positions in other agencies such as NMFS, DOH, or DLNR.

Sanctuary Advisory Council (SAC): The SAC, comprised of 25 members with broad statewide representation including researchers, county representatives, and interest groups will serve as an advisory body to the Sanctuary Manager and to NOAA.

e. The Final Management Plan

The DEIS/MP was released to the public in September 1995, initiating a 90-day public comment period that ended on December 15, 1995. Over twenty-five statewide informational meetings were held to assist the public in understanding the proposal and to answer questions and concerns. SRD also held seven formal public hearings throughout the main Hawaiian Islands. In total, over 250 written comments and oral testimonies were received by NOAA during the comment period.

The concerns raised in the comments addressed: boundaries; Kahoolawe; regulations; fishing; enforcement; management/scope; the SAC; research; education; Native Hawaiians; user fees; funding for the program; socio-economic impacts; need for the Sanctuary; the manner in which the Sanctuary was designated; and Federal presence in State waters. The response to these public comments are found in Appendix A, and incorporated into relevant sections of the FEIS/MP, as appropriate.

NOAA's preferred alternatives for the boundary, regulations, and management remain similar to those listed in the Draft EIS/MP. Changes and clarifications were made to respond to public comments. The following section summarizes the modifications, clarifications, or revisions made in the FEIS/MP.

Part I - Introduction: In addition to providing information about the National Marine Sanctuary Program and the history of the Hawaii Sanctuary, Part I has been modified to provide a summary of NOAA's preferred alternative and to identify the significant changes made between the draft and final environmental impact statements.

Part II - Description of the Affected Environment: This part was revised to reflect new or updated information. The most significant changes were made to the section on humpback whales in response to public comments. A new section was added to clarify that the establishment of the Sanctuary does not convey title or ownership to NOAA of Hawaii's submerged lands.

Part III - Alternatives: Parts of the alternatives were modified or clarified to address public comments received on the DEIS/MP. The significant changes relating to the boundary and regulations are noted in the table below.

Part IV - Environmental and Socioeconomic Impacts: This part has been expanded to more clearly portray the impacts between the status quo alternative and the preferred alternative. Particularly, the section describing the regulatory impacts dealing with discharge and alteration of the seabed activities has been expanded to address public comments.

Part V - Management Plan: This part has been modified to reflect specific changes made in parts 1-4 and to further clarify the roles of the various Federal and State resource agencies as they pertain to Sanctuary management.

Appendices: Appendix A contains NOAA's response to comments received on the DEIS/MP. Appendix E contains MOUs regarding the coordination of Federal and State resource agencies for activities that may impact Sanctuary resources.

TABLE I-1: Significant Changes Made to Final EIS/MP

Draft EIS:	Change Made to Final EIS/MP:	Why Change Was Made:
Boundary: "...from the mean highwater mark to the 100-fathom isobath..."	Boundary: "...from the shoreline to the 100-fathom isobath..." was added to boundary definition.	This change clarifies and simplifies the inshore boundary of the Sanctuary. Shoreline is defined as: "the upper reaches of the wash of the waves, other than storm and seismic waves, at high tide during the season of the year in which the highest wash of the waves occurs, usually evidenced by the edge of vegetation growth, or the upper limit of debris left by the wash of the waves." The Sanctuary inshore boundary is now consistent with the Coastal Zone Management Program and DLNR definition. As defined, the shoreline is also consistent with DLNR's survey and certification standards.
Boundary:	"cutting across the mouths of rivers and streams..." was added to boundary definition	Clarifies that the preferred Sanctuary boundary does not go up rivers, streams, or other inland water areas.
Boundary:	Listing of Ala Wai small boat basin as a harbor excluded from the preferred boundary.	The Ala Wai small boat basin lies within the preferred boundary. The regulations state specific ports, harbors, and small boat basins are to be excluded.
Regulations:	County regulations and permit processes have been removed from the scope of Sanctuary regulations.	Discharges and alteration of the seabed activities are primarily regulated by Federal and State agencies.
Regulations: Prohibited Activities (1) Approaching, within the Sanctuary, by any means, within 100 yards... (2) Causing a vessel or other object to approach, within the Sanctuary, within 100 yards...	Combined to read: (1) Approaching, or causing a vessel or other object to approach, within the Sanctuary, within 100 yards...	To streamline the language and to be consistent with the list of Activities Subject to Regulation.

TABLE I-1: Significant Changes Made to Final EIS/MP (Continued)		
Draft EIS:	**Change Made to Final EIS/MP:**	**Why Change Was Made:**
Enforcement:	Sanctuary and State roles were clarified regarding the enforcement of Sanctuary habitat related regulations	Clarifies that individual State permit issuing agencies make the initial determination as to whether a State discharge or alteration of the seabed permit has been violated, and would therefore be in violation of a Sanctuary habitat regulation.
Designation Document: Activities Subject to Regulation: f. Operation of a vessel (i.e., watercraft of any description) in the Sanctuary in a manner that may adversely impact any humpback whale or humpback whale habitat;...	Removed from the Scope of Regulation	The scope of regulations now mirror the actual regulations. Consequently, any new proposed regulations will be subject to the full designation process, including public hearing and comment, preparation of the supplemental EIS/MP, and gubernatorial review and approval.
Designation Document: Article VI. Alteration of This Designation "...review by the appropriate Congressional committees, and the Governor of the State of Hawaii, and approval by the Secretary of Commerce..."	"...review by the appropriate Congressional committees, and review and non-objection by the Governor of the State of Hawaii and, review and approval of the Secretary of Commerce..."	To clarify that the Governor will have objection authority over any proposed modification to the terms of designation, which include the boundary and new regulations. If the Governor objects, such modification will not take effect in State waters.
Part II - Description of humpback whales	Discussion of scientific data on humpback whales and their habitat has been significantly updated.	More current information has become available since the Draft EIS/MP was prepared. SRD has incorporated this new data to make the Final EIS/MP more current in its assessment of Sanctuary resources.
Part V - Management Plan. As noted in the NMSA, a review of the Management Plan is required every five years.	Process for this review is outlined in Part V which involves significant participation by the State.	To outline the specific procedures the State and NOAA will follow in undertaking the review.
Part V - Management Plan User Fees and Special Use Permits	Clarification made that there will be no special use permits or user fees in the Hawaii Sanctuary	To clearly state that there will be no special use permits or user fees in the Hawaii Sanctuary. In addition, the NMSA was reauthorized in 1996 to, in part, specifically prohibit user fees in the Hawaii Sanctuary.

Other significant concerns that have been addressed during the completion of the FEIS/MP:

- A Memorandum of Understanding (MOU) between SRD and Hawaii's DOH and DLNR is under development which outlines the mechanism by which NOAA and the State will coordinate the review of applications for State permits to conduct discharge or alteration of the seabed activities which are subject to Sanctuary regulation. A copy of the draft MOU is found in Appendix E of this FEIS/MP.

- SRD and NMFS have developed an MOU concerning permit review and coordinated consultations for activities that may affect humpback whales or their Sanctuary habitat

(Appendix E). SRD and NMFS are also developing another MOU concerning the coordination of their other management activities in the Sanctuary.

- NOAA's Office of General Counsel will develop a civil penalty schedule outlining the range of fines associated with violations of Sanctuary regulations. The civil penalty schedule will be made publicly available.

- The Sanctuary Advisory Council (SAC) has been established and is working to provide advice and recommendations to SRD on the implementation of the Sanctuary (See Part V for more discussion on the SAC.)

In addition to the changes identified above in response to public comments, numerous editorial changes have been undertaken to make the document more "user-friendly," including a reorganization of Parts I and V.

D. CONSULTATIONS

1. Endangered Species Act Requirements

Pursuant to Section 7 of the ESA, the Fish and Wildlife Service of DOI, and NMFS, have been consulted regarding possible impacts on threatened or endangered species that might result from the preparation and implementation of a management plan and regulations as required by the Sanctuary designation. These consultations confirmed that some five endangered (E), four threatened (T) and one candidate species are either known to, or may occasionally, occur in the area; and, that Sanctuary designation is not likely to adversely affect any of these species. The species identified are:

- Hawksbill turtle *(Eretmochelys imbricata)* ..... E
- Green sea turtle (*Chelonia mydas*) ..... T
- Leatherback sea turtle (*Dermochelys coriacea*) ..... E
- Loggerhead sea turtle (*Caretta caretta*) ..... T
- Olive ridley *(Lepidochelys olivacea)* ..... T
- Hawaiian monk seal *(Monachus schauinslandi)* ..... E
- Humpback whale (*Megaptera novaeangliae*) ..... E
- Hawaiian dark-rumped petrel (*Pterodroma phaeopygia sandwichensis*) .. E
- Newells' shearwater (*Puffinus auricularis*) ..... T
- Band-rumped storm-petrel (*Oceanodroma castro cryptoleucure*) ..... T(candidate)

2. Resource Assessment

Section 303(b)(3), of the NMSA [16 U.S.C. §1433(b)(3)] requires a resource assessment report documenting present and potential uses of the proposed Sanctuary area, including uses subject to the primary jurisdiction of DOI. The resource assessment, including a description of biological and cultural resources and human uses can be found in Part II of the FEIS/MP. This requirement has also been met through consultations with DOI, NMFS, the Hawaii Office of Planning, and in the development of a report entitled: "A Site Characterization Study for the Hawaiian Islands Humpback Whale National Marine Sanctuary" (University of Hawaii Sea Grant College Program 1994). This Site Characterization Study was useful in providing many significant details described in this FEIS/MP. Interested readers, can receive a copy of this report from one of the Sanctuary offices, the Hawaii Office of Planning, or copies will be distributed to the following public libraries in Hawaii:

Kauai:	Lihue, Kapaa, Waimea, Hanapepe, and Koloa Public Libraries
Oahu:	Honolulu, Hawaii Kai, Waimanalo, and Kahuku Public Libraries
Maui:	Wailuku, Kahului, Hana, Kihei, and Lahaina Public Libraries
Molokai:	Molokai Public Library
Lanai:	Lanai Public Library
Big Island:	Hilo, Kailua-Kona, Keaau, Kealakekua, Kohala, and Waimea Public Libraries

3. Federal Consistency Determination

Section 307 of the Coastal Zone Management Act of 1972, as amended, requires that "[e]ach Federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable, with enforceable policies of approved State management programs. A Federal Consistency Determination has been submitted to the Coastal Zone Management Program within the Hawaii Office of Planning (OP). The Hawaii OP will review the consistency determination along with the final Sanctuary management plan and will either concur or object with NOAA's determination that the implementation of the HIHWNMS is consistent with Hawaii's CZMP.

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PART II -- DESCRIPTION OF THE AFFECTED ENVIRONMENT

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This part of the Final Environmental Impact Statement describes the environmental and socio-economic characteristics of the affected area pertinent to the planning for and understanding of Sanctuary management needs. The following sections summarize information about the marine environment, its uses, and its users. Much of the information contained in Part II can be found in "A Site Characterization Study for the Hawaiian Islands Humpback Whale National Marine Sanctuary" (March 1994) prepared for NOAA by the University of Hawaii Sea Grant College Program, School of Ocean and Earth Science and Technology. All references are included in the bibliography located in Appendix J.

A. THE PHYSICAL ENVIRONMENT

1. Geographic Setting

The Hawaiian Archipelago is a group of eight major islands together with 124 islets (some of which are unrelated to the archipelago), shoals, and reefs stretching 2400-km (about 1,490 nautical, or 1,600 statute miles) along a southeast-northwest axis in the North Central Pacific. Lying in the Tropic of Cancer between 154°40' to 178°75'W longitude and 18°40' to 28°25' N latitude, the major islands in order of size are: Hawaii (referred to as the Big Island), Maui, Oahu, Kauai, Molokai, Lanai, Niihau, and Kahoolawe. The State of Hawaii consists of 16,760 sq. km (6,471 sq. mi.) of land; ranges in elevation from sea level to 4,205 m (13,796 ft) at the peak of Mauna Kea on the Big Island; and has 1,207 km (750 mi.) of coastline with 40 sq. mi. of estuaries, harbors, and bays. The major ocean and interisland channels are shown in Figure II-1.

The four counties of Hawaii are: Hawaii, the City and County of Honolulu, Kauai, and Maui. The Hawaiian Islands Humpback Whale National Marine Sanctuary as currently designated exists predominantly within the County of Maui, which is commonly referred to as the "four-island" area consisting of Maui, Molokai, Lanai, and Kahoolawe (see Figure III-2 in the following chapter). Congress also designated as part of the Sanctuary the waters off the shore of the Kilauea National Wildlife Refuge, Kauai. NOAA is proposing to expand the Sanctuary to include the Big Island, eastern Kauai, and portions of Oahu. Hawaii is located some 2,500 nautical miles (4,060 km) from the California coastline and 2,800 nautical miles (4,500 km) from southeastern Alaska, which is considered to be one of the major summer feeding grounds for humpback whales.

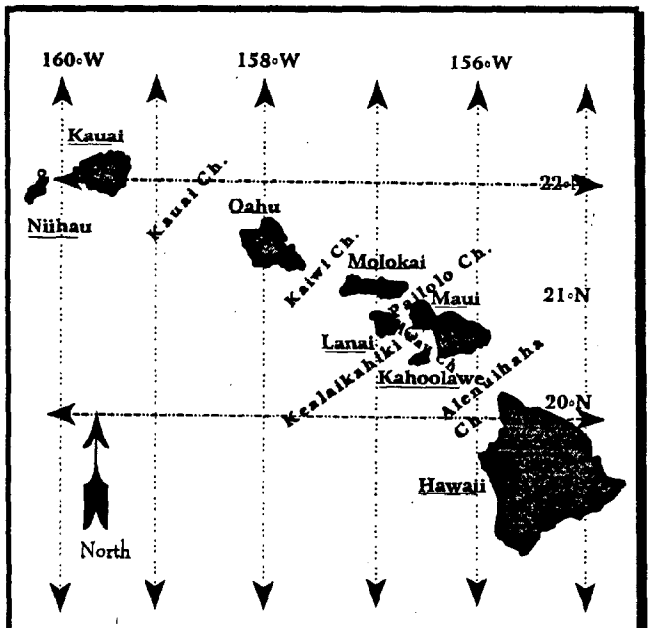


Figure II-1 Main Hawaiian Islands

2. Physical Characteristics

a. Geology

The Hawaiian Islands were formed during the last few million years by the gradual accretion of basaltic lava flows and ejecta. Their geologic features have been formed by successive

periods of volcanic activity interspersed with submergence, weathering, and fluctuations in sea level (Wyrtki 1990). The islands rise 9,100 m above the sea floor, and the Island of Hawaii has a maximum elevation of 4,500 m above sea level [U.S. Environmental Protection Agency (EPA) 1980; Menard 1964].

The volcanic activity that created the Hawaiian Islands formed comparatively gradual mountain masses that rise abruptly from the relatively smooth archipelagic apron of the adjacent sea floor. This apron extends a few tens of kilometers outward from the islands and is peculiar because it slopes slightly upward from the base of the islands. The sea floor at the base of the islands is slightly depressed and forms a moat-type structure around the islands. Beyond the moat is a bulge or arch, apparently formed by the weight of the islands pushing the displaced material outward (Menard 1964).

The islands generally are surrounded by coral reefs and contain numerous bays. Along some of the windward shorelines where perennial streams empty into the ocean, estuarine-like conditions prevail. Abundant rainfall and persistent northeasterly trade winds contribute to the steady weathering of the islands. Sandy beaches are found along the shorelines of all the islands but are best developed on Kauai, the oldest of the main islands, and least developed on Hawaii, where mountain-building and shoreline creation is still occurring. In places throughout the State and in Maui County, there occurs a phenomenon in which there is a net loss of beach volume with a concomitant increase in offshore sand deposits.

There are no known oil and gas deposits within the nearshore area of the State, and manganese nodule deposits and cobalt rich crusts lie far offshore. Sand is the most commercially valuable nearshore mineral with large deposits located in a number of sites.

b. Geomorphology/Bathymetry

The islands of Maui, Lanai, Molokai, and Kahoolawe are the remnants of a single massive volcanic conglomerate formed by at least six major and one minor volcano. During a period of low sea level (in the recent geologic past), these four islands were connected to form a single island called "Maui Nui" [MacDonald et al. 1983; U.S. Department of Commerce (DOC) 1983]. This island had an area of about 5,200 km^2 (about one-half the size of the present island of Hawaii). Extensive periods of erosion, emergence, and subsidence in combination with changes in sea level shaped Maui Nui to its present configuration, drowning the base of the island and creating not one, but four separate islands. The adjoining submerged base of Maui, Lanai, and Molokai ranges in depth from about 30 m to 80 m. Hence, about half of the Congressionally-designated Sanctuary is less than 80 m in depth.

Penguin Bank is noted for major concentrations of humpback whales during their winter stay in Hawaiian waters. The average depth of water over Penguin Bank is about 60 m, but ranges from 50 m to 200 m. There is a lack of information regarding the specific geology of the very near coastal waters (i.e., 100 m to 200 m depths). Observations made from research submersibles at Penguin Bank and in the general vicinity of the Congressionally-designated Sanctuary indicate that at depths of 60 m to 120 m the bottom is composed primarily of sand with occasional outcrops of coarse sediment, limestone talus, limestone holes, and platforms (B. Muffler, Hawaii Undersea Research Laboratory, pers. comm. 1993). In addition, carbonate organisms including red and green calcareous algae, bryozoans, corals, and pen shells have been observed at depths of 40 m to 90 m on Penguin Bank (Agegian and Mackenzie 1989).

Bottom photography off of other coastal sites throughout the State, (e.g., Kahului Harbor, Maui; Nawiliwili, Kauai; Pearl Harbor, Oahu; Port Allen, Kauai; and Hilo, Hawaii) show remarkable similarity at depths of 300 m to 1,600 m. At each site, the bottom is characterized by silty sand and clay with only occasional cobbles, boulders, and rocky outcrops. Whereas these

data reflect conditions slightly beyond the 100-fathom isobath, observations from submersible dives suggest that these characteristics are consistent with the shallow near coastal regions with an increase in the presence of rocky outcrops and coral rubble at the shallow depths.

The nearshore topography of Oahu is characterized by a series of marine terraces. The terraces, which are separated by escarpments, reflect periods of emergence, submergence, and changes in sea level. Specific bathymetric data have not been located for the nearshore areas of the islands of Maui, Molokai, and Lanai. (see insert: Information Gaps). On Oahu, however, the upper level terrace extends seaward to about 60 m followed by a steep escarpment and then a second or intermediate terrace from about 70 m to 120 m. Another steep escarpment is found at this depth and then a gently sloping terrace extends from about 130 m to the 600 m contour (Brock and Chamberlain 1968). Sonic depth recorders indicate a relatively flat or gently sloping bottom at depths near 200 m (100-fathom isobath) (EPA 1980). With few exceptions, the bottom topography from 400 m seaward is very steep and drops almost immediately to the abyssal plains at 4,800 m (2,400 fathoms). Because the submerged coasts of Maui, Molokai, and Lanai probably experienced similar periods of erosion, subsidence, emergence, and changes in sea level, it is proposed that the terraces on Oahu generally reflect similar types of geomorphic conditions.

Information Gaps

While there may be many unique or unusual features found within the designated Sanctuary boundaries, those pertinent to physical oceanography seem to focus on two very distinctive characteristics: bathymetry and eddy circulation. The bathymetry of the area, bound by Maui, Molokai, Lanai, and Kahoolawe, along with the extension of the shallow Penguin Bank southwest of Molokai, represents a unique, semi-enclosed, shallow protected sea in the midst of an expansive ocean. There is almost no information in the published literature as to the specific characteristics of this interisland area.

General physical oceanographic information on the nearshore environment seaward to the 100-fathom isobath is not available. The oceanographic data for waters on the periphery of the four-islands region outside the 100-fathom isobath is limited and somewhat dated. In the future, it may be useful to have a more detailed bathymetric survey using now available side scan sonar systems. This information, along with sub-bottom profiling, might offer insight into the topography that could influence small-scale current systems, sediment types and transport, and ecosystem characteristics and their relation to the distribution or migration patterns of whales within these shallow waters.

Figure III-12 in the following chapter shows the degree of extension of the 100-fathom isobath on all the main Hawaiian Islands. Significant shelves are found around Niihau and Kaula Rock, northern Kauai, the eastern and western shores of Oahu, and the Big Island, whose shelf is greatest along the northwestern shoreline.

c. Meteorology and Climatology

Although the Hawaiian Islands are at the northern edge of the tropics, they have a subtropical climate due to the cool ocean currents and persistent northeasterly trade winds that occur about 80 percent of the time, a condition that accounts in part for the lower diversity exhibited by Hawaiian coral reefs and associated marine communities, relative to other areas in the Indio-Pacific region (DOC 1983). The average wind velocity is between 10 and 20 knots (kt), but velocities over 20 kt for more than a week are not uncommon (Patzert 1970). Ocean temperatures are less than that of other areas at the same latitude and range from 21°C to 29°C (70°F to 85°F). Occasional periods of southerly, or kona, winds may bring storm events.

Winds blow many miles across the Pacific ocean before reaching the Hawaiian Islands. Rainfall occurs when warm, moisture-laden tradewind air is forced up and over mountain peaks causing condensation of atmospheric moisture. The northeastern sides of the islands (the direction of the prevailing winds) are usually the wettest. As the winds descend the leeward slopes, they become warm and dry, thus making the leeward coasts some of the driest in the State. Southerly winds can also bring rains and, in fact, the more serious storms frequently come from the south. Rainfall exceeding 24 inches in four hours has been recorded (Stearns 1967). Annual rainfall over the State varies from 25 cm (10 in) near leeward shores to almost 1,270 cm (500 in) at Mount Waialeale on Kauai. Maximum precipitation usually occurs between altitudes 600 m and 1,830 m (2,000 ft and 6,000 ft). Precipitation is highly variable, however, and is heavily influenced by local topography and the sheltering effects of adjacent islands. This is particularly noticeable on the islands of Kahoolawe and Lanai, which are relatively low and shielded from the trade winds by other islands. Consequently, these islands are very dry and suffer severe wind erosion problems [Blumenstock and Price 1967, Stearns 1967, Blumenstock and Price 1967, DOC 1991, Hawaii Department of Business, Economic Development, and Tourism (DBEDT) 1990].

The importance of the air-sea interaction is evident in an analysis of the meteorological and oceanographic conditions of the Hawaiian Islands. The islands present a formidable barrier to the northeast trade winds. This is particularly true for the island of Hawaii, which presents a solid barrier of approximately 120 km to the winds (Figure II-2) (Patzert 1970). Alenuihaha Channel, between Maui and Hawaii, is bound by mountains higher than those bounding both sides of the Kauai Channel. The "thickness" of the atmospheric layer in which the trade winds are dominant extends to a height of approximately 1,800 m (Patzert 1970). The relationship between the height of the islands and the elevation of the trade wind flow is clearly demonstrated in Figure II-3. (Patzert 1970). The islands are over 1,000 m above the trade wind layer. The other major islands may also serve as a barrier to the wind, but are below the maximum height of the trade winds.

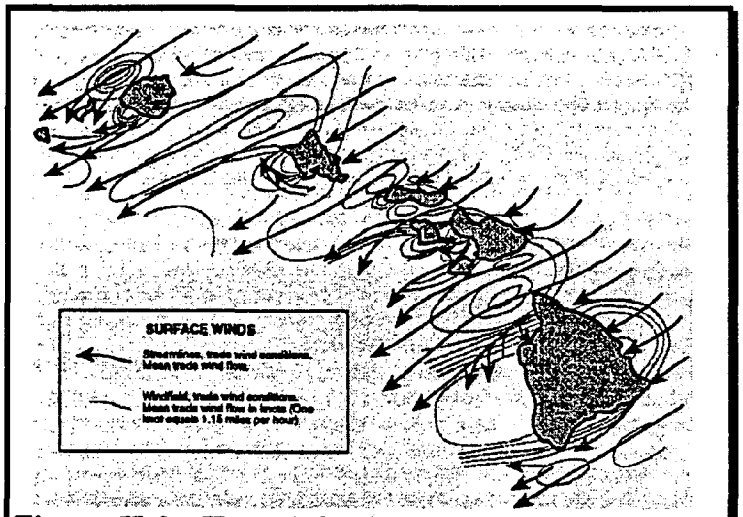


Figure II-2 Hawaii Surface Winds

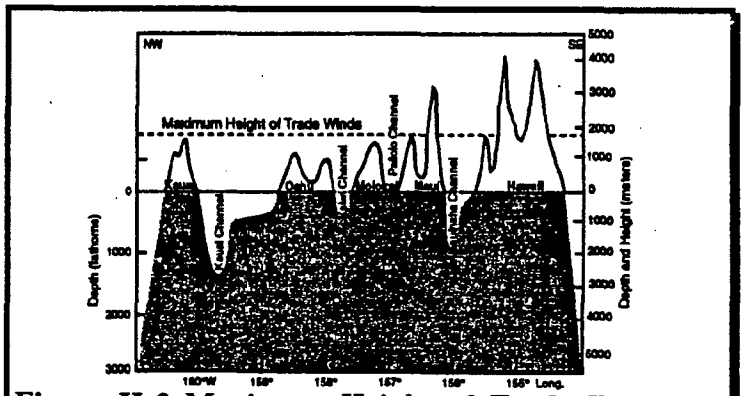


Figure II-3 Maximum Height of Trade Winds

Long-term measurements of winds taken by Honolulu Weather Bureau ship observations clearly show the marked effect on atmospheric circulation imposed by the islands. Wind speeds decrease in the lee of each island, whereas winds in the channels increase in strength. This effect is stronger in the Alenuihaha Channel than in the other channels where velocities of 20 kts to 25 kts

are not uncommon. It has been postulated (Patzert 1970) that the increase in wind velocity is due to the constriction of trade wind flow in the channel by the high mountains on either side, much like the "Venturi effect" of flows through a narrowed opening. Shear effects upon the incident trade winds are also seen in the lee of Hawaii. Cyclonic eddies develop to the north and anticyclonic eddies develop to the south. Atmospheric eddies have been shown to be a permanent feature during trade wind conditions in the lee of Hawaii and may occur in the lee of the other main islands as well, but are likely to be far less intense because the other islands are much lower and smaller than Hawaii.

The presence of atmospheric eddies is also illustrated by the rainfall regime of the Kona coast of Hawaii. As previously mentioned, rainfall throughout most of the islands is considerably greater on exposed windward coasts than on the more protected leeward coasts; however, this is not the case along the leeward coast of Hawaii. Kona receives up to 150 cm/yr (60 in/yr) of precipitation in contrast to other leeward areas that receive less than 50 cm/yr (20 in/yr) (Patzert 1970) because of the blocking effect of the mountains (Mauna Loa in particular) on the trade wind showers. Heavy winds and waves affect boating and vessel activities as well as whale watching during the winter season.

Hours of daylight have been postulated to influence the migration of the humpback whales from polar feeding grounds to tropical calving areas (Dawbin 1977). In Hawaii, there is little variation between the length of the days and nights from one part of the state to another because all the islands lie within a narrow latitudinal band (Blumenstock and Price 1967). Variation in length of day in Honolulu for example, ranges from 13 hr 20 min (without twilight) to 14 hr 10 min (including twilight) at the longest day, and 10 hr 50 min to 11 hr 40 min (with and without twilight) for the shortest day (Blumenstock and Price 1967). This small variation in solar energy from one time of the year to another partially explains the slight changes in seasonal temperatures throughout much of the State. Persistent trade winds are a major factor in moderating the overall climate of the islands.

d. Oceanography

Coastal current measurements off the Hawaiian Islands (Wyrtki et al. 1969; Chave and Miller 1977) suggest a mean velocity less than 20 cm/sec in most cases; however, extreme variability is the rule, not the exception. Water circulation around the islands is driven by a combination of forces including tides, the West Wind Drift, circulation of the Eastern Pacific Gyre, and local wind and eddy systems. The latter have been extensively studied by University of Hawaii oceanographers (Wyrtki et al. 1967; Wyrtki et al. 1969; Wyrtki 1970; Patzert 1970; and Patzert et al. 1970). The main Hawaiian Islands are marked by variable current directions and velocity and the presence of well developed eddies (University of Hawaii, 1983--Figure II-4) with diameters ranging from 50 km to 150 km.

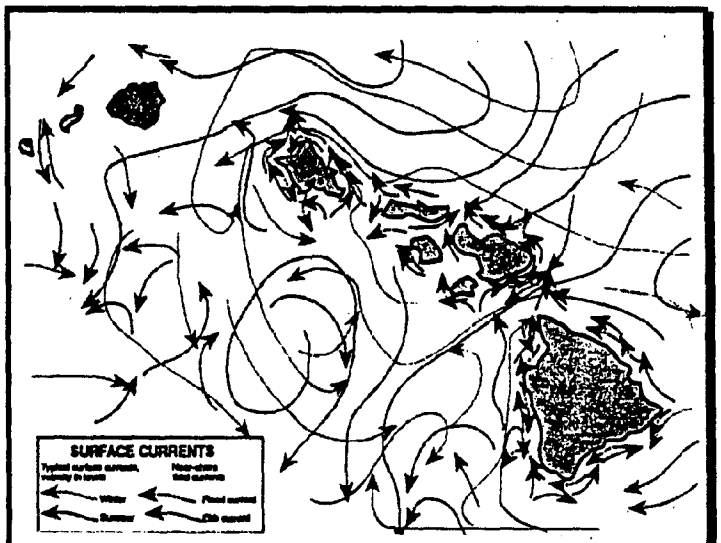


Figure II-4 Hawaii Surface Currents

Most of the eddies are cyclonic (i.e., an anticlockwise spiral) and are present during all seasons. The eddies are relatively shallow and are concentrated in the upper 150 m, well within the depth ranges of the Sanctuary.

Flights with airborne radiation thermometers attempted to map the horizontal distribution and movement of eddies over time by measuring cold spots that form in the center of cyclonic eddies (Figure II-5) (Wyrtki 1970). These measurements identified periods of cooler water between Maui and Kahoolawe (Figure II-6) (Wyrtki 1970); however, it was unclear if these periods were the result of eddies or more likely reflected cool water adverting through the channel between Hawaii and Maui. The nearest to shore that eddies have been measured is 40 km (Patzert 1970). Upwelling has been noted in the central portion of the cyclonic eddies, reflecting a doming character. It should be noted that to date, none of the research on eddies has included the four-island area of the Sanctuary. It is unclear if the eddies persist between the islands or if the wind and resulting current patterns are so modified by the island "shadow-barrier" effects as to eliminate the oceanic component of the eddy close to shore.

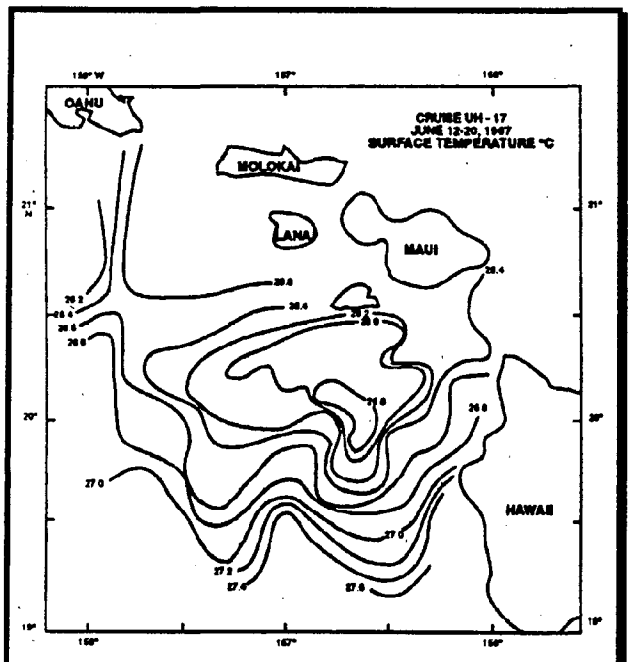


Figure II-5 Sea Surface Temperatures

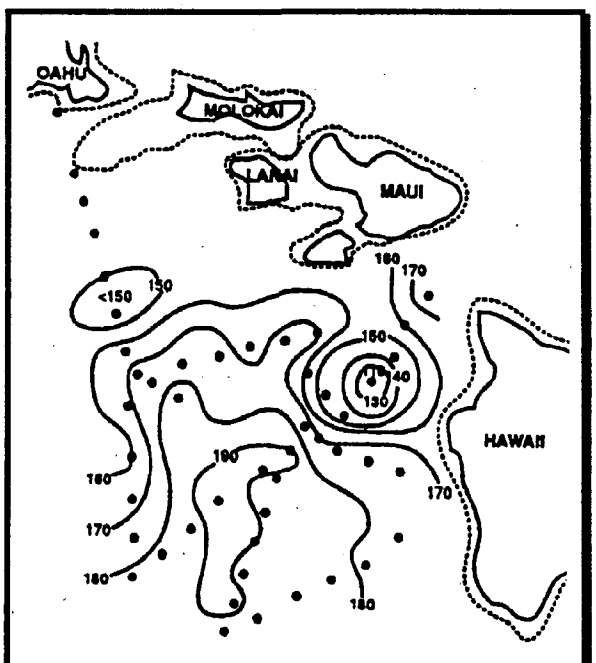


Figure II-6 Depth of 20° isotherm

e. Ocean Chemistry

There are three major water masses around the Hawaiian Islands: the North Pacific Central (NPC), the North Pacific Intermediate, and the Pacific Deep Water (Table II-1) (Sverdrup et al. 1942). Of these, the NPC, which forms the shallow water masses and ranges in depth from 100 m to 300 m, is found within the Sanctuary. This water mass is characterized by temperatures ranging between 10°C and 18°C and salinities of 34.2 percent to 35.2 percent (EPA 1980). The NPC water has the highest salinity of the three, but this is countered by higher temperatures so its relative density is lowest.

TABLE II-1: Major Water Masses of the North Pacific			
Water Mass	*Depth (m)*	*Temperature(°C)*	*Salinity (g/kg)*
North Pacific Central	100-300	18	34.2-35.2
North Pacific Intermediate	300-1,500	10	34.2-34.5
Pacific Deep Water	1,500-bottom	1-2.2	34.6-34.7

Source: U.S. Environmental Protection Agency (EPA), 1980.

According to Patzert (1970), the vertical distribution of salinity between the ocean's surface and 150 m depth, increases slightly to 35.1 percent. The depth of this maximum can vary depending on the presence of a cyclonic eddy when the salinity maximum has been recorded at the surface. This indicates an up-welling of 150 m, completely removing the water of lower salinity at the sea surface.

Variations in Hawaiian surface water temperatures range from a mean minimum of about 21°C (70°F) from January to February to a mean maximum of about 27°C to 28°C (81°F to 82°F) from June to October. Mean monthly maximum and minimum temperatures recorded at Kaneohe, Oahu are illustrated in Table II-2 (Haraguchi, in Hawaii DBEDT 1990). Although these temperatures are likely to differ somewhat from temperatures in the designated Sanctuary, the general monthly trends can be expected to be similar.

TABLE II-2: Hawaiian Water Temperatures by Month		
Month	*Temperature °F* Mean maximum	*Temperature °F* Mean minimum
January	74.7	71.1
February	75.6	70.3
March	76.5	71.8
April	77.7	73.0
May	79.5	74.7
June	81.1	77.7
July	81.1	78.3
August	81.9	79.2
September	81.9	78.4
October	81.1	77.2
November	79.3	74.5
December	75.9	71.4
Annual	78.6	74.8

Source: Hariguchi *in*: DBEDT, 1990.

The depth of the mixed layer varies from 50 m to 140 m (Chave and Miller 1977; Wyrtki et al. 1967). The thermocline extends well beyond 200 m (100 fathoms) and has been reported to extend to depths between 275 m to 365 m in the offshore region (EPA 1980). Stratification is weakest in the winter months and strongest in the summer.

Specific water chemistry data for the Sanctuary area, particularly the inner area between the islands of Lanai, Molokai, Maui, and Kahoolawe, have not been located. However, based on studies conducted in comparable water depths and distances from shore, it is believed that the water chemistry of the outer edge of the Sanctuary is more oceanic than coastal in character. The persistent trade winds, tides, and exceptionally strong currents between and adjacent to the islands encourages maximum mixing and dispersion of nearshore waters. Major inputs from the local land masses are likely to be episodic and may be negligible along the borders of the Sanctuary. General

approximations of the water chemistry based on measurements taken at a nearshore site off Oahu (Chave and Miller 1977), suggest that dissolved oxygen is high, perhaps supersaturated in the surface waters, ranging from 5.4 ml/L at the surface to 5.7 ml/L at 100 m. At 300 m depth off Oahu, these values decreased to 5.0 ml/L. A similar distribution pattern for pH was noted off Oahu, in December, 1976, where values in the surface waters averaged 8.1 and increased to 8.2 between 25 m and 50 m depths. A decrease of 7.9 was noted at 300 m. The pH values were markedly lower at the same site during April 1977. Values of pH averaged 7.6 at the surface, increasing to 7.7 between 100 m and 150 m depth, and then decreased to 7.6 at 400 m. In sea water, pH generally ranges from 7.5 to 8.4.

B. BIOLOGICAL RESOURCES

1. Humpback Whales

The focus of the Hawaiian Islands Humpback Whale National Marine Sanctuary is, as the name suggests, the humpback whale (*Megaptera novaeangliae*), an endangered marine mammal. *Megaptera novaeangliae* (or "long wings" of "New England") elicits a great deal of popular admiration because of its size and long pectoral fins; the fact that it can often be observed from shore or in nearshore areas; its often spectacular aerial displays; and its long, mystical vocalizations that can be heard by divers or acoustical instruments in the water. This section summarizes information about the humpback whale to inform the reader of its characteristics, status and distribution, habitat use, activities which can affect or adversely impact the whale, and management considerations. (A more comprehensive description can be found in Appendix G).

a. Natural History

i. Species description and taxonomy

Humpback whales occur throughout the world in both coastal and open ocean areas. They typically migrate between tropical and sub-tropical latitudes and temperate to polar latitudes. The former areas are occupied during winter months when the whales engage in mating and the females bear their young. Humpback whales are not known to extensively feed in the wintering grounds, although opportunistic feeding has been observed. Polar areas are occupied in the spring, summer, and fall months when feeding occurs.

Prior to commercial whaling, the worldwide population of humpback whales is thought to have been in excess of 125,000. Between 1905 and 1960, intense commercial whaling operations targeted the humpback whale worldwide. In 1966, treaties under the International Whaling Commission (IWC) protected humpback whales from further harvesting by whaling operations. While the exact population numbers on humpback whale abundance and distribution are unknown, humpbacks are probably the fourth most numerically depleted species of the large whale family (following the northern right whale, blue whale, and bowhead whale) [National Marine Fisheries Service (NMFS) 1991]. In 1984, it was estimated that perhaps no more than 10,000 to 12,000, or about 10 percent of the estimated initial worldwide population, existed (Braham 1984). Recent revelations from the Russian President for Ecology and Health, confirming that the Soviet Union was illegally killing thousands of endangered humpbacks and other great whales in the southern Hemisphere and perhaps the North Pacific and North Atlantic during the 1960's after the ban had been in effect, bring further doubt about the world population (Yablokov 1994).

The humpback whale is one of six species listed in the Family of whales known as *Balaenopteridae*. This family is divided into two genera, *Balaenoptera* and *Megaptera*. The genus *Megaptera* includes a single living species, *Megaptera novaeangliae* or Humpback Whale. The distinguishing features which separates this genus from other whales in this family is the presence of unusually long flippers (about 1/3 total body length), a more robust body, fewer throat groves

(14-35), more variable dorsal fin, and utilization of very long (up to 30 minutes), complex, repetitive vocalizations (Payne and McVay 1971) during courtship (NMFS 1991). The name *Megaptera* means "great wing" and refers to the very large flippers of humpback whales. All six species within this family have but four fingers within their flippers; the middle or third finger is missing (Tinker 1988).

The body length of humpback whales may vary somewhat in different geographical areas. The maximum recorded length of a humpback whale was measured at 18 m by Winn and Reichley (1985). The National Marine Mammal Laboratory recorded a mean length for physically mature humpback whales killed off California at 14.5 m or approximately 47.5 ft. (females) and 13.5 m or approximately 44 feet (males) (NMFS 1991). The heaviest humpback whale measured was a 14 m female at 43.9 metric tons (Nishiwaki 1959). The body color of these whales is generally dark above and is characterized by white pigmentation on the flippers, flukes, sides, and ventral surface. Researchers identify individual humpbacks by photographs of the black and white pigment patterns on the underside of the flukes and by individually variable features (NMFS 1991).

ii. Distribution and Zoogeography

Distribution of humpback whales is global, though it is less common in Arctic waters. Seasonal migrations of humpback whales occur between low latitude wintering areas used for mating and calving, and high latitude summer feeding areas (Calambokidis et.al. 1996). There is little evidence that northern and southern hemisphere populations significantly mingle. The populations of the two hemispheres are effectively isolated by patterns of latitudinal seasonal migration associated with feeding (in polar waters) and breeding (in warm low latitudes), which are out of phase by 6 months. However, there is suggestive evidence based on results of biopsy studies which indicate that transoceanic genetic exchange has occurred among North Pacific and Southern Ocean populations of humpback whales based on similarities in mitochondrial DNA sequence (Baker et al. 1993, 1994). In addition, direct observational evidence suggests a possible geographical overlap of southern and northern hemisphere whales in Costa Rican waters (Acevedo and Smultea 1995).

Humpback whales are generally considered to inhabit waters over continental shelves, along the edges of continental shelves, and around some ocean islands and atolls (NMFS 1991). Concentrations of animals occur repeatedly in some areas. In the North Pacific, summer feeding areas include: the Alexander Archipelago, southeast Alaska; Prince William Sound, Alaska; and in the eastern Aleutian Islands and portions of the Bering Sea (Darling and McSweeney 1984). Dohl (1982) reported several hundred animals feeding off central California. Winter areas in the North Pacific include the Bonin, Ryukyu, and Mariana Islands, the main Hawaiian Islands, and along the west coast of Baja California and mainland Mexico, near the offshore area of the Revillagigedo Islands (Rice 1978). In the western North Atlantic humpbacks feed over the continental shelf and along the coast of Iceland, southwestern Greenland; the Newfoundland and Labrador coasts, the Gulf of St. Lawrence and the Gulf of Maine. Feeding areas in the eastern North Atlantic include the British Islands north as far as Bear and Spitsbergen islands and as far east as Novaya Zemlya. The Lesser Antilles, Virgin Islands, Puerto Rico, and the Dominican Republic are wintering areas for the western North Atlantic population. The eastern North Atlantic population winter in areas around the Cape Verde Islands, west Africa to southern Morocco (NMFS 1991). Southern Pacific populations of humpbacks interchange between Antarctic feeding grounds and breeding areas along the coast of western Australia, Queensland, New Caldonia -- Loyalty Islands -- New Hebrides, Fiji and Lau Islands, Tonga, Niue, and the Cook Islands (Winn and Reichlely 1985). Populations of southern Atlantic humpbacks winter in coastal areas of Argentina and Brazil, Angola, Gabon, Sao Tome and Principe (NMFS 1991).

iii. Populations and Subunits

Observations of marked individuals suggest that major oceanic populations of humpbacks are divided into a number of distinct subpopulations which are not separated by obvious geographical barriers (Katona and Beard 1990, Baker et. al 1986 and 1990). At present there is no way to determine how unique and isolated a population must be before it is considered a "stock." Differences in the timing of breeding provide a particularly important criterion for distinguishing between populations of humpbacks in the northern and southern hemispheres because they imply that a barrier exists to gene flow between these two populations (Dizon et al. 1992).

Stocks of whales have been defined by morphological differences of various types: color patterns, body size, shape, and skeletal characteristics. Variation in the coloration of humpback whales has been used to characterize different stocks in the southern hemisphere (Winn and Reichlely 1985). Researchers have reported that some southern hemisphere humpback whales have extensive white lateral coloration. Such extensive white lateral coloration has not been reported for northern hemisphere whales (Nishiwaki 1959, Glockner and Venus 1983).

Morphological differences between two or more populations probably represent underlying genetic differences, and analyses of DNA and morphology should provide similar evidence (Dizon 1990). Observations of continued seasonal return of individual whales identified during their first year of life suggests that fidelity to a specific feeding ground is the result of the calf's early migratory experience (Baker et al. 1987 and 1993, Clapham and Mayo 1987). Matrilineal fidelity within feeding groups may enhance cooperative feeding systems. For humpback whales, cooperation during feeding could be optimized by forming a structured stock in which individuals feed among closely related individuals but breed among distantly related or unrelated individuals (Baker et al. 1986). Patterns of mtDNA and nuclear DNA in North Pacific humpback whales have revealed significant differences, particularly among feeding areas (Calambokidis et al. in press). Significant differences were found in mtDNA halotypes between 38 biopsied whales in southeastern Alaska and 20 from central California, suggesting the genetic exchange rate between California and Alaska to be less than 1 female per generation (Baker et al. 1990 and 1994, Calambokidis et al. in press, Small and Demaster 1995). These results further suggest that population structures among humpback whales appear to be based on matrilinear fidelity to feeding areas.

To facilitate management of humpback whale population units, NMFS (1991) uses the term "stocks" to refer to groups of whales using geographically distinct winter ranges for reproduction; and the term "feeding aggregations" for groups using geographically distinct summer ranges for feeding. Some reproductive stocks appear to be comprised of whales from several feeding aggregations (Baker et. al 1987, Clapham and Mayo 1987, NMFS 1991). Thirteen humpback whale stocks have been identified worldwide (NMFS 1991, Marine Mammal Commission 1995). Four stocks of humpback whales are found seasonally in U.S. waters. These are the western, central, and eastern North Pacific stocks and western North Atlantic stock (Marine Mammal Commission 1995). Figure II-7 (NMFS, 1991) illustrates the different stocks, their preferred summer, wintering, or year around habitats, and general migrations routes.

iv. Habitat Use and Behavior

1) Summering areas -- Feeding

Humpback whales feed while on the summer range, which is usually located over a continental shelf at latitudes between approximately 40° to 75°. Sea surface temperatures may vary between very low temperate conditions 2°C near the edge of pack ice in western Greenland at 64°N to higher temperatures at 21°C about 42°N in Massachusetts Bay (NMFS 1991).

Principal prey species include small schooling fish, such as sand lance, capelin, mackerel, and anchovy, as well as krill. Humpback whales probably feed whenever and wherever suitable sized concentrations of prey are encountered (NMFS 1991).

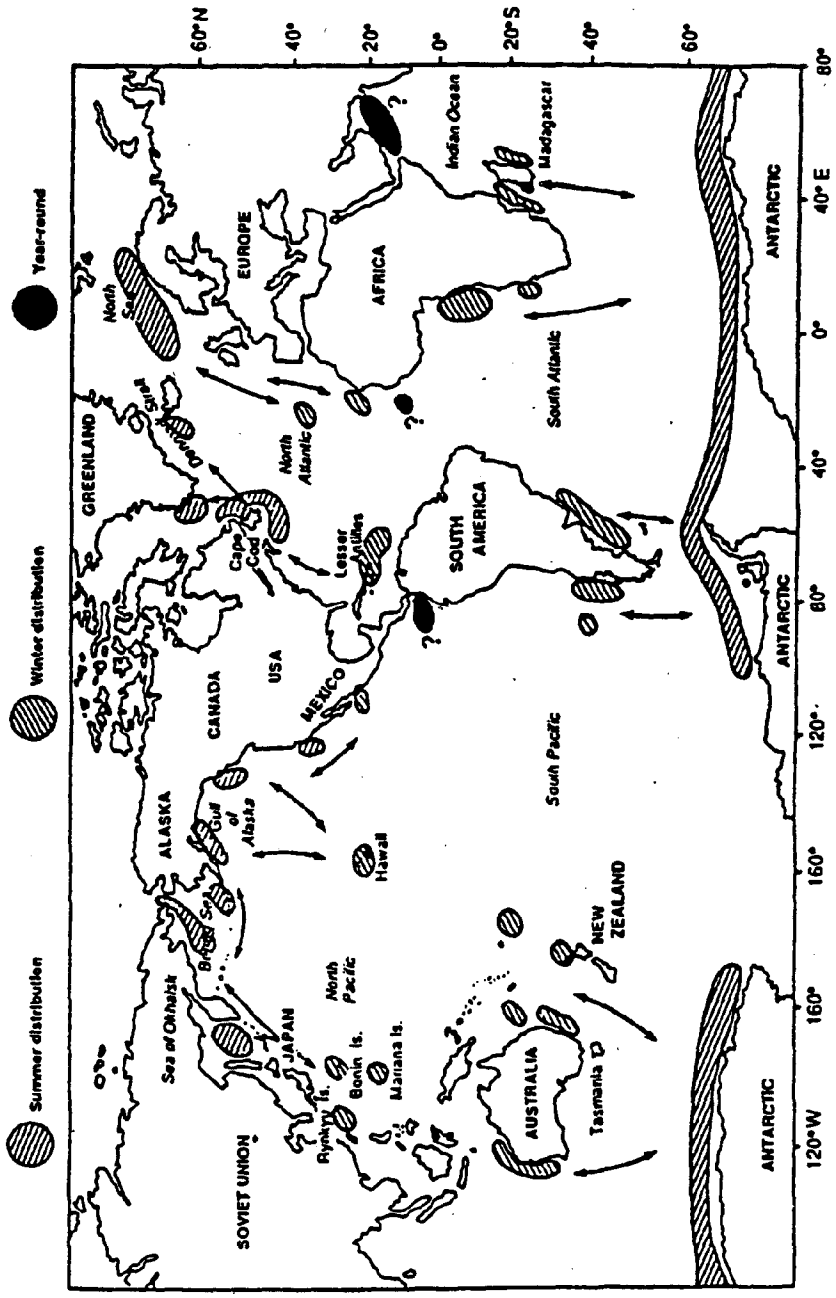


Figure II-7 World-wide distribution of humpback whales (NMFS 1991)

Humpback whales, engage in a wide variety of feeding behaviors. Observations of feeding behavior reported include: bubblenetting (Jurasz and Jurasz 1979, D'vincent et al. 1985, Hain et al. 1995), surface rushes and lunge feeding by humpbacks in the western North Atlantic (Watkins and Schevill 1979), lobtail feeding, and using the water surface as a barrier to prevent the escape of prey (Weinrich et al. 1992). Descriptions of feeding behaviors are usually limited to what can be observed at or near the surface. Hain et al. (1995) described an additional behavior of humpback whales apparently bottom feeding and prey flushing on burrowed northern sand lance in Stellwagen Bank off Massachusetts. It has been suggested (Jurasz and Jurasz 1979, Watkins and Schevill 1979, and Hain et al. 1995) that various prey species or densities elicit different feeding strategies and behaviors. For more mobile and evasive species, or for more efficient feeding in lower densities, more sophisticated methods may be advantageous.

Observations of feeding in wintering areas suggest that feeding may not be entirely confined to so-called feeding grounds. In the northern hemisphere, occasional feeding of humpback whales on known breeding grounds has been reported. In the North Atlantic, in Smana Bay (Dominican Republic), Baraff et al. (1991) reported feeding behavior by a single animal which repeatedly formed bubble clouds and exhibited surface lunges (Gendron and Urban 1993). In the North Pacific, one vertical lunge by a subadult humpback whale was observed off Maui, Hawaii (Salden 1989). A single humpback whale was also observed bubble-net feeding near the surface in the southern portion of the Gulf of California in March 1989 (Gendron and Urban 1993). Observations of juvenile humpback whales feeding near the mouth of Chesapeake Bay was reported during the months of January through March 1991 and 1992 (Swingle et al. 1993). These observations indicate that humpback whales occasionally feed while on their breeding grounds and this opportunistic activity may vary according to locality and food availability.

2) Migrations

Long distance migrations of humpback whales occur seasonally between low latitude wintering areas used for mating and calving and high-latitude feeding areas. Discovery tags used by commercial whalers to mark individual whales provided the first direct evidence of connections between summer and winter assemblages. However, information obtained from the tags were limited and the tags had a tendency to injure or kill the animal (Winn and Reichley 1985). In the western North Atlantic and the central and eastern North Pacific it was noted that individual whales consistently migrate to one of several discrete coastal regions where they feed during the summer and fall. These repeated sightings of photographically identified individuals provided further evidence about the beginning and end points of the migratory destinations of humpback whales (Darling and McSweeney 1984, Baker et. al, 1986, Katona and Beard 1990, and NMFS 1991).

Using observations of peak concentrations of whales along the migratory route, Dawbin (1966), estimated that humpback whales migrate at a rate of 15° latitude (900 nautical miles) per month. Clapham and Matilla (1990) reported migration speeds for two individuals migrating between the Greater Antilles and Massachusetts Bay at a rate of 14.8° and 21° latitude per month.

3) Wintering Areas -- Reproduction

During the winter months humpback whales congregate to give birth and presumably mate in shallow waters near islands and continental coastlines in lower latitudes (usually between about 10° and 35° latitude). Sea surface temperatures in these areas vary from 25°C in waters around Hawaii (Herman 1979, NMFS 1991) to 28° C in the West Indies (NMFS 1991).

Female humpbacks produce one calf on average every 2.4 to 2.8 years (Chittleborough 1965, Baker et. al 1987, Clapham and Mayo 1987). Therefore reproductively active females constitute a limiting resource. Males appear to compete for reproductive access to females in surface active pods. Competition between males appears to escalate from low-level agonistic

threats and displays to high-level agonism involving physical combat (Tyack and Whitehead 1983, Baker and Herman 1984). Social sounds produced during these agonistic pods may function as acoustic threats between males (Tyack 1983, Silber 1986). Juveniles presumably do not participate in reproductive activities until they reach sexual maturity, usually at age 4 to 6 years. Known juveniles have been reported on the outskirts of primarily adult "surface active groups" in breeding areas (Matilla et al. 1989, Swingle et al. 1993). Little information though, exists on the activities of juveniles during this time.

Long complex songs produced primarily by lone, relatively stationary males is a common occurrence on the breeding grounds and is presumed to be a component of the humpback mating system (NMFS 1991, Frankel et al. 1995). The exact function of songs produced by males on the wintering ground is not known.

v. Natural Mortality

A review of literature for the humpback whale recovery plan (NMFS 1991) revealed how little is known about the natural mortality in humpback whale populations. Factors which may contribute to natural mortality include parasites, predation, red tide toxins, and ice entrapment (NMFS 1991). Clapham and Mayo (1987) suggest it is possible that mortality in humpback populations is highest during the time between birth and arrival in high latitudes, and that a calf surviving its first few weeks of life has a relatively good chance of reaching sexual maturity.

b. North Pacific Population of Humpback Whales

i. Use of Feeding and Wintering Areas

In the North Pacific humpback whales feed over the continental shelf and in numerous deep water sounds and channels from California along the Pacific rim to Japan (Jurasz and Jurasz 1979, Darling and McSweeney 1984). The historic summering range of humpback whales in the North Pacific encompasses coastal and inland waters around the Pacific rim from Point Conception, California, north to the Gulf of Alaska and the Bering Sea, and west along the Aleutian Islands to the Kamchatka Peninsula and into the Sea of Okhotsk (Small and Demaster 1995).

Humpback whales in the North Pacific use three primary wintering areas (Rice 1974, Johnson and Wolman 1984). These consist of the waters near Mexico, Hawaii, and Japan. In Mexico, humpback whales winter off the southern tip of Baja, around the Revillagigedo Archipelago, and in coastal areas off mainland Mexico. In Hawaii, humpback whales primarily winter in waters less than 100 fathoms deep around the main Hawaiian Islands (Herman and Antinoja 1977, Rice and Wolman 1978). In Japan, humpback whales utilize areas near the Bonin and Ryukyu Islands (Rice 1978). In addition, Stieger et al. (1991) reported observations of humpback whales wintering off the coast of Costa Rica.

ii. Abundance and Trends

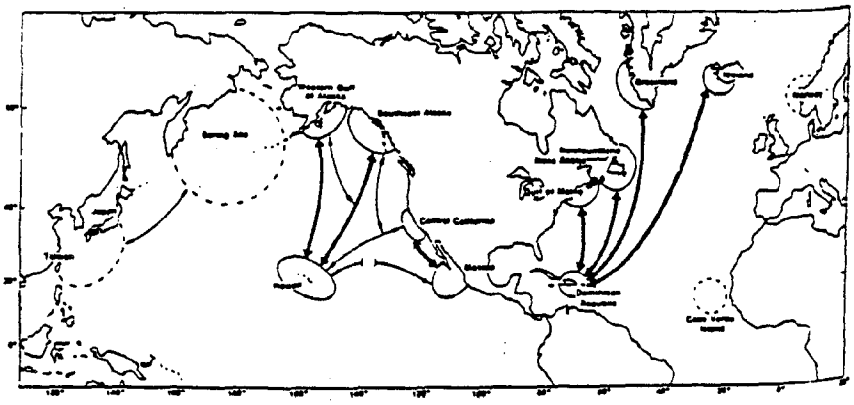
The size of the north Pacific humpback whale population was estimated earlier to be approximately 10 percent of the species' pre-whaling abundance (Rice 1978, Wolman 1978). Prior to the 1970s, most of the information concerning the natural history of humpback whales came from harvested specimens primarily in the southern oceans (e.g., Chittleborough 1954, 1955; Dawbin 1966). During the past two decades the focus of research has shifted to field studies of free-ranging specimens aided by the use of natural markings on the flukes to identify individuals. Analysis of photographs of these natural markings (primarily variations of black and white pigment found on the ventral surface of the flukes) have contributed substantially to the understanding of the population structure, social ecology, and reproductive patterns of this species.

Efforts to estimate the numbers of humpback whales in regions throughout the North Pacific using capture-recapture statistics based on photoidentification is currently underway. However, the current abundance estimate is considered unknown because the stock has been increasing for the past twelve years (Small and Demaster 1995).

iii. Stock Structure

Kellogg (1929), using the observations of early whalers, suggested that humpback whales in the north Pacific were divided into an American and Asian stock. He proposed that the Asian stock wintered in tropical waters south of Japan and traveled north to feeding areas in the Sea of Okhotsk and along the Kamchatka Peninsula. The American stock was thought to breed in the waters off the west coast of Mexico and travel northward along the coast of North America to feeding grounds in the Gulf of Alaska, the Bering Sea, and near the Aleutian Islands. At that time, there was no evidence of exchange between the American and Asian stocks. Recently, however, Darling (1991) reported a resight of a humpback whale seen in the waters surrounding Ogasawara, Japan, as well as the island of Kauai. Recent analyses of humpback whale songs recorded in the wintering grounds off Mexico, Hawaii, and Japan also support the possibility of cross-Pacific exchange (Helweg et al. 1993) since some "themes" (recurring features of song) were found common to all three wintering regions. The Hawaiian wintering grounds were apparently not known to Kellogg, nor to other authors discussing the north Pacific humpback whales (Nishiwaki 1966).

More recent photographic identification data, focused primarily on the habitats in the central and eastern north Pacific, have revealed patterns of exchange between southern wintering areas in Hawaii and Mexico, and northern feeding areas in the waters surrounding the Farallon Islands off the central California coast, southeastern Alaska, and western Gulf of Alaska (Perry et al. 1988). In contrast to migration from winter to summer regions, cases of movement from one summer feeding area to another are rare. Based on these patterns of movement, Baker and others (1986) proposed that humpback whale groups in the north Pacific are best described as "structured stocks" that consist of several feeding herds which intermingle to breed on one or more wintering grounds. The relationship between and among the various stocks of humpback whales has been better elucidated by genetic research conducted over the past 10 years (Small and Demaster 1995; Baker et al., 1994; Calombokidis et al., in press). Figure II-8 illustrates the different stocks, their preferred summer, wintering, or year around habitats, and general migration routes in the North Pacific.



* The migratory destinations and population structure of humpback whales in the North Pacific and western North Atlantic oceans, based on observations of marked individuals. Regions encircled by a solid line are defined by current observations of seasonal return by naturally marked individuals. Regions encircled by a broken line are defined by historical patterns of distribution during periods of commercial whaling. Arrows connect seasonal habitats visited by individually identified whales but do not necessarily indicate migratory routes. Thick arrows connect regions with known strong migratory interchange and thin arrows connect regions with weak migratory interchange. The broken line connecting Hawaii and Mexico indicates the probable presence of an intervening seasonal migration to a feeding ground by individuals sighted on both winter grounds in alternate years (from Baker et al. 1990 and 1993).

Figure II-8 Humpback whale migration routes and population structure

iv. Humpback Whales in Hawaiian Waters

1) Historical Presence

Pacific whalers have sighted humpback whales in Hawaiian waters since the 1840's, but there are no written records (from the Western world) of whales existing in Hawaii before this time. Herman (1979) suggests that humpback whales may have not "arrived" in Hawaiian waters until the mid-1800's. The Native Hawaiian language does not specifically name humpback whales in chants or stories, however, they are known as *kohola* (Pukui and Elbert 1986). Unlike humpbacks, sperm whales (*Physter macrocephalus*), have long been part of Native Hawaiian lore and are called *palaoa*. Only the *alii* (kings) could approach sperm whale carcasses, and the bones were used only by the highest chiefs. Sperm whales never became part of the everyday family gods (*aumakua*), possibly because the whales were too large, and most family gods were relatively the same size as humans. Moreover, whales were never hunted by Native Hawaiians as a major source of food, so their importance in sustaining the culture was less than other species which were utilized. There is a Native Hawaiian chant of creation called the *Kumilipo*, which mentions the *kohola* as one of the creatures that was created.

Over the last 25 years, researchers have noted the tendency for humpback whales to congregate in shallow-water banks and island areas during the winter breeding season (Chittleborough 1965, Herman and Antinoja 1977) with peak abundance occurring approximately between mid-February and mid-March (Baker and Herman 1981, Herman et al. 1980, Forestell and Mobley 1991). Because humpback whales are not known to extensively feed during the winter breeding season (Dawbin 1966, Tomilin 1967), this shallow-water preference is not likely based on prey availability. Other authors have conjectured that: (1) shallow, inshore waters offer greater protection from predators such as sharks, which is of particular concern for calves (Baker 1985); or (2) warmer waters require less of an expenditure of metabolic energy, which is

particularly important during a period of fasting (Brodie 1975). There are relatively large expanses of shallow water (less than 100 fathoms or 600 feet deep) surrounding the main Hawaiian Islands.

2) Reproduction

The social behavior of the whales while in the wintering waters is presumably related to reproduction, since calves are born during the winter season and gonadal activity in both males and females increases in the winter months (Chittleborough 1954, 1955, Nishiwaki 1959). It appears that the mating system is polygynous or promiscuous (Mobley and Herman 1985), characterized by complex acoustic displays (i.e., 'songs'), and vigorous physical competition among males. Female humpbacks generally give birth to a single calf at two- to four-year intervals (Baker et. al 1987, Glockner-Ferrari and Ferrari 1984, Clapham and Mayo 1987), although some females may give birth two years in a row. The calf remains with its mother for approximately one year (Chittleborough 1954). Current rates of neonatal mortality are unknown, but of great importance to assessments of the rate of recovery of the species (Perry et al. 1990). Mother-calf pairs are frequently accompanied by a third whale, an "escort" (Herman and Antinoja 1977). The escorts appear to be consorting with the mother in order to mate with her, and intense aggression among escorts and "intruding" whales has been observed (Tyack and Whitehead 1983, Baker and Herman 1984, Mobley and Herman 1985). Although not all females ovulate post-partum, enough may do so to warrant the attention of males (Herman and Tavolga 1980, Tyack 1983). It is generally difficult to determine the gender of humpback whales in the field, however, in those cases where discrimination has been possible, singers and escorts have proven to be males (Glockner-Ferrari and Ferrari 1984, Baker and Herman 1984).

3) Singing

Long, complex "songs," first identified by Payne and McVay (1971) and by Winn and Winn (1978) are heard throughout the humpback's winter grounds. Singing peaks during the winter months (Helwig 1993). Occasionally, songs are heard in the late fall in high latitudes or along the migratory route (Frankel et al. 1995). Songs consist of a set of themes produced in a consistent sequence (Payne and McVay 1971, Frankel et al. 1995). Within a season, the songs of all singers typically have the same sequence of themes. During the season, the song continuously evolves as new changes are introduced (Payne and Payne 1985). The exact function of songs produced by males on the wintering ground is not known. The singer is normally a lone whale, however some whales sing while in groups (Baker and Herman 1984) and some sing while swimming (Frankel et al. 1989). Singers have also been observed to stop singing and join with cow-calf pairs, and sing while escorting (Tyack 1981, Darling et al. 1983, Frankel et al. 1989, Helweg et al. 1993). Concurrent singing by many whales may be a form of communal display by males (Herman and Tavolga 1980) which, in addition to other functions, may help to synchronize ovulation in females with the presence of mature males (Baker and Herman 1984). Sound-playback experiments have indicated that songs probably function as an advertisement rather than an attractant because playbacks of song rarely produced approach by whales. Other sounds that may indicate the presence of a female (Alaskan feeding call and Hawaiian social sounds) were more likely to cause whales to approach the playback source (Tyack 1983, Mobley et al. 1988).

Current studies of humpback song by Frankel and others (1989) modeled on the procedures developed by Clark, Ellison, and Beeman (1986), utilize a linear array of hydrophones to track vocalizing whales (singers) by their sounds (Frankel et al. 1989). Recent findings from acoustic-array work suggest that the initial distance between singers is one determinant of whether other singers will increase, decrease, or maintain their separation distance (Helweg et al. 1993). These results indicate that maintaining spacing among males is one function of song, as first suggested by Winn and Winn (1978), and that the biologically effective distance of song is approximately 6 km (Frankel et al. 1991). Based on a review of accumulated evidence it has been proposed that a dual function of song is that it serves to establish spacing among individual singers

approximately 6 km (Frankel et. al. 1991). Based on a review of accumulated evidence it has been proposed that a dual function of song is that it serves to establish spacing among individual singers and as a means of advertisement to females (Helweg et. al. 1993). Data collected by Frankel et. al. (1995) using passive acoustic location techniques in combination with more traditional visual techniques to study humpback whale behavior on the wintering grounds of Hawaii, appears to support this hypothesis. The separation distance between singers (mean 5.1 km) was found to be significantly greater than that between nonsinging singletons (mean 2.1 km), supporting the hypothesis that song functions to maintain spacing between singers (Frankel et. al. 1995).

4) Humpback Whale Distribution

Earlier aerial surveys (Herman et. al. 1980, Baker and Herman 1981, Forestell 1989, Mobley and Bauer 1991, Forestell and Mobley 1991) suggested that the majority of humpback whales were found in the shallow waters (<100 fathoms) of the main Hawaiian Islands, though extensive surveys in deeper waters were not conducted. Analyses of pod locations in the four-islands and Penguin Bank regions revealed that whales were not distributed homogeneously throughout the 100-fathom isobath but were generally found in more shallow water (modal depth=27 fathoms) (Forsyth et. al. 1991). More recent surveys have concentrated in waters exceeding 100 fathoms and have found that approximately 74 percent of all humpback whales are found within the 100-fathom isobath (Mobley et. al. 1993) (Figure II-9). The fact that 26 percent of all sightings were in deep waters suggests that past surveys, with efforts concentrated in waters less than 100 fathoms, may have underestimated the number of whales present.

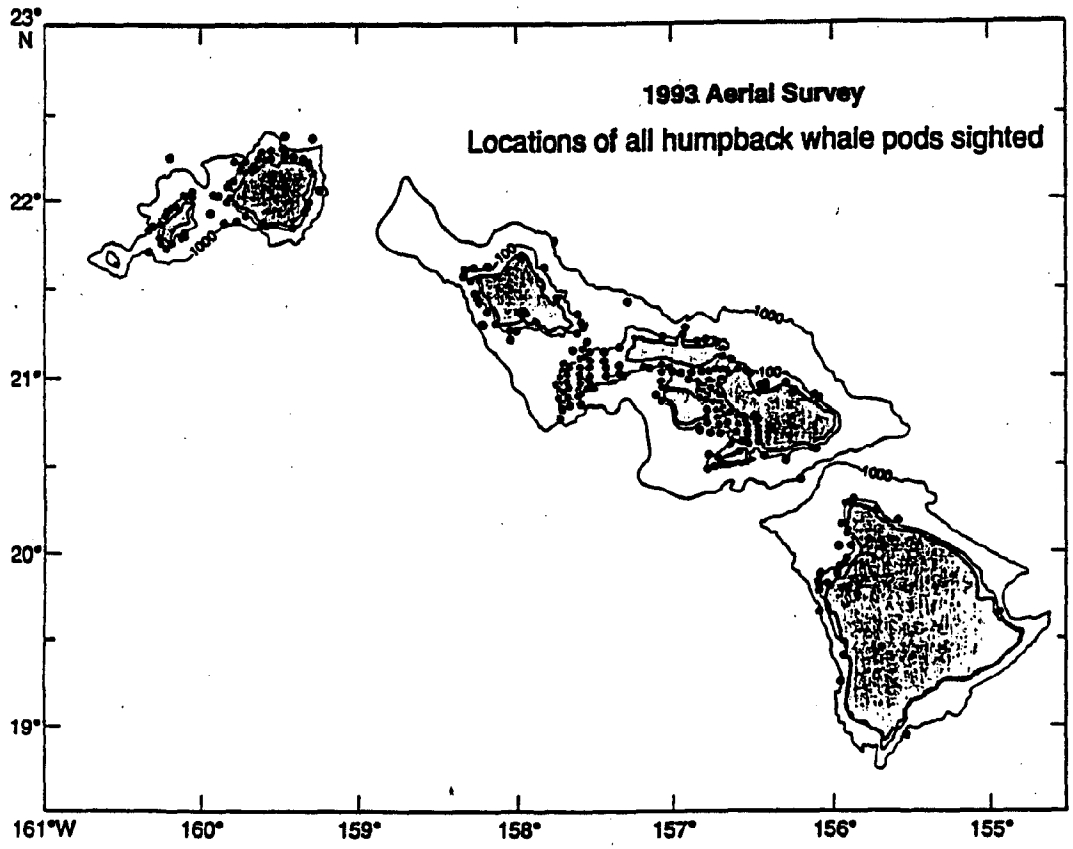


Figure II-9 Results of statewide 1993 humpback whale survey (Mobley et al. 1993)

The earlier surveys (1977-80) showed wintering humpbacks to be concentrated in the waters of the four-islands and Penguin Bank regions (Herman and Antinoja 1977, Herman et al. 1980, Baker and Herman 1981). The majority of pods containing calves were also found in these areas (Figure II-10). Replication of this earlier effort during the 1990 season (Mobley and Bauer 1991) showed that these regions were still preferred by adults and calves, but revealed substantially increased sighting rates around the islands of Niihau and Kauai (Figure II-11). Densities of calf pods around the Kauai/Niihau region remained low, however, with only the Oahu island region lower among the total of five regions. Arranged in order of decreasing sighting rates those islands as follows: Penguin Bank, four-islands region, Kauai/Niihau, Hawaii, and Oahu.

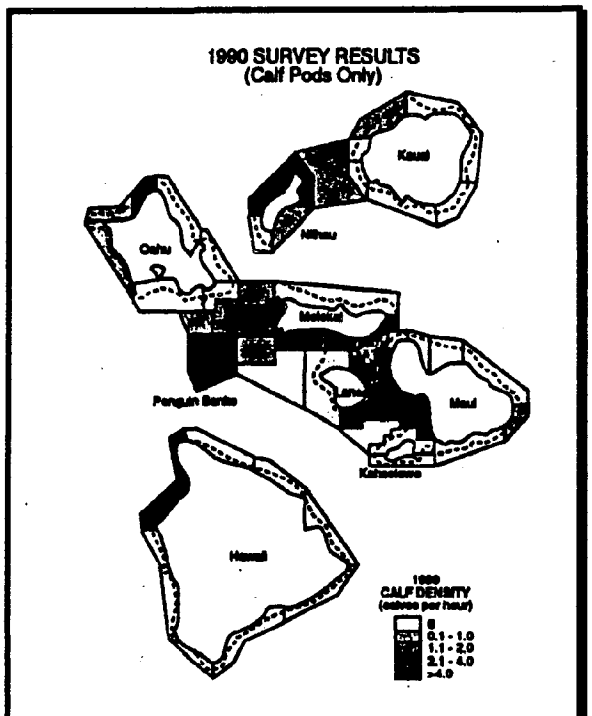


Figure II-10 (Mobley & Bauer 1991)

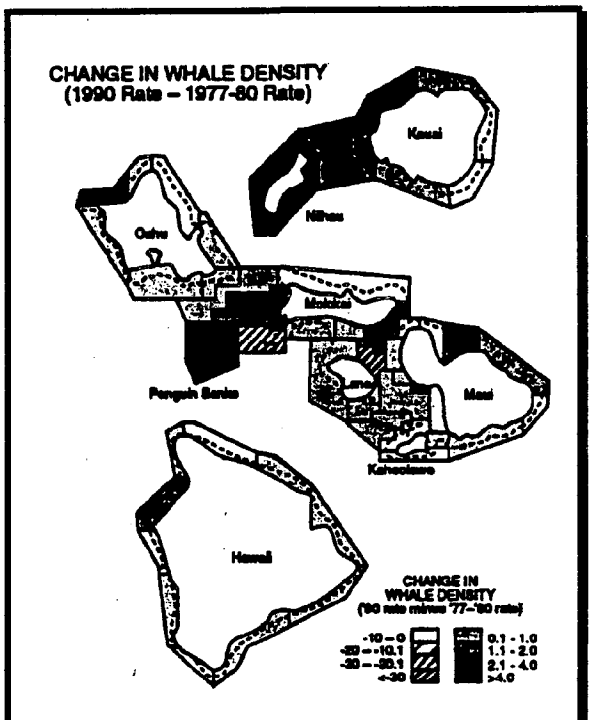


Figure II-11 (Mobley & Bauer 1991)

The 1993 aerial survey results support the findings of earlier surveys with regard to the descriptions of inshore waters as preferred habitat for humpback whales (Herman and Antinoja, 1977, Herman et al. 1980). Figures II-12 through II-15 show all 1993 and 1995 humpback whale sightings by region and by year (Mobley et al. 1996). The number of humpback whale sitings doubled from 1993 to 1995. This difference is more than expected based on the 39% increase in effort during 1995 (primarily in the vicinity around Kahoolawe), and also may be due, in part, to better seastate conditions during the 1995 survey (Mobley pers. comm.). As shown, there is a clear preference for inshore waters less than 100 fathoms in depth, despite more recent efforts to locate whales in deeper waters (Mobley et al., in press). During the 1993 aerial survey, 74 percent of all humpback whale sightings occurred in waters less than 100 fathoms, with only 20 percent of effort within this depth stratum (Mobley et al. 1994). The fact that the remaining 26 percent of humpback whales were found in deeper water suggest that earlier surveys which primarily surveyed waters less than 100 fathoms likely undercounted the wintering population (Mobley et al. 1994). Information on the use of habitat areas within the Hawaiian Islands by humpback whales is described below.

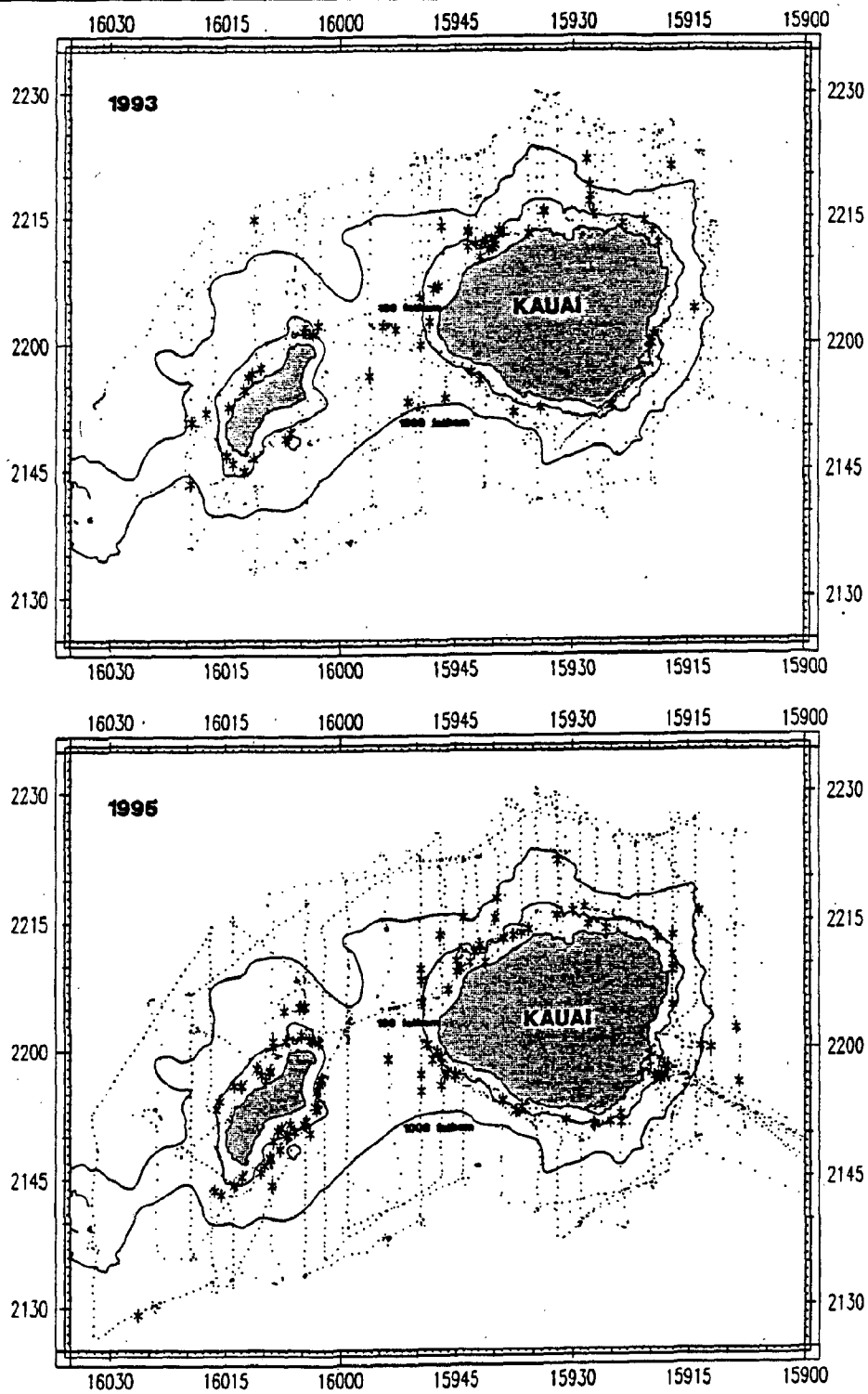


Figure 1. Humpback whale sightings (asterisks) and aerial survey effort (dots) for 1993 and 1995, Kauai area.

Figure II-12 Humpback whale sightings for 1993 and 1995 (Mobley et al. 1996)

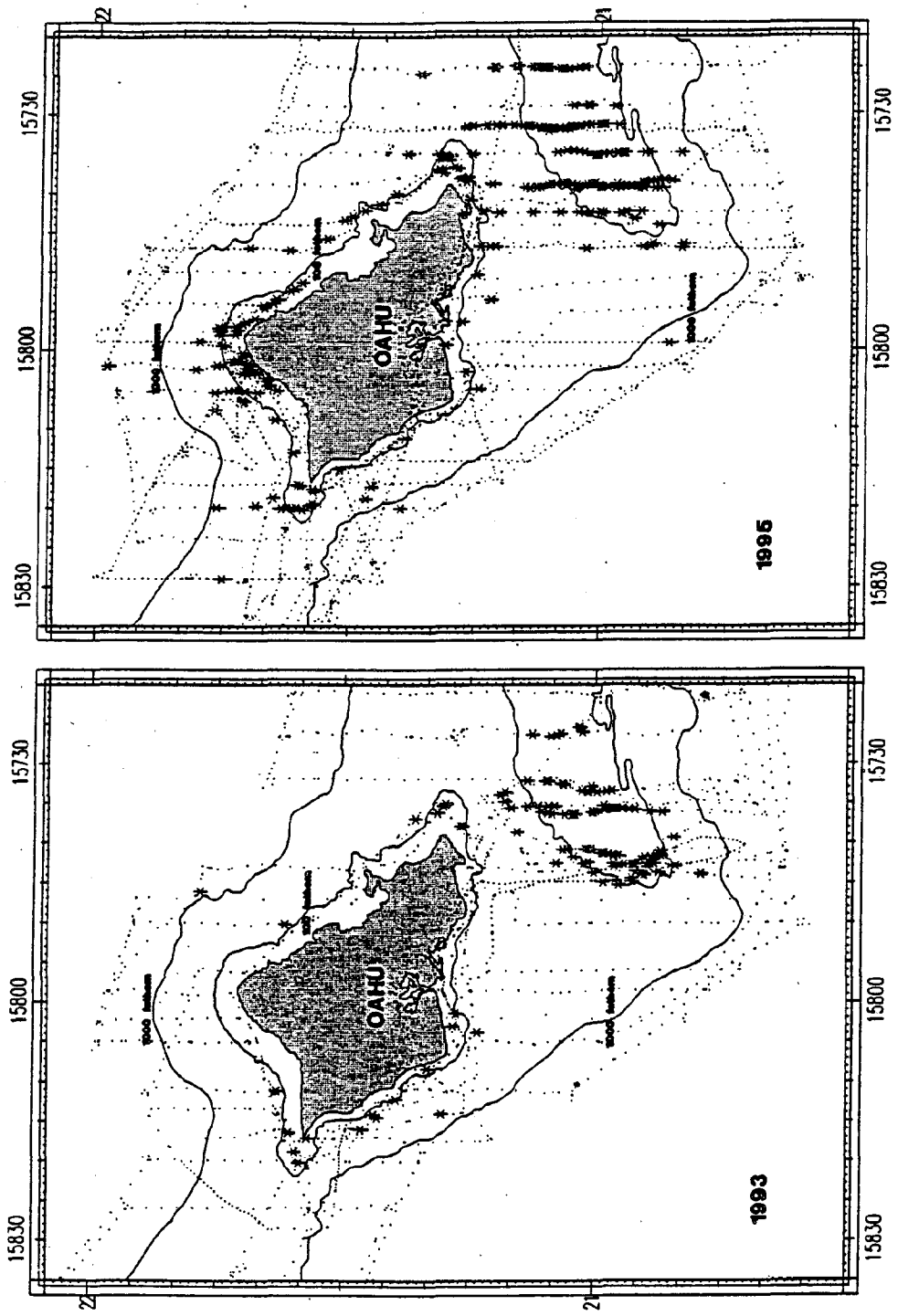


Figure 2. Humpback whale sightings (asterisks) and aerial survey effort (dots) for 1993 and 1995, Oahu area.

Figure II-13 Humpback whale sightings for 1993 and 1995 (Mobley et al. 1996)

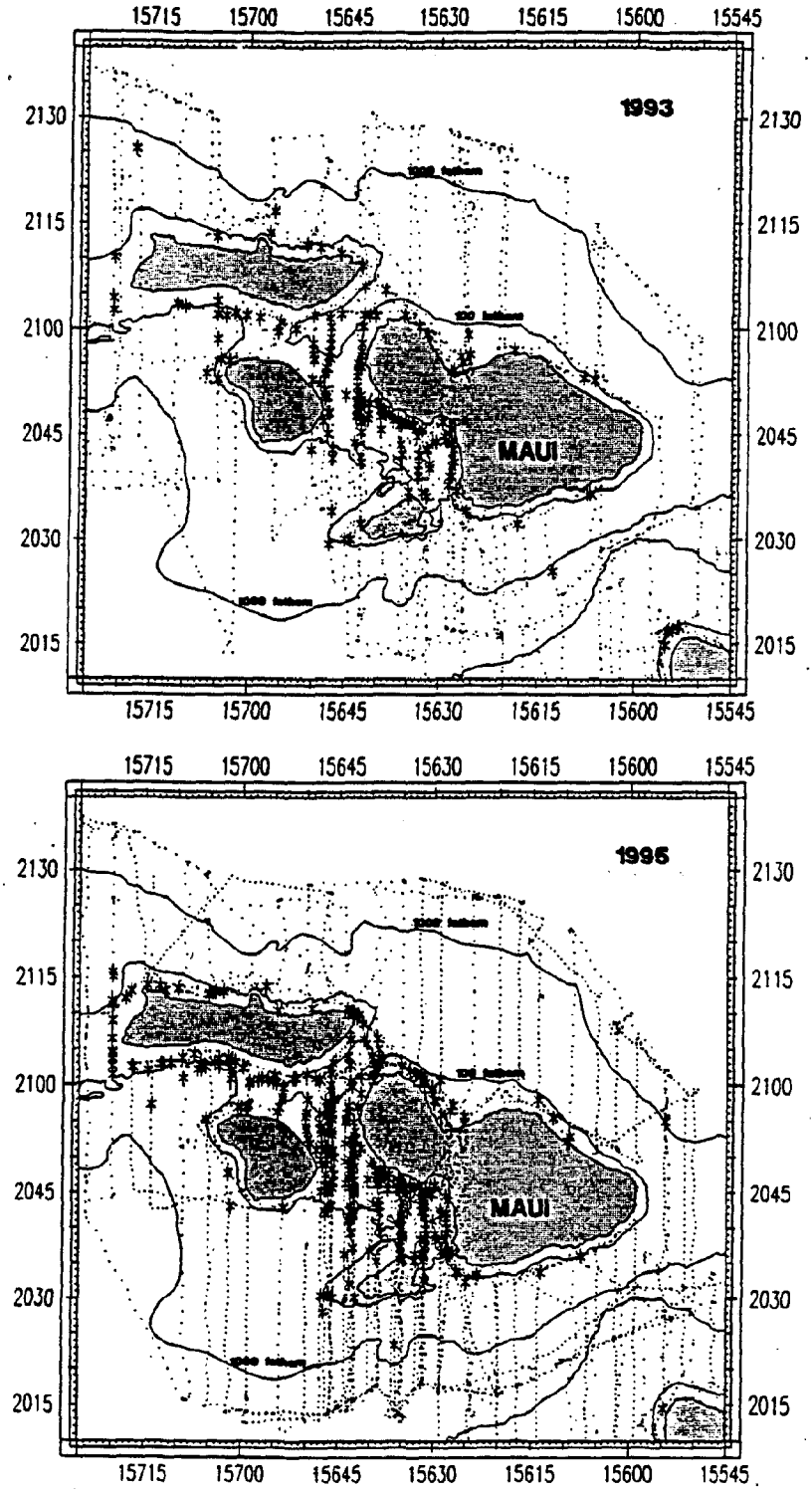


Figure 3. Humpback whale sightings (asterisks) and aerial survey effort (dots) for 1993 and 1995, Four Island area.

Figure II-14 Humpback whale sightings for 1993 and 1995 (Mobley et al. 1996)

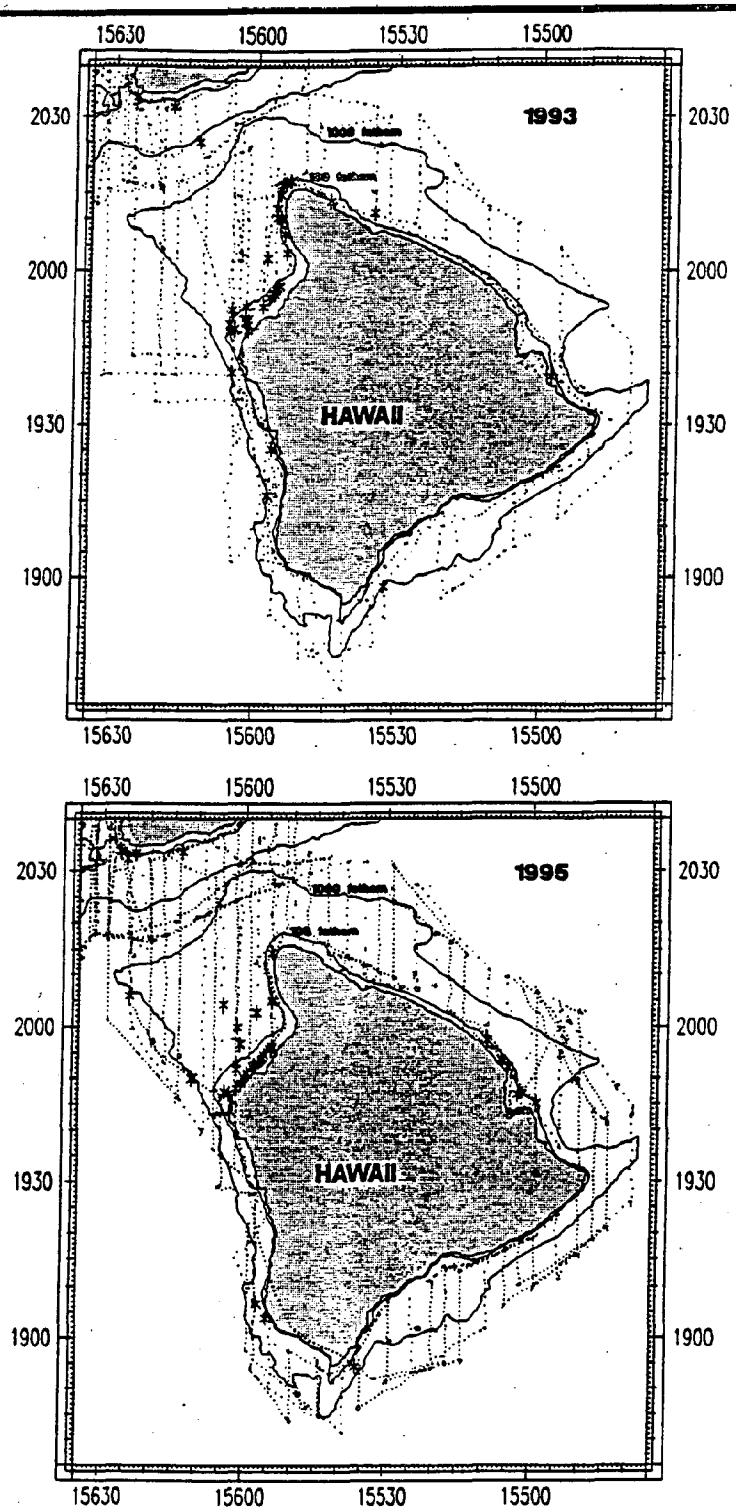


Figure 4. Humpback whale sightings (asterisks) and aerial survey effort (dots) for 1993 and 1995, Big Island area.

Figure II-15 Humpback whale sightings for 1993 and 1995 (Mobley et al. 1996)

5) Humpback Whale Cow-Calf Distribution

Mobley et al. (in press) reports that calves comprised only 5.2 percent of all whales seen in 1993 and 4.5 percent of all whales seen in 1995. This is lower than the typical 7-8 percent reported in previous surveys (Herman and Antinoja 1977, Herman et al. 1980, Mobley and Bauer 1991). During the 1990 aerial surveys, all pods sighted were orbited to determine pod composition. For this reason, the 1990 results provide a more reliable indication of the number of calves present in recent years, as well as the regions preferred by pods with calves (Figure II-10). Of the 361 whale pods observed (where pod composition could be confirmed), 79 (22 percent) contained calves. Sixty-eight percent of all calf pods observed were seen in the four-islands and Penguin Bank regions. Based on these data, Mobley and Bauer (1991) described these regions as preferred calving grounds, probably because of the greater expanses of available shallow water (less than 100-fathoms). During 1993 and 1995 few pods were orbited to confirm pod composition and it is likely that calf pods may have been undercounted during these surveys (Mobley et al. in press) (Tables II-3 and II-4).

Table II-3: Calf Pod Sightings by Survey and Region -- All Sightings (1993)

	Region					
Survey	Kauai/ Niihau	Oahu	Penguin Bank	Four Island	Big Island	Total
1	3	0	0	4	3	10
2	0	0	3	5	0	8
3	1	0	0	3	1	5
4	1	1	6	5	0	13
Totals	5	1	9	17	4	36

Source: 1993 ATOC Report, Page 15.

Table II-4: Calf Pod Sightings by Survey and Region -- All Sightings (1995)

	Region					
Survey	Kauai/ Niihau	Oahu	Penguin Bank	Four Island	Big Island	Total
1	1	0	2	6	2	11
2	3	0	2	16	1	22
3	3	2	4	8	1	18
4	1	5	0	5	1	12
Totals	8	7	8	35	5	63

Source: Mobley, pers. comm.

Note: When density of calf pod sighting is used (whales/nautical mile surveyed) then both Penguin Bank and the Four Island region show the highest density of calf pods (Mobley, pers. comm.).

6) Habitat Use

Humpback whales are coastal species while on their wintering grounds (Herman and Antinoja 1977). Highest densities of whales and calves are typically reported in the four island area (Maui, Molokai, Kahoolawe, and Lanai) and Penguin Bank (Herman and Antinoja 1977, Herman et al. 1980, Baker and Herman 1981). Forsyth et al. (1991) found that whales in the Penguin Bank and Maui regions were located at a mean depth of 51.4 fathoms. Recent aerial survey data showed that 74 percent of all pods were seen in waters less than 100 fathoms deep (Mobley et al. 1993).

Previous studies also suggest humpback cows with a calf appear to predominate in shallow, generally sheltered or coastal water, while adults occur mostly in deeper, more exposed water (Herman et al. 1980, Whitehead and Moore 1982, Matilla and Clapham 1989). Data collected near the Big Island during 1988 and 1989 suggest that temporal and spatial distributions of whales differed with group size and composition (Smultea 1994). During afternoon hours and throughout the day late in the breeding season, groups containing a calf occurred in significantly shallower water and nearer to shore than did groups without a calf. Between-group distances were also found to be significantly greater for groups with a calf than distances between all other groups. These temporal and spatial differences may suggest that adults without a calf may use deep water to facilitate breeding behavior while maternal females may use shallower water to avoid harassment and injury to calves from sexually active males, turbulent offshore or deep sea conditions, or predators (Smultea 1994). Adults may prefer deep water to facilitate surface-active breeding behavior and propagation of song. Frankel et al. (1995) found that 50 percent of singers were located in water deeper than 100 fathoms suggesting that the proportion of singers found in deep water is higher than for other classes of whales. Clapham et al. (1992) reported that mature females, probably estrous, or pre-estrous, can be reliably found in large surface active or combative pods farther offshore than mothers and calves. Therefore, Frankel et al. (1995) suggests that the region frequented by mature females without calves contains the prime singing areas.

Movement of humpback whales among different sub-areas within a wintering ground appears extensive, although the pattern and extent of this movement is unknown for whales wintering off the Hawaiian Islands. Earlier reports from aerial surveys over the islands of Hawaii, Maui, Molokai, Oahu, and Kauai (Baker and Herman 1981) found peak abundance off each island was staggered temporally through the season from Hawaii to Oahu. These studies concluded that whales moved through the islands in a general northwesterly direction starting from the island of Hawaii. However, timing of peak abundance off Kauai was anomalous from the overall trend and appeared to be independent from the other islands. Baker and Herman (1981) suggested that Kauai might therefore represent a semi-isolated sub-population, with the deep 125 mile-wide Kauai Channel acting as a partial barrier between Kauai and the other islands (Cerchio in press). Six individual whales moved from Hawaii to the Maui region and one from Maui to Oahu, supporting a general northwest movement trend (Baker and Herman 1981). Darling and Morowitz (1986) reported five cases of whales moving from Maui to Hawaii, refuting a northwest trend, and presented evidence suggesting that the majority of the population was present off Maui through the peak season. More recent studies of movements of whales between Hawaii and Kauai between 1989 and 1991 photographically identified 1,702 individuals, with 40 individuals being captured off both islands including 15 cases of within-year recaptures (Cerchio et al. 1991, Cerchio in press). Of the 15 documented transits between islands, nine whales traveled northwest from Hawaii to Kauai and six whales traveled southeast, originating off Kauai suggesting a similar degree of movement in both directions (Cerchio in press). More scientific research is needed to determine the extent of inter-island movement in Hawaii.

7) Abundance Estimates

Of the known wintering and summering areas of humpback whales in the north Pacific, the Hawaiian Islands are considered to contain the largest seasonally-resident population. Earlier shipboard surveys of the coastal waters of the Hawaiian Islands by NMFS during the winter seasons of 1976–79 (Rice 1978; Wolman 1978) produced estimates of between 550-790 whales (mean estimate 650). More recently, mark and recapture techniques have been applied to analyses of fluke identification photographs that estimated 1,407 whales (95 percent confidence limits 1,113 and 1,701) as having visited the Hawaiian Islands during a four-year period, from 1980 to 1983 (Baker and Herman 1987; NMFS 1991). Because these estimates were produced using different abundance estimation techniques, they are not directly comparable and, therefore, cannot be relied on to suggest population increase.

Mobley and Bauer (1991), comparing sighting rates of pods seen in the winter seasons of 1977–80 with those seen in 1990 using identical methods, found significant increases across the 10 to 13-year period. The authors concluded that either there had been an increase in the size of the north Pacific population, *or* that a greater proportion of the north Pacific population is wintering in Hawaiian waters.

Aerial surveys performed during the 1991 season by Forestell and Mobley (1991) using modified line transect methods, estimated that 1,584 whales were present in coastal Hawaiian waters on the peak date for that season (Feb. 22, 1991). This survey series, however, was limited primarily to waters within the 100-fathom isobath.

The results of the 1993 survey series yielded an abundance estimate of 669 whales, with a confidence interval of 536-835 (Mobley et al. 1993). This estimate refers to the number of animals that were likely to be at the surface at the time of survey, but does not reflect the number of whales below the surface. Shore station results taken from a sample of over 600 surfacings from the north shore of Kauai [1993 Acoustic Thermometry of Ocean Climate (ATOC) Marine Mammal Research Project, unpublished data] show whales to be at the surface 19 percent of the time. The study estimates the population as roughly 3,000 whales, although this estimate may vary pending more reliable estimates of whale surface time.

c. Known and Potential Impacts to Central North Pacific Stock

Human activities and projects can directly affect humpback whale behavior through physical disturbance, and indirectly through habitat modification by, e.g., reducing the water quality. Scientists generally agree that human activities, in water depths of 60 m to 100 m, can be disruptive to whale behavior (Tinney 1988). The extent of the disturbance depends on the location, type, and frequency of the activity. The scientific community is not in full agreement on the extent of these impacts because there is limited empirical data.

The Humpback Whale Final Recovery Plan (NMFS 1991) notes that the known and potential impacts of human activities on whales in the Pacific include subsistence hunting, incidental entrapment or entanglement in fishing gear, collision with ships, and disturbance or displacement caused by noise and other factors associated with shipping, recreational boating, high-speed thrill craft, whale watching, air traffic, or nearshore or in-shore construction. The report also states that "introduction and/or persistence of pollutants and pathogens from waste disposal; disturbance and/or pollution from oil, gas or other mineral exploration and production; habitat degradation or loss associated with coastal development; and competition with fisheries for prey species..." have negative impacts on whales as well (NMFS 1991).

i. Entrapment and Entanglement in Fishing Gear or Mooring Lines

Impacts of fishing, in terms of competition for prey species, may only be a concern in areas where humpback whales feed, such as Alaska. Entanglement is a less likely conflict in areas where whales are not known to feed such as Hawaii. In Hawaiian waters deeper than 20 m, fishermen do not regularly use large nets. There is no trawling or drift gill netting allowed in Hawaiian waters. As a result, there have been few reported cases in Hawaii of humpback entanglement in fishing nets. Only a few reports of humpback whale entanglements in fishing gear are known (G. Nitta, 1994, pers. comm.). In one case a mother and calf were entangled in a shore-deployed float line. Both were released alive by the U.S. Coast Guard (USCG). Another humpback was recorded entangled in a long line gear north of the Hawaiian Archipelago. Humpback entanglement in mooring buoy lines has been observed in at least two instances. In one case, a humpback whale was found by PMRF staff off Kauai entangled in a mooring buoy, but was cut loose and released unharmed by the Navy. During the 1995 winter season, a juvenile

humpback was cut loose from mooring lines off Kihei, Maui by the USCG. After release, the injured whale remained in the nearshore area and was subsequently attacked and killed by several tiger sharks (G. Nitta and A. Tom, pers. comm.). In 1996, several reports of humpback whale entanglements occured during the whale watch season in the waters off Kauai and the Big Island (A. Tom, pers. Comm.).

ii. Collisions with Ships

As ships get larger and faster, and if the numbers of vessels increase, the incidence of encounters can be expected to increase (NMFS 1991). Glockner-Ferrari and Ferrari (1987) note that the number of physical injuries to calves, juveniles, and adult humpback whales as a result of collisions with boats has increased in Hawaiian waters. It has also been noted that humpbacks seem less likely to react overtly to vessels when actively feeding than when resting or engaged in other activities (Krieger and Wing 1984, 1986). If such whales either accommodate to disturbance (Beach and Weinrich 1989) or pay less attention to ships when actively feeding they would have increased risk of collision. In the spring of 1996, a humpback whale calf was reportedly struck and killed by a unknown vessel off the west Oahu coast (G. Nitta pers. comm.).

iii. Acoustic Disturbance

Noise has also been identified as a potential disturbance to whales (Tinney 1988; Bauer and Herman 1986; Atkins and Swartz 1988). The impact of noise depends on three factors: loudness, frequency (tonal pitch), and continuity (noise changes in frequency or direction). Myberg (1990) stated that the responses of whales to noise in general varied according to ambient noise, ongoing activity, and individual species. Studies in Alaska have shown that erratic noises are particularly disturbing to whales (Tinney 1988).

1) Disturbance and noise from ships, boats, and aircraft.

Scientists have observed whales to avoid low-flying aircraft and surface vessels and areas near dense human habitation or disturbance (Herman et al. 1980; Tinney 1988). Tinney noted that commercial whale-watching, jet skiing, boating, aircraft operations, military activities, and scientific research can all elicit behavioral responses in whales. Responses to overflights by cetaceans may include visually tracking the aircraft and can result in premature diving, swimming away from the disturbance, and adults protecting the young by getting between the disturbance and the calf (Tinney 1988). The avoidance to aircraft and boats can be in response to the noise that boats or aircraft produce or their physical presence or motion. Studies have shown that whales phonate at ranges of 12 Hz to 30 kHz (Tinney 1988). Such a range overlaps with those sounds produced by aircraft and has the potential for masking normal sounds produced by whales. The severity of reaction varies across species and with environmental conditions, such as the depth of water and the wave conditions. The shallower the water, the more likely the sound is going to be reflected from the bottom, and the longer it is propagated and perceived by the whales. At angels greater than 13° from the vertical, much of the incident sound may not be heard underwater, especially in calm conditions or deep water since most will be reflected. Rougher seas provide water surfaces at angles more conducive for sound propagation (Richardson et al. 1995).

Responses of humpback whales to overflights are varied. Shallenberger (1978, in Richardson et al. 1985) has observed disturbances provoked by aircraft circling at 305 m but none at 152 m. The size of the group of whales may be related to the response to an overflight: single whales and small groups showed fewer defensive responses than larger groups (Herman et al. 1980 in Richardson et al 1995). Groups composed of all adults tended to engage in evasive maneuvers while adults surrounded calves in mixed age pods. Defensive behavior included bubble blowing, protective movements by mothers toward calves, and threatening tail movements (Bauer and Herman 1986).

Concern over the impacts of boating activities on whales has been growing since a 1977 report by Wolman and Jurasz. Another study (Herman et al. 1980) indicates that human activities may influence distribution of whales in Hawaii. On rare occasions humpback whales reportedly "charged" toward the boat and "screamed" underwater, apparently as a threat (Payne 1978). Concerns over vessel and whale interaction centers on two questions: (1) what is the immediate response by whales to an approaching boat?, and (2) what are the long term changes to distribution and abundance patterns of the entire whale population from boating activities?

The effects of vessel traffic on whale behavior have been shown directly using shore station observation of whales at varying distances from vessels (Bauer 1986; Baker et al. 1982; Baker et al. 1983), as well as indirectly through demonstrations of negative distributional effects with vessels based on aerial survey results. Bauer (1986), observing whales in the waters off Maui, examined a variety of behavioral variables and found changes in respiration rates, dive times, and general activity levels with increasing proximity of vessels. Baker and others (1982, 1983; Baker and Herman 1989) noted similar responses in southeastern Alaskan waters and showed patterns of "horizontal avoidance" (i.e., faster swimming with fewer dives) when vessels were 2,000 m to 4,000 m away, and "vertical avoidance" (i.e., longer dive times) when vessels were from 0 m to 2000 m away. Although, these studies did not indicate how long these behavioral changes persisted.

Forestell (et al. 1990) states, "there are reliable data which indicate that unpredictable, high-speed movement of any motorized vessel within 0.4 km of whales may cause short-term changes in behavior, such as respiration rate or movement direction". The same study confirms that humpback whales avoid the Lahaina area of Maui, "in all likelihood because of the density of human activity" (Forestell et al. 1990). Several studies in the Hawaiian wintering grounds suggest that mother-calf pairs became proportionately less frequent close to shore when recreational boating was increasing (Glockner-Ferrari and Ferrari 1985, 1990; Salden 1988). Although, these studies were not able to determine whether the link with boats was causal.

Reactions of humpbacks to vessels vary considerably and there is presently no indication that any one type of boat has a greater effect on whales, except possibly large vessels, such as cruise ships (Baker et al. 1983); large military or seismographic vessels (Tyack 1989); or the small and highly maneuverable thrillcraft (Green 1990).

2) Commercial Whale Watching Boats and Research Boats

Since whale watch trips and scientific research trips frequently operate at locations where humpback whales aggregate for feeding or reproduction, it could be feared that such activities might displace whales from important habitat. This does not appear to have happened during more than a decade of intensive commercial whale watching near Cape Cod Bay, Massachusetts (NMFS 1991). Humpbacks remain there for extended periods and return annually, despite exposure to many ships, fishing vessels, and whalewatching boats (Beach and Weinrich 1989; Clapham et al. 1993). Humpbacks that are approached slowly and steadily, following established guidelines for whalewatching, show no "adverse reactions". However, those approached within <30m, or via aggressive boat maneuvers, show various changes in behavior (Richardson et al. 1995). Watkins (1986) noted that humpbacks in this area have become less responsive to vessels since whalewatching became common, but they tend to be silent when near boats. Recently, some humpbacks, mainly young animals have begun to approach slow-moving whalewatch vessels. Some occur in busy shipping lanes, and some are struck by vessels (Richardson et al. 1995). The situation as described above, however, may be different in Hawaii and the cumulative effects of whalewatch boats, scientific research boats, recreational, and commercial boat traffic on humpback whales needs to be assessed. To provide for better protection for humpback whales and to minimize effects of increasing vessel traffic on humpback whales in Hawaiian waters, NMFS

published a interim rule in 1987, under the ESA (52 FR 44912) establishing a 100-yard approach limit for vessels (or people), a 300-yard vessel approach limit in cow/calf areas, and a 1000-foot overflight limit. A final rule was published by NMFS in January 1995 (60 FR 3375) which retained the 100-yard vessel approach limit and 1000-foot overflight limit, but eliminated the cow-calf areas and the 300-yard distance requirement.

3) Noise from Industrial Activities (Construction and Dredging)

Construction activities in the water or at or near the water's edge may cause whales to abandon an area (Shallenberger 1978; Herman 1979). Water-dependent construction activities frequently involve loud noises or vibrations associated with blasting, dredging, and filling which could result in displacement, injury, or mortality of humpback whales (Townsend 1991; NMFS 1991). Turbidity, and the discharge of pollutants or resuspension of other sediments may result from these activities as well. While the actual physical loss of habitat may be small in comparison to the total habitat available, secondary effects associated with harbors, ramps, moorings, and hotels; development of tourism focusing on watching whales; degradation of water quality resulting from increased surface runoff (agricultural, industrial, and residential); and sewage effluent from land and vessels, may likely have irreversible consequences on the distribution and reproductive success of humpback whales (Nitta and Naughton, 1989). These nearshore activities may especially affect cows and newborn calves who may be found in waters less than 10 fathoms deep.

4) Sonars

Ships and larger boats routinely use fathometers, and powerful side-looking sonars are common on many military, fishing, and bottom-survey vessels. Use of active sonars in commercial whaling after World War II often caused strong avoidance by baleen whales (Richardson et al. 1995). The emitted pulses reportedly tended to scare baleen whales to the surface (Reeves 1992). Reactions to 3.3 kHz sonar pulses caused wintering humpbacks whales to move away, and 3.1-to 3.6 kHz sonar sweeps increased swimming speeds and track linearity (Maybaum 1990, 1993). Watkins (1986) states humpback whales often react to sounds at frequencies from 15 Hz to 28 kHz, but not to pingers and sonars at 36 kHz and above. It should be noted that these short-term observations provide no information about long-term effects on whales.

5) Explosions

Underwater explosions are common during marine construction and demolition, and during some military operations. Little is known about behavior of humpback whales near explosions. Recently, humpbacks in a Newfoundland inlet was exposed repeatedly to large explosions in subbottom rock (Richardson et al. 1995). Charge size was usually 200-2000 kg. Humpbacks were common within 10 km of the blast site. Whales ~2 km from the blasts showed no obvious reactions. It is not known whether the nonresponsive whales had habituated before observations, began, or if any of them had suffered hearing damage. However, two dead humpback whales with severe mechanical damage to the ears were found near the blast site. The two whales probably were killed by the blasts, but it is not know how close they were to the explosions.

6) Acoustic Ocean Science Studies

Acoustical oceanographers and other underwater acousticians project nonexplosive low frequency sounds into the sea to study sound propagation and ocean properties affecting propagation. This type of work has been done for many years. Recently, it has become controversial because of the possible effects on marine mammals. Few specific data are available on reactions of marine mammals to these sounds. When low frequency sounds are used for ocean

science research, they are usually projected into the deep sound channel, where propagation is efficient (Richardson et al. 1995). During the Heard Island Feasibility Test in the southern Indian Ocean sighting rates for medium and larger-sized whales, mainly pilot, beaked, and balaenopterid whales were lower during than before transmissions. The transmitted sounds may have elicited avoidance by some whales, especially beaked whales and especially in the area visible from the source vessel itself. Sperm and pilot whales ceased calling within 36 hours after transmissions ended. Some large whales however, remained in the general area during transmissions. Reactions of marine mammals during the low frequency sound transmissions during the Heard Island Feasibility Test were considered inconclusive due to low sample size, lack of statistically significant differences, and inability to determine if whales were reacting to the ships in addition to reacting to the transmitted sounds (Richardson et al. 1995).

More recently, scientists at the Scripps Oceanographic Institute have proposed a new acoustic project called Acoustic Thermometry of Ocean Climate (ATOC) in the Pacific Ocean. The ATOC program involves sending acoustic signals from two transducers, one located in the vicinity of the Pioneer Seamount off the coast of California, and the other to be located off the north shore of Kauai. By receiving these signals at passive listening arrays located around the Pacific Rim, the average temperature of deep-ocean water columns can be calculated. According to scientists at Scripps, if global warming is a reality, the temperature of the ocean will reveal it more reliably than monitoring atmospheric temperature differences. The California ATOC source has been operating since October, 1995, and the Kauai source is scheduled to commence operations sometime this fall. A Marine Mammal Research Program (MMRP) was set up by Scripps to investigate the effects of the low-frequency sounds produced by ATOC on marine mammals. The purpose of the ATOC MMRP, designed to be independent of the ATOC project, is to determine: a) the baseline abundance, distribution and behavior of marine mammals in the vicinity of the ATOC source (with special focus on endangered humpback whales); and b) whether the ATOC transmissions produce any changes in these parameters. The ATOC MMRP has brought together some of the most experienced marine mammal scientists in the country to focus on these assessments. Research will be carried out for the next several years. These studies should provide important data on the effects of low-frequency noise on marine mammals.

v. Habitat Degradation

1) Chemical pollution (point and non-point)

The overall impact of pollution on habitats used by humpback whale is not known. Water quality degradation resulting from increased sewage effluent (containing toxic materials or daughter products from pesticides, heavy metals or chlorines), pollutants (toxins, heavy metals, pesticides, pathogens) associated with surface runoff (agriculture, industrial, and residential), and the leaching of vessel hull anti-fouling compounds in enclosed harbors (e.g., tributyltin) may adversely affect the distribution and physical well-being of humpback whales using nearshore waters (Nitta and Naughton 1989). These pollutants, in high enough concentrations, may affect the health of the whales (UH Sea Grant, 1994). Untreated sewage dumped from vessel holding tanks and pumped from municipal outfall during periods of overflow, such as storms and plant malfunctions, are sources of many infectious agents, viral, bacterial, and mycotic, to which cetaceans have shown a definite susceptibility (Dailey, 1985). Although specific data from Hawaii are absent, concentrations of organochlorine pesticides, heavy metals, and PCB's have been reported in humpback whale tissues from Canadian, United States, and Caribbean waters (Taruski et al., 1975). In addition to the Humpback Whale Recovery Plan, other researchers agree that pollution from ships or shore can be a problem for whales (Tinney 1988). Additional concerns include pollution from cruise ships, military activities, use of driftnets, development of geothermal energy, sand mining activities, and development of harbors and resort facilities (Forestell et al. 1990).

2) Habitat Disturbance

Scientific studies have indicated some general tendencies of whales to avoid areas of dense human habitation, such as Oahu, and the area of Maui around Lahaina. (Herman et al. 1980 and Forestell and Brown, 1992). The surveys of Herman, Forestell, and Antinoja (1980) also showed sudden decreases in whale density for the waters off Lahaina Roadstead, an area of heavy vessel utilization. Forestell (1989) noted the same negative distributional trend for the Lahaina area as well as the waters adjoining the Keawakapu boat ramp on the Kihei coast of Maui during the 1985 breeding season.

Comparisons between earlier aerial surveys (1977–80) with those of 1990 offer mixed evidence regarding vessel effects (Mobley and Bauer 1991). Sighting rates (number of whales/hour of survey) increased in the majority of subregions examined across the 10- to 13-year period, including those areas previously described as showing negative distributional effects (waters off Lahaina and Kaanapali); however, those regions showing the greatest increases from the 1977–80 to the 1990 surveys were all characterized as leeward areas with low levels of vessel traffic (Mobley and Bauer 1991). Mobley and Bauer hypothesized a "spill over" effect into these less utilized coastal regions, suggesting that densities of whales in the four-islands and Penguin Bank regions had reached some threshold level and whales were moving into other waters with less traffic. It should be emphasized that factors other than vessels may account for these recent distributional changes. A more comprehensive research study determining the impacts of vessel and vessel traffic on humpback whales will be a priority area during the implementation of the Sanctuary Management Plan.

Aerial survey data from Forestell and others (1985) and Forestell (1989) indicate that "human impact on distribution patterns appeared to be highly localized, dynamic, and reversible." Forestell, et al. (1990) suggest that all boats operating regularly between Maui and Lanai are essentially the same from a whale's perspective. There is no evidence that the whales differentiate between a whale watch boat, a charter fishing boat, a privately owned recreational boat, or a parasail boat. Any of these types of boats can bother a whale, and any of them may be ignored by a whale. What the boat is doing, and how many of them there are, is probably more important than what kind of boat it is (Bauer and Herman 1986).

The authors also suggest that because whales move throughout the nearshore waters of the main Hawaiian Islands and humans engage in such a wide variety of activities in these same waters, there is a "complex and dynamic set of interactions [that] requires a comprehensive, state-wide monitoring and management plan" (Forestell et al. 1990).

In summary, scientific opinion and evidence suggest that human activities that could affect humpback whale behavior and whale habitat include entanglement in fishing nets and long lines (which are not applicable in Hawaii); noise from vessels, aircraft, and construction projects; shipping; disturbance from recreational boating, tour-boating, jet skiing, parasailing; degradation to the water quality from waste disposal and non-point source pollution from coastal development; and by the physical loss of habitat or activities that may cause whales to abandon their habitat and/or interfere with reproductive behaviors in Hawaii. For most of these activities, additional monitoring and research would be required before determinations could be made on the degree of impact on whales from such activities and any management schemes that would be necessary to help minimize the conflicts and impacts.

d. Protection, Legislation, and Management

Humpback whales first received protection in 1966 when the International Whaling Commission placed a moratorium on all commercial whaling. In addition, all marine mammals within the U.S. and territorial waters are currently protected by the Marine Mammal Protection Act

of 1972 (MMPA), as amended. The MMPA established a moratorium, with certain exceptions, on the taking of marine mammals in the U.S. waters and by U.S. citizens on the high seas, and on the importing of marine mammals and marine mammal products into the United States. NOAA's National Marine Fisheries Service (NMFS) is charged with the interpretation and administration of this act. Humpback whales are also protected by the Endangered Species Act of 1973 (ESA), as amended. NMFS is also the primary resource agency charged with administration of the ESA for marine species, and in 1991 released the Humpback Whale Recovery Plan pursuant to the ESA. The Recovery Plan established specific objectives for the conservation and recovery of humpback whales in U.S. waters. Humpbacks are further protected in Hawaiian waters by Federal and State anti-harassment regulations, enforced by NMFS (Federal Register 1987, amended by MMPA 1994, and HAR Title 13, Subtitle 11, §244-40) and the State of Hawaii. These regulations established a minimum approach distance of 100 yards for all Hawaiian waters. Violators are subject to fines or imprisonment or both.

2. Other Marine Resources of Hawaii

While humpback whales and their habitat are the only designated Sanctuary resources at this time, the HINMSA requires that the Sanctuary provide for the identification of marine resources and ecosystems of national significance for possible inclusion in the Sanctuary (see Part III - Alternatives and Part V for the process of considering other resources). Section 2302 of the HINMSA contains three findings pertaining to other marine resources: (1) the Western Pacific region has many resources of national significance and importance; (2) Hawaii's marine subtropical ecosystem is diverse and unique; and (3) the Sanctuary, designated for the conservation and management of the humpback whales and their habitat, could be expanded to include other resources of national significance which may exist within the Sanctuary. Recommendations received from the public at meetings concerning other marine resources have ranged from not including any more resources to including all small cetacean species (dolphins); false killer and pilot whales; sea turtles; Hawaiian monk seals; nearshore and offshore coral reef systems; sea birds; large shark species; invertebrates; areas of natural beauty (Na Pali Coast); culturally important areas; historically and anthropologically significant areas; and the entire marine ecosystem. The following section describes some of the marine resources in Hawaii. This section is intended to merely describe some of Hawaii's other marine resources that can be found in the Sanctuary and serve as a list of species proposed for future inclusion in the Sanctuary.

a. General Information

The Hawaiian Islands are one of the most remote group of islands in the world. This isolation has played a major role in the development of the archipelago's shallow marine communities. The origin of most Hawaiian inshore marine species is the Indo-West Pacific Faunal Region (Gosline and Brock 1960; Maragos 1977; Kay 1979; Bailey-Brock 1987), the center of which is in the region of the Malaysian Peninsula and the Philippine Islands. With distance and isolation from this source, many species common elsewhere on Central Pacific reefs are absent in Hawaii. This reduction or attenuation in species with distance from the source has resulted in a proliferation of species (i.e., endemics) in many of the taxa that have successfully colonized the islands (Zimmerman 1948). Some groups such as the reef fishes are represented by a large percentage (29 percent) of endemic species (Gosline 1955; Randall 1987). Briggs (1974) attributes the high degree of endemism among marine organisms in Hawaiian waters to a long, stable climatic history as well as to the considerable geographic isolation. Endemism in the Hawaiian marine fauna is almost entirely restricted to the species and subspecies level of the taxonomic hierarchy (Kay 1977). Endemic species comprise about 20 percent of the mollusks (Kay 1967), 20 percent of the shallow-water asteroids and ophiuroids (Ely 1942) and 40 percent of the Alpheid shrimps (Banner and Banner manuscript).

Because of the isolation and northerly geographic setting (resulting in relatively low water temperatures), the shallow Hawaiian marine fauna is considered to be relatively low in species diversity as compared to other tropical areas in the Pacific. There are about 450 species of inshore fishes (Gosline and Brock 1960; Randall 1980) and 40 species of 58 corals (Maragos 1977) in Hawaiian waters. Many of the shallow-water invertebrates have a greater diversity of species; the Mollusca are represented by about 1,000 species (Kay 1979), the Polychaeta by about 243 species (Bailey-Brock 1987) and the Bryozoa by about 200 species (Soule et al. 1987).

Comparison of the number of shallow-water species of corals, mollusks, echinoderms, and fishes recorded from Hawaii with those found in other island groups to the south of the Hawaiian Islands illustrates the attenuation. In Hawaii, there are 15 genera of corals compared to 53 genera in the Federated States of Micronesia (Maragos 1977). Kay (1967) records about 1,000 species of mollusks in Hawaii and 2,500 species in the Ryukyu Islands, 90 echinoderms are known from Hawaii and 345 from the Philippines (Clark and Rowe 1971), 450 species of fishes are known from Hawaiian inshore waters, and over 1,000 species from shallow-water habitats in the Federated States of Micronesia and vicinity (Myers 1989).

In general, benthic marine habitats are considered in three distinctive zones: littoral, sublittoral, and the deep sea. The littoral zone is often subdivided into a littoral fringe where marine and terrestrial organisms co-exist but marine forms dominate, and the eulittoral zone where marine species adapted to or requiring alternating conditions of submersion and emersion are found (Lewis 1964). In the Hawaiian Islands, the tidal range is only about 1 m; thus, the eulittoral zone is not usually very extensive. Impinging waves may modify the extent of the eulittoral zone by effectively submerging shoreline areas that are usually above the high-water mark thereby obscuring otherwise clear zonation.

b. Nearshore Ecosystems

Hawaii's nearshore environment is divided into shoreline and subtidal ecosystems.

i. Shoreline Ecosystems

The littoral fringe is that area of the shoreline fringed by the seaward edge of maritime vegetation, composed in Hawaii primarily of naupaka (*Scaevola*), hau (*Hibiscus*) and sea heliotrope (*Messerschmidia*). The zone is above the reach of the waves and tides but is markedly affected by salt spray. Two regions are distinguishable: an upper region that is often localized in occurrence and characterized by broken limestone or basalt boulders, and a lower region of more or less continuous rocky substrate of cemented limestone or basalt (Emery and Cox 1956). In the upper region where boulders are covered by a canopy of maritime vegetation and the undersides are characterized by conditions of high humidity, at least six species of mollusks and one isopod are commonly found. Seaward of the boulder region the shoreline is dominated by two littorine species, one of which is from the Indo-West Pacific and the other is endemic to Hawaii. Both of these species require access to the ocean in order to complete their life cycles. Just seaward of this, but above the reach of the waves, a common nerite (pipipi, *Nerita picea*) and two grapsid crab species are found.

Where basalt outcrops extend seaward from the shore, extensive areas of water-leveled benches, vertical cliff faces, and boulder beaches are prominent features of the coastline on all the high islands. The shoreward portions of benches and beaches are part of the littoral fringe, but the seaward sections are alternately exposed and immersed by tides twice daily and scoured by waves seasonally. On basalt benches the highest level of wave action is marked by a line of the alga akiaki (*Ahnfeltia concinna*). Below the *Ahnfeltia* is a variety of frondose algae that covers the substratum with increasing density on approaching the sea. This section is, in turn, succeeded seaward by a broad band of pink coralline algae (*Porolithon*), and the interface between the shore and the sea is

marked by a mix of other algal species. The dominant mollusks seaward of the akiaki are the opihi (*Cellana exarata*), and in the *Porolithon* zone the larger yellow-foot opihi, *Cellana sandwicensis* are found as well as the single urchin, *Colobocentrotus atratus*. The frontal slope of the substratum is riddled with borings from sea urchins (*Echinometra oblongata* and *E. mathaei*) as well as from a number of mollusks. Two species of blennies (including the paoo or *Istiblennius zebra*) are found in this habitat.

The pattern described represents the broadest expression of eulittoral zonation found in Hawaii, and it is variously modified on vertical cliff faces, and in sheltered coves and bays. On vertical cliff faces, the *Ahnfeltia* zone and the succeeding frondose algal zone are absent, with the littorines and nerites of the littoral fringe merging directly into the *Porolithon*-encrusted zone. In sheltered coves and bays, especially where there are intrusions of brackish ground water, the Native Hawaiian oyster (*Ostrea sandvicensis*) will encrust vertical surfaces between the littoral fringe and the subtidal. Where sufficient coverage of water occurs, there is an assemblage of fishes that forage over this substrate including herbivores such as the amaama or mullet (*Mugil cephalus*), the kupipi (*Abudefduf sordidus*), carnivores such as the papio (various species of the family Carangidae), aholehole (*Kuhlia sandvicensis*) and a number of wrasses or hinaleas (Labridae).

Calcareous or carbonate shorelines are dominant features of the coastlines of all the major islands except Hawaii. Solution benches are one form of the calcareous or carbonate shoreline. Topographically, solution benches resemble atoll reef flats, consisting of sea level platforms extending from 1 m to 30 m seaward from the shore. The benches are separated from shore by a raised, sharply pitted limestone zone and a nip (an indentation at the base of the vertical section). Seaward of the nip, the flat-topped surface is densely matted with an algal turf. At the sloping outer edge, calcareous algae and to a lesser extent, corals, contribute to the structure of the bench. Because of its height above sea level, the surface of the bench may be exposed at low spring tides for periods of as long as four hours.

The biota of calcareous shorelines is distinguished from that of basalt shorelines by its cover of thick algal turf. In and among the turf are numerous small invertebrates including polychaete worms, mollusks (cones, cowries, miters) and sea urchins. Both the flora and fauna are conspicuously zoned. The pools of the pitted zone, which are in effect the littoral fringe, are inhabited by small littorines and fishes including the paoo (*Istiblennius zebra*) as well as juveniles of several fish species (mamo - *Abudefduf abdominalis*, kupipi - *A. sordidus*, aholehole - *Kuhlia sandvicensis*). In deeper depressions on the bench that permanently hold water, a much greater diversity of invertebrates and fishes will be found.

Tide pools occur on sea level basalt outcrops, some are formed by depressions in the water-leveled benches, and others are formed by massive boulders fronting the sea and on the benches of calcareous shorelines. Physical conditions in marine pools vary with exposure to the sea. Tide pools that are farthest from the sea undergo striking variations in temperature and salinity, whereas those at the seaward edge exhibit essentially marine conditions. The most exposed pools are characterized by sand substrates bound by cyano-bacterial mats. Few marine species are found here because of the extreme conditions; among those present, however, are several species of mollusks, crabs, and fishes. Seaward pools are progressively more densely turfed with a variety of algae, and the diversity of mollusks, polychaetes, crustaceans, echinoderms, and fishes increases. Many of these seaward pools serve as a nursery habitat for a number of marine fishes including the aholehole (*Kuhlia sandvicensis*), the mamo (*Abudefduf abdominalis*), kupipi (*A. sordidus*), manini *Acanthurus triostegus*), and kumu (*Parupeneus porphyreus*).

Sandy beaches form another distinctive shoreline in the high islands. In general, sandy shorelines are characterized as low, sloping beaches backed by a wall or raised coral platform. Sand is composed of calcareous remnants from foraminifera, mollusk shells, echinoderm, and

coralline algal fragments except on Hawaii, where beaches are composed of black sand and olivine (Moberly *et al.* 1965).

Hawaiian beaches may be subdivided into three zones: (1) an upper beach including the vegetation line; (2) a mid-beach between the high-tide line and the vegetation line, its extent dependent on slope and tide; and (3) the lower beach that is continuously awash by waves. The biota of sandy beaches is associated with both sand grain size and beach slope. The biota of the upper beach is characterized by amphipods, isopods, and ghost crabs which burrow in the area (Fellows 1966). Ghost crabs are also found in the mid beach slope area and the lower beach slope is characterized by the mole crab (*Hippa pacifica*), spionid polychaetes and four species of the gastropods (*Terebra* spp.; Miller 1970).

Fronting many of these different shoreline types are fringing reefs. In general, Hawaiian reefs are not as well developed or diverse as reefs of other Pacific islands, again due to the relative isolation of the archipelago and its geographic position at the northern extreme of coral reef development; thus, water temperature serves to retard coral growth and development. More than one-half of the shoreline of the older islands of the chain (i.e., Kauai, Oahu, Molokai, Lanai, and Maui) is fringed by coral reef. The reefs are wide, shallow platforms extending as much as 300 m seaward from the shore. The reef platforms are typically subtidal, usually between depths of 1 m to 3 m below mean sea level, although occasional sections may be exposed at low spring tides. The reef flats are predominately sand, coral rubble, and coralline algae. Crustose coralline algae are the dominant reef builders on Hawaiian reefs with coelenterate corals being relatively unimportant in the overall fringing reef habitat (Littler 1973). Coral growth is probably best developed along the frontal edges of the reef flats or in adjacent (seaward) deep water areas.

Reef flat assemblages are perhaps the most diverse of those occurring along Hawaiian shorelines partly because of the extended period of time they are submerged. Reef flats have a variety of habitats including solid substrates of calcareous algae and corals, stands of frondose algae, rubble, and sand patches. Because of the variety of habitats, the distribution of reef organisms is patchy; where there are sand patches, infaunal organisms such as mollusks, echinoderms, and polychaetes occur; where there is rubble or living coral, a multitude of other species including fishes are found.

Often estuaries are found where freshwater streams enter the ocean. Estuaries are defined as river valleys inundated by marine waters and receiving freshwater input on the landward side; estuaries may also occur as the tidal portions of streams. In the Sanctuary, Cox and Gordon (1970) note the following areas with estuarine characteristics: Molokai: Halawa Stream and Bay, Pelekunu Bay, and the fishponds of South Molokai; Maui: Maliko Bay, Kahului Harbor, Kahakuloa Bay, Honokohau Bay, Honolua Bay, and the estuarine bays of the northeast coast of east Maui including Honomanu, Makaiwa, Waipio, Hoolawa, Pilale, and Kuiaha.

Estuarine ecosystems support an endemic fauna of about 38 species. Most of these species are euryhaline and most are derived from marine rather than fresh water ancestors (Timbol 1972). Typical estuarine endemic fishes include the oopu (*Awaous genivittatus*), oopu nakea (*A. stamineus*), aholehole (*Kuhlia sandvicensis*), and the mollusk, the hihiwai (*Neritina granosa*). Estuaries are also the primary habitats of a few highly sought-after food species such as the introduced Samoan crab (*Scylla serrata*), and they are the nursery for a number of inshore marine fishes such as the amaama (*Mugil cephalus*), awa (*Chanos chanos*), kaku (*Sphyraena barracuda*), aholehole (*Kuhlia sandvicensis*), and papio (several species of the family Carangidae). Many estuaries in Hawaii are now affected by the invasion of exotic species such as the Tahitian prawn (*Macrobrachium lar*) which tend to replace the native biota.

Although estuaries do not comprise a large, well defined ecosystem type in the boundaries of the Sanctuary, they remain an important habitat type. Despite low rainfall along much of the

coastline of the Sanctuary (e.g., west Maui), many small, intermittent streams may serve as important nursery habitat albeit, the availability of this habitat is transitory. Related to the usual estuarine habitat are mangroves. Mangroves were introduced on Molokai in 1902 and on Oahu in 1922. On both islands there are several developed stands that now exhibit many of the characteristics attributed to mangrove swamps in other tropical areas, but the Hawaiian stands lack the extensive flora and fauna of typical large mangrove stands because of their recent development (Walsh 1963). Recent attempts have been made to control and otherwise remove mangroves from wetland areas (e.g., Kaloko-Honokohau National Historical Park on the Kona coast, the Nuupia Ponds Wildlife Management Area on Mokapu Peninsula, Oahu) where they are eliminating open water habitat that serves as critical foraging grounds for threatened and endangered waterbird species such as the kukuluaeo or Hawaiian Stilt (*Himantopus mexicanus knudseni*).

ii. Subtidal Ecosystems

In addition to coral communities associated with fringing reefs, corals extend subtidally to depths of at least 50 m in Hawaiian waters, although the greatest development of these reefs is at depths from a few meters down to about 30 m. Prime examples of coral community development may be seen on submarine surfaces of recent lava flows off the coast of Maui and in the waters between Maui and Molokai. Coral communities are well developed around the islet of Molokini where commercial dive tours thrive. As discussed, coral communities are better developed where they are protected from high wave activity; thus, the leeward (western) coasts often have well-developed examples; however, coral communities are a characteristic of all subtidal areas with appropriate hard substratum around all of the islands. Hawaiian coral communities show a zonation that is related primarily to wave exposure and indirectly to depth. The three assemblages are described below.

A *Pocillopora meandrina* assemblage is associated with coastlines where there is considerable wave action and a basalt boulder or limestone/lava pavement in depths from about 1 m to about 12 m; occasionally the *P. meandrina* assemblage will be found down to depths of about 30 m. *Pocillopora meandrina* is one of the first coral species to colonize new substrates whether they are lava (Grigg and Maragos 1974) or from anthropogenic sources (concrete, etc., Brock unpublished). This coral species is dominant in the shallow waters at Molokini Islet and at many sites around Lanai, Kahoolawe, and Maui islands. The *P. meandrina* assemblage is often interspersed with other species of corals such as *Porites lobata* and *Monitopora verrucosa*, soft zoanthid corals such as *Palythoa tuberculosa* and *Zoanthus* spp., and the sea urchins, or wana, *Echinometra*, *Echinothrix*, and *Tripneustes*.

More than 50 species of fishes are routinely encountered in the *Pocillopora meandrina* zone (Hobson 1974, Gosline 1965). Included in this group are moray eels or puhis (Muraenidae); squirrelfishes or alaihis and mempachis (Holocentridae); aholehole (*Kuhlia sandvicensis*); aweoweo (*Priacanthus cruentatus*); upapalus (Apogonidae); nenue (*Kyphosus bigibius*); commercially important goatfishes including moano (*Parupeneus multifasciatus*), weke (*Mulloides flavolineatus*), kumu (*Parupeneus porphyreus*), and occasionally the munu (*P. bifasciatus*) fishes (Pomacentridae); wrasses or hinaleas (Labridae); palukaluka (*Scarus rubroviolaceus*); surgeonfishes including the api (*Acanthurus guttatus*), manini (*A. triostegus*), maikoiko (*A. leucoparieus*), pakuikui (*A. achilles*), maiii (*A. nigrofuscus*), maiko (A. nigroris), black kole (*Ctenochaetus hawaiiensis*), kole (*C. strigosus*), maneoneo (*Zebrasoma velifrum*), umaumalei (*Naso lituratus*) and kala (*N. unicornis*); gobies and blennies (Gobiidae and Blenniidae), and a number of smaller species. Other species often encountered in the *Pocillopora meandrina* zone include the omilu (*Caranx melampygus*), papios (family Carangidae), lai (*Scombroides lysan*), amaama (*Mugil cephalus*), nehu (*Stolephorus purpureus*) as well as needlefishes and halfbeaks (Belonidae and Hemiramphidae).

Just seaward and slightly deeper of the *Pocillopora meandrina* assemblage is the zone dominated by *Porites lobata*. Where wave activity is not significant, *Porites lobata* usually grows as a rough hemisphere attaining sizes in excess of 4 m in diameter. This species lays down annual growth bands much like a tree thus the age of individual colonies may be determined (Knutsen et al. 1972). *Porites lobata* has a radial growth of about 1 cm/yr and will attain an age of close to 200 years (Grigg 1982). In bays where wave activity may be light, the zonation of *Pocillopora meandrina* and *Porites lobata* may be less obvious; in these situations, *P. lobata* may be much more abundant than *P. meandrina*. *Porites lobata* is successful in populating almost any consolidated area from shallow depths down to 30 m but will modify its growth form in response to physical conditions of the environment (Maragos 1972). Where there is surge, the coral is usually flat and strongly encrusting; in deep or more protected waters, the coral occurs as a large lobate hemisphere. A number of other coral species are found in the *P. lobata* assemblage including *P. meandrina*, *Montipora verrucosa*, *M. patula*, *M. verrilli*, *M. flabellata*, *Porites compressa*, and a host of lesser species (*Fungia scutaria*, *Leptastrea* spp. *Cyphastrea* spp.).

The diversity of fishes encountered in the zone of *Porites lobata* is greater than that seen in the *Pocillopora meandrina* zone. The difference in diversity may be related to the greater depth and diversity of habitats available in this zone. Gosline (1965) reports 90 species from this biotope; Hobson (1974) notes that most species seen in his study of coral reef fish communities of the Kona, Hawaii coast were present in this coral rich habitat. Brock (1990a; 1992a,b,c; 1993a,b,c) has recorded more than 60 species of fish from the biotope in which *Porites lobata* dominates on Oahu, Maui, and the Big Islands of Hawaii.

In general, seaward of the *Porites lobata* zone or biotope is the biotope of *Porites compressa* whose dominated assemblages are usually found at depths below 8 m to 10 m down to about 30 m. *Porites compressa* colonies form fragile thickets that may cover hundreds of square meters of substratum. Because of its delicate structure, *P. compressa* is usually found in deep water or is situated in locations that are relatively protected from the impact of storm waves. Protected locations include bays as well as the leeward (west) coasts of the larger islands (here West Maui). Again, many of the shallow-water invertebrates and fishes recorded from the Hawaiian Islands are found in this zone. Most of the commercially important inshore fishes and invertebrates are encountered in the biotope of *Porites compressa* and much of the fishing effort today is focused in the biotopes of *P. lobata* and *P. compressa*.

In deeper waters at depths greater than 25m, large boulders and coral rubble dominate the bottom, while hard corals and benthic algae are either absent or their presence greatly reduced. Well-developed terraces and "drop-offs" have been reported at depths of 50, 60, and 75m and are associated with some of the most abundant and economically valuable fisheries in the State. Commonly found, for example, are bottom-dwelling carnivores such as the hapu'upu'u or grouper (*Epinephelus quernus*) and species of snappers or lutjanids including uku, o`paka`paka, ehu, onaga, and where sandy bottoms occur, the kona crab (*Ranina ranina*).

Little is known about biological assemblages occurring at depths greater than 100 fathoms. Scientific research and limited commercial harvesting, however, has revealed the presence of precious corals such as the gold (Gerardia sp.), bamboo (isididea), and pink (Corallium sp.) as well as stocks of deep water caridean and penaeid shrimp. Commercial exploitation of these deep-water resources occurs within the waters of the Sanctuary (DOC, 1984).

c. Cetacean Species Found in Hawaii

The order Cetacea (dolphins and whales) consists of two suborders: Odontocetes (toothed cetaceans) and Mysticetes (baleen whales). Generally, a useful distinction between them is one of size since the great whales are all Mysticetes, with the exception of the sperm whale, an Odontocete.

Shallenberger (1981) identified 24 species of cetaceans (five Mysticete and 19 Odontocete species) in Hawaiian waters on the basis of stranded specimens or field observations (see Table II-5). Nitta (1988) documented all cases of stranded cetaceans recorded between the years 1936 and 1988 which comprised 17 of these species. From both sets of data it is clear that of the Mysticete species, only the humpback whale (*Megaptera novaeangliae*) can be considered seasonally resident. Sightings of the remaining four Mysticete species (Bryde's, finback, minke, and right whales) were so rare as to be considered anomalous.

Of the Odontocete species shown in Table II-5, five were identified on only one or a few instances and are similarly designated as anomalous. The remaining 14 species are designated as rare, uncommon, or common in order of increasing occurrence. Of the eight species of Odontocetes identified during the 1993 surveys of Hawaiian waters (see Figure II-16), four were found within the 100-fathom limit (spinner dolphins, spotted dolphins, bottlenose dolphins, and false killer whales) and thus would likely fall within the jurisdiction of the current proposed marine sanctuary boundaries. It should be noted, however, that because most of the species listed in Table II-5 are wide-ranging, other Odontocetes would likely be found within the proposed sanctuary limits as well. Data from Shallenberger (1981) concerning these four species are summarized below. Additional pertinent data from the 1993 aerial surveys are also included.

TABLE II-5: Cetacean Species Found in Hawaii with Results of 1993 Aerial Surveys*

Common (*Scientific*) Name	Observations	Frequency	Depth of '93 sightings (fathoms)	
			<100	>100
MYSTICETES:				
Fin whale (*Balaenoptera physalus*)	stranding (1)	Anomalous		
Bryde's whale (*B. edeni*)	field obs (few)	Anomalous		
Minke whale (*B. acutorostrata*)	field obs (1)	Anomalous		
Humpback whale (*Megaptera novaeangliae*)	field obs (many)	Common	yes	yes
Right whale (*Balaena glacialis*)	field obs (1)	Anomalous		
ODONTOCETES:				
Sperm whale (*Physeter macrocephalus*)	field obs (many)	Uncommon	no	yes
Bottlenose dolphin (*Tursiops gilli*)	field obs (many)	Common	yes	yes
Spinner dolphin (*Stenella longirostris*)	field obs (many)	Common	yes	yes
Spotted dolphin (*Stenella attenuata*)	field obs (many)	Common	yes	yes
Striped dolphin (*Stenella coeruleoalba*)	stranding (13)	Rare		
Rough-toothed dolphin (*Steno brednaensis*)	field obs (many)	Common		
Common dolphin (*Delphinus delphis*)	field obs (1)	Anomalous		
Whitesided dolphin (*Lagenorhynchus obliquidens*)	field obs (1)	Anomalous		
Risso's dolphin (*Grampus griseus*)	field obs (2);	Rare		
Pygmy sperm whale (*Kogia breviceps*)	stranding (8)	Uncommon	no	yes
Dwarf sperm whale (*Kogia simus*)	field obs (1)	Anomalous		

Killer whale (*Orcinus orca*)	stranding (1)	Anomalous		
False killer whale (*Pseudorca crassidens*)	field obs (many)	Common	yes	yes
Pygmy killer whale (*Feresa attenuata*)	field obs (many)	Uncommon		
Melon-headed whale (*Peponocephala electra*)	field obs (many)	Uncommon		
Pilot whale (*Globicephala macrorhynchus*)	field obs (many)	Common	no	yes
Goosebeaked whale (*Ziphius cavirostris*)	stranding (2)	Rare	no	yes
Densebeaked whale (*Mesoplodon densirostris*)	field obs (1)	Rare		
Bottlenose whale (*Hyperoodon ampullatus*)	field obs (1)	Anomalous		

* Table adapted from Table 1 of Forestell & Brown (1992) that was based primarily on Shallenberger (1981). Stranding results are for period 1936-87 as taken from Nitta (1987). Results of 1993 survey were added from unpublished data. Frequency is noted in decreasing magnitude as follows: common, uncommon, rare, and anomalous.

1993 Marine Mammal Survey

Previous surveys in Hawaii reported only on the locations of humpback whales (Herman and Antinoja 1977; Rice and Wolman 1978; Herman et al. 1980; Baker and Herman 1981); thus, until recently, there were no data from systematic surveys which included Odontocete species. The most extensive marine mammal survey performed to date in Hawaiian waters was conducted during February and March, 1993 as part of a baseline assessment designed to detect the impact of the ATOC transmission on resident marine mammal species (Mobley et al. 1993; Forestell et al. 1993). ATOC was designed by the Scripps Oceanographic Institute to detect global warming trends using low frequency sound. A series of four aerial surveys were conducted during 1993 primarily to assess the abundance and distribution of humpback whales, though locations and group compositions of all marine mammal species seen were also documented. The surveys were designed to conform to line transect techniques, which permit abundance estimates to be projected from sighting data (e.g., Burnham, Anderson, and Laake 1980).

Surveys during the 1993 series were conducted from single-engine overwing aircraft equipped with radar altimeters and global-positioning system devices (GPS). These instruments were used to determine the location and altitude of the plane and, when combined with the sighting angle, to determine the position of marine mammal pods by use of a clinometer. Precise distance estimation is an essential ingredient of abundance estimation.

Unlike previous surveys in Hawaiian waters, the majority of the 1993 effort was concentrated in waters deeper than 100 fathoms (see Figure II-16). Effort was distributed as follows: less than 100 fathoms-23 percent, 100-1,000 fathoms-42 percent, greater than 1,000 fathoms-35 percent.

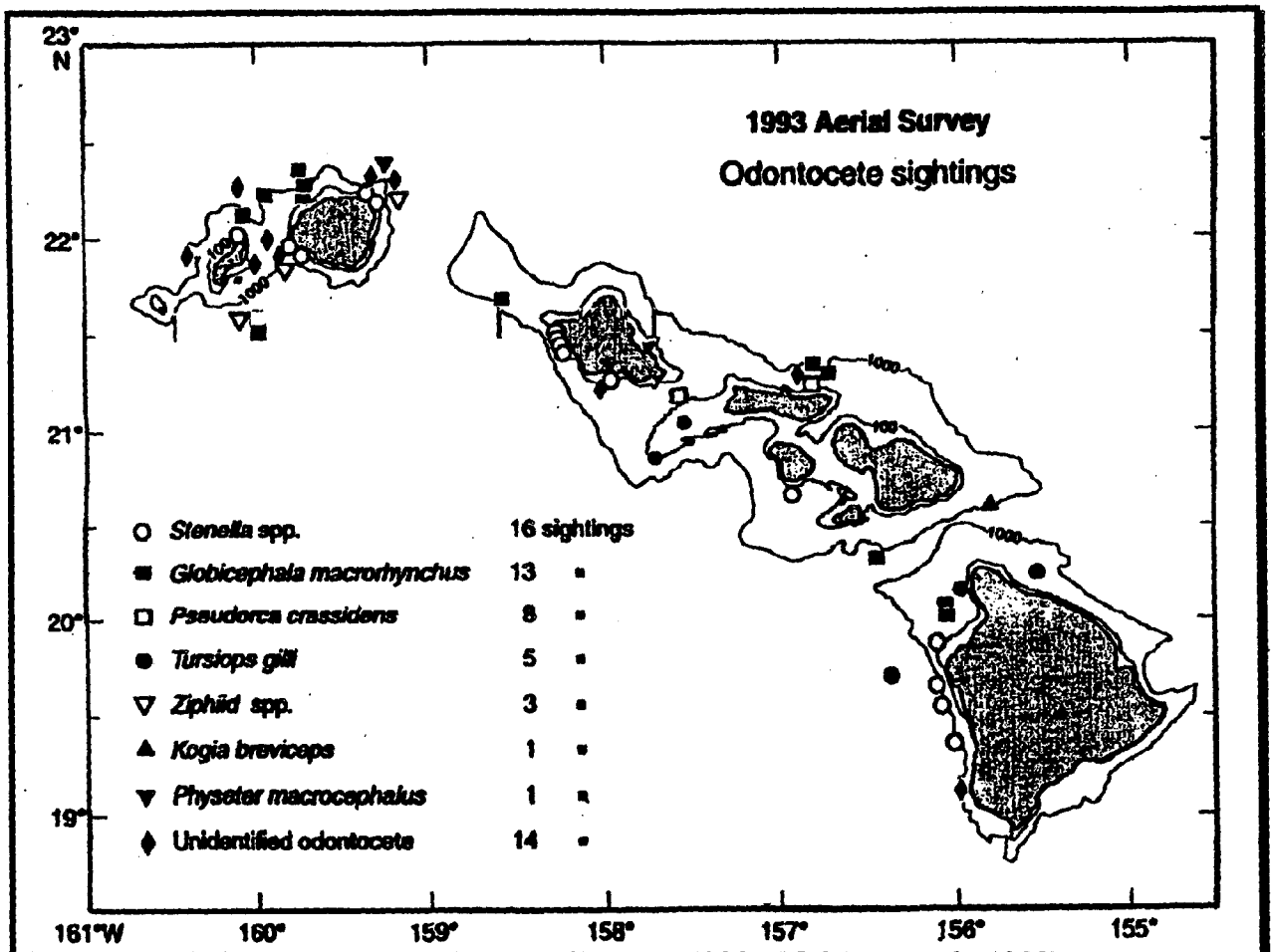


Figure II-16 Odontocete sightings in Hawaii, 1993 (Mobley et al. 1993)

i. Pacific Bottlenose Dolphins

Pacific bottlenose dolphins (*Tursiops gilli*), typically larger and more powerful than their Atlantic counterparts (*Tursiops truncatus*), are found throughout the Hawaiian archipelago including the northwestern islands. Shallenberger (1981) notes they are found mostly along the edges of banks or shelves, usually along the 50- or 100-fathom isobaths where upwelling from deep water occurs. Pod sizes typically range from single individuals and small groups of three to 10 animals to large groups of 100 or more individuals (Shallenberger 1981). They feed on numerous species of fish, squid, shrimp, and other crustaceans (Leatherwood 1975; Leatherwood, Caldwell, and Winn 1976). Bottlenose dolphins adapt readily to captivity and a number of them have been kept and bred successfully at Sea Life Park and other oceanaria.

During the 1993 survey groups of bottlenose dolphins were sighted on five occasions during the 1993 survey in waters ranging from less than 100 to more than 1,000 fathoms. The mean observed pod size was 15.4 individuals.

ii. False Killer whales

False killer whales (*Pseudorca crassidens*) are found throughout the world's temperate to tropical oceans, but are found most often in tropical and subtropical waters (Shallenberger 1981). Their habitat ranges from shallow (<100 fathoms) to deep water (>1,000 fathoms) and their distribution appears to be related to concentrations of prey. They typically travel in large pods, often exceeding 100 individuals, and frequently swim in broad formations, a possible mechanism for finding food. Squid beaks have been found in their stomach contents and they have been observed feeding on mahimahi (*Coryphaena hippurus*) and yellowfin tuna (*Thunnus albacares*) (Shallenberger 1981).

Eight Pseudorca groups were sighted during the 1993 aerial surveys in waters ranging from less than 100 to 1,000 fathoms. Mean pod size was 28.6 individuals.

iii. Spinner Dolphins

Spinner dolphins (*Stenella longirostris*) are members of the genus Stenella that includes spotted dolphins (*S. attenuata*), striped dolphins (*S. coeruleoalba*), and the Clymene dolphin (*S. clymene*). Spinners, so named because of their tendency to "spin" while breaching or leaping from the water, are found throughout the tropical Pacific, Atlantic, and Indian Oceans (Baker 1987). In Hawaii, they are located throughout the island chain and show distributional patterns related to physiography, prey distribution, sea state, water depth, bottom topography, and turbidity (Norris et al. 1985). They are commonly found in large groups consisting typically of 50–100 individuals, though larger groups have been seen (Shallenberger 1981).

Spinner dolphins have been intensively studied, particularly near Hawaii Island (Norris and Dohl 1980; Norris et al. 1985; Ostman and Driscoll 1991; Wursig, Cipriano, and Wursig 1991). Spinners typically show predictable home ranges, foraging at night for food in deep water (400 m-2,000 m) where the deep scattering layer (DSL) rises closer to the surface than normally occurs during daylight hours. Prey species for the Hawaiian spinners are not as well documented as for other regions but are believed to include at least two species of squid (*Abralia estrostrica* and *A. trigonura*) and several species of fish (particularly myctophids) (Shallenberger 1981). During the day they typically return to bays and inshore regions to rest and socialize and to avoid predation by pelagic sharks (Norris and Dohl 1980; Wursig, Cipriano, and Wursig 1991). Spinner dolphins were positively identified on eight occasions during the 1993 survey series in waters between 100-1,000 fathoms in depth. Mean pod size was 50 individuals. Six additional observations were designated as *Stenella* species that were likely to have been either spinner or spotted dolphins. These occurred in waters ranging from less than 100 fathoms to greater than 1,000 fathoms.

iv. Spotted Dolphins

Spotted dolphins (*Stenella attenuata*) are common in Hawaiian waters and are frequently confused with spinner dolphins since they are similar in size and habitat. Most of what is known about spotted dolphins is derived from the eastern tropical Pacific and Japanese waters due to their association with the purse seine tuna industry. Spotted dolphins and related species have been inadvertently slaughtered as a result of purse seine fishing practices in these regions.

Spotted dolphins are typically found in the leeward coastal waters and offshore banks of all Hawaiian Islands, as well as channel regions. Shallenberger (1981:53) writes, "Due to the normally large herd size and the frequencies of observation, it is likely that spotted dolphins are the most numerous Hawaiian cetacean (in terms of numbers of individuals)". Similar to spinner dolphins, spotted dolphins have their own characteristic aerial behaviors including very high jumps, long low jumps, and tail walks (Shallenberger 1981). Shallenberger noted that very little research has been performed on this species in Hawaiian waters. During the 1993 aerial survey,

spotted dolphins were positively identified in just one case, a group of five individuals, in waters less than 100 fathoms.

v. Odontocete Prey Species

What little is known of the feeding habits of Odontocete species in Hawaii has been gleaned from examinations of stranded specimens, occasional field observations, and from generalizations based on more extensive literature for other regions. Shallenberger noted that a significant portion of the diet of smaller Hawaiian cetaceans is made up of epipelagic and mesopelagic fish and squid. Primarily, this includes myctophid fish, some of which migrate at night to within 200 m of the surface, and several species of squid which also show vertical diurnal migrations, including *Abralia trigmura* and *A. astrostica*. Shallenberger underscores the importance of squid to Odontocete diets by noting that virtually every stranded specimen examined contained squid beaks in its stomach contents. The myctophid species of fish are also commonly found in Hawaiian cetaceans (Shomura and Hida 1965). Local fish species of likely importance include: opelu (*Decapterus pinnulatus* and *D. maruadsi*) and akule (*Trachurops crumenophthalmus*). Shallenberger reported that larger cetaceans have been observed eating mahimahi (*Coryphaena hippurus*), yellowfin tuna (*Thunnus albacares*), and skipjack tuna (*Katsuwonus pelamis*). These species are all commercially important and their relative availability can be assessed using catch statistics (Shallenberger 1981).

vi. Predators

Information relevant to Odontocete predation has been primarily anecdotal (Shallenberger 1981), though more recent observations have occurred. Sharks have been observed to feed on live cetaceans in other oceans (e.g., Leatherwood, Evans and Rice 1972; Leatherwood et al. 1973, and more recently off Kihei, Maui (G. Nitta and A. Tom, pers. communication). In spring 1995, a juvenile humpback whale became entangled in a mooring buoy line. Upon release by the USCG, the injured whale remained in shallow water where tiger sharks (*Galeocerdo cuvieri*) repeatedly attacked and consumed portions of the whale (G. Nitta and A. Tom, pers. communication). Other accounts exist of unidentified cetacean remains in the stomach contents of tiger sharks harvested in Hawaii, but it is not known whether the animals were alive or dead when eaten. Additional indirect evidence of shark attacks on cetaceans occurs in the form of crescent-shaped scars on the bodies of living specimens. Hawaiian cetaceans are also frequently seen with the small circular scars characteristic of non-predatory "cookie cutter" sharks (*Isistius brasiliensis*). These small bites generally heal and are not known to be fatal. Occasional visits by killer whales (*Orcinus Orca*) could also result on some predation on calves, but none have been observed thus far.

vii. Odontocete Distribution Trends

Eighty-one percent of the Odontocete pods sighted during the 1993 aerial surveys were found in waters deeper than 100 fathoms. Thirty-eight percent of the sightings were in the vicinity of Kauai and Niihau. Interestingly, the areas favored by humpback whales, the four-islands (Maui, Lanai, Molokai, and Kahoolawe), and Penguin Bank regions showed the lowest incidence of Odontocete sightings. The *Stenella* species, in particular, showed a tendency to locate along the 100-fathom isobath, as described by Shallenberger (1981).

d. Other Endangered or Threatened Species

i. Sea Turtles

Five species of marine turtles are found in the waters around the Hawaiian Islands: green sea turtle (*Chelonia mydas*), hawksbill sea turtle (*Eretmochelys imbricata*), leatherback (*Dermochelys coriacea*), loggerhead (*Caretta caretta*), and the olive ridley (*Lepidochelys olivacea*)

(Des Rochers 1992). Leatherback, loggerhead, and olive ridley turtles are not known to nest in the Hawaiian Islands and are rarely seen in Hawaiian waters (Balazs 1978). Hawksbills nest on the main Hawaiian Islands primarily on several sand beaches on the island of Hawaii and on the east end of Molokai (Hawaiian Sea Turtle Recovery Team 1992). The green sea turtle is the most commonly found turtle throughout the Hawaiian Island chain. More than 90 percent of the breeding and nesting of green turtles occurs at French Frigate Shoals in the Northwestern Hawaiian Islands (NWHI), although a substantial population resides and returns to the waters within Maui and Kauai Counties.

ii. Hawksbill Turtles

The hawksbill turtle is an endangered species under the ESA [U.S. Fish and Wildlife Service (USFWS) 1992]. Information on the life history and ecology of hawksbill turtles in the Hawaiian Islands is lacking, although these sea turtles were well known to the pre-contact Hawaiian people (Hawaiian Sea Turtle Recovery Team 1992). The Hawaiians did not value the hawksbill as a food item possibly because of its periodic toxicity due to the turtle's dietary habits. According to Balazs (pers. comm. 1993) no more than 15 nesting sites are recorded each year. The nesting period extends from July through November (Hawaiian Sea Turtle Recovery Team 1992). The most consistently used nesting sites are Kamehame Point on Hawaii and at the river mouth of Halawa Valley on Molokai. The NWHI appear to be unfavorable breeding and nesting grounds for the hawksbill turtle.

iii. Green Sea Turtles

The green sea turtle, listed as threatened under the ESA, is a long-range migrant breeder that spends most of its life foraging and resting in nearshore benthic habitats (Balazs, Forsyth, and Kam 1987). Historically, green sea turtles nested on beaches throughout the Hawaiian archipelago, but today rarely outside the NWHI (Des Rochers 1992). The breeding season at French Frigate Shoals, which is the main nesting area within the NWHI, lasts for about five months from May through September (Hawaiian Sea Turtle Recovery Team 1992).

There are numerous sightings of green sea turtles in the waters off Maui County including Honokowai, Maliko Bay, Olowalu, Kahului Bay, and Palaau Bay on Molokai. Between 1948 and 1973, the Island of Maui reported the highest percentage of commercial captures of sea turtles (Balazs 1980). Today, many turtles congregate in the warm water discharge from the power plan in Kahului Bay, possibly to increase their metabolism (Balazs 1980). Kahoolawe and Lanai have only occasional and rare sightings of the green sea turtles, although they may have served as important nesting grounds for green sea turtles in the past. Polihua Beach (Lanai) is the most documented area for green sea turtles nesting on the main Hawaiian Islands; however, there have been no recent observations or sightings of sea turtles at Polihua, perhaps as a result of human use and erosion along the shoreline (Balazs 1980). According to Balazs (1984), Polihua Beach may serve as the best possibility for any future experimental restocking of sea turtles. The largest population of green sea turtles is located near Lanai at Keomuku and Kuahua (Balazs 1984). USFWS (1989) reports that green sea turtles have been seen in the off-shore waters of Kauai and are known to nest in the sandy bays along the coast of Kilauea Point and other areas along the southeast coast.

There are insufficient data to estimate the historical number of green sea turtles in the Hawaiian Islands. Surveys of nesting turtles at French Frigate Shoals since 1973 provide a current estimate of 750 total mature female green turtles (Hawaiian Sea Turtle Recovery Team 1992). Because 90 percent of all green sea turtle nests are found on French Frigate Shoals, the total mature female population is probably less than 900 throughout the Hawaiian Islands.

Green turtles feed primarily on benthic algae which is generally restricted to shallow depths. They have been reported to feed on 56 species of algae and nine species of vertebrates (Des Rochers 1992). Green turtles have been known to bask or rest on beaches (Balazs, Forsyth, and Kam 1987), although terrestrial basking is rare among sea turtles and has been exhibited by only a few populations of green sea turtles in the Pacific. In Hawaii, basking behavior seems to be limited to beaches in the NWHI (Balazs, Forsyth and Kam 1987).

Most adult green turtles reside in the nearshore waters of the main Hawaiian Islands due to the abundance of preferred marine vegetation, the availability of suitable habitat for resting, and the presence of oceanic currents that carry juveniles towards the main islands (Balazs, Forsyth, and Kam 1987). Major resident areas are at depths greater than 20 m but generally not exceeding 50 m. These areas include: Kau and North Kohala Districts (Hawaii); Hana District and Paia (Maui); north and northeastern coastal areas bordering the Kalohi and Auau Channels (Lanai); south coastal areas between Kamalo and Halena (Molokai); Kailua and Kaneohe Bays, northwest coast from Mokuleia to Kawailoa Beach, south and southwest coast (Oahu); Princeville, Na Pali Coast, and the south coast from Kukuiula to Makahuena Point (Kauai) (Des Rochers 1992).

iv. Seabirds

Before the arrival of the first Polynesians in the Hawaiian Islands, there were as many as 110 species of endemic birds throughout the Hawaiian archipelago. Between the time of the arrival of the first Polynesians and the arrival of Captain Cook in 1778, an estimated 40 species may have become extinct (Hawaii Audubon Society 1989). Since the arrival of the Europeans in the Islands, another 22 species have become extinct (Hawaii Audubon Society 1989). The dramatic increase in the number of extinctions has been due to the introduction of foreign plants and animals.

Today, 22 marine bird species can be found throughout the Hawaiian chain, mainly in the NWHI (Hawaii Audubon Society 1989). Of the 30 species of Native Hawaiian birds listed as endangered or threatened by USFWS, only one is commonly found in the vicinity of the Sanctuary, the Hawaiian dark-rumped petrel (*Pterodroma phaeopygia sandwichensis*).

The Hawaiian dark-rumped petrel has been observed on the Islands of Kauai, Lanai, Hawaii, and Molokai. Once Oahu's most numerous seabird, the dark-rumped petrel is now mainly confined to the Haleakala Crater on Maui (Berger 1981). There are barely 400 to 600 pairs of petrels in the Hawaiian Islands (Sheila Conant, pers. comm. 1993). These marine birds return during their breeding season (March-October) to nest at elevations between 7,200 and 9,600 feet, the only bird species in Hawaii that nests at such high altitudes (Sheila Conant, per. comm. 1993). Petrels spend most of their time at sea, feeding on squid, fish, and crustaceans. They come ashore only to nest and raise their young. It is possible that Maui and the other Hawaiian Islands are merely a stop-over for breeding and nesting. No observations have been conducted.

v. Hawaiian Monk Seal

The Hawaiian monk seal (*Monachus schauinslandi*) was listed as endangered throughout its range on November 23, 1976. Counts have been made at the atolls, islands and reefs where they haul out in the northwest Hawaiian Islands since the late 1950s. By 1982, the population had declined to half of its 1957-1958 level, estimated at 3,500 seals (Altonn 1991). Since the mid-1980's, beach counts have declined at five percent per year. NMFS estimates that currently there arebetween 1,300 - 1,400 animals (Gilmartin, pers. comm. 1994; J. Naughton, pers. comm. 1996). The number of births declined significantly at all five major breeding locations in 1990, followed by some recovery in subsequent years. However, the number of births has not reached the level observed in the mid-to-late 1980's, and is not expected to in the near future because of the high losses of immature seals at French Frigate Shoals and mobbed seals at Laysan and Lisianski Islands.

Breeding populations of the Hawaiian monk seal occur almost exclusively in the NWHI. Monk seals are most abundant on Kure Atoll, Pearl and Hermes Reef, Lisianski Island, Laysan Island, French Frigate Shoals, Necker Island and Nihoa Island. A small population of at least a dozen monk seals which have been reported from the island of Niihau and the offshore islet of Lehua. These animals have taken up residence since the mid to late 1980s (J. Naughton, pers. comm.).

Hawaiian monk seals are vulnerable to human disturbance on pupping and haulout beaches, entanglement in marine debris, incidental take in commercial fisheries, possible die-offs from disease and naturally occurring biotoxins, male mobbing of female seals, and shark predation. Exploitation of the Hawaiian monk seal began shortly after 1814, when the Russian explorer Lisianski reported that he observed them in the NWHI (Hiruki and Ragen 1992). The monk seal served as a valuable source of oil, pelts, and food for sealers and sailors. Commercial activity and most incidental taking ended by the late 1800s after seal populations had been decimated (Hiruki and Ragen 1992). Most, if not all, taking by humans stopped once the seal was listed as an endangered species.

Since Lisianski's exploration, there have been two major population declines in the monk seal's history. One, in the 1800s, occurred as a result of extensive sealing and the second, between the 1950s and 1970s was due primarily to human disturbance of the seal's breeding areas (NMFS, 1991). The latter period resulted in a 50 to 60 percent reduction of the seal population (Ragen 1993). Birth count monitoring began in 1983 at the breeding islands. From 1983 to 1988 the number of recorded births increased from 162 to 224. In 1989, the count decreased, and in 1990 only 143 births were observed -- the lowest number of births ever recorded (NMFS, 1991; Altonn 1991).

Monk seals are extremely sensitive to human activity disturbances, and are rarely seen in the main Hawaiian Islands. Seal births were observed on Kauai in 1988 and on Oahu in 1991 (Gilmartin, pers. comm. 1994). Monk seals have also been reported basking along the beaches of the Main Hawaiian Islands, including Maui, Kahoolawe and Oahu (Tanji 1992, 1993). Both incidents verify that the main Hawaiian Islands continue to serve as temporary resting grounds for the monk seal. An additional small population of at least a dozen monk seals took residence near the island of Niihau and the offshore islet of Lehua in the middle to late 1980s. A list of monk seal sightings reported to NMFS in the main Hawaiian Islands since 1985 is contained in Table II-6.

TABLE II-6: Monk Seal Sightings in the Main Hawaiian Islands, 1984–93 Reported to the National Marine Fisheries Service

Year	*Kauai*	*Oahu*	*Maui*	*Molokai*	*Lanai*	*Kahoolawe*	*Hawaii*
1984	1	9	-	9	-	-	-
1985	1	2	3	1	-	-	-
1986	3	10	5	-	5	1	5
1987	35	13	-	-	-	-	1
1988	31	11	1	1	-	1	-
1989	45	11	2	1	-	-	-
1990	6	19	3	2	-	1	1
1991	1	39	7	-	1	2	1
1992	2	37	6	1	-	1	4
1993	3	14	7	1	-	-	6

Source: National Marine Fisheries Service (NMFS) *Monk Seal Recovery Plan*

The first Hawaiian Monk Seal Recovery Team, appointed in 1980, submitted its final recovery plan to NMFS in 1982. The plan, which includes a comprehensive research and management plan for the recovery of the Hawaiian monk seal, was published by NMFS in March 1983. The objectives of the plan were to (1) identify and mitigate the natural factors causing the decline in the seal populations; (2) characterize seal habitat; (3) assess monk seal populations; (4) document and mitigate effects of human activity; (5) implement appropriate management actions leading to conservation and recovery; and (6) develop educational programs. The plan outlines the tasks necessary to meet the objective and assigns the tasks to appropriate Federal and State agencies. A new recovery team was appointed by NMFS in 1989. After the new team's first meeting in 1989, recommendations were submitted to NMFS. Recommendations included research programs, data analyses, the Kure Atoll Head Start Project, the male mobbing problem, population monitoring, recovery actions at Midway Island, the repair of research facilities at Tern Island, and priorities for the 1990 field season. The team has recommended placing observers aboard long-line swordfish vessels operating near the Northwest Hawaiian Islands. In December, 1993, the point at which Hawaiian monk seals may be considered recovered was discussed. The new recovery team concluded that the 1983 recovery plan still provides a useful guide to overall recovery needs. Instead of producing a new plan, the team recommended updating the 1983 plan with results of subsequent annual program reviews.

In summary, the marine waters around the Hawaiian Islands contain a variety of ecosystems (shoreline to subtidal) and species (algae, invertebrates, fish, marine mammals, seabirds, sea turtles), many of which are unique to the Hawaiian Islands. In designating the Sanctuary, Congress found that this region has many resources of national significance and importance, and that the marine ecosystem is diverse and unique. Inclusion of these resources in the Sanctuary would heighten public and agency awareness of the importance of these resources and expand the scope of the Sanctuary's management, education, research and resource protection programs (research, long-term monitoring, education, outreach, enforcement). The Final EIS/Management Plan summarizes some of these marine resources that have been identified by the public and other agencies for possible inclusion in the Sanctuary. More detailed information about these resources and the various Federal, State, and county management regimes is needed before the Sanctuary can proceed with its mandate to identify other resources for inclusion in the Sanctuary. Part V.C.3 of the Management Plan identifies a process to include the public, the Sanctuary Advisory Council (SAC) and the State in assessing whether other resources should be included in the Sanctuary.

C. CULTURAL/HISTORICAL RESOURCES AND USES

Resources of national significance may include cultural and historical resources such as those of Native Hawaiians. In addition, the Sanctuary Management Plan is required by law to facilitate Native Hawaiian uses customarily and traditionally exercised for subsistence, cultural, and religious purposes. This section will explore some of the ways Native Hawaiians have traditionally interacted with the ocean and how those interactions could affect the Sanctuary or Native Hawaiian uses. Major issues of Hawaiian sovereignty and rights are being addressed legally and politically in Hawaii today. The Sanctuary will not generally address these larger issues, but will attempt to "facilitate" customary and traditional uses as they relate to management of Sanctuary resources consistent with the primary objective of resource protection, and to establish a process for possible inclusion of appropriate cultural/historical resources as Sanctuary resources. In addition to facilitating Native Hawaiian uses, the Sanctuary must generally facilitate all public and private uses consistent with the primary objective of resource protection.

A more thorough description of traditional uses of the Hawaiian marine environment can be found in Chapter 6 of the Sanctuary Site Characterization Study (University of Hawaii Sea Grant, 1994). Hawaiians used the ocean for fishing, aquaculture, trade, transportation and communication as well as religious practices. Since the Sanctuary narrowly focuses on humpback

whales and their habitat, the Sanctuary will not directly address fishing issues (i.e., regulation of commercial, recreational, and traditional fisheries). However, the Sanctuary will address issues that may have indirect effects on fishing activities (i.e., proposals for the placement of artificial reefs, etc.). This section focuses primarily on aquaculture, including traditional marine fish ponds and religious sites which are found seaward of the high water mark.

1. Native Hawaiian Settlements And Social Patterns

The early Hawaiians arranged their land and seascapes to reflect their ideas of natural and social order. Each island was called a *mokupuni* or *moku*. *Mokupuni* were further divided into *moku-o-loko* [*moku*], such as Ewa or Waianae on Oahu. These interior island divisions were portioned into *ahupuaa*, *ili*, and smaller parcels which were worked and farmed by *ohana*, or extended family units. The *ahupuaa* was the basic socio-economic land unit. Generally, the *ahupuaa* was a pie-shaped segment of land with its apex at the summit of the central mountain ridges of an island and its wider base at the shore and beyond into ocean fishing grounds. An *ahupuaa*'s boundaries were usually delineated by natural features such as a ridge line separating two valleys. Thus, the valley of Kahana constituted one *ahupuaa* of the *moku* of Koolauloa on the northeastern side of the island of Oahu. Hawaii's place names and property laws still reflect these land divisions today.

The Hawaiian *ahupua`a* is a traditional ancestor of the modern-day watershed concept. The court of the Hawaiian Kingdom described the ahupua`a principle of land use in the case of In Re Boundaries of Pulehunui, 4 Haw. 239, 241 (1879) as follows:

> A principle very largely obtaining in these divisions of territory [*ahupua`a*] was that a land should run from the sea to the mountains, thus affording to the chief and his people a fishery residence at the warm seaside, together with the products of the high lands, such as fuel, canoe timber, mountain birds, and the right of way to the same, and all the varied products of the intermediate land as might be suitable to the soil and climate of the different altitudes from the sea soil to the mountainside or top.

The Hawaiians consider the land and ocean to be integrally connected and that the *ahupua`a* also include the shoreline, as well as the inshore and offshore ocean areas such as fishponds, reefs, channels, and deep sea fishing grounds. *Ahupua`a* were further divided into subzones, in both the land areas and the sea areas.

Mauka - land areas	Makai - sea areas
kuahiwi, mountain range	*pu`eone*, sand edge, inshore dune, sand bar
wao akua, forests of the gods	*po`ina nalu*, point where the waves break
wao kele, rain forests	*kai kohola*, reef lagoon
wao kanaka, forests acccesible to man	*kai pualena*, yellowish sea at the mouth of a stream
wao la`au, inland forest region	*kai ele*, dark sea
kahawai, place having water, valleys	*kai uli*, deep blue sea
ko kula uka, upland slope	*kai popolohua mea a Kane*, purplish-blue, reddish brown sea of Kane, far reaches of the immeasureable sea
ko kula kai, seaward slope	
ko kaha kai, shoreline	

Source: Hawaii Non-Point Pollution Control Program (OSP 1996)

Within the *ahupuaa*, everyone had access to various resources, from the sea to the upland forests. People living at or near the shore often exchanged fish or nearshore produce for upland products with their relatives who lived farther inland. Pre-contact Hawaiian society was highly structured

and hierarchical according to ascribed social status based on ranking senior and junior lineage. Lilikala Kameeleihiwa has conceptualized the Hawaiian system of social hierarchy as a triangle:

> On each main island, a single *Moi* [King] at the apex of the society served as an intermediary between the *Akua* and the rest of *Ka Lahui* [the Nation]. Several levels of subordinate *alii nui* and *Kahuna Nui* were followed by more numerous and lesser ranking *alii* and *kahuna* who acted as *konohiki*. These people created a buffer between the *Moi* and the vast majority of *makaainana* who made up the foundation of the society.
>
> Those at the top were *kapu*, or sacred, and possessed of *mana* [spiritual and political power]. Those at the bottom were *noa*, common or free from *kapu* and, by extension, without the necessary *mana* . . . to invoke a *kapu* -- although even a common fisherman, if successful, had some *mana*. Those in between were on a sliding scale, having less *mana* the farther down the triangle they slipped and the farther away they fell from high lineage (Kameeleihiwa 1992:45–46).

This hierarchical system of social organization ensured that the Hawaiian nation lived in harmony with the spiritual and physical world (Kameeleihiwa 1992:25–26). Within the ancient Hawaiian social and economic systems of hierarchy and land division were the concepts of *malama aina* (caring for the land) and *pono* (harmony, balance). The Hawaiians believed they were related to the land and that the *aina* (that which feeds) was their mother, and the plants that sustained them, particularly *kalo* (taro), were elder siblings. This was also true for the sea. Many contemporary Hawaiians continue to live by these precepts, or are returning to traditional ways as a means of recasting their cultural heritage in today's world.

This summary provides only a brief glimpse of ancestral Hawaiian social and religious structures. It is important to recognize that Hawaiian cultural concepts of resource use such as *pono* and *aloha aina* (love of the land) differ significantly from contemporary western concepts.

2. Aquaculture/Fishponds

Aquaculture is an important historical use of the marine environment. According to Kikuchi (1973), "fishponds existed nowhere else in the Pacific in types and numbers as in prehistoric Hawaii". Summers (1964) states that marine fishponds are found nowhere else in Polynesia. Indeed, the practice of mariculture may have originated in Hawaii (Costa-Pierce 1987).

Historical evidence indicates that fishponds were introduced on Oahu prior to the thirteenth century by settlers from the Society Islands (Kikuchi 1973). The earliest aquaculture systems were probably composed of natural bodies of water, weirs, dams, fish traps, and artificial fish shelters (Kikuchi 1973). By the fourteenth century, true fishponds were being developed throughout the Hawaiian Islands (Kikuchi 1973).

The Hawaiians built different types of fishponds to take advantage of a range of geographic and aquatic conditions. According to Kikuchi (1973), "the trend was to utilize practically all available bodies of water of some size in the construction and evolution of fishponds". The different fishponds that evolved for use in fresh, brackish, and marine waters have been classified into six main types (DHM 1990).

Type I: *loko kuapa* — a coastal marine fishpond artificially enclosed by a seawall;
Type II: *loko puuone* or *hakuone* — an isolated shore fishpond usually formed by the development of a barrier beach building a single elongated sand ridge parallel to the coast;
Type III: *loko wai* — a freshwater fishpond located inland from the shoreline;

Type IV: *loko ia kalo* or *loko loi kalo* — fishpond that uses an irrigated taro plot as an inland water pond for the raising of fish;

Type V: *loko umeiki* — a fishtrap similar in shape and construction to a *loko kuapa* with many stone lanes leading into areas enclosed by nets; and

Type VI: *kaheka* and *hapunapuna* - a natural pool or a holding pond.

a. Estimate of Number and Distribution

Estimates vary as to the number of fishponds that were built in the Hawaiian Islands. Costa-Pierce (1987) estimates there were 360 at the time of European contact; Kikuchi (1973) reports that 449 fishponds were constructed; and DHM Inc. (1990) lists 488 fishponds in its fishpond inventory.

The location and distribution of the type of fishponds throughout the inhabited islands seems to be geographically determined. For example, on the island of Molokai, which has a protected, shallow reef along its southern coastline, more *loko kuapa* were constructed there than anywhere else in the islands (Costa-Pierce 1987). On the island of Hawaii, where the shoreline drops off too precipitously for construction of large walled ponds, inland upstream freshwater ponds were built (Hudson 1932). The type and location of known fishponds are listed in Table II-7 with Type I and Type V being the most relevant.

TABLE II-7: Fishponds by Type and Island

Type	*I*	*II*	*III*	*IV*	*V*	*VI*	*II/VI*	*?1*	*Total*
Niihau		1							1
Hawaii	21	61	14	1	1	30	3	8	138
Maui	11	12	7			8		6	44
Lanai	1				3				4
Molokai	44	12	2		13			3	74
Oahu	70	22	78		4			4	178
Kauai		16	13	7				14	50
Total	147	124	114	7	21	38	3	35	489

?1= Unsure of type Source: DHM Inc. 1990; Kikuchi 1973.

b. Fishponds Today

With the population decline in the second half of the nineteenth century, much of the Hawaiian integrated farming system fell into disuse and disrepair. Native Hawaiians largely abandoned the practice of extensive aquaculture in favor of a Western-style food consumption patterns and the fishponds were left unmaintained. Coastal development for tourism and for residential purposes in the twentieth century, especially since statehood, has led to the destruction of many of the ancient fishponds.

Apple and Kikuchi (1975) conducted a visual survey of the coast of the main Hawaiian Islands and found only the remains of 157 fishponds. Of the 157, only 56 could be considered for possible restoration (Table II-8). Madden and Paulsen (1977) conducted a study of 67 fishponds and found that only 28 were still in sufficient repair to be used for mullet (*Mugil cephalus*) and milkfish (*Chanos chanos*) culture. Costa-Pierce (1987) reported that by 1987 there were seven ponds in use for commercial and subsistence purposes.

TABLE II-8: Fishponds of Maui, Lanai, Kauai, and Molokai

Name	Location (Ili, Ahupuaa, TMK)	Size (acres)	Type	Owner
MAUI FISHPONDS – HANA DISTRICT				
Haneoo	Haneoo/1-4-08:2 (Loko-nui;BPBM 50-Ma-A15-9)	11.2	I	P
Kuamaka	Haneoo/1-4-08:4 (Loko-iki;BPBM 50-Ma-A15-8)	1.3	I	P
LANAI FISHPONDS				
Lopa	Kaohai/4-9-03;9 (BPBM 50-La-A1-13)	0.8	I	P
KAUAI FISHPONDS				
Kee	Haena/5-9-08:18	3	II	S
Kanoa	Hanalei/5-5-01:2	4	III	P
(nameless)	Wailua/4-1-03:16	3	II	P
Alekoko	Niumalu/3-2-01:1	32	III	P
(nameless)	Koloa/2-6-06;2 (Hoai; BPBM 50-Ka-B4-15)	4	II	P
(nameless)	Lawai/2-6-02:1 (Lawai Kai)	2	III	P
Nomilu	Kalaheo-kai/2-3-10:2	4	III	P
MOLOKAI FISHPONDS				
Kainaohe	Kaamola/5-6-05:22	17	I	P
Ualapue	Ualapue/5-6-01:1	22	I	S
Kalokoeli	Kamiloloa/5-4-02:14	28	I	S
Kupeke	Kupeke/5-7-06:1	30	I	P
Niaupala	Kaluaaha/5-6-08:8	34	I	P
Alii	Makakupaia/5-4-06:23	27	I	H
Kaope-a-Hina	Kaluaaha/5-7-09:1	19	I	P
Keawanui	Keawanui/5-6-06:8	54	I	P
Pahiomu	Keonokuino/5-5-01:10	20	I	S
Kihaloko	Ahaino II/5-7-06:22	5	I	P
Kulaalamihi	Honomuni/5-7-04:34	4	I	P
Waihilahila	Kailiula/5-7-06:27	4	I	P
Kanoa	Kawela/5-4-03:23	50	I	P
Kipapa	Keonokuino/5-5-01:8	10	I	S
Kalokoiki	Wawaia/5-6-08:20	6	I	P
Kamahuehue	Kamalo/5-5-02:5	37	I	P
Piopio	Mapulehu/5-7-08:77	17	I	P
Puhaloa	Manawai/5-6-04:29	6	I	P

Key: P = Private; S = State of Hawaii; and H = Hawaiian Home Lands
Source: Apple and Kikuchi 1975

The Governor's Task Force on Molokai Fishpond Restoration produced a recent report which recommended that the State of Hawaii assist to physically rebuild all of the State-owned Native Hawaiian fishponds on Molokai at the rate of two fishponds per year for a period of five years. (May 1993).

c. Implications for the Sanctuary

Fishponds are an important archaeological feature and a link with Hawaii's past. A number of the fishponds judged by Apple and Kikuchi (1975) to be repairable are found in coastal areas adjacent to the Sanctuary. Restoration of exemplary fishponds and the development of a Sanctuary education program revolving around their history, construction, and use may be appropriate.

Because restoration requires the types of activities that are regulated by a variety of existing agencies (i.e., discharging, depositing, alteration of the seabed), close coordination among the Sanctuary, Federal, State and local agencies, and Native Hawaiian interest groups, such as the Governor's Task Force on Moloka`i Fishpond Restoration, would be necessary.

The Maui Sanctuary office is located adjacent to the 1.5 acre Loko kuapa fishpond, the largest remaining fishpond in South Maui. The Sanctuary has worked with local Native Hawaiians to produce a brochure describing the fishpond and how it was used by Native Hawaiians. The Sanctuary, at the request of the local community, began compiling information on how to renovate and restore the Loko kuapa fishpond.

3. Religious Practices and Artifacts

The Hawaiian culture, conditioned by an animistic philosophy of life, viewed humankind as being in harmony with Nature. Hawaiians, according to Beckwith and Luomala (1970), "worshipped nature gods, and these gods entered to a greater or less extent into all the affairs of daily life." This study continues, "much that seems to us wildest fancy in Hawaiian story is to him [the Hawaiian] a sober statement of fact as he interprets it through the interrelations of gods with nature and with man." Just as the sea was an extension of the land, beliefs about the spirit world were an extension of the real world.

Many of Hawaii's myths and legends relate to the sea. In the legend of Ai Kanaka, the priest Kamalo is wronged by the Moi of Mapulehu and seeks retribution from the shark god Kauhuhu. In turn, Kamalo is instructed to collect a number of red fish to prepare as an offering on the day that Kauhuhu comes to deal out punishment to the offender (Forbes 1907). In other stories, the Hawaiian deities are appeased by sacrifices of white fish, red fish, eels, or other sea creatures.

One of the supreme Hawaiian deities, Ku, takes the form of Kuula or Kuula-Kai (Ku, or "abundance in the sea") as the special deity of fishermen (Beckwith and Luomala 1970). According to legend, Kuula was a man who resided in Hana, Maui, and possessed miraculous power in directing and controlling fish (Thrum 1907). Upon his death, Kuula passed into the realm of the deities and his son Aiai begins to build altars to honor his father (Beckwith and Luomala 1970; Titcomb 1972). These altars, known as *koa*, are found along all the major islands. Emory (1969) describes a *koa* on the island of Lanai:

> *"A typical and authentic koa stands at water's edge on the sandy point of Honuaula. The irregular platform of stone and coral is six feet high, surmounted by low altar 6 by 12 feet, littered with shells, fish bones, and fresh crabs. At the back of the koa is an enclosure containing pine timbers suggestive of a recent shack."*

One can see from Emory's description that this *koa* and some others are still in use today.

An important religious practice connected with marine areas and fishing is the belief in the transmigration of the soul of a dead relative into certain species of fish (or other animals), or the animation of certain species by a departed one's soul. These ancestral personal deities, called *aumakua*, took the forms of sharks, eels, octopus, limpets, or other types of marine organisms (Titcomb 1972; Khil 1978; Kawaharada 1992). The *aumakua* were family guardians that were worshipped with daily prayer and by offerings of food in return for bringing good luck during fishing and other important undertakings (Titcomb 1972). Fishermen would not capture any species that were *aumakua* to their families. Violating the *kapu* against taking one's *aumakua* was thought to bring about severe punishment.

4. Kahoolawe Island *(Kohemalamalama O Kanaloa)*

Kahoolawe Island is extremely important from a traditional, cultural, and religious point of view to Native Hawaiians, and has been designated a *State of Hawaii Island Cultural Reserve* as well as a *National Archeological District.* A diverse array of cultural, archeological, historical and environmental resources provide opportunity for greater scientific and cultural learning as well as practicing traditional and contemporary Native Hawaiian culture. The importance of Kahoolawe is best summarized in the Kahoolawe Island Conveyance Commission's 1993 Final Report to Congress (KICC 1993), which states, "Kahoolawe serves as a cultural resource, particularly for Native Hawaiians, because it links past traditions with contemporary practices. It is a place where cultural practices, including religious ceremonies, continue to be observed and where legends and traditions continue to survive, often in place names and the oral traditions relating to the island."

Much of what is known about the culture and traditions of Kahoolawe was recorded in an oral tradition called *mele*. Mele included songs, chants, and genealogical recitations (Aluli and MacGregor, 1991). However, archeological and historical reports also reveal past uses and provide insight into the culture. Kahoolawe Island contains the remains of numerous fishing shrines (*ko'as*) and several temples (*heiaus*), and stone alters (*ku'ula*) used to propitiate the fish deities and assure good catches within its coastal area. These terrestrial artifacts have traditionally been used as land markers to define the areal boundary of an individual's fishing grounds, or the boundary within which certain species of fish could be caught. Ongoing archeological evaluations are studying the nature of these land-based artifacts, as they relate to and have been used in the traditional Hawaiian land and sea management practice of *ahupua'a.*

While the terrestrial sites are not included in the Sanctuary boundary, some of the archeological sites are located in underwater caves. There have been reports of "resource raiding" and looting by divers. Cultural, historical, and archeological sites have not been identified at this time as Sanctuary resources. However, any increased surveillance or enforcement as part of Sanctuary management initiative could assist the KIRC in minimizing destructive activities.

The NMSA requires the Secretary of Commerce, in consultation with the State of Hawaii, to make an annual certification as to whether the waters within 3 nautical miles of Kahoolawe are suitable for inclusion in the Sanctuary. In December 1995, the Secretary, in close coordination with the State of Hawaii and the KIRC, certified that these waters are not suitable for inclusion in the Sanctuary. These waters contain unexploded ordnance from Navy activities that pose a safety risk to users of the area. As part of the 1996 NMSA reauthorization, the annual certification requirement by the Secretary was removed and replaced by a process that would allow the State of Hawaii and KIRC to nominate the waters around Kahoolawe for possible inclusion in the Sanctuary. NOAA would have to determine if these waters are suitable for inclusion and then initiate the Sanctuary designation process, including public meetings and governor review, before including these waters in the Sanctuary.

a. Kahoolawe Island Reserve

Act 340, Session Laws of Hawaii (SLH) 1993, established the Kahoolawe Island Reserve, by adding chapter 6K to the Hawaii Revised Statutes (HRS). Act 340 provides for the transfer of the island reserve to the sovereign Native Hawaiian entity upon its recognition by the United States and the State of Hawai`i. Management of the reserve is overseen by a seven-member commission. The reserve is to be used exclusively for the preservation and practice of all rights customarily and traditionally exercised by Native Hawaiians for cultural, spiritual and subsistence purposes; preservation and protection of its archeological, historical and environmental resources; rehabilitation, revegetation, habitat restoration, and preservation; and education.

Due to imminent peril to public health and safety, based on the presence of unexploded ordnance and hazardous material on the islands and in surrounding waters, the Board of Land and Natural Resources (BLNR) and the Kahoolawe Island Reserve Commission (KIRC) adopted emergency rules, effective May 6, 1994, to September 6, 1994, for the Kahoolawe Island Reserve [section 91-3(b), HRS, and section 13-1-35, Hawaii Administrative Rules (HAR)]. The U.S. Navy has used the island as a military target since 1941 and has an established danger zone which includes the waters extending two miles from the shoreline. Access into the area is restricted in recognition of the substantial amount of unexploded and hazardous materials present on the island and in the adjacent waters (CFR 763 and CFR 334.1340).

Title X (Public Law 103-139, 107 STAT. 1418, 1479, 1484) authorized the conveyance and return of the island to the State and required the U.S. Navy to remove unexploded ordinance and environmentally restore the island. On May 7, 1994, the island of Kahoolawe was conveyed to the State of Hawai'I from the U.S. Navy The imminent threat to public health and safety will continue to exist until the reserve has been cleared of unexploded ordnance and hazardous waste

On August 18, 1994, the Hawaii Administrative Rules were amended to include formal rules for the Kahoolawe Island Reserve (HAR, Title 13, Subtitle 12, Chapter 260). The rules divided the reserve into two zones: zone A includes all of the upland areas, including the waters from the shoreline to a depth of 20 fathoms, and zone B includes the waters from a depth of 20 fathoms out to 2 miles from the shoreline. The following uses are prohibited within the reserve:

- No person shall enter the reserve for any purpose, or operate, leave unattended, beach, park, anchor, or moor vessels or any other water craft, or use the reserve except in cases of emergency or as provided in this chapter.
- No person shall remove or attempt to remove any aquatic life, mineral, or vegetation from the reserve, except as provided in this chapter.
- No person shall engage in any activity which shall include but not be limited to: fishing from shore, fishing by trolling or drifting, bottom fishing, spear fishing, net or trap fishing, diving surfing, swimming, snorkeling, and walking in shallow waters within the reserve, except as specifically provided.
- No commercial activities shall be allowed within the reserve, except for vessels transiting the island reserve that are engaged in intra-state, inter-state, or foreign trade.

The following uses are permitted within the reserve:

- Fishing by trolling, where the vessel remains underway at all times, shall be allowed within Zone B on two weekends per month, as noticed by publication in the Local Notice to Mariners issued by Commander Fourteenth Coast Guard District.
- Escorted access to the reserve for the purpose of the following uses may be permitted by written authorization of KIRC, and as necessary, subject to final approval by the U.S. Navy:
  1) Customary and traditional Native Hawaiian cultural, spiritual, and subsistence use in areas deemed safe;
  2) Activities for the preservation, protection, and restoration of cultural, archaeological, and historical sites;
  3) Rehabilitation, revegetation, habitat restoration, and preservation; and
  4) Educational activities.

There is a maximum penalty of $1,000 for each offense, including forfeiture of license and slips

Source: Fact Sheet on Status of Kahoolawe - Kahoolawe Island Reserve Commission, June 1994

5. Submerged Lands

The establishment of the Sanctuary in no way conveys, or intends to convey, to NOAA any title or ownership of Hawaii's submerged lands. These lands, including those known as ceded lands, continue to be held in trust by the State of Hawaii. The Sanctuary will exist as a co-steward of the Sanctuary and its resources. Should the status of the submerged lands change at some time in the future (i.e., lands are conveyed to a sovereign Hawaiian nation), the Sanctuary will work with the appropriate entities to redefine its role if necessary.

6. Traditional Native Hawaiian Uses

Section 2306 of the HINMSA directs NOAA to develop a Sanctuary Management Plan that, among others, "facilitates all public and private uses of the Sanctuary (including uses of Hawaiian natives customarily and traditionally exercised for subsistence, cultural, and religious purposes) consistent with the primary objective of the protection of humpback whales and their habitat." NOAA has not promulgated any regulations that would independently prohibit, restrict or regulate fishing, subsistence gathering or any other access to the water or the Sanctuary resources. NOAA will work with the Native Hawaiian community to develop joint education and research projects that facilities their use of the marine environment and increases the general public's understanding of their practices and culture.

7. Shipwrecks

The Hawaii Maritime Center has a list of over a hundred vessels which have been shipwrecked since 1796. Some of the ships have been salvaged or floated and a complete inventory of locations is not known. The number of historical shipwrecks that lie within the Sanctuary boundary is presently not known. At this time, shipwrecks are not considered as Sanctuary resources, but may be added under the process for identifying "other resources of national significance" through the designation process outlined in the Management Plan. Under the Abandoned Shipwreck Act (ASA) of 1988, (P.L. 100-298) the State Historic Preservation Officer (SHPO) is given the responsibility to inventory and manage historic resources such as shipwrecks. Likewise, under the National Historic Preservation Act of 1966 (NHPA), Federal agencies must inventory, assess, and nominate to the National Register of Historic Places any historic/archeological properties on public lands or, in the case of Hawaiian waters, on submerged or bottom lands.

In summary, the marine waters around the Hawaiian Islands contain a variety of cultural (settlement patterns, religious practices, resource management practices) and historical (archeological sites, oral traditions, fishponds, shipwrecks) resources unique to the Hawaiian Islands. Inclusion of these resources in the Sanctuary would heighten public and agency awareness of the importance of these resources and expand the scope of the Sanctuary's management and resource protection programs (research, long-term monitoring, education, outreach, cultural awareness, and enforcement). The Final EIS/MP summarizes some of these cultural and historical resources. More detailed information about these resources, and consultation with Native Hawaiian groups and the various Federal, State and County management regimes is needed before the Sanctuary can proceed with its mandate to identify other resources for possible inclusion in the sanctuary. Part E.6. of the Management Plan identifies a process to include the public and the SAC in assisting the Sanctuary with this assessment.

D. HUMAN ENVIRONMENT AND ACTIVITIES

This section provides information on the users and uses of the marine environment of Hawaii, and the social and economic context for Sanctuary planning and management. Trends indicate continued growth in population, tourism, and uses of the marine environment. Shoreline growth and development will continue for the most part with some limitations and control required by county master plans and ordinances. Hawaii's infrastructure (water, sewer, coastal highways, etc.) will experience increased demand for electricity, oil and other sources of energy, which often require ocean/shoreline location. Changes in agricultural uses along with shifts in land use patterns will provide new challenges for Hawaii; sediments escaping agricultural lands into streams and the ocean may be substituted by urban runoff. New technologies in recreational vessels creating faster boats, and personal submersibles and increased boating density will place new strains on the whale population, especially cow/calf pairs seeking some seclusion during the critical first few months after birth. Heavy use of some famous areas such as Hanauma Bay and Molokini Shoals will increase the demand for new and little used areas bringing human and whale use into more potential conflict. These challenges, and as yet unforeseen challenges, will require the Sanctuary to be flexible in meeting the challenge of protection as well as facilitating uses of the ocean environment.

1. Socio-Demographic Profile

a. Population and Ethnic Makeup

The estimated resident population of the State of Hawaii as of 1992 was 1,159,600. Population breakdown by county is listed in Table II-9. Approximately 75 percent of the population resides on the island of Oahu in the City and County of Honolulu; 11 percent in the County of Hawaii; 9 percent in Maui County (including the islands of Maui, Molokai and Lanai); and 5 percent in Kauai County (including Niihau). According to the 1990 Census, 89 percent of Hawaii's population lives in urban areas. However, there is considerable variation by county, ranging from 96.4 percent urban in Honolulu to 55.2 percent in Kauai.

TABLE II-9: Population and Percent Urban

	Resident Population	Percent Urban
State	1,159,600	89
Honolulu	864,800	96.4
Maui	109,000	77.90
Hawaii	130,500	60.8
Kauai	55,300	55.2

Source: *Hawaii State Data Book*, 1992

Figure II-17 shows how the population has grown since the 1950's. Hawaii currently experiences a population growth rate of two percent.

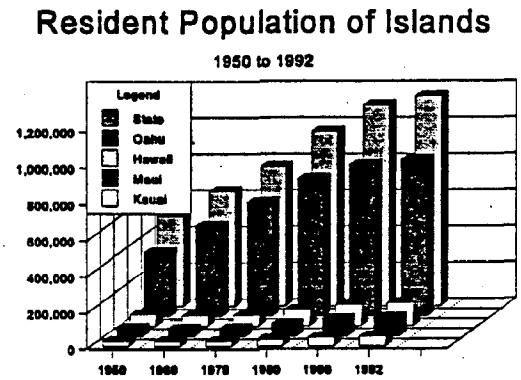


Figure II-17 (DBEDT 1993)

There is considerable ethnic variety, with no single group in the majority, as is shown in Table II-10.

TABLE II-10: Ethnic Diversity, Percentage by County

	State	Honolulu	Maui	Hawaii	Kauai
Caucasian	24.1	25.1	21.6	22.2	18.4
Japanese	20.4	21	17.4	19.3	18.4
Mixed, Part-Hawaiian	18	15.7	24	26.5	24.3
Mixed, Non-Hawaiian	17.5	17.4	17	18.2	19
Filipino	11.3	10.6	15.8	10.2	17.3
Chinese	4.7	6	0.8	0.8	0.6
Black	1.5	1.9	0.2	0.3	0.2
Korean	1.1	1.3	0.7	0.3	0.4
Hawaiian	0.8	0.5	2.3	1.6	1
Puerto Rican	0.3	0.2	0.6	0.4	0.2
Samoan	0.3	0.4	-	0.2	0.10

Source: *Hawaii State Data Book*, 1993 update.

b. Labor Force

The civilian labor force averaged 568,000 in 1992 and Statewide unemployment was 4.2 percent. The unemployment rate varied from a low of 3.2 percent on Honolulu to 8.4 percent on Kauai, reflecting the economic dislocation resulting from Hurricane Iniki (1992). Ocean industries alone employed 18,000 persons and generated $2.9 billion in revenues in 1992 (MacDonald and Deese, 1994). The industry is forecast to grow at 4.5 percent per year over 1992-1998, generating annual revenues of $3.8 billion and employment of about 20,250 in 1998 (MacDonald et al, 1995).

Table II-11 shows that Hawaii's economy is dominated by the service sector: 26.7 percent of the jobs are in the hotels and other services industry; 23.0 percent are in the wholesale and retail trade industry; 18.4 percent are in local, State, and Federal government; and 6.4 percent are in the

finance, insurance, and real estate industries. Transportation, communication and utilities provide 7.3 percent of the jobs, and the nonagricultural self-employed make up 6.6 percent of the jobs. Construction provides 5.7 percent of the jobs, manufacturing provides 3.5 percent and agriculture provides 2.3 percent.

TABLE II-11: Job Count by Industry, by County

	State	Honolulu	Maui	Hawaii	Kauai
Construction	33,500	25,350	3,200	3,700	1,300
Manufacturing	20,400	15,200	2,150	2,250	800
Transportation	32,800	27,300	NS	NS	NS
Communication and Utilities	10,600	5,850	NS	NS	NS
Trade	136,350	102,150	14,050	13,050	7,150
Finance, Real Estate and Insurance	37,500	30,550	3,250	2,400	1,400
Hotels	40,600	19,950	9,500	6,600	4,550
Other Services	117,700	96,800	8,600	8,200	4,100
Federal Government	34,000	32,400	450	800	350
State & Local Government	75,000	57,600	5,900	8,300	3,200
Agriculture	13,700	3,150	3,050	6,150	1,450
Non-Agriculture, self employed	39,000	26,600	4,000	6,050	2,400
Total	591,250	445,100	57,200	60,050	29,050

NS = Not Shown Separately
Source: *Hawaii State Data Book*, 1992

2. Human Activities

a. Fishing

Fishing has always been an important economic and recreational activity in Hawaii, with social and cultural implications outweighing economic impacts. In pre-contact times Hawaiians were adept at exploiting nearshore and intensive use of the ocean for food, tools and religious offerings. Subsequent influxes of immigrants have continued the intensive use of the ocean for food and recreation. The 1992 estimated total consumption of fish in Hawaii was 70.5 million pounds (mlbs), of which 30.4 mlbs. with an estimated value of $62 million were caught commercially; 29.9 mlbs. with a market value of $70 million were net imports; and 10.2 mlbs. were caught by recreational fishers (MacDonald and Deese, 1994). Reported commercial landings have increased over the past few years. Almost 13.5 mlbs. were landed in 1989, 15.4 mlbs. in 1990, and 22.3 mlbs. in 1991. This increase has, to a large degree, been driven by the growth in the longline fishery industry. In 1992 an estimated 70 percent of the total commercial landings were from the longline fleet, which is restricted to fish located more than 50 to 75 miles from shore.

i. Commercial Fishing

It has been estimated that 13 percent (1.4 mlbs) of the 1980-1990 mean annual commercial landings, 10.8 mlbs., were caught "inshore" (within 3 miles of the Main Hawaiian Islands); 66 percent (7.2 mlbs.) were caught "nearshore" (between 3 to 20 miles); and the rest, 21 percent (2.2 mlbs.), were caught beyond 20 miles. The inshore commercial landings are dominated by the catch of Akule (29 percent), Opelu (18 percent) and Ahi (10 percent).

Table II-12 lists the monthly inshore catch for the fiscal year 1992-93 by island and county. The first four months of whale season (November '92 - February '93) were low catch months; however the last two months, March and April '93, were the third and fourth best months of the year. Honolulu leads the counties with the largest annual catch. The smallest annual catch was in Kauai's waters despite the fact that Kauai had the top three catch months (March, April & May, 1993). Table II-13 lists the number of fishers reporting catches by month and by county.

TABLE II-12: Commercial Marine Life Landed by Month/Area, Fiscal Year 1992-93 (lbs.)

	6/92	8/92	9/92	10/92	11/92	12/92	1/93	2/93	3/93	4/93	5/93	6/93	Total
Kauai	12849	26910	5344	5573	2412	5281	9862	6322	92288	65622	75619	41831	349913
Niihau	NA	NA	874	NA	NA	NA	NA	NA	288	2529	NA	2048	5739
Kauai County*	12849	26910	6218	5573	2414	5281	9862	6322	92576	68151	75619	43879	355652
Oahu*	46256	43587	44220	49714	47699	46327	35648	42044	33026	40389	44683	40279	513872
Penguin Bank	5127	3253	3637	7350	6119	7463	10464	7935	4365	7455	08921	9923	89012
Molokai	2555	1154	1973	1671	1949	3497	3709	4390	1208	2547	1811	2680	29144
Lanai	1430	1787	6201	1972	590	1089	1316	2269	1199	1681	2250	768	22552
Maui	19907	16585	12230	8212	3960	5088	6510	11501	3633	3649	11390	27881	130547
Channel	6456	6816	7540	13045	7348	11736	8095	7561	6183	4467	6203	7011	92462
Kahoolawe	4062	1290	607	1644	180	182	1499	755	1302	2268	1086	1509	16384
Maui County*	39537	30885	32189	33894	204146	29055	31593	34411	17890	22067	38662	49772	380101
Hawaii*	45674	61820	43558	54943	27545	27058	18440	24322	35185	28494	34258	68494	469791
TOTAL	144316	163202	126185	144124	97802	107721	95543	107099	178677	159101	193222	202424	1719416

* Note: County numbers are subtotals of island numbers.

Source: Personal Communication, Hawaii Department of Land and Natural Resources (DLNR), Division of Aquatic Resources (DAR), March, 1994.

TABLE II-13: Commercial Fishers by Month and Area, Fiscal Year 1992-93

	6/92	8/92	9/92	11/92	12/92	1/93	2/93	3/93	4/93	5/93	6/93	Total
Kauai	58	42	26	17	22	21	38	40	36	46	60	45
Niihau	NA	NA	5	NA	NA	NA	NA	NA	4	11	NA	12
Kauai Co	58	42	31	17	22	21	38	40	40	57	NA	57
Oahu	125	134	167	187	160	126	114	132	113	115	123	101
Penguin B.	21	15	22	34	29	31	38	44	26	45	47	35
Molokai	21	10	19	18	17	15	16	18	5	20	20	22
Lanai	18	18	18	17	8	12	15	14	16	12	16	14
Maui	50	44	70	61	48	36	39	61	50	54	63	53
Channel	37	40	49	62	44	56	50	43	41	38	40	43
Kahoolawe	18	11	8	18	6	4	15	16	16	12	13	12
Maui Co	165	138	186	210	152	154	173	196	154	181	199	179
Hawaii	142	148	141	173	130	137	117	123	137	135	146	150
TOTAL	490	462	525	587	464	438	442	491	444	488	528	487

Source: DLNR-DAR, March, 1994

The commercial fishing catch from Maui represents nearly 3 percent of the State total. Molokai and Lanai each contribute 0.25 percent and 0.11 percent, respectively (Table II-14). Although the catch from these islands is small compared to that of the rest of the State, these fisheries are an important economic activity for resident fishers.

TABLE II-14: 1993 Landings, Sale, and Value of the Commercial Fishing Catch

Island	*Lbs. landed (% of State total)*	*Lbs. sold*	*Value ($)*
Hawaii	3,666,169 (14%)	3,516,948	$6,002,218
Maui	435,115 (2%)	342,106	$894,581
Lanai	26,825 (0.1%)	23,339	$56,630
Molokai	52,001 (0.2%)	41,660	$94,066
Oahu	20,232,589 (81%)	19,926,382	$52,272,031
Kauai and Niihau	517,933 (2%)	439,194	$1,002,495
Total	**24,930,632(100%)**	**24,289,689**	**$60,322,021**

Source: DBEDT State of Hawaii 1994.

Penguin Bank, located west of Molokai, is noted for its fishery productivity. Fishers from Oahu as well as Maui County use Penguin Bank. Catch reports from the Penguin Bank area for the calendar years 1991 and 1992 are shown in Table II-15. These data indicate that 202,144 lbs. of all fish were landed in 1991, with a total value of $641,265. In 1992, 157,556 lbs. of all fish were landed from the Penguin Bank catchment area with a total value of $500,010. The data below show that pelagics, including tunas, billfishes, mahimahi, ono, and others comprise about one-half the catch. Benthic fish, including deep bottomfish, accounted for about 40 percent of the total catch.

TABLE II-15: Marine Life Caught From Penguin Bank Catchment Area by Commercial Fishermen for Calendar Years 1991-92

	CALENDAR YEAR 1991			CALENDAR YEAR 1992		
FISHERIES	*lbs. landed*	*lbs. sold*	*value ($)*	*lbs. landed*	*lbs. sold*	*value ($)*
Pelagic	99,351	93,966	160,234	70,569	66,097	113,809
Benthic	78,458	75,402	343,352	67,047	64,324	285,685
Coastal/Pel	176	174	341	266	183	346
Reef	1,897	1,663	3,990	1,015	789	1,912
Other	22,262	22,057	133,348	18,659	18,659	98,258
Total	202,144	193,262	641,265	157,556	150,052	500,010

Source: DLNR 1993.

In its *1992 Annual Report on Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region*, the Western Pacific Regional Fishery Management Council (WESPAC 1993) notes that for commercial fishing in the Penguin Bank, Maui/Molokai/Lanai bottom fishing grounds, catch per unit effort over the past several years remains highly variable. A comparison of recent data to information from the 1940s and 1950s indicates a decline in catch per unit effort for individual species. This decline is least apparent in opakapaka and most apparent in ehu (WPRFMC 1993).

Data on State-wide fish catches by gear type indicate that after longlining (which is prohibited within 50 miles of the Main Hawaiian Islands), the most effective methods are handlining, trolling, aku pole and line, and net (see Table II-16).

TABLE II-16: Fishing Methods, Landings, Sale, and Value of Catch From Commercial Fishing for 1991 (6/90-6/91) for the Hawaiian Islands

Methods	*lbs. landed*	*lbs. sold*	*value($)*
Longline	14,150,055	13,872,919	36,316,227
Handline	2,689,274	2,577,860	6,196,570
Trolling	2,936,552	2,516,372	4,431,943
aku pole and line	1,274,451	1,274,385	1,710,584
Net	758,189	707,223	1,171,927
Trap	331,914	328,481	3,317,380
Other	101,212	81,280	208,302

Source: DLNR 1991.

Nets are most often used along reef faces, on the open coast, and in embayments as both fixed gillnets and surround nets. Some bullpen nets are used in areas that are flat and open. There are no trawl fisheries in Hawaii. Table II-17 shows an example of the types of fisheries, gear types used, and how vessels are used, for example off the Kona Coast of the Big Island (Tanaka, 1994, pers. communication).

Hawaii has a statewide system of Fish Aggregating Devices (FADs) located for the most part between the 100- and 1,000-fathom isobath. FAD-associated fishing accounts for more than a million lbs. of fish (ahi, aku, au or marlin, mahimahi, and ono [Department of Land and Natural Resources (DLNR), Hawaii Fisheries Plan 1990-1995]. The FAD is composed of spheres attached by a chain and mooring line to concrete block anchors.

TABLE II-17: Fishing Vessel Activities Within Preferred Boundary on the Big Island (Recreational, Subsistence, Commercial)

FISHERY	*Target Species*	*Gear Types*	*Vessel Usage*
Akule	Akule	Handline, Net	Drift, Sea Anchor
Bottom Fish	Lehi, Opakapaka, Onaga, etc.	Handline, Electric Reel	Drift, Anchor
Crab	Kona Crab	Net	Drop Off, Pick Up
Lobster	Spiny Lobster	Traps, Net	Drop Off, Pick Up
Nehu (Baitfish)	Nehu	Net	Surround, Pick Up
Opelu	Opelu	Handline, Net	Drift, Sea Anchor
Palu-Ahi	Ahi, Aku	Handline, Rod & Reel	Drift, Sea Anchor, Anchor
Reef Fishing	Menpachi, Aweoweo, Moana, etc.	Handline Rod & Reel	Drift, Anchor, Slow Troll
Spearfishing	Same as above	Spear, Net	Anchor
Trolling	Ahi, Aku, Mahimahi, Ono	Handline, Rod & Reel	Medium Speed Troll
Tropical Reef Fish	Various Reef Fish	Traps, Net	Anchor

Source: L. Tanaka, Big Island fisherman, pers. communication, April 1994

The State of Hawaii requires a fishing license only for commercial fishers; those who catch and sell fish. In 1990, DLNR-Division of Aquatic Resources (DAR) issued 3,532 licenses: 3223 to residents, 309 to non-residents, and 23 permits for licenses to fish in the Northwestern Hawaiian Islands. It has been estimated that of the 3,223 resident licenses, 140 to 290 are for the

150 large vessels and fewer than 500 are for full-time, small boat (under 5 net tons) fishers. The rest are part-time fishers, and the number of recreational fishers is several times larger.

ii. Recreational Fishing

Surveys indicate that 19-35 percent of Hawaiian residents fish, and 74 percent of the estimated 12,690 "personal boats" were engaged in fishing as their primary activity. A 1980 survey estimated that there were 2.1 million fishing trips taken by 235,200 residents and 82,200 visitors: 620,000 trips were in private boats, 88,000 in charter boats, and the remainder, 1,392,000, were shoreside fishing trips. A 1984 study estimated that in 1982 73,780 passenger-trips were made by the charter boat industry, capturing 2.2 million pounds of fish and $8.1 million in total revenue.

Fishing takes place from boats that target a variety of bottomfish and pelagic fish. Along various points of the shoreline of Maui, Molokai, and Lanai, people fish primarily for recreational and possibly subsistence purposes. Because there is no licensing program or any requirements to report catch from recreational fishing, data are limited to a small number of creel surveys of shore fishers. Surveys of this type were conducted on Oahu, Kauai, and Hawaii and may provide the basis in the future for estimates of recreational fish catch (Smith in press). Traditional fishing techniques, such as throw net for reef fish and lift net for opelu, are used in some areas of the Sanctuary.

iii. Charterboat Fishing

Charterboat fishing is one of the oldest sectors of the ocean recreation industry. Before the Second World War, Kona was known as one of the world's premier sport fishing destinations. After the war, charter fishing out of Kewalo Basin became a popular attraction for tourists in Waikiki. Kona remains the primary charterboat locale. In 1990, 150 active charter vessels generated an estimated gross revenue of $16.9 million from 77,297 customers (See Table II-18).

TABLE II-18: Charterboat Fishing Revenues and Passengers, by County, 1990.

	Oahu	*Maui*	*Hawaii*	*Kauai*	*Total*
Vessels	28	17	97	8	150
Revenues	$1.7 million	$1.2 million	$13.3 million	$0.7 million	$16.9 million
Passengers	23.9	13.5	32.8	7.1	77.3 thousand

Source: Markrich, M., March 1993.

iv. Aquarium Fish Industry

Hawaii also has an active Aquarium fish industry. The number of aquarium fish collection permits has increased 2.5 times over the last decade. The precise number of permitees who are full-time collectors is not known. The 1989-1990 catch report summary indicated a Statewide gross revenue of $642,000 from the sale of collected fish and invertebrates (DLNR-DAR, 1993).

v. Fishponds and Traditional Uses

The invention of fishponds in Hawaii during the thirteenth or fourteenth century was a unique achievement in Polynesia. It allowed the Hawaiians to move beyond the mere harvesting of fish into fish production and husbandry. Fishponds were found on all the major islands, but the most suitable locations were Kaneohe Bay and Pearl Harbor on Oahu and the southern coastline of Molokai. Estimates indicate that the fishponds may have produced as much as two million pounds of fish. The primary species of fish raised in the fishponds were awa or milkfish, and 'ama'ama

or mullet. A 1987 report stated that there were seven ponds in use for commercial and subsistence purposes. (see discussion at II.D.2., above for additional information.)

b. Commercial Shipping

i. Economic Contribution

Given its island geography, sea and air transportation have special importance in Hawaii's economy. Approximately 80 percent of the goods consumed in Hawaii are imported from overseas and nearly 98 percent of these enter the State via container ships through commercial harbors. The only alternative to ocean transport is to ship by air. Air transport is so cost prohibitive only a few wealthy people could afford to live in Hawaii if all goods are brought in by air transport.

Ocean transport is forecast to grow 4.5 percent per year, generating an annual revenue of $2 billion in 1998 and employing 5,894. (MacDonald, Deese, Corbin, and Clark, State department of Business, Economic Development and Tourism, "New Projections for Hawaii's Ocean Industries: A Strategic Orientation").

ii. Vessel Traffic

In 1992, 2,104 overseas vessels and 3,207 inter-island vessels arrived at Honolulu Harbor. (Approximately six overseas vessels and nine interstate vessels per day). Table II-19 gives the level of traffic in and out of Honolulu Harbor and to and from the neighbor islands.

TABLE II-19: Overseas and Inter-island Shipping, 1989, Freight and Passenger Traffic for Specified Harbors, 1989 [mst = million short tons]

Overseas Cargo	IN:	10.4 mst
	OUT:	1.7 mst
Inter-island Cargo	IN:	5.7 mst
	OUT:	5.8 mst
	Freight	Passengers
Hilo	1.6 mst	9,082
Kawaihae	0.7 mst	
Kahului	2.3 mst	9,083
Honolulu	10.4 mst	626,671
Barber's Point	7.4 mst	
Nawiliwili	1.0 mst	9,082

Source: *Hawaii State Data Book*, 1992, Tables 554 and 555.

iii. Hawaii Ports and Harbors

The State's commercial harbor system consists of seven deep-draft and two medium-draft harbors located on five islands. Honolulu is the primary port, with over 28,000 linear feet of pier (about 70 percent of the system's pier space), and serves as the main entry point for imported goods, the main transshipment point for the neighbor islands, and the main exit point for Hawaii's exports. The other harbors are: Barbers Point and Kewalo, also on Oahu; Hilo and Kawaihae on the east and west shore of the island of Hawaii; Kahului on the north shore of Maui; Kaunakakai

on the south shore of Molokai; and Nawiliwili and Port Allen on the east and south shore of Kauai. In addition, there is a private harbor on the west shore of Lanai. Pearl Harbor Naval Base (closed to commercial traffic) is six nautical miles west of Honolulu Harbor. Two off-shore mooring berths, which serve the oil refineries in Campbell Industrial Park, are located off Barbers Point.

c. Tourism

The visitor industry dominates the Hawaiian economy. In 1991 Hawaii hosted 6.87 million visitors, down slightly from the 1990 peak of 6.97 million (Hawaii State Data Book, 1992). The numbers of visitors and expenditures can be seen it Table II-20. Accommodations for visitors is summarized in Table II-21. Visitor-related expenditures in 1991 were $9,920,902, which generated: direct, indirect and induced sales of $19,376 million; total household income of $6,543 million; 250,900 jobs, and State and county tax revenues of $1,219 million. By comparison, the overall estimated 1991 Gross State Product was $28,616 million, State personal income was $24,045 million, the total job count was 591,250, and total State and county revenues were $3,334 million. Oahu is the primary tourist destination, followed by Maui County, Hawaii and Kauai.

TABLE II-20: Visitor Count and Expenditures, by County (1991)

	Average Visitor Count	Total Visitor Arrivals	Total Visitor Expenditure	Expenditures per Visitor per day
State	157,590	6,873,890	$9,920,902	$174
Honolulu	79,700	5,048,550	$5,353,171	$183
Maui	40,240	2,322,060	$2,225,228	$152
Hawaii	18,630	1,188,630	$1,090.603	$161
Kauai	19,020	1,267,620	$1,104,894	$158

Source: *Hawaii State Data Book*, 1992, Tables 193, 194 and 209.

TABLE II-21: Visitor Accommodations by Type, and by County (1991)

	Total	Hotels	Condos
State	73,779	51,134	22,645
Honolulu	37,279	29,146	8,133
(Waikiki)	32,539	25,114	7,425
Maui	9,552	10,061	9,491
Hawaii	9,170	6,836	2,334
Kauai	7,778	5,091	2,687

Source: *Hawaii State Data Book*, 1992, Table 680.

d. Ocean Recreation

As was previously discussed, Hawaii's economy is heavily dependent on tourism. One important aspect of Hawaii's appeal to visitors is the wide range of ocean recreation opportunities. In 1990 the ocean recreation industry generated an estimated revenue of $509 million and created 5,788 jobs. (See Table II-22) In 1992, the ocean recreation industry increased its estimated revenue to $560 million while providing a slightly higher number of jobs, (5,846). (MacDonald and Deese, 1994). Overall, the growth of the ocean recreation industry during the last decade has been dramatic, providing a boom to Hawaii's economy but also resulting in numerous problems requiring directed management.

TABLE II-22: Ocean Recreation Revenues and Employment by Sub-sector, 1990		
	Revenues	Jobs
Total	574.6	5,771
---------	-------	-------
Tour boats and Cruise Ships	225.3	3,204
Recreational fishing	99.0	na
Surf Shops and manufacture	93.3	692
Personal boating	62.4	779
Competitive events	36.7	80
Dive shop	27.5	617
Charter boat fishing	16.9	203
Billfish tournaments	3.9	na
Jet skiing	4.5	93
Parasailing	3.5	70
Kayaking	1.6	33

Source: MacDonald and Markrich, 1992, Markrich, 1993.

i. Recreational Activities

1) Boating

The State has 18 small boat harbors and 50 boat launching ramps which cater to recreational public and small commercial ocean recreation operators. As of December 31, 1991 there were 5,731 individual small craft mooring berths: 4,643 catwalks and piers; 510 other moorings; and 578 offshore moorings (See Table II-23). There is considerable excess demand for these facilities; 2,400 valid applications for moorage are on file at DLNR, as of 1994.

TABLE II-23: Small Craft Mooring Facilities, by Islands, 1991-92					
	Catwalks and Piers	*Other Moorings*	*Offshore Moorings*	*Total*	*Applications On File*
Honolulu					
SBH	1,287	181	318	1,786	1,600
Other	2,948	0	82	3,030	NA
Maui	75	173	87	335	245
Hawaii	251	120	91	462	480
Kauai	82	36	0	118	75
--------	-------	-----	-----	-------	-------
State	4,643	510	578	5,731	2,400

NA = Not Available SBH = Small Boat Harbors
Source: *Small Craft Mooring Facilities Utilization Report, Quarter Ending: December 31, 1993*, DLNR-Division of Boating and Ocean Recreation (DOBOR)

The DLNR-Division of Boating and Ocean Recreation (DOBOR) maintains a register of all documented vessels in the State. As of December 31, 1993 there were 13,832 vessels registered, of which 12,175 were classified as pleasure boats. There are approximately 1,800 vessels documented by the USCG (see Table II-24). It has been estimated that 75 percent of the pleasure boats engage in fishing as their primary activity.

TABLE II-24: State-Registered Vessels, by County						
	Moored on Water	%	Moored on Land	%	Total	%
Honolulu	1,918	13.9	6,883	49.8	8,801	63.6
Maui	175	1.3	1,389	10.0	1,564	11.3
Hawaii	161	1.2	1,833	13.3	1,994	14.4
Kauai	82	0.6	1,391	10.1	1,473	10.7
State	2,336	16.9	11,496	83.1	13,832	100.0

Source: *Report of Documented Vessel Registration, for Period from: January 1, 1993 to December 31, 1993*, DLNR-DOBOR

2) Surfing

Surfing played an important part in ancient Hawaiian culture and has become a very popular activity in Hawaii and around the world. There are several types of surfing done around Hawaii such as longboarding, shortboarding, bodyboarding, and windsurfing. Maui has developed a reputation for superb swell conditions with clean breaks and fast waves. These conditions favor those just starting to learn as well as the more experienced riders. Surfers can choose from a variety of locations and conditions. The more extreme sites are at the outer reef where waves can reach up to 40 feet. The meek at heart can choose locations where swells vary from 2-10 feet. Best of all, surfing season is all year round. There are 1,600 surfing locations in Hawaii located on the various islands. It is estimated that 23,000 people surf on a typical busy day (Hawaii Ocean and Marine Resources Council 1991).

As a result of surfing being a large recreational activity, a substantial amount of revenue is brought in through service to surfers. Surf shops in 1989 created $15.8 million in revenues, which was a 12 percent growth from the last period, and employed 251 people (MacDonald and Deese 1989).

3) Swimming

The natural beauty of the beaches are considered one of the most important factors in attracting tourism. The Hawaiian Islands have about 310 miles of sandy beach available for swimming and other activity. On a typical busy day 170,000 people are using the beaches for swimming or sunbathing (Hawaii Ocean and Marine Resources Council 1991). In 1988 tourism was estimated to bring in $9.2 billion, and much of that was due to ocean and beach recreation (Hawaii Ocean and Marine Resources Council).

ii. Commercial Activities

1) Tour Boats

The tour boat industry includes a large and diverse collection of activities, including dinner or lunch cruises, snorkel excursions, glass bottom boat trips, submarine trips and ferry boat trips. Whale watching is often combined with other activities during the season. In 1990 the combined estimated revenues for the almost 200 tour boats were $91.5 million; the total estimated employment was 1,944 persons; and the estimated number of passengers was 2.6 million. (See Table II-25)

TABLE II-25: Estimated Tour Boat Revenues, by County, 1990					
	Oahu	Maui	Hawaii	Kauai	Total
Companies	16	30	12	14	72
Vessels	37	63	19	79	198
Employees	974	427	203	340	1,944
Revenues	$42.1	$29.9	$ 7.2	$12.3	$91.5 million
Passengers	1.45	0.61	0.16	0.40	2.61 million

Source: Markrich, 1993.

Each island's tour boat industry has different characteristics. On Oahu, dinner cruises are the dominant activity generating about 75 percent of total revenues. Activities are centered at the beach at Waikiki, Kewalo Basin, Honolulu Harbor, Kaneohe Bay, Keehi Lagoon, and Haleiwa Harbor. On Maui, the dominant activity is snorkeling, primarily at Molokini Crater, which generated 80 percent of revenues. Points of departure are Lahaina, Maalaea, Mala wharf, the beach in front of the hotels at Wailea and Kaanapali, and Keehi boat ramp. On Kauai, the main activities are the Na Pali Coast tours with 57 percent of the revenues and the Wailua River boat rides with 19 percent of the revenues and 72 percent of the passengers. Vessel moorings are at Hanalei, Wailua River, and Port Allen/Nawiliwili. On the Big Island, the dominant activities are dinner cruises and snorkeling trips to Kealakekua, with 76 percent of the revenues. Points of departure are the moorings at Kailua-Kona, the beach in front of various resorts on the Kona-Kohala coast, and Honokahau/Kawaihae/Puako. One cruise ship company is currently operating in Hawaii.

Whale watching takes place Statewide with the major points of departure including the areas offshore of Lahaina, Kaanapali, Napili Bay/Honokowai, Molokini Island, Makena Bay/La Perouse Bay, Kihei, Kamaole Beach, and Maalaea Bay.

Commercial whale watching has been described as:

> ...a highly seasonal trade lasting only from mid-December through April. Approximately 80 percent of the business is conducted by four large companies, utilizing eight vessels. Most of the large vessels doing whale watch tours operate out of Lahaina. However, as many as 28 different vessels are involved in the whale watch trade during the season, and it is common for owners of smaller vessels, catering to snorkel tours, to offer whale watch excursions when times are slow (Markrich in prep.).

In general, the ocean recreation industry of Maui is undergoing significant changes as consumer preferences and available recreation technology changes. Tour boat operators out of Maalaea are generally using small vessels and taking passengers out for combined snorkel/whale watch excursions. Glass-bottom boat rides are on the decline; submarine and inflatable raft snorkel tours are popular and growing. The ferry boat business also grew steadily during the 1980s (Markrich in prep). The Maui to Molokai ferries, which are partially subsidized by the State, transport workers and others from Molokai to Maui hotels. The ferry service to Lanai is privately owned.

2) Thrill Craft (Personal Watercraft)

Thrill craft are defined by State regulations as vessels 13 feet or less in length capable of speeds in excess of 20 mph. The two main categories of thrill craft are jet skis (or waveriders) and parasailing.

There are at least twelve operating jet ski businesses Statewide, with total direct revenues in 1990 of $4.5 million and a work force of 93 people. The operators reported carrying 129,000 people. Operators are required to have a permit and operate within designated thrill craft area, including: offshore Hawaii Kai, Kaneohe Bay, and Sand Island on Oahu; offshore of West Maui; and, offshore East and West Big Island. Certain restrictions apply during whale season.

Parasail rides have been available in Hawaii since the mid 1980s and State regulations limit them to Waikiki, Hawaii Kai, Lahaina and Kona. There is one parasail operation in Maui working out of Lahaina. Due to concerns by the State that jet skis and parasail boats harass whales, the State has established rules that no jet skis or parasail operations can take place during the winter season from December 15 through May 15, a period when many tourists are visiting Hawaii. The 1990 reported revenues were $3.5 million, the work force consists of 70 employees, and 107,00 passengers were served.

3) Competitive Events

Competitive events include ocean sailing races, ocean swimming races and triathlons, surfing and boardsailing contests. These all have relatively short-term impacts on the marine environment.

Hawaii is the venue for several levels of yacht racing including long distance races, international racing in Hawaiian waters, and locally organized yacht club events. The three long-distance races are the Victoria-Maui International Yacht Race from British Columbia to Lahaina, the Pacific Cup Race from Berkeley, California to Kaneohe Bay, and the Transpacific Yacht Race from Los Angeles to Honolulu. The International Kenwood Cup is a large statewide race of ocean-going yachts held in Hawaiian waters. The Transpacific race is held in odd-numbered years and the rest in even-numbered ones. An estimated 132 local races are held each year near or around the main Hawaiian Islands from February to October and are organized by the Honolulu based Hawaii Yacht Racing Association. The ocean sailing races can have as many as 70 boats and the total expenditure for the 1990 season (1991 for the Transpacific) was $13.8 million.

In 1990, sporting events that have an ocean swim component drew 2,100 out-of-state participants with a total of 12,200. They generated $14 million in expenditures in 1990. Eighteen commercial and amateur events were held on Oahu, three on Maui, and 18, including three major triathlons, were held on the island of Hawaii. Popularity of the Big Island commercial events, such as the Ironman triathlon, has grown so much that the Kona Coast is now considered one of the premier ocean swimming centers in the world. In 1992, 1,379 people participated in the Kona Ironman Triathlon. (Hawaii Dept. Business, Economic Development, and Tourism, 1993).

Boardsurfing was an important sport in pre-contact Hawaii. Currently, four types of competitions make use of the nearshore surf: board surfing, board sailing, body surfing and body boarding. In 1990 four professional surfing contests were held at the north shore of Oahu and four professional boardsailing events were held, three on Maui and one on Oahu. The various competitions included almost 900 participants and generated about $4 million in revenues. However, these events have been troubled by competition with other users for waves and public beach areas.

4) Canoe Racing and Kayaking

Hawaiian outrigger canoe racing is an important cultural tradition that dates back to pre-contact Hawaiian society and has attained international popularity. In 1990 six outrigger canoe

racing associations containing 62 clubs and 6,610 paddlers participated in 37 regattas and 32 long distance races.

Kayaking is becoming an increasingly popular sport in Hawaii. In 1990 approximately 20 amateur kayak events were held, nine on Oahu, six on Maui and five on the Big Island, and generated $245,000. Sales of kayaks generated $600,000, and kayak tours on Kauai, Maui and the Big Island generated $846,000 in revenues. The largest share of the kayak tour revenue came from the Na Pali Coast tours on Kauai.

5) Diving

The estimated gross revenues from 47 dive shops interviewed in 1987 were $19.8 million (DBEDT 1992). These dive shops conducted 54,000 introductory dives, 68,000 certified dives, and 128,000 snorkeling trips. The dive shops used 66 boats to take their clients to almost 200 dive sites around the State.

The recreational dive industry is dominated by tours from Maui, primarily trips to Molokini Crater, as is shown in Table II-26. Maui accounted for 51 percent of the introductory dives, 49 percent of the certified dives, 86 percent of the snorkel trips, and 57 percent of the gross revenues. The Kailua-Kona area of the Big Island is also growing in popularity as a dive/snorkel destination.

TABLE II-26: Characteristics of Recreational Dive Industry, by County, 1987

	Oahu	Maui	Hawaii	Kauai	Total
Companies	15	14	14	4	47
Vessels	21	27	17	4	66
Intro Dives	15,810	27,675	7,774	2,720	53,979
Certified	15,090	33,225	14,505	4,915	67,735
Snorkeling	9,000	110,450	7,358	1,260	28,068
Revenues	$ 4.9	$11.3	$2.5	$2.5	$19.8 million
Dive sites	50	66	54	26	196
Most popular	23	19	21	6	69

Source: Tabata, 1992.

iii. Economic Contributions of Ocean Recreation

Ocean Recreation is a major source of revenue for Hawaii. Table II-27 summarizes the revenue and employment ocean recreation produced in 1989.

TABLE II-27: Revenues and Employment Produced by Ocean Recreation

Ocean Recreation	*Revenues (in millions)*	*Revenue Growth (%)*	*Employment*
Recreational fishing	$78.4	11	NA
Cruise ships	58.7	24	1,050
Tour & Charterboats	49.2	12	1,070
Competitive events	26.2	20	NA
Personal boating	21.2	3	81
Dive Shops	19.8	31	518
Surf Shops	15.8	12	251

Source: MacDonald and Deese 1989.

e. Ocean Waste Disposal

i. Water Quality

Hawaii marine waters are affected by both point-source and non-point source discharges originating from industrial, agricultural, municipal and home operations, and from urban and industrial storm water runoff. The primary sources of point source pollution include: thermal discharges from electric generating plants, process wastewater from sugar mill facilities, and irrigation tailwater. Non-point sources of pollution originate primarily from rainfall events and subsequent drainage into streams during high rainfall periods. Poor water quality is common during those conditions, especially in bays and harbors where streams enter the bays and circulation is limited. These areas include: Nawiliwili, Waimea and Hanapepe Bays on Kauai; Kahului Bay on Maui; South Molokai; Hilo Bay and the Hamakua Coast on the Big Island; and Kaneohe, Kailua and Haleiwa Bays on Oahu.

In the latest 305(b) Water Quality Report produced in response to the Clean Water Act (CWA) (P.L. 92-500, as amended) requiring states to report the status of their surface and ground water quality, the overall quality of waters in the State was rated as "very good" (INALAB, INC., April 1992). High levels of toxicity have rarely been detected in most coastal waters with some exceptions (e.g. Ala Wai Canal). All ocean waters, bays and estuaries in the State fully support beneficial uses, with an exception being along the west Maui coast line (Lahaina and Kihei) where seasonal macroalgae blooms (Cladaphora and Hypnea), which may be related to excess nutrients, interfere with aquatic recreational activities. The report notes: "..habitat destruction, introduction of alien species, intensive fishing, and surface runoff containing high concentrations of sediments, bacteria, nutrients and other chemicals have, over time, caused alterations in aquatic community structure and publicly-perceived decrease in the aesthetic qualities of surface waters."

Overall many areas of the state are concerned with sewage spills (often the result of heavy storm events). However, progress is being made to address water quality problems (i.e., in 1990, the State adopted the nation's most stringent standards for the protection of marine recreational waters from pathogenic contamination) and maintain water quality standards (i.e., DOH developed new standards for 97 toxic pollutants (HAR Chapter 11-55)). Clearly, concerns over the protection of the habitat of the humpback whale will relate to the need to ensure that any future degradation of water quality will not harm the whales.

ii. Point Source Discharges

Point-source discharges result from human activities that discharge water or wastes from a specific point -- such as factories or sewage pipes. Section 402 of the CWA regulates and establishes a National Pollutant Discharge Elimination System (NPDES) permit program for the discharge of any pollutant, or combination of pollutants, into waters of the U.S.. Permits are required for all point sources of pollution including wastewater treatment facilities, municipal storm sewers serving large (greater than 250,000) or medium sized (greater than 100,000) populations, storm water discharges associated with industrial facilities, electric generating facilities, industries, and agricultural facilities. EPA has delegated the responsibility for administering the NPDES permit program to the Hawaii Department of Health (DOH). DOH requires permit holders to monitor discharges and to submit reports on a periodic basis.

In 1991, there were 15 wastewater facilities with NPDES permits in the State and eleven of those were discharging a total of 143.32 million gallons per day into ocean waters. The remaining four permit holders used injection wells or reuse of effluent for irrigation or disposal (Tarnas and Stewart 1991:74). There are two ocean disposal sites off Oahu for which CWA 301(h) waivers have been granted to permit primary discharge instead of the normally

consent decree to determine the environmental consequences of releasing primary treated sewage effluent in the marine waters (Mamala Bay Study Commission, 1993). There are only a few harbors and marinas in the State where boaters can have their sewage removed from the boats, consequently, most sewage is released in the nearshore marine waters.

iii. Non-Point Source Discharges

In recent years, the nation's coastal waters have experienced serious water quality problems. Many of these problems are the result of what is commonly called non-point source pollution or polluted runoff. These terms both refer to pollution that enter a body of water as a result of water flowing over the surface of the land, such as rainfall, irrigation, or snowmelt. Common non-point source pollutants include soil, fertilizers, pesticides, animal wastes, oil, grease, litter, lawn clippings, and home lawn care chemicals. These and other pollutants end up in streams, rivers, lakes, estuaries and coastal waters all across the country.

The consequence of non-point source pollution are varied: increased risk of disease from water recreation, algae blooms, fish kills, contaminated fish for human consumption, destroyed aquatic habitats, and turbid waters (HCZMP, 1996). Though some polluted runoff results from natural causes, most results from people's activities on the land and water. Much non-point source pollution is preventable.

Non-point sources of pollution in Hawaii include sediments, nutrients, toxic chemicals, pathogens, acidity, and freshwater inflows. Sediments from eroded soils increase turbidity in coastal waters and can accumulate on critical habitats such as coral reefs. Researchers have estimated the sediments generated by each island to be 182,944 tons/year for Hawaii, 294,300 tons/year for Kauai, 138,320 tons/year for Lanai, 207,020 tons/year for Maui, 214,560 tons /year for Molokai, and 102,700 tons/year for Oahu, for a total of 1,139,844 tons per year (HCZMP 1996). Nutrients, including fertilizers, washed into coastal waters may lead to eutrophication -- the increased decomposition of organic materials in coastal waters leading to a depletion of oxygen. Toxic chemicals, including metals, petroleum-based products, and pesticides, can pose a significant risk to coastal water quality and marine organisms. Coastal water containing significant amounts of pathogens -- disease-causing organisms, such as bacteria, viruses, and parasites -- pose a threat to human and other aquatic animal health, such as humpback whales.

Land-based activities are the primary source of polluted runoff problems statewide. Agriculture, forestry, urban, marina, and hydromodification activities cause most of these problems. Storms and heavy rains generate runoff which picks up the non-point sources of pollution associated with these activities and carries them downstream to the coastal waters. In addition, when land-based activities degrade wetlands and riparian areas, they damage important natural areas that would otherwise absorb and filter polluted runoff before it reaches coastal waters.

Agriculture can produce nutrient runoff which may include some toxic chemicals as well as soil disturbances resulting in deposition of sediments. Heavy rains in agricultural areas antagonize non-point source discharges of pollution. Nutrient runoff is detrimental to coastal zones resulting in eutrophication and depleting oxygen levels. The runoff of toxic chemicals such as pesticides and herbicides can also be damaging to coastal waters and humans. Soil deposition results in soil erosion on land and increased turbidity in coastal waters. The increased turbidity can negatively effect growth on reefs which are critical habitats in the area.

Non-point source discharge from urban areas result from wastewater, stormwater runoff, and cesspool seepage. These sources contribute pathogens, inorganic solids, and sedimentation to coastal waters. Eutrophication, decreased oxygen levels, and increased turbidity can result from such sources. Non-point source discharges accumulate in urban areas through channelization of storm drains from roads and industrial areas to coastal waters.

Larger scale channelization, or hydromodifications, can be damaging to coastal waters because stream flow has been altered in some way. These alterations may bypass wetlands or other areas important for natural filtration. Channelization can also increase runoff flow into coastal waters. Examples of areas with increased flows are Hilo Bay and Kaneohe Bay.

Recreational boating and the wastes associated with such an activity contributes to non-point source discharges. Such wastes include petroleum products, organic and inorganic wastes, and paint shavings.

iv. Ocean Dumping and Dredge Material

The Honolulu Engineer District of the U.S. Army Corps of Engineers (Corps) operates three major programs which have a significant influence on the marine waters of Hawaii, including Regulatory, Civil Works Construction, and Civil Works Operation and Maintenance. The Corps regulates the transport of dredged materials to five EPA-designated deep water ocean disposal sites (see Table II-28 and Figure 11-18), and is also involved with twenty-six river and navigation projects, twelve flood control projects, and eight beach erosion control projects. All of the dredged material disposal sites are located outside the Sanctuary boundary. Additional projects are currently planned or under construction. The projects are often initiated at the request of State of Hawaii or local governments and approved by Congress.

TABLE II-28: EPA Approved Hawaii Ocean Disposal Sites

Site	Depth (m)	Area (n mi²)	Distance From Shore (n mi)
Kauai/Nawiliwili	1,120	0.8	3.3
Kauai/Port Allen	1,160	0.8	3.2
South Oahu	475	1.5	3.3
Maui/Kahului	365	0.8	5.0
Hawaii/Hilo	340	0.8	4.0

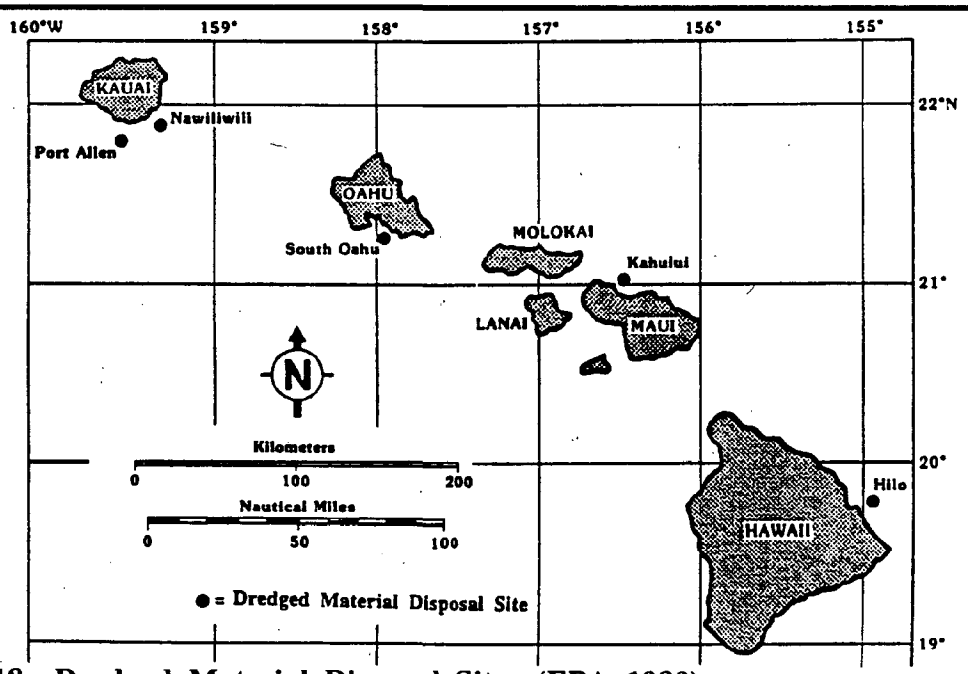


Figure II-18 Dredged Material Disposal Sites (EPA 1980)

f. Department of Defense Activities

i. Expenditures

The U.S. Department of Defense (DOD) has long played an important role in Hawaii's economy. The 1991 estimate of Federal Defense expenditures in Hawaii on goods and services was $3.3 billion. This was a modest increase in real terms since 1981, shown in Table II-29. Most of this spending occurred on Oahu. The regional impact is shown in Table II-30.

TABLE II-29: Defense Expenditures in Hawaii [in $ billions]

	1981	1991
Defense Expenditures	$2,041.2	$3,300.0
GSP Price Deflator	93.3	146.2
Real Defense Expenditures	$2,187.7	$2,257.2

Source: *Hawaii State Data Book, 1992*, Tables 319 and 410.

TABLE II-30: Military Personnel and Dependents, and Acreage Controlled by the U.S. Department of Defense

	Military Personnel	Military Dependents	Total Acreage
State	52,965	56,994	238,937
Honolulu	52,729	56,709	81,459
Maui	17	23	6,327*
Hawaii	80	129	101,882
Kauai	139	133	20,492

* Does not include Kahoolawe.
Source: *Hawaii State Data Book, 1992*, (Tables 313 and 320)

ii. Activities/Operations in Hawaiian Waters

Hawaii is important for national defense purposes because of its strategic location and facility use for both operational and training purposes. Many of the defense facilities (e.g., Pearl Harbor, bases, test ranges) are located on or near the water where transit and training activities occur. The U.S. Army, Air Force, Navy and Marines all have extensive personnel and equipment based in the Hawaiian Islands. Even with the downsizing of the military establishment, activities in Hawaii are not expected to decrease in the long-term (e.g., some units will leave but will be replaced with other units from overseas stations) (DOD Briefing, March, 1994).

The Pacific Missile Range Facility (PMRF) located at Barking Sands off the west of Kauai also plays a significant role as a training facility and is used year-round for air, surface and subsurface training. There are existing limitations of public use both on the water and on the land during specific times of testing exercises. PMRF uses underwater instruments, airplanes and helicopters to ensure that humpback whales are not in the vicinity prior to initiating testing exercises.

The State of Hawaii Department of Defense/National Guard also conducts military training exercises in conjunction with other Federal armed services and non-military activities such as responding to emergencies (e.g. helicopter firefighting including water bucket pickups and training and search and rescue operations) in and near the Sanctuary. The Hawaii Air Guard operates aerial refuelers (tankers), tactical airlifters, and tactical fighters. The Army Guard operates tactical and

transport helicopters and fixed-wing aircraft. In addition, a large number of visiting (transit) aircraft from U.S. military forces fly similar missions in support of the Hawaii based units.

The following examples demonstrate some of the types of Department of Defense military operations which occur in or around the Sanctuary. Also see listing in Appendix F.

1. Submarine Sea Trials. Sea trials usage for submarines upon completion of major repairs such as post-overhaul and post depot-modernization period. This usually occurs in the vicinity of Penguin Bank in the Kaiwi Channel.
2. Submarine Transit Usage (submerged and surfaced throughout islands, Penguin Banks). Occasional port visits to Maui and the other islands.
3. Anti-Submarine Warfare (ASW) Exercises. Usually two per year, lasting several days with surface ships and submarines and including the use of expendable equipment such as smoke floats and bathythermograph probes. Shallow waters are a necessary element in meeting the training requirements. Other exercises including the launching of recoverable, inert (non-explosive) torpedoes are conducted regularly. In some cases, passive (non-noise emitting) hydrophones are placed in arrays on the ocean floor for tracking purposes, which can also be used for non-military uses such as marine mammal or underwater acoustic research. The Pacific Missile Range Facility has prepared a draft environmental assessment on such an operation (PMRF Draft Environmental Assessment For A Temporary Hawaiian Area Underwater Tracking System, April 1994).
4. Special Operations. Necessary to use shallow water areas to meet the littoral mission of the Navy. Usually conducted once a year and last about 24 hours involving submarines and small surface craft. Inert ordinance is used and retrieved.
5. Helicopter and Fixed-Wing Aircraft Operations. Search and rescue, passenger and cargo transfer and special training operations are conducted at low altitudes using night vision devices, etc.
6. Surface Ship Operations. These operations include submarine sea trial escort, dive rescue, and salvage operations. Transit throughout MHI's.
7. U.S. Marine Corps Operations involve practicing amphibious landings and raids from day/night helicopter operations from Oahu to other islands and bases.

iii. Other DoD Military Operations In The Hawaiian Islands

Surface Operations

- Search and Rescue Operations (Inside and outside 100-fathom Isobath)
- Firefighting operations, including water bucket pick-ups
- Pierside Training and Maintenance (Inside 100-Fathom Isobath)
- Dry Docking Operations at Pearl Harbor
- Harbor Movements by Ships, Submarines, Boats and Auxiliary Craft
- Anchoring
- Transit Operations Between Harbors and Operating Areas (Within the 100-Fathom Isobath)
- Special Operations Involving Swimmers and Small Boats (Within the 100-Fathom Isobath)
- Salvage Operations and Towing (Within the 100-fathom Isobath)
- Transit Operations Between Operations Area (Outside 100-Fathom Isobath)
- Towing Operations (Outside 100-Fathom Isobath)
- Engineering, Navigation, Seamanship, and General Warfare-Related Training Exercises (Outside 100-Fathom Isobath)
- Replenishment Operations Underway (Outside 100-Fathom Isobath)
- ASW Operations (Within and Outside 100-Fathom Isobath)
- Amphibious Warfare Operations
- Anti-Surface Warfare Operations (ASUW) (Within and Outside the 100-Fathom Isobath)
- Anti-Air Warfare (AAW)Operation (Outside the 100-Fathom Isobath)

- Explosive Ordnance Disposal (EOD) and Demolition Operations (Within 100-Fathom Isobath Mine Warfare and Mine Counter-Measure Operations by Surface Ships (MCM) (Within and Outside the 100-fathom Isobath)

Subsurface Operations

- Transit Operations (Surfaced and Submerged) to and from Ports and Operating Areas
- Post Maintenance Shallow Water Dives
- Deep Water Dives and Surfacing
- Special Warfare Operations with Swimmers and Small Craft
- ASW and Anti-Surface Warfare Operations
- Torpedo Exercises Using Retrievable Non-Explosive Torpedoes
- Mine Warfare (MIW) Training During Submarine Transit of a Field of Bottom-Practice Mines
- MIW Training for Submarines, Including the Launching of Recoverable Exercise (Inert) Mines

Air Operations

- Landing and Takeoff by Helicopters and Fixed-Wing Aircraft from Shore Bases
- Landing, Takeoffs, and Training Flights at Altitudes above 50 Feet by Helicopters from Ships
- Training Flights and Transfers of Personnel and Equipment by Helicopters and Fixed-Wing Aircraft at Altitudes above 50 Feet
- Low Flying Tactical Helicopter Flights Transiting Between Island Training Areas at Altitudes Between 200 and 500 Feet
- Launches of Target Drones and Missiles from Shore Bases
- Operations from Patrol (P-3) Aircraft and Helicopters against Actual Submarines or Mobile Targets
- Insertion/Extraction of Special Forces (SF)/USMC Reconnaissance (RECON) Troops from Helicopters and fixed-wing aircraft into the water
- Aircraft Carrier Operations
- Air Combat Maneuvering
- Live Missile Firings by Aircraft Versus Target Drone
- Bombing, Missile Firing, and Gun Exercises by Aircraft Using Surface Targets or Kaula Rock

g. Energy and Industrial Uses

Use of the ocean waters surrounding Hawaii as a potential source of energy is important given the State's relative isolation and its dependence on imports to meet energy demands. The State supports many forms of alternative energy research and development, most of which focus on the ocean. During the 1980's Hawaii became the world's leading site for Ocean Thermal Energy Conversion (OTEC) research and implementation. OTEC facilities are intended to replace traditional fossil fuel electrical generation capacity. Other potential energy resources from the ocean, though not currently a priority, include marine biomass plantations for the generation of methane gas, wave power generators, and tidal power generators. In addition, existing conventional energy facilities in Hawaii affect the ocean directly in a number of ways. Hawaii's most important energy source, crude oil, is transported to Hawaii via large oil tankers. The crude oil is unloaded at an offshore mooring site near Barbers Point, Oahu, where it is processed at two oil refineries. Oil-burning electrical generation plants are sited near the ocean and use ocean water for cooling systems.

i. Hydrocarbon (oil and gas) Resources

Hawaii has no natural reserves of conventional energy sources which include petroleum, natural gas, or coal. There are, therefore, no proposals for exploration, development, or production of hydrocarbon resources in the vicinity of the Sanctuary. Crude oil, all of which must be delivered by tanker, is Hawaii's primary energy source. Per capita oil consumption in 1988 equaled approximately 285 million Btu, or about 45 barrels of oil per person. Nearly 60 percent of

the annual Statewide demand for oil is related to transportation needs, such as aviation fuel. Electric utilities are the next largest consumers of oil. Due to the State's mild climate, however, there are virtually no consumer heating needs, and residential energy consumption is relatively low (Schultz 1991).

ii. Ocean Thermal Energy Conversion

Hawaii is the primary site for OTEC research and implementation. Research and development of OTEC methodology are focused on the conversion of renewable solar energy stored in the ocean into electrical energy. The OTEC system is generally comprised of two components. The first system is a system of warm and cold seawater intake and discharge pipes. The second is a plant facility consisting of pumps, turbine generators and heat exchangers. While the methodology and operating costs for OTEC are relatively inexpensive, the capital costs of constructing installations large enough to provide community power are high, especially when contrasted with the currently low price of oil. Nonetheless, OTEC research in Hawaii has grown since 1975, when the Natural Energy Laboratory of Hawaii Authority established the Kona Seacoast Test Facility located at Keahole Point on the Big Island as the primary OTEC research facility in the United States. Between 1979 and 1989, growing interest in OTEC projects supported expansion of the Seacoast Test Facility into the Hawaii Ocean Science and Technology (HOST) Park. An OTEC demonstration project that produced net electrical power for the first time with an open-cycle system has been operating here since 1993. A closed-cycle system OTEC pilot plan began in 1995.

A variety of State authorities have jurisdiction over all ocean energy development projects in Hawaii including: DLNR; Department of Transportation (DOT)-Harbors Division; DOH; Public Utilities Commission, and relevant County planning commissions. In addition, such projects may be subject to the jurisdiction of Hawaii's Coastal Zone Management (CZM) Program.

iii. Geothermal Energy Production/Underwater Electrical Transmission Cables

Hawaii has one geothermal energy facility located on the Big Island near Puna. The Puna Geothermal Venture (PGV) produces electric energy from a geothermal power plant and geothermal wellfield located approximately 21 miles south of Hilo in the Puna District. PGV is sited on about 500 acres of land in the Kapoho area of which approximately 25 acres houses the facility. The PGV facility is in the geologic region known as the East Rift Zone, found on the eastern flank of the Kilauea Volcano.

PGV supplies electric power to homes, businesses and a wide variety of consumers across the Big Island. PGV is the first commercial geothermal power plant in the State of Hawaii and is currently producing 25 megawatts of power -- enough electricity to meet the energy needs of over 25,000 Big Island residents and visitors. At this time, geothermal energy is the only large-scale commercially produced alternative to fossil fuels in Hawaii. Solar and wind energy production are still in experimental stages and do not produce enough power for large-scale commercial application.

The State of Hawaii is investigating the feasibility of placing a deep-water electrical transmission cable and support system to deliver electricity from geothermal energy resources on the Big Island to consumers on Oahu. The undersea cable could transmit up to 500 megawatts (MW) of electrical power, almost half of Oahu's current demand. This transmission system is also envisioned to provide back-up electrical power to other Islands during power emergencies (Schultz 1991).

The preferred route for the undersea transmission cable will begin at Puna on the Big Island, move north and west to Waimea over land, then crosses the Alenuihaha Channel to Maui at

a depth of 6,350 feet. On Maui, the cable comes onto land at Huakini, crossing the southern tip of the Island to submerge again at Ahini. From there, it runs northwest past Lanai and Molokai, through the Auau Channel at a depth of 410 feet, before heading across the Kaiwi Channel under 2,240 feet of water to Waimanalo on Oahu (Schultz 1991).

The cable project will be implemented in conjunction with the development of a 500-MW geothermal generation plant on the Big Island in a joint effort called the Hawaii Geothermal/Interisland Transmission Project. In 1989, Hawaiian Electric sent out a Request for Proposals (RFPs) to 33 organizations to finance, design, construct, install, operate and maintain a 500-MW geothermal/interisland transmission project. That same year the State of Hawaii awarded a major contract to Environmental and Energy Services Company (ERC) to prepare the project's master plan and environmental impact statement.

iv. Marine Hard Minerals

Manganese crusts and nodules containing iron, manganese, cobalt, copper, nickel, and platinum are found in deep waters outside the Sanctuary. Manganese nodules of commercial interest are located in international waters. The metal of primary interest (on which economic feasibility is largely based) in the nodules is nickel. Copper and cobalt are also important revenue products as are manganese and molybdenum. Manganese crusts are generally found on seamounts, many of which would be within the Exclusive Economic Zone (EEZ). The primary metal of interest in crusts is cobalt. Heavy metals, such as platinum, are also important. Manganese crusts have been located adjacent to Hawaii and Johnston Island, and are most typically found at depths between 800 and 2,400 meters or more, well outside the Sanctuary boundary. To date, more research and exploration have been directed toward the technology of seabed nodule development than has for manganese crust development. However, although present information about manganese crusts is preliminary, it is known that cobalt concentrations in crusts are approximately four times greater than those found in nodules, and the total value of additional metals found in crusts is also higher than that found in nodules. These factors will likely support additional efforts into learning more about development of manganese crusts, particularly because crusts tend to occur in shallower waters within the EEZ, whereas nodules are often located in deeper waters outside the EEZ, where jurisdiction is less clear.

In general, a marine minerals industry located in Hawaii would provide a domestic source of important strategic materials, and would significantly alleviate the current dependence upon imported cobalt, manganese, and nickel resources. The investment costs to establish a crust mining operation in the sea would be very high; given the investment costs and limited availability of sites, it is not likely that any other such operation would be established. Despite these difficulties, such an industry in Hawaii would diversify the State's economy into areas other than the traditional tourism, government (civilian and military), and construction industries.

The NOAA licenses are for areas off the South American coast international waters. DOI regulates ocean mining within 200 miles whle NOAA regulates it outside of 200 miles per an agreement between DOI and NOAA. Only the area of DOI jurisdication is relevant to the Hawaiian waters.

The Department of the Interior (DOI) has concluded that leases for ocean minerals can be issued under the Outer Continental Shelf Lands Act (OCSLA). The DOI, Minerals Management Service, Office of Strategic and International Minerals (OSIM) issues permits for exploration and commercial recovery. In addition, NMFS and WESPAC would play consultative roles in the development of any manganese development proposal. Necessary permits for harbor facilities to accommodate processing, transportation and other needs related to ocean minerals development would fall within the jurisdiction of the Corps of Engineers. Finally, EPA is responsible for water quality and protection of the benthic community beyond the State's territorial sea.

v. Sand Resources

Sand is the most valuable nearshore mineral in Hawaii (Shannon 1991). Sand resources are vitally important to coastal areas for shore protection and as a source material for construction materials (i.e., concrete). The worth of Hawaii's beaches as a recreational focus for residents and tourists goes beyond any dollar estimate. Some of the most popular beaches (e.g., Waikiki and Ala Moana) are maintained against erosion and sand loss by replenishing activities. Maintenance of public beaches, and the need to compensate beaches for rising sea levels provide an impetus to investigate the feasibility of mining nearshore sand resources to meet these needs.

Sand for beach replenishment is currently obtained from graded onshore, inland sand dunes located on Kauai, Maui, and Oahu. However, sand from these sources is in limited supply and, in fact, inland dune sand on Oahu is predicted to be depleted in less than ten years (Shannon, 1991). Also, the cost of transporting sand for beach replenishment from the Neighbor Islands to Oahu, combined with restrictive State regulations have further encouraged study of prospecting for sand deposits within nearshore waters (i.e., within State waters). Several potential sand deposit sites have been identified through these studies. Presently, there is no sand mining activity within the Sanctuary. There is, however, concern for future shortfalls of sand supplies. The prospect of mining offshore sand deposits will become greater as onshore sand deposits become depleted.

With certain exceptions, sand mining has been effectively banned in Hawaii since 1978. However, in the event that the State of Hawaii determines to pursue development of nearshore sand mining operations for beach replenishment, it will be required to comply with provisions of the Coastal Zone Management Act (CZMA), the Rivers and Harbors Act, Section 404 of the CWA, and possibly Title I of the Marine Protection, Research and Sanctuaries Act. Direct jurisdiction over sand mining activities would rest with DLNR, which would issue permits through a Conservation District Use Application (CDUA) process and through a Corps of Engineers CWA Section 404 permit.

h. Agriculture

As of 1991 there were an estimated 4,500 farms in Hawaii with over 1.7 million acres. Table II-31 gives the breakdown of farms and acreage by county.

TABLE II-31: Number of Farms, Farm Acreage, and Value of Crop Sales, by County (1991)

	Number of Farms	Farm Acreage (1,000)	Sugar	Pineapple	Flowers	Other	Livestock
State Total	4,500	1,710	$174.8	$107.8	$68.1	$113.1	$90.1
Honolulu	900	125	30.6	62.2	26.2	10.0	41.8
Maui	600	355	57.9	45.7	8.0	22.8	10.0
Hawaii	2,600	1,005	43.6	--	31.3	64.2	33.4
Kauai	400	225	42.8	--	2.5	6.1	5.0

Source: *Hawaii State Data Book, 1992*, Tables 564 & 567.

The value of crop sales in 1991 was $464 million, or 16 percent greater than total sales in 1981. In real terms, however, there was a 28 percent decline, shown in Table II-32.

TABLE II-32: Crop Sales in Hawaii [in $ millions]			
	1981	*1991*	*% change*
Nominal Value of Crop Sales	$401.3	$463.8	+15.6%
CPI-U	91.7	148.0	+61.4%
Real Value of Crop Sales	$437.7	$313.4	-28.4%

Source: *Hawaii State Data Book, 1992*, Tables 563 and 411.

Unprocessed sugar cane was the largest single crop with $174.9 million in sales in 1991. Second was pineapples with $107.8 million in sales, and third was flowers and nursery products with $68.1 million. Table II-31 gives the breakdown by county. Sales of livestock registered $90.1 million in sales.

Since 1981 total farm acreage statewide has declined from 1,965,000 acres to 1,700,000 acres in 1992, and the total acreage in crops has declined as well from 291,300 acres in 1981 to 212,200 acres in 1992. The decline in cultivated land (79,100 acres) was due primarily to a decline in sugar cane (70,400 acres), most of which was on the Big Island (43,200 acres). The decline in Pineapple (14,800 acres) occurred mostly in Maui County which lost 15,900 acres, while there was a 1,100 acre increase on Oahu. Other agricultural products saw a 6,100 acre increase.

j. Aviation

The State of Hawaii has seven commercial and seven general aviation airports. In addition, there are six military and two semi-private airports. The distribution of these facilities is shown in Table II-33. In 1992 there were 21 helicopter tour companies with 91 aircraft, using 3 semi-private heliports, eight of which are on the Big Island. Table II-34. shows the number of aircraft operations at the major State-owned airports in Hawaii.

TABLE II-33: Airports and Heliports, by Control and by Islands, 1991					
	Airports				Heliports
	Commercial	General	Military	Private	
Hawaii	2	2	1	-	8
Maui	1	1	-	1	-
Kahoolawe	-	-	-	-	-
Lanai	1	-	-	-	-
Molokai	1	1	-	-	-
Oahu	1	2	3	-	1
Kauai	1	1	1	1	2
Niihau	-	-	-	-	2
Kure Atoll	-	-	1	-	-
TOTAL	7	7	6	2	13

SOURCE: *Hawaii State Data Book*, 1992, Table 531.

TABLE II-34: Aircraft Operations, by type of Aircraft, at Major State-Owned Airports, 1991

	All Movements	Carrier	Air Taxi	Air Aviation	General Military
Honolulu Int'l	403,566	196,037	65,390	113,799	28,340
Hilo Int'l	88,206	19,596	38,504	20,802	9,304
Kahului	180,857	51,668	74,410	49,717	5,062
Lihue	112,679	30,825	64,341	11,027	6,486
Keahole	56,140	26,478	11,069	15,265	3,328
Molokai	47,898	124	35,304	10,367	2,103

SOURCE: *Hawaii State Data Book*, 1992, Table 534.

k. Research

A significant amount of research is conducted on ocean and coastal resources in the Main Hawaiian Islands. Some examples of research on humpback whales includes: whale identification (fluke photographs and mark-recapture studies); audio mapping and tracking; and behavioral studies (social dynamics, effects of boats and other human water craft on whale behavior). Research institutions include the University of Hawaii, Kewalo Basin Marine Mammal Laboratory, Pacific Whale Foundation, Center for Whale Studies, Albright College, Moss Landing Marine Laboratories, Southern Illinois University, National Marine Mammal Laboratory, and the Hawaii Wildlife Fund (E. Nitta, NMFS, pers. comm. 1993). Some of this work is supported by NMFS; however, most is supported by private non-profit organizations through public contributions.

Evans (1992) compiled a list of research projects initiated and funded by NMFS, designed to address NMFS concerns. Much of this work was done in Alaska, although the results have direct relevance to the Sanctuary. These studies focused on a variety of topics including:
(1) impacts of vessel traffic on humpback whale behavior; (2) resource assessments; (3) surveys of humpback whale populations; (4) surveys of humpback whale foraging; (5) effects of oil on the marine environment, including humpback whales; and, (6) periodic workshops and conferences to compile and compare information on humpback whales, marine mammal researchers, and the review and reevaluation of whale watching programs and management needs.

Research is also conducted on other cetaceans in the area. The most extensive marine mammal surveys performed to date in Hawaii was conducted from February to March 1993 and repeated from February to April in 1995 to evaluate the effect of the ATOC transmission on marine mammals. The ATOC project involves a low frequency acoustic transmission designed to measure oceanic thermal characteristics. The aerial surveys were conducted to determine baseline population dynamics and distributions throughout the State. This year the ATOC Marine Mammal Research Program will investigate the effects of ATOC sound sources on the distribution and behavior of marine mammals, particularly the humpback whale.

The Sanctuary area has also been the site of research on coral reefs. Other marine research is focused on the marine resources around Kahoolawe, which includes studies on sea turtles, water quality, fish, and corals (Jokiel et al. 1993). NOAA, EPA, and DOH have supported significant research and monitoring projects in west Maui which focus on determining the factors relating to the macroalgae blooms in the nearshore waters of west Maui. The different types of research focus on monitoring and determining the dynamics of potential impacts of different land uses on nearshore water quality. Special attention is placed on nutrient loading which may cause nuisance algal blooms (J. Harrigan, DOH, pers. comm. 1993).

l. Current Educational Efforts to Address Management Concerns

Various public and private groups are involved in educational efforts relating to humpback whales. A detailed list of such programs, based on the *Environmental Education Resource Guide* by the Hawaii Environmental Education Association (HEEA), and on further discussions with various environmental education organizations is given in Appendix I.

The Bishop Museum Education Program offers elementary schools guided tours through the Bishop Museum's whaling exhibits. The USFWS Kilauea Point National Wildlife Refuge on Kauai operates a public information center at the refuge and produces publications on conservation issues which are available to schools and the general public (HEEA, 1993). They are currently working with the Hawaii Sanctuary to include information on humpback whales.

Major Federal and State agencies that participate in humpback whale environmental education programs in Hawaii include: NMFS, the Sanctuary, the State of Hawaii, and the University of Hawaii Sea Grant College Program. NMFS educational efforts include public meetings and public hearings related to changes in the marine mammal regulations and informational brochures (Evans 1992). The Hawaii Sanctuary conducts education and outreach activities on- and off-site for school children and adults. The Sanctuary has also worked cooperatively with Federal and State agencies, and the private sector to produce information brochures about humpback whales, watching whales and summaries of Federal regulations pertaining to whales.

The State of Hawaii has designated the humpback whale as its State marine mammal. No educational campaign focusing specifically on humpback whales has been initiated by any State agency; however, administrative rules relating to management of human activities potentially affecting whales have been promulgated, as described below. DLNR-DAR has a network of educational specialists dispersed throughout the Main Hawaiian Island chain, as a means of generating and distributing information and literature relevant to the resources of the marine environment. These efforts are supported by the Sport Fishing Institute and thus have focused on marine resources other than whales.

The University of Hawaii Sea Grant (UHSG) has conducted several workshops, and has developed reports and brochures to educate the public about humpback whales. These include a guide for the amateur whale watcher (UHSG 1985), a catalog of individual identification photographs (Perry et al. 1988), and numerous articles in its newsletter, *Makai*..

There are numerous other private and non-profit groups conducting educational efforts that include humpback whales. These include the Pacific Whale Foundation, Ocean Mammal Institute, Whales Alive, Hawaii Wildlife Fund, Earthtrust, Hale Kohola (House of the Whale), Hawaii Maritime Museum, Moanalua Gardens Foundation, Sea Life Park, Waikiki Aquarium, West Coast Whale Research Foundation Center for Marine Conservation, and Greenpeace. In addition, several programs develop curriculum material for local elementary schools that include a focus on humpback whales in Hawaii, including work supported by the Malama Kai Foundation, Friends for the Future, and other Hawaii-based groups.

m. Existing Protected Areas, Cultural and Historical Resources

i. Protected Areas

Hawaii's marine and coastal environments are major contributors to its economy and an integral part of its history and culture. Certain marine and coastal areas are currently protected under Federal, State or county law and additional sites may be designated in the future. The Federal government uses a variety of different programs, including regulatory mechanisms and

special area or site specific management plans (national parks, wildlife refuges, critical habitat and species management) to protect unique or significant habitats, while the State has established and maintains natural area preserves, wildlife preserves, marine preserves and unique ecological preserves. For purposes of a comprehensive management plan, it is important to understand where all these existing protected areas are located, their purposes and regulations, and how the Sanctuary can most effectively work with and coordinate these units to ensure both Federal and State objectives are met. There are numerous opportunities to conduct joint research, education programs, interpretive displays, etc. within these units for humpback whales and their habitat, or potentially in the future for other resources if designated as Sanctuary resources.

ii. Federal Protected Areas

Existing Federal protected areas in marine waters include two main groups, both administered by DOI.

1) National Wildlife Refuges

The Hawaiian Islands National Wildlife Refuge was created in 1909 primarily to protect numerous sea and shore birds. The Refuge includes all the Northwestern Hawaiian islands and reefs from Nihoa Island to Pearl and Hermes Reef including some 1,800 acres of emergent land and over 250,000 acres of submerged land. These islands and offshore waters provide habitats for over five million seabirds of 18 different species, including albatross, boobies, frigate birds, petrels, shearwaters, storm-petrels, terns and tropic birds. There are also three endemic species of land birds, endangered Hawaiian Monk Seal and the threatened green turtle. Remnants of prehistoric occupation by early Polynesians are also protected on Nihoa and Necker Islands.

The *Kilauea Point National Wildlife Refuge,* established in 1985, consists of 187 acres, is located approximately 2 miles north of Kilauea on the northern-most point of Kauai. Public use of the refuge averages more than 300,000 visitors annually. The point itself is a remnant of the former Kilauea volcanic vent that erupted about 15,000 years ago. Today, only a small U-shaped portion remains, but it includes a spectacular 586 foot ocean bluff. On calmer days, visitors can see humpback whales from the spectacular overviews. Sanctuary purposes are consistent with Refuge purposes which, among others, include:

- endangered species management
- migratory bird management
- environmental education and interpretation
- cultural and historic resource protection
- contamination clean-up
- law enforcement
- research opportunities

Other important native wildlife refuges include Pearl Harbor and James Campbell NWRs on Oahu; Hanalei and Huleia NWRs on Kauai; Kakahai NWR on Molokai; Kealia Pond NWR on Maui; and Hakalau Forest NWR on Hawaii.

2) National Parks

In some marine areas adjacent to coastal national parks, the National Park Service (NPS) manages human activities that may impact park resources. Under the Hawaii National Parks Act, the NPS can extend its jurisdiction over the adjacent marine areas and develop rules regulating fishing and taking of other marine life. However, since these marine areas are located in State waters, management strategies would require a joint Federal-State plan. Areas managed by the National Park Service in Hawaii include: Haleakala and Volcanoes National Parks; Kalaupapa,

Kaloko-Honokohau, Pu`uhonua o Honaunau, and Puukohola Heiau National Historic Sites, and the USS *Arizona* Memorial.

iii. State Protected Areas

1) Marine Life Conservation Districts

Marine Life Conservation Districts (MLCD) protect unique areas of the Hawaiian marine environment. DLNR-DAR is responsible for establishing, managing and regulating human uses in the MLCDs. MLCDs have been designated at *Hanauma Bay*, *Waikiki* and *Pupukea* on Oahu; *Manele-Hulopoe* on Lanai; *Molokini Shoal* and *Honolua-Mokuleia* on Maui; and *Kealakekua Bay*, *Wailea Bay*, *Lapakahi* and the old Kona airport on the Big Island.

2) Fishery Management Areas

State regulations restrict fishing activities within Fishery Management Areas (FMA), established and managed by DLNR-DAR. Established FMAs include the *Northwestern Hawaiian Islands*; *Waikiki-Diamond Head Shoreline* on Oahu; *Hanamaulu Bay* and *Ahukini Recreational Pier*, and *Waimea Bay and Recreational Pier* on Kauai; *Manele Harbor* on Lanai; *Kahului Harbor* on Maui; and *Kailua Bay*, *Puako Bay and Reef*, and *Kawaihae Harbor* on Hawaii.

3) The Natural Area Reserves System

The Natural Area Reserves System (NARS) is administered by DLNR's Natural Area Reserve System Commission and has one site with a marine component, *Ahihi-Kinau* on Maui. The goal is to protect unique natural areas from loss due to population growth and technological advances.

4) Underwater Parks

Two MLCDs, *Hanauma Bay* and *Kealakekua Bay*, are also designated State Underwater Parks, managed by DLNR-DAR. DLNR-Division of Boating and Ocean Recreation (DOBOR) has been assigned responsibility for regulating all vessel traffic within Kealakekua Bay.

5) Conservation Land Use Districts Protective Subzone

Conservation Land Use Districts Protective Subzones (CLUDPS) help preserve natural ecosystems necessary to native fish species. All of the Northwestern Hawaiian Islands, excluding Midway, is a CLUDPS.

6) Other State Marine Protected Areas

Marine Laboratory Refuge on Coconut Island in Kaneohe Bay on Oahu; fishing restrictions in boat harbors & canals including Honolulu Harbor, Ala Wai Canal, Kapalama Canal, Heeia Kea Wharf, Pakai Bay and Waialua Bay, Oahu; Hilo Harbor, Hawaii; Alakai Wilderness Preserve, Kauai, Paiko Lagoon Wildlife Sanctuary, Oahu & Hawaii State Sea Bird Sanctuaries, managed by DLNR's Forestry & Wildlife Division.

7) Ocean Recreation Management Areas

In 1988, DOT-Harbors established ten Ocean Recreation Management Areas (ORMA) along heavily-used stretches of coastline on the Islands of Hawaii, Maui, Oahu, and Kauai to help alleviate marine user conflicts and ensure that humpback whale mothers and calves would continue to have nearshore areas to utilize. The responsibility for management of the ORMAs was

transferred with the recreational boating program from DOT to DLNR in 1992. ORMA regulations limit commercial operations to designated zones, and in some ORMAs on Maui and the Big Island, completely ban thrillcraft operations during the primary humpback breeding and calving months (December 15 to May 15 of each year). The boating program was transferred from DOT to DLNR on July 1, 1992, and ORMA rules are now managed by DLNR-DOBOR.

iv. Private Protected Areas

The Nature Conservancy manages two preserves with significant coastal resources: *Moomomi* and *Pelekunu Preserves* on Molokai.

v. Special Protected Areas

Anchialine pools are protected as unique ecosystems only in Cape Kinau Natural Area Reserve, Volcanoes National Park, and Kaloko-Honokohau National Historical Park.

3. Institutional Arrangements and Responsibilities

a. Federal Authorities

i. Marine Wildlife Protection and Conservation Authorities

1) The Fish and Wildlife Act (Fish and Wildlife Coordination Act)

The Fish and Wildlife Act of 1956 (16 U.S.C. 742a, et seq.), the Migratory Marine Game-Fish Act (16 U.S.C. 760c-760g), the Fish and Wildlife Coordination Act (16 U.S.C. 661-666c) and other acts express the will of Congress to protect the quality of the aquatic environment as it affects the conservation, improvement and enjoyment of fish and wildlife resources. Reorganization Plan No. 4 of 1970 transferred certain functions, including certain fish and wildlife-water resources coordination responsibilities, from the Secretary of the Interior to the Secretary of Commerce. Under the Fish and Wildlife Coordination Act (FWCA) and Reorganization Plan No. 4. any Federal agency that proposes to control or modify any body of water must first consult with the United States Fish and Wildlife Service or the National Marine Fisheries Service, as appropriate, and with the head of the appropriate state agency exercising administration over the wildlife resources of the affected state.

The FWCA authorizes the Secretary of the Interior to, among other things: (1) provide assistance to, and cooperate with, Federal, State, and public or private agencies and organizations in the development, protection, rearing, and stocking of all species of wildlife, resources thereof, and their habitat, in controlling losses of the same from disease or other causes, in minimizing damages from overabundant species, in providing public fishing areas, including easements across public lands for access thereto, and in carrying out other measures necessary to effectuate the purposes of the Act; (2) make surveys and investigations of the wildlife of the public domain, including lands and waters or interests therein acquired or controlled by any agency of the United States; and (3) accept donations of land and contributions of funds in furtherance of the purposes of this Act. Such areas made available to the Secretary of Interior pursuant to this Act are administered by the Secretary directly or in pursuant to cooperative agreements in accordance with such rules and regulations for the conservation, maintenance, and management of wildlife, resources thereof, and its habitat thereon.

2) The Marine Mammal Protection Act

The Marine Mammal Protection Act (16 U.S.C. §1361 et seq.), as amended, is designed to protect all species of marine mammals in U.S. waters. The MMPA established a moratorium, with

certain exceptions, on the "taking" of marine mammals in U.S. waters and by U.S. citizens on the high seas, and on the importing of marine mammals and marine mammal products into the United States. The term "take" is statutorily defined to mean "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture or kill any marine mammal." Under the MMPA, the Secretary of Commerce is responsible for the conservation and management of pinnipeds (other than walrus) and cetaceans. The Secretary of Interior is responsible for walrus; sea otters, polar bears, manatees and dugongs. The Secretary of Commerce has delegated MMPA authority to NMFS. The MMPA established the Marine Mammal Commission, which advises USFWS and NMFS on marine mammal issues and sponsors relevant scientific research. Part of the responsibility NMFS has under the act involves monitoring populations of marine mammals to make sure that they stay at optimum levels. Optimum sustainable population is defined as, "with respect to any population stock, the number of animals which will result in the maximum productivity of the population or the species keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element" [16 U.S.C. §1362(8)]. If a population falls below its optimum level, it is designated as "depleted," and a conservation plan is developed to guide research and management actions to restore the population to healthy levels.

The MMPA provides that the moratorium on taking can be waived for specific purposes (primarily for research, education, public display and incidental to commercial fisheries) if the taking will not disadvantage the affected species or stock. It also indicates that permits may be issued to take or import any marine mammal species, including depleted species, to conduct scientific research or to enhance the survival or recovery of the species or stock. Permits may also be issued to take or import non-depleted species for public display. These permits are very specific in designating numbers and species of animal that can be taken, as well as times, dates, places and methods of taking. The MMPA sets maximum civil penalties at $10,000 and maximum criminal penalties at $25,000.

In 1994, Congress amended the MMPA, establishing a new regime to govern the taking of marine mammals incidental to commercial fishing. This new regime included the preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction, development and implementation of take reduction plans for stocks that may be reduced or are being maintained below their optimum sustainable population levels due to interactions with commercial fisheries, and studies of pinniped-fishery interactions. The amendments require NMFS and USFWS to establish regional scientific review groups to prepare the stock assessment reports for all marine mammal stocks in U.S. waters.

For scientific research, enhancement and public display, the 1994 Amendments of the MMPA established new authority to issue permits and authorizations while eliminating other responsibilities. The term "harassment" was statutorily defined to mean any act of pursuit, torment, or annoyance which --

1. (Level A Harassment) has the potential to injure a marine mammal or marine mammal stock in the wild; or
2. (Level B Harassment) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption or behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

New provisions establish General Authorizations for low impact scientific research projects involving Level B harassment of non-endangered marine mammals, and allow NMFS to issue permits for educational and commercial photography purposes. Lastly, the 1994 amendments eliminated much of NMFS jurisdiction over marine mammals held for public display and changed documentation requirements involving their transport and import, as well as inventory record keeping.

3) The Endangered Species Act

The Endangered Species Act of 1973 (16 U.S.C. §1531 et seq.) provides protection for listed endangered or threatened species in U.S. territorial waters and upon the high seas. The ESA provides for the conservation of species which are in danger of extinction throughout all or a significant portion of their range. The most significant protection provided by the ESA is the prohibition, with exceptions, on "taking". The term "take" is defined broadly to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct" [16 U.S.C. §1532(19)]. The regulations in 50 C.F.R. §17.3 also define the term "harass" to mean "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. "Species" is defined by the Act to mean either a species, a subspecies, or, for vertebrates only, a distinct population.

An individual or organization may petition to have a species considered for listing under the act as endangered or threatened. The listing of species qualifies it for increased protective measures. Generally, the USFWS coordinates ESA activities for terrestrial and freshwater species, while NMFS is responsible for marine and anadromous species. Within 90-days of a listing a petition's filing, an agency decision must be made on whether to reject the petition, or accept it and to conduct a status review of the species. NMFS or USFWS can also initiate a status review of a species without a petition for listing. If a status review is conducted, it is initiated with a public solicitation of information and data relevant to the population size and life history of the species. A one-year time limit is placed on making the decision to propose a species for listing. Concurrent with the final listing decision, critical habitat necessary for the continued survival of the species may be designated. For this decision, economic impacts must be considered.

Once a species is listed recovery plans are prepared which identify conservation measures to be initiated to improve the species' status. In addition, Section 7 of the ESA requires all Federal agencies to use their authorities to conduct conservation programs and to consult with NMFS (or USFWS) concerning the potential effects of their actions on any species listed under the ESA. Consultations occur on an on-going basis under Section 7 with Federal action agencies to avoid, minimize or mitigate the impacts of their activities on listed species. Each Federal agency must, in consultation and with the assistance of the Secretary of Commerce (or Interior), insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. NMFS also reviews non-Federal activities which may affect species listed under the ESA and issues section 10 permits for the incidental "take" of those species. Finally, Section 6(f) of the ESA provides that states may regulate endangered species if the state protection measure is more restrictive than the ESA.

ii. NMFS, Southwest Region

NOAA's NMFS has a variety of missions which are directly involved with marine resources in the Sanctuary. In general, these include implementation of the provisions of the Magnuson Fisheries Conservation and Management Act, the MMPA, the ESA, and the Fish and Wildlife Coordination Act (further discussion of NMFS' roles is presented in Part Three of the Final EIS, Section I: Status Quo Alternative). The NMFS Southwest Regional Office is located in Long Beach, California. This regional office oversees NMFS activities operating out of the Pacific Area Office in Honolulu, and the NMFS-Office of Enforcement (OE) in Honolulu. NMFS also operates the National Marine Mammal Laboratory in Seattle, and a Research Center in La Jolla, CA. Under the provisions of the MMPA and ESA, NMFS has Federal regulatory authority over the management of the Federally-protected humpback whale (also the Hawaiian monk seal and sea turtles) in the waters around Hawaii.

The humpback whale was listed as an endangered species under the ESA in June 1970. Section 4(f) of the ESA requires preparation of a recovery plan for the conservation and protection of each listed endangered and threatened species, unless it is determined that such a plan will not promote the conservation of the species. In July 1987, NMFS created a Humpback Whale Recovery Team to assist in the development of a recovery plan. In November 1991 a final Humpback Whale National Recovery Plan (Plan) was completed. NMFS and other state and Federal agencies are coordinating their efforts in the implementation of the Humpback Whale Recovery Plan. The Sanctuary could facilitate full implementation by providing a forum for encouraging other agencies to fulfill their obligations under the plan and by providing additional resources to ensure continuation of important studies, enforcement, and education efforts.

One of the principal objectives of the Plan is to identify the need to designate critical habitat for humpback whales. Critical habitat is defined, in part, as "the specific areas within the geographical area occupied by the species, at the time it is listed . . . on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection" [16 U.S.C. §1532(5)(A)]. Among the factors that should be considered for such designation include, but are not limited to: physical space, food or physiological requirements, cover/shelter, sites for breeding/rearing of offspring, and habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of listed species (see 50 C.F.R. §424.12).

There are no immediate restrictions on human activities in an area designated as critical habitat. Critical habitat designation primarily affects those actions authorized, funded, or carried out by Federal agencies. The designation notifies Federal agencies that a listed species is dependent on a particular habitat and that any Federal action which may affect that habitat is subject to the consultation requirements of section 7 of the ESA. State and private activities that are conducted without any Federal involvement (e.g., fisheries not regulated by the Federal government, boating), are not subjected to the section 7 consultation process. However, it is possible that critical habitat designation could indirectly affect other user interests and coastal development, such as the Corps of Engineers' harbor and channel improvement projects. The ESA section 7 consultation process ensures that NMFS has the ability to review and recommend changes, if necessary, to activities that may directly or indirectly impact humpback whales or their habitat.

The Plan also identifies numerous management and data collection activities that would assist humpback whale recovery efforts. These activities include:

- monitor human-related environmental factors affecting population recovery;
- develop Federal-State and public-private partnerships for protecting whale populations;
- encourage protection of whale habitats;
- measure changes in whale population sizes;
- perform new field studies on population dynamics and model whale populations;
- identify and reduce direct human-related injury and mortality;
- promote education to achieve recovery goal; and
- review permittees/permit procedures and adjust process accordingly.

In response to a growing concern for reducing human-induced interactions with humpback whales, NMFS promulgated interim regulations for approaching humpback whales in Hawaii. 50 C.F.R. §222.31. NMFS also designated specific cow/calf waters around the north and east coast of Lanai and in the Maalaea Bay area of Maui which were removed by the 1994 reauthorization of the MMPA. As provided in 50 C.F.R. §222, Subpart C, the regulations state that it is unlawful to:

- operate any aircraft within 1,000 feet of any humpback whale;

- approach by any means, within 100 yards of any humpback whale;
- cause a vessel or other object to approach within 100 yards of a humpback whale; or
- disrupt the normal behavior or prior activity of a humpback whale by any other act or omission.

These are the current regulations on which enforcement actions are based. NMFS-OE operates an enforcement program to enforce these regulations during the whale season. NMFS has a Memorandum of Understanding (MOU) with the USCG, and the Department of Land and Natural Resources to enforce Magnuson Federal Fishery Regulations, MMPA, and ESA regulations. The Hawaii DLNR enforcement officers have been deputized to enforce the above Federal regulations. NMFS-OE acts as a coordinating body and investigates reported violations of these laws. Each season, NMFS places enforcement agents on Maui to observe compliance with the approach regulations. The officer also travels to other islands as needed.

The goal of enforcement is to achieve voluntary compliance with the applicable laws. NOAA's policy for enforcement within national marine sanctuaries is to prevent, *through education,* violations of the National Marine Sanctuaries Act, individual Sanctuary regulations, and other related conservation laws. NOAA strives to maintain a sufficient enforcement presence within the sanctuaries to respond immediately to violations, and to also have investigative expertise available to respond to complex cases.

NOAA uses three principal enforcement methods to achieve this goal within the sanctuaries:

- Education -- Emphasis on education as a primary tool to ensure that the public utilizes National Marine Sanctuaries in a manner consistent with long-term resource conservation and protection. Education includes an effort to inform sanctuary visitors of the requirements of the regulations *plus* the management/conservation rationale on which the regulations are based. The expectation is that those users of the sanctuaries who understand the rules and the rationale behind them will comply voluntarily. An additional anticipated benefit is that off-island, as well as local Sanctuary visitors, will become advocates of responsible use of the Sanctuary resources. Education by enforcement officers is most frequently done during the conduct of patrols and inspections, but also involves programs that target local citizen, civic, business and government organizations.

- Patrols/inspections -- Every effort is made to provide sufficient levels of patrols and inspections in the sanctuaries by enforcement personnel of the States, NOAA, USCG, and other Federal agencies to protect sanctuary resources. This presence is intended to ensure that users of sanctuary resources are familiar with the regulatory requirements, deter violations of the law, and provide for quick response to violations that do occur.

- Investigations -- An investigative capability is maintained to ensure proper documentation of and response to unlawful acts that are complex enough to require specialized in-depth investigation. Investigations will be used to determine culpability for unlawful acts, or when personnel conducting routine patrols and inspections do not have sufficient time or expertise to fully document a case.

iii. U.S. Fish and Wildlife Service

The role of USFWS in Hawaii is predominantly land-based; however, the agency does have some limited management responsibilities in certain State waters (e.g. endangered species protection). USFWS is responsible for implementing provisions of the MMPA, ESA, Fish and Wildlife Coordination Act, and the Migratory Bird Treaty Act. USFWS also maintains

management and enforcement jurisdiction over the following National Wildlife Refugees in the Hawaiian Islands:

Oahu:	Pearl Harbor and James Campbell NWRs
Kauai:	Hanalei, Huleia and Kilauea Point NWRs
Molokai:	Kakahai NWR
Maui:	Kealia Pond NWR
Hawaii:	Hakalau Forest NWR
Northwest Hawaiian Islands:	Hawaiian Islands NWR

None of these National Wildlife Refuge boundaries extend below the shoreline, however, many are located in waters adjacent to the Sanctuary.

In the Northwest Hawaiian Islands, USFWS protect the lagoons at French Frigate Shoals and Pearl and Hermes Reef. However, other islands in the HINWR such as Nihoa, Necker, Gardner Pinnacles, Lisianski, Laysan, and Midway Islands have little or no special Federal protection (Harrison, 1985) other than for the Hawaiian monk seal. Critical habitat for the Hawaiian monk seal has been designated by NMFS out to 20 fathoms around these islands and atolls and the atolls of Kure and Midway. There is increasing support for extending the role of the Federal government into the waters adjacent to the HINWR and to the Kilauea Point National Wildlife Refuge in Kauai in order to better coordinate the protection of many endangered refuge habitants (monk seals, sea turtles, and seabirds) which depend on both the land and sea environments.

iv. Marine Mammal Commission

In carrying out the functions of the MMPA, the Secretaries of the Interior and Commerce are required to consult with the Marine Mammal Commission (MMC), a special independent advisory body created by the MMPA. The role of the MMC is very broad. Among other things, it must conduct a continuing review and study of all stocks of marine mammals and of all activities of the United States relating to them; it must conduct further studies as it deems necessary; and it must make formal recommendations for the protection and conservation of marine mammals. With this authority, the MMC can directly and indirectly affect many Federal, State and local marine resource management decisions.

v. Marine/Coastal Zone Protection

1) The Coastal Zone Management Act of 1972

As amended, the CZMA, 16 U.S.C. §1451 et seq., declares that it is the national policy to:

- preserve, protect, develop, and where possible, to restore or enhance, the resources of the national coastal zone for this and succeeding generations;
- encourage and assist the states to exercise effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone, giving full consideration to ecological, cultural, historic, and aesthetic values as well as to needs for compatible economic development;
- encourage the preparation of special area management plans;
- encourage the participation and cooperation of the public, State and local governments, and interstate and other regional agencies, as well as the Federal government in carrying out the purposes of the CZMA;
- encourage coordination and cooperation with and among the appropriate Federal, State, and local agencies in collection, analysis, synthesis, and

dissemination of coastal management information, research, and technical assistance; and

- respond to changing circumstances affecting coastal environments and coastal resource management.

Coastal states voluntarily address and carry out this national policy through their Federally-approved coastal zone management programs. Section 315 of the CZMA establishes the National Estuarine Research Reserve System (NERRs). This program allows the Secretary of Commerce to designate representative national estuarine ecosystems that are suitable for long-term research and which contribute to the biogeographical and typological balance of the System. On Nov. 5, 1990, the CZMA was reauthorized and amended to include, in part, provisions on non-point source pollution. Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA) required states to develop and submit to the Secretary of Commerce a Coastal Non-point Pollution Control Program for approval. The purpose of the program is to develop and implement management measures for non-point source pollution to restore and protect coastal waters, working in close conjunction with the other State and local authorities. Hawaii's Office of Planning is currently developing this program in cooperation with DOH, EPA, and NOAA.

vi. NOAA/Office of Ocean and Coastal Resource Management

NOAA's Office of Ocean and Coastal Resources Management (OCRM) oversees management of the Sanctuaries and Reserves Division (SRD) and the Coastal Programs Division (CPD). CPD has primary responsibility over the administration of the Federal CZMA and provides technical and financial assistance to the states to implement provisions of the CZMA. SRD oversees the designation and management of national marine sanctuaries and national estuarine research reserves. In 1976, at the request of the State, OCRM designated the joint Federal-State Waimanu Valley National Estuarine Research Reserve on the Big Island (Hawaii). This area is managed through the efforts of DLNR with NOAA providing matching funds for administration, education, and research within the reserve. In 1996, NOAA and the State of Hawaii, agreed to de-designate Waimanu as a NERR, and leave the site as a State Natural Area Reserve. OCRM continues to work with the State of Hawaii in their implementation of a federally-approved coastal management plan.

vii. National Park Service

The National Park Service (NPS) is responsible for managing Haleakala and Volcanoes National Parks, and Kalaupapa, Kaloko-Honokohau, Pu`uhonua o Honaunau, and Puukohola Heiau National Historic Sites, and the USS *Arizona* Memorial. Most of these parks are in upland or coastal areas though several of these parks have underwater components that are adjacent to the sanctuary or overlap with sanctuary boundaries. If determined necessary to fulfill the purposes and objectives of a national park, the NPS could manage living marine resources in nearshore waters provided that a joint Federal-State management plan is developed. Such an arrangement is currently under consideration for the waters adjacent to the Kaloko-Honokohau National Historic Park in Kona (Tarnas and Stewart, 1991).

viii. Fisheries Management

The Magnuson Fishery Conservation and Management Act (Magnuson Act) 16 U.S.C. §1801 et seq., provides for the conservation and management of all fishery resources in the zone between three and 200 nautical miles offshore (EEZ), anadromous species and continental shelf resources of the United States. NMFS is charged with establishing guidelines for and approving fishery management plans (FMPs) prepared by the appropriate Regional Fishery Management Council for selected fisheries within Federal Waters. These plans determine levels of commercial

and recreational fishing that are consistent with the goal of achieving and maintaining an optimum yield for each fishery.

WESPAC prepares the FMPs for the fisheries around American Samoa, Guam, Hawaii, the Northern Mariana Islands, and other United States possessions in the Pacific. NMFS approves the fishery plans and works with WESPAC and the industry on implementation. NMFS also enforces provisions of the plans.

WESPAC also works in conjunction with DLNR-DAR to jointly manage fisheries. For example, to prevent conflict between different gear types, an emergency rule prohibiting longline fishing within 50 nautical miles of Maui County, including Kahoolawe, was promulgated by WESPAC 56 FR 28116, June 19, 1991; 56 FR 31689, July 11, 1991; and, 56 FR 47701, September 20, 1991. The emergency rule was effective from June 14, 1991 through December 16, 1991. WESPAC has formally recommended that this closure be made permanent. The State adopted WESPAC's area closure and has prohibited longlining in State Waters (DNLR-DAR, 1992).

ix. Marine/Coastal Development

1) Federal Water Pollution Control Act (Clean Water Act)

In addition to covering the clean-up and maintenance of America's water supply, the CWA also governs classification criteria and conservation of the nation's wetlands, under its Section 404 permit program. This program states requires a permit from the from the U.S. Army Corps of Engineers for the discharge of dredged or fill material into the navigable waters of the U.S.. Navigable waters also include wetlands areas. The Corps of Engineers administers this program, based on EPA-developed guidelines. (Also see discussion of CWA as it pertains to water quality in section x.-Water Quality).

2) Rivers and Harbors Act

The Corps of Engineers administers Section 10 of the Rivers and Harbors Act of 1899, which requires a permit for construction "in, under, across, or on the banks" in any coastal or tidal waters below the mean high water mark that involves placing a structure or altering navigable waters. The construction of any structure, any excavation, or any fill activity in the territorial sea or on the outer continental shelf is prohibited without a Corps permit. While major projects require a regular permit, the Corps of Engineers also administers a "nationwide" permit program and a regional permit program for projects of limited scope to reduce delays and paperwork for small projects. All Corps of Engineers' permits apply throughout the Sanctuary boundary.

3) The Outer Continental Shelf Lands Act

The Outer Continental Shelf Lands Act (OCSLA) 43 U.S.C. §1331 et seq., establishes Federal jurisdiction over the mineral resources of the Outer Continental Shelf (OCS) beyond 3 nautical miles, and gives the Secretary of the Interior primary responsibility for managing OCS mineral exploration and development. The Secretary's responsibility has been delegated to the Minerals Management Service (MMS) within DOI. The MMS has overall responsibility for leasing OCS lands hydrocarbon activities and hard minerals mining. In unique or special areas, MMS may impose special lease stipulations designed to protect specific geological and biological resources. These stipulations may vary among lease tracts and sales.

The MMS is also charged with supervising OCS operations, including the approval of plans for exploratory drilling and applications for pipeline rights-of-way on the OCS. Several types of regulatory authority are used in carrying out the MMS supervisory role. Such authority

includes the enforcement of regulations issued pursuant to the OCSLA (30 C.F.R. §§250 and 256) and the enforcement of stipulations applicable to particular leases.

x. Water Quality

1) Point and Non-point Source Discharges

The Federal Water Pollution Control Act (Clean Water Act (CWA)), 33 U.S.C. §1251 et seq. was established in 1977 as a major amendment to the Federal Water Pollution Control Act of 1972 and was substantially modified by the Water Quality Act of 1987. This act is the Nation's principal water pollution prevention statute. The CWA provides for the restoration and maintenance of water quality in all waters throughout the country, with the ultimate goal of "fishable and swimmable" water quality. The act established the National Pollutant Discharge Elimination System (NPDES) permitting system, which is the regulatory mechanism designed to achieve this goal. The authority to implement the NPDES program has been delegated to those states, including Hawaii, that have developed a program substantially the same or as least as stringent as the Federal NPDES program. The NPDES permit program covers all point source discharges including stormwater discharges. By definition, point-source discharges these are pollutants that flow from specific points such as factories or sewage plants. The 1987 amendments to the CWA modified the thrust of NPDES program activities. Greater emphasis was placed on monitoring and control of toxic constituents in wastewater, the permitting of outfalls composed entirely of stormwater, and sewage sludge disposal. These changes in the NPDES program resulted in more closely controlled discharge limits and expanded the number of chemical constituents monitored in the effluent.

Throughout the last two decades, a major emphasis of the CWA has been on cleaning up "point sources" of pollution. Due progress has been made in controlling the emission of these pollutants and attention has shifted toward the other pollutants, know as "non-point" sources. These pollutants result from land use and practices in a watershed which get are carried by precipitation runoff to streams, rivers, lakes, estuaries and coastal waters. The 1987 amendments to the CWA also placed a new emphasis on controlling polluted runoff. Section 319, CWA, requires states to develop non-point source pollution control programs and submit assessment and management plans to the EPA. Section 303(d), CWA, required each state to identify waterbodies not achieving water quality standards, categories and subcategories of non-point source pollutants, and state water pollution control programs. Section 305(b), CWA, requires states to monitor water quality.

The EPA Region IX office in San Francisco, has regulatory responsibilities related to sewage outfalls, ocean disposal activities, and non-point pollution under the CWA. EPA has delegated these responsibilities to the Hawaii Department of Health. EPA provides oversight for the State administration of water quality programs.

2) Dredging and Ocean Dumping

Title I of the Marine Protection, Research, and Sanctuaries Act (MPRSA), 33 U.S.C. §1401 et seq., also known as the Ocean Dumping Act, prohibits: 1) any person from transporting, without a permit, from the United States any material for the purpose of dumping it into ocean waters (defined to mean those waters of the open seas lying seaward of the baseline from which the territorial sea is measured); and 2) in the case of a vessel or aircraft registered in the United States or flying the United States flag or in the case of a United States agency, any person from transporting, without a permit, from any location any material for the purpose of dumping it into the ocean waters.

Title I of the MPRSA also prohibits any person from dumping, without a permit, into the territorial sea, or the 12-nautical-mile contiguous zone to the extent that it may affect the territorial sea or the territory of the United States, any material transported from a location outside the United States. EPA regulates, through the issuance of permits, the transportation for the purpose of dumping, and the dumping of all materials except dredged material. The COE oversees the transportation, for the purpose of dumping, of dredged material.

Dredging activities and their impacts on navigation and the environment are regulated by the COE under Section 10 of the Rivers and Harbors Act of 1899 (dredging), by EPA and the COE under Section 404 (discharge of dredge or fill materials within 3-nautical miles of the shoreline) of the CWA (33 U.S.C. §1251 et seq.), and Section 103 (ocean disposal of dredge materials) of Title I of the MPRSA (33 U.S.C. §1401 et seq.). Permit applicants are required to comply with CZMA Federal consistency requirements, and obtain CWA, Section 401, Water Quality Certifications prior to being issued a permit by the COE. Under Section 103 of the MPRSA, EPA designated five dredge material ocean disposal sites in Hawaii, and in cooperation with the COE, established test procedures to determine the acceptability of dredge materials for ocean dumping. All five sites are located outside the proposed Sanctuary boundary in waters deeper than 100-fathoms.

3) Vessel Sewage

The CWA requires vessels to comply with marine sanitation regulations issued by EPA and enforced by the USCG (33 U.S.C. § 1322). All vessels equipped with installed toilet facilities must contain operable and certified marine sanitation devices. USCG regularly inspects vessels to ensure these devices are properly working.

xi. Oil Pollution

1) The Clean Water Act

The Clean Water Act (CWA) prohibits the discharge of oil or other hazardous substances in quantities that may be harmful to the public health or welfare or the environment, including but not limited to fish, shellfish, wildlife, and public and private property, shorelines and beaches. The CWA's jurisdiction includes discharges: (1) in navigable waters of the U.S., adjoining shorelines, or into the waters of the contiguous zone, and (2) in connection with activities under the OCLSA or the Deep Water Port Act of 1974, or which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the U.S., except, in the case of such discharges into the waters of the contiguous zone or which may affect the above-mentioned natural resources, where permitted under the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships.

2) Oil Pollution Act of 1990

The Oil Pollution Act of 1990 (OPA), Public Law 101-380, addresses a wide range of problems associated with preventing, responding to, and paying for oil spills. It does so by creating a comprehensive regime for dealing with vessel and facility-caused oil pollution. The OPA provides for environmental safeguards in oil transportation greater than those existing before its passage by: setting new standards for vessel construction, crew licensing, and manning; providing for better contingency planning; enhancing Federal response capability; broadening enforcement authority; increasing penalties; and authorizing multi-agency research and development. A one billion dollar trust fund is available to cover clean-up costs and damages not compensated by the spiller.

Section 4202 of the Oil Pollution Act of 1990 (OPA 90), 33 U.S.C. § 2701 et seq., amended Subsection (j) of Section 311 of the CWA [33 U.S.C. 1321 (j)] to address the

development of a National Planning and Response System. The OPA called for the creation of planning teams to develop contingency plans to address oil and hazardous waste spills and responses. The National Response Team (NRT) is primarily a planning, policy, and coordination body and does not respond directly to incidents. EPA coordinated this team and USCG is the Chair. They are responsible for developing a National Contingency Plan (NCP). A Regional Response Teams (RRT) is comprised of Federal and State (or Territory) representation and are responsible for developing a Regional Contingency Plan (RCP). EPA and USCG co-chair this team. Like the NRT, the RRT is mainly a planning, policy and coordinating body, and does not respond directly to incidents. The RRT has Federal and State representation. The RRT provides guidance and technical assistance to Area Committees.

As part of the National Planning and Response system, Area Committees are to be established for each area designated by the President. These Area Committees are to be comprised of qualified personnel from Federal, State and local agencies. Each Area Committee, under the direction of the Federal On-Scene Coordinator (OSC) for the area, is responsible for developing an Area Contingency Plan (ACP) which, when implemented in conjunction with the NCP and the RCP, shall be adequate to remove a worst case discharge of oil or a hazardous substance, and to mitigate or prevent a substantial threat of such a discharge, from a vessel, offshore facility, or onshore facility operating in or near the geographic area. Each Area Committee is also responsible for working with State and local officials to pre-plan for joint response efforts, including appropriate procedures for mechanical recovery, dispersal, shoreline cleanup, protection of sensitive environmental areas, and protection, rescue, and rehabilitation of fisheries and wildlife. The Area Committee is also required to work with State and local officials to expedite decisions for the use of dispersants and other mitigating substances and devices.

Title III of the Superfund Amendments and Reauthorzation Act of 1986 (SARA) is entitled the Emergency Planning and Community Right-to-Know Act (Right-to-Know Act). This Federal statute requires emergency response planning at the State and local level. The State of Hawaii established the Hawaii State Emergency Response Commission (HSERC) to comply with this requirement and designated DOH as the lead agency to implement the Right-to-Know Act. The HSERC was required to delineate emergency planning districts and appoint local emergency response committees to facilitate the preparation and implementation of local emergency plans. Hawaii's four counties (Hawaii, Honolulu, Maui and Kauai) represent the emergency planning districts for the State. The HSERC established a technical subcommittee to draft a State plan to provide statewide guidance on oil and hazardous substances emergency response. This plan is the Hawaii Oil and Hazardous Substances Emergency Response Plan and is incorporated in the ACP.

Of particular note is that Title I of the OPA establishes liability and limits to liability. Any party responsible for the discharge, or the substantial threat of discharge, of oil into navigable waters or adjoining shorelines or the EEZ is liable for removal costs and damages [OPA §1002(a)]. Recoverable damages include damages for injury to natural resources, real or personal property, subsistence use, revenues, profits and earning capacity, public services, and the cost of assessing those damages [OPA §§1002(b), 1001(5)].

The measure of penalties for damaging natural resources includes the cost of restoring, rehabilitating, replacing, or acquiring the equivalent of such resources; the diminution in value pending restoration; plus the reasonable cost of assessing damages [OPA §1006(d)(1)]. NOAA has the responsibility of promulgating damage assessment regulations and compliance with the regulations will create a rebuttable presumption in favor of a given assessment [OPA §1006(e)].

Sums recovered by a trustee for natural resource damages are retained in a revolving trust account to reimburse or pay costs incurred by the trustee with respect to damaged resources.

Title IV, subpart A, (Prevention) gives added responsibility to USCG regarding merchant marine personnel. It also imposes new requirements on the operation of oil tankers (double hulls on new vessels, and eventually on older vessels).

Title IV, subpart B, (Removal), substantially amends subsection 311(c) of the CWA, requiring the Federal government to effectively ensure immediate removal from navigable waters or adjoining shorelines or the EEZ of harmful quantities of oil or hazardous substances. [OPA §4201(a)]. It also requires a revision and republication of the National Contingency Plan within one year, OPA §4201(c), that will include, among other things, a fish and wildlife response plan developed in consultation with NOAA and USFWS [OPA §4201(b)]. The USCG and EPA will coordinate operations for the control or removal of oil and hazardous substances resulting from offshore spills.

3) International Convention for the Prevention of Pollution of the Sea by Oil/Oil Pollution Act of 1961/International Convention for the Prevention of Pollution from Ships, 1973

The International Convention for the Prevention of Pollution of the Sea by Oil, 1954 and the Oil Pollution Act of 1961 have been superseded by the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the related 1978 Protocol (MARPOL 73/78), and implemented in the United States by the Act to Prevent Pollution from Ships, 1980, as amended in 1982 and 1987 (APPS). The APPS, in implementing Annex I of MARPOL 73/78, regulates the discharge of oil and oily mixtures from seagoing ships, including oil tankers. The APPS, in implementing Annex II of MARPOL 73/78, regulates the discharge of noxious liquid substances from seagoing ships. Enforcement of the APPS is the responsibility of USCG.

When more than 12 nautical miles from the nearest land, any discharge of oil or oily mixtures into the sea from a ship subject to the APPS, other than an oil tanker or from machinery space bilges of an oil tanker subject to the APPS, is prohibited except when: 1) the oil or oily mixture does not originate from cargo pump room bilges; 2) the oil or oily mixture is not mixed with oil cargo residues; 3) the ship is not within a Special Area; 4) the ship is proceeding en route; 5) the oil content of the effluent without dilution is less than 100 parts per million; and, 6) the ship has in operation oil-water separating equipment, a bilge monitor, bilge alarm or combination thereof [33 C.F.R. §151.10(a)]. The restrictions on discharges 12 nautical miles or less from the nearest land are more stringent [33 C.F.R. §151.10(b)].

A tank vessel subject to the APPS may not discharge an oily mixture into the sea from a cargo tank, slop tank or cargo pump bilge unless the vessel: 1) is more than 50 nautical miles from the nearest land; 2) is proceeding en route; 3) is discharging at an instantaneous rate of oil content not exceeding 60 liters per nautical mile; 4) is an existing vessel and the total quantity of oil discharged into the sea does not exceed 1/15000 of the total quantity of the cargo that the discharge formed a part (1/30000 for new vessels); 5) discharges, with certain exceptions, through the above waterline discharge point; 6) has in operation a cargo monitor and control system that is designed for use with the oily mixture being discharged; and 7) is outside the Special Areas (33 C.F.R. §157.37).

The APPS is amended by the Marine Plastic Pollution Research and Control Act of 1987 (MPPRCA), which implements Annex V of MARPOL 73/78 in the United States. The MPPRCA and implementing regulations at 33 C.F.R. §§151.51 to 151.77 apply to U.S. ships (except warships and ships owned or operated by the U.S.) everywhere, including recreational vessels, and to other ships subject to MARPOL 73/78 while in the navigable waters or the EEZ. They prohibit the discharge of plastic or garbage mixed with plastic into any waters and the discharge of dunnage, lining, and packing materials that float within 25 nautical miles of the nearest land. Other unground garbage may be discharged beyond 12 nautical miles from the nearest land. Other

garbage ground to less than one inch may be discharged beyond three nautical miles from the nearest land. Fixed and floating platforms and associated vessels are subject to more stringent restrictions. "Garbage" is defined as all kinds of victual, domestic and operational waste, excluding fresh fish and parts thereof, generated during the normal operations of the ship and liable to be disposed of continuously or periodically, except dishwater, gray water, and certain substances (33 C.F.R. §151.05). USCG regularly enforces the provisions of these this law throughout the EEZ.

xii. Marine Transportation Safety

1) The Ports and Waterways Safety Act

The Port and Tanker Safety Act (PWSA) of 1978, 33 U.S.C. §1231 et seq., as amended, is designed to promote navigation and vessel safety and the protection of the marine environment. The PWSA applies out to 200 nautical miles and authorizes USCG to establish vessel traffic services for ports; harbors, and other waters subject to congested vessel traffic, or which are otherwise hazardous. Two such services are the Vessel Traffic Separation Scheme and designation of necessary fairways.

In addition to vessel traffic control, the USCG regulates other navigational and shipping activities and has promulgated numerous regulations relating to vessel design, construction, and operation designed to minimize the likelihood of accidents and to reduce vessel source pollution. The 1978 amendments to the PWSA establish a comprehensive program for regulating the design, construction, operation, equipping, and banning of all tankers using U.S. ports to transfer oil and hazardous materials. These requirements are, for the most part, in agreement with protocols (passed in 1978) to the International Convention for the Prevention of Pollution from Ships, 1973, and the International Convention on Safety of Life at Sea, 1974.

In addition to enforcing fishing and vessel discharge regulations, the USCG is also responsible for regulating vessel traffic, maintaining boater safety, and coordinating search and rescue operations. The 14th Coast Guard District Office is located in Honolulu; USCG stations are located at Honolulu Harbor; Coast Guard Air Station at Barbers Point Naval Air Station; Nawiliwili Harbor, Kauai; Maalaea Harbor, Maui; and Hilo Harbor, Big Island.

b. State and County Regulatory Authorities

1) Environmental Impact Statement Law

The State's environmental impact statement law (HRS, §343) is modeled on the National Environmental Policy Act. It requires that Environmental Assessments (EA) be prepared for actions undertaken by, or requiring the approval of, State and county governments that may have negative environmental impacts. If it is determined that such an action will have no negative environmental impact a "negative declaration" is made. If the State agency preparing the EA determines there may significant environmental impacts, an EIS must be prepared and made available for public comment. In the marine environment, the Governor has the authority to accept or reject the EIS (Tarnas and Stewart 1991:52).

2) Hawaii Coastal Zone Management Act

Chapter 205A, HRS, provides the legal foundation for the State's CZM Program. The law requires that any action within the Coastal Zone, which includes all land and water within the State's jurisdiction except Federal lands, must be consistent with the policies and objectives stipulated in HRS 205A. However, under authority provided through the Federal CZMA, Federal

actions, whether in or outside the coastal zone, that are reasonably likely to affect the coastal zone must comply with the CZMA's Federal consistency requirement. Under HRS 205A, Special Management Areas (SMAs) provide for special protection of resources directly on the coast within the jurisdiction of each of the four Counties.

3) Coastal Zone Management Areas

Through HRS Chapter 205A, the state legislature created "Special Management Areas" (SMAs) along the coasts of the State and gave the counties authority to issue permits for development activities in these areas (Office of State Planning, 1990). SMAs extend inland a minimum of 100 yards and, in undeveloped areas surrounding bodies of surface water subject to salinity intrusion or tidal influence, often extend further inland. The counties are to "seek to minimize, where reasonable": dredging, filling, or other alteration of bays, estuaries, salt marshes, river mouths, sloughs and lagoons; the reduction in size of beaches or other public recreation areas; developments that would restrict access to coastal areas; developments that would "substantially interfere with or detract from the line of sight toward the sea from State highway nearest the coast"; and, "any development which would adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, or potential of existing agricultural uses of land." Permits are issued by counties after environmental analyses and public hearings are conducted.

A second type of coastal zone management area designation under Hawaii CZM statutes establishes shoreline setbacks of not less than 20 feet and not more than 40 feet inland from the shoreline (HRS, Chapter 205A, as amended). With some minor exceptions, the law prohibits the mining and taking of sand, dead coral or coral rubble, rocks, soil, or other beach or marine deposits from the shoreline area, or within 1000 feet seaward from the shoreline, or in water of 30 feet or less in depth in the territorial sea. In addition, structures (or portions of structures) including but not limited to seawalls, groins and revetments, are not permitted within the shoreline area without a variance by the particular county authority (Hawaii Office of State Planning, 1990).

4) Areas of Particular Concern and Priorities of Use

The CZMA requires that states include in their management programs an inventory and designation of areas of particular concern (APCs) or interest within the coastal zone as well as a priority of uses in these areas, including those of lowest priority. Criteria for designating APCs includes areas of unique habitats, historic or cultural value, high natural productivity, substantial recreational value, and areas where development and facilities are dependent upon the utilization of, or access to, coastal waters [see 15 C.F.R. §923.21(b)]. Hawaii has several programs which meet the requirements of the APC concept noted above that are managed under different agencies within the State.

5) Hawaii Ocean and Submerged Lands Leasing Act

The Hawaii State Constitution gives the State the power to manage and control the marine, seabed, and other resources located within the boundaries of the State including its archipelagic waters, and reserves to the State all such rights outside State boundaries not specifically limited by Federal and international law (HRS, Chapter 190D). Under the Hawaii Ocean and Submerged Lands Leasing Act, the DLNR, in agreement with DOT, may lease State marine waters and submerged lands for marine activities. DLNR has jurisdiction over conservation district lands, under which fall all lands seaward of the shoreline to the limit of the State's jurisdiction (three nautical miles). The BLNR reviews CDUAs to allow construction or activities in conservation lands (e.g., seawalls, revetments, installation of moorings), although the DLNR can deny permit applications or attach conditions to them. Under State law, sand mining is currently prohibited except for: permitted replenishment or protection of public lands (Chapter 171-58.5, HRS) or

where the mining or taking is authorized by a variance (Chapter 205A-44, HRS). However, the DLNR may not lease any areas when existing programs of DLNR (i.e., MLCDs, Shoreline Fisheries Management Areas, or NARS) will suffer adverse impact as a result of the proposed activities (HRS, Chapter 205).

DOT issues permits for ocean dredging, filling, construction, and dumping materials below the mean high water mark. The DOT permit is similar to those permits issued by the Corps of Engineers, however, DOT reviews the proposed activity from a State perspective and may object to a project the Corps of Engineers has allowed (or vice versa). A DLNR CDUA permit may also be required for activities conducted in submerged lands.

6) Protection of Marine and Coastal Species

It is the State's policy to protect endangered species of indigenous plants and animals and introduce new plants and animals only after ensuring that such introductions will pose negligible ecological hazard (HRS, Chapter 344). DLNR accords those species designated "endangered" or "threatened" under the Federal ESA the same status under State law. DLNR may also designate other species under administrative rule. The regulations are variable according to the species designated but include complete prohibitions, seasonal taking, minimum size measurements, bag limits, and for certain crustaceans such as lobsters and crabs no spearing or taking with eggs. Some methods of baitfish capture are also restricted by net type and net size regulations and a special license requirement.

Hawaii prohibits the removal of any live covered rock, or live stony coral from the waters of the state, including any live reef or mushroom coral. It is also unlawful to take, destroy, possess, or sell any pink or gold corals taken from waters of the state except from the Makapuu Beds of Oahu which are regulated by permit and weight limits. Marine algae collection is permitted except for removal of the holdfast or taking when reproductive nodes are present. Algae collection is limited to one pound per person per day for home consumption. Licensed commercial operators can collect up to ten pounds per day per license with the exception of Maui where no commercial taking is allowed. Clams, oysters, and other shellfish, excluding opihi, are prohibited from any taking (DLNR-DAR, 1991).

7) Water Quality Standards

DOH has established water quality standards for Hawaii in Chapter 11, HAR, based on Federal CWA standards. Marine waters are classified as either Class AA or Class A. Class AA waters include "pristine" areas along Hawaii's coastline and "...all embayments in preserves, reserves, sanctuaries, and refuges" [HAR, §11-54-006(a)(2); Stewart and Tarnas 1991]. No effluent discharge is allowed in Class AA waters at depths less than 10 fathoms. Allowable uses in these waters include "oceanographic research, the support and propagation of shellfish and other marine life, conservation of coral reefs and wilderness areas, compatible recreation and aesthetic enjoyment" [HAR, §11-54-03(c)(1)]. Class A waters are protected for recreational purposes, aesthetic enjoyment, and for activities compatible with the protection and propagation of fish, shellfish, and wildlife [HAR, §11-54-03(e)(2)]. In addition, there are basic State water quality rules that apply to both Class AA and Class A waters that control ocean dumping, thermal pollution, turbidity, and nearly 100 toxic substances (HAR, Chapter 11-54; Tarnas and Stewart 1991). These criteria are among the most stringent in the Nation (DOH 1990, Water Quality Management Plan for the City and County of Honolulu). DOH is responsible for monitoring and enforcing these regulations.

Marine bottom ecosystems are designated as Class I and Class II. Class I bottom areas are protected to keep them "...as nearly as possible in their natural pristine state with an absolute minimum of pollution from any human source. Allowable uses of marine bottom ecosystems in

this class are passive human uses without intervention or alteration, allowing the perpetuation and preservation of the marine bottom in a most natural state, such as for non-consumptive scientific research, non-consumptive education, aesthetic enjoyment and passive activities and preservation" [§11-54-03(d)(1)]. In Class II bottom areas, any action that would permanently modify the bottom environment is allowed only with the approval of the Director of Health who must consider the environmental impact and public interest of such action [§11-54-04(d)(2)]. Detailed regulations for both Class I and Class II bottom environments are contained within the HAR [§11-54-03(d)(1)].

8) Point Sources of Pollution

NPDES permits are required for all point sources of pollution including wastewater treatment facilities, electric generating facilities, industries, and agricultural facilities. EPA has delegated this permit authority to DOH. NPDES permits require permit holders to monitor outfall areas and submit reports on a periodic basis. Once a year, DOH conducts site inspections to assure sampling techniques and obtains "split samples" to determine analytical accuracy. DOH also performs pollutant source and ambient water quality monitoring at over 76 fixed monitoring stations statewide. In 1991, there were 15 wastewater facilities with NPDES permits in the State and eleven of those were discharging a total of 143.32 million gallons per day into ocean waters. The remaining four permit holders used injection wells or reuse of effluent for irrigation or disposal (Tarnas and Stewart 1991:74).

9) Non-Point Sources of Pollution

In 1987, the U.S. Congress amended the Clean Water Act (CWA) to place new emphasis on controlling polluted runoff. Section 319 of the CWA, for example, requires states to develop non-point source pollution control programs and submit assessment and management plans. Section 303(d) of the CWA requires each state to identify waterbodies not achieving water quality standards (water quality limited segments) by categories and subcategories of non-point source pollutants. Section 305(b) of the CWA requires states to monitor and produce reports on the State's overall water quality. Various State and county agencies have mechanisms in place to control non-point source pollution. The DOH reactivated its Non-point Source Pollution Program in response to the 1987 CWA amendments and assisted the county governments in complying with CWA §208. DOH also developed a non-point source pollution Assessment Report and Management Plan that was completed in 1990 under the CWA §319 (b) requirements. The Management Plan identified best management practices and measures to be undertaken which reduce pollutant loading from non-point sources, programs and funding assistance to support their implementation, and a schedule for implementation. The best management measures included in the 1990 plan were to be implemented largely through existing programs and regulations with technical support from the U.S. Soil Conservation Service and the Hawaii Association of Conservation District, the Cooperative Extension Service, DLNR, DOT, and other State and Federal Agencies as well as private groups. In 1993, the State Legislature enacted a statute establishing the statutory framework for a regulatory non-point source pollution program

In 1990, Congress enacted the Coastal Zone Act Reauthorization Amendments (CZARA), modifying the Coastal Zone Management Act (CZM) Act of 1972. CZARA, section 6217, entitled "Protecting Coastal Waters," requires states with CZM programs to develop and implement coastal non-point pollution control programs to be approved by NOAA and EPA. Federal funding for approved programs will come from EPA, under section 319 of the CWA, and from NOAA under section 306 of the CZMA. States must provide matching funds for their programs. State programs are to be developed jointly by the coastal zone management agency and the water quality agency, and must be based on guidelines developed by the EPA and NOAA.

Hawaii responded to these requirements by coordinating the existing efforts of the Hawaii Coastal Zone Management Program (CZMP) and the Hawaii Department of Health (DOH).

Hawaii has had an approved Coastal Zone Management Program since 1978. Hawaii has also had an EPA-approved voluntary non-point pollution control program since 1987. The development of Hawaii's coastal non-point source pollution control program brings together the CZM Program's experience in coordination, and land and water use control, and DOH's expertise in water pollution management. The plan was developed to (1) be realistic and implementable, given Hawaii's environmental, political, and cultural realities, (2) create an appropriate mix of regulatory and non-regulatory mechanisms to implement the program, and (3) involve affected parties in the program development process. The plan will be implemented through both regulatory and non-regulatory mechanisms. The CZM Program convened an informal working group and five focus groups which met on a regular basis, to assist with program development. The CZM Program and DOH also had extensive consultations with groups that will be affected by the coastal non-point pollution control program. The CZM Program submitted the draft non-point pollution management plan to NOAA and EPA in July 1996. The program should be fully developed by the end of 1997.

The intent of the Hawaii coastal non-point pollution control program is to build upon, rather than duplicate, existing programs. The array of existing programs will be loosely bound together in a "network" under the rubric of the coastal non-point pollution control program. Ultimately, there will be one statewide program for the management and control of polluted runoff, elements of which will implemented by a number of existing agencies.

Coordination will be a central theme of the developing phases of the Hawaii coastal non-point pollution program. While the CZM Program has the lead in coordinating the development of the overall program, the development of the separate program elements themselves has been a shared responsibility. The CZM Program and DOH, with significant assistance from other State, Federal, and county agencies, non-governmental organizations, and individuals, have jointly developed Hawaii's Coastal Non-Point Pollution Control Program management plan. The Coastal Non-Point Pollution Control Program will continue to rely on the resources, expertise, program, and authorities of other agencies and organizations during its continuing development and implementation. In addition, opportunities for public participation will continue to be part of Hawaii's coastal non-point pollution control program.

In addition, the individual counties issue grading permits for construction activities that specify erosion control measures that must be implemented for activities that involve earth moving or grading.

10) Oil Pollution

DOH monitors State waters for oil and chemical spills in cooperation with USCG. Chapter 342D-51, HRS, requires that all discharges of oil, petroleum products, and other hazardous substances into State waters be reported to DOH within 24 hours of a spill. Failure to report a discharge or take corrective action can result in fines of up to $10,000 per day (J. Harrigan, 1994, pers. communication). Since 1991, DOH has been working closely with USCG and other Oceania Regional Response Teams to develop response plans and other requirements of the OPA.

DOT-Harbors is authorized to regulate and control polluting discharges in State waters. HRS 266-3 specifically authorizes DOT to promulgate and administer regulations that "...prevent the escape of fuel or other oils onto the harbors, ocean waters, and streams, either from any vessel or from pipes or storage tanks upon the land" (Tarnas and Stewart 1991:75).

11) Ocean Recreation and Coastal Areas Rules

DLNR-DOBOR has responsibility for promulgating and administering rules governing boating and ocean recreation (Act 272, SLH 1991). Title 13, Subtitle 11, HAR, contains rules governing boating and ocean recreation in coastal areas of the State. Many of the provisions

contained in Title 13, Subtitle 11 deal with small boat harbors, vessel numbering requirements, accident reports, fines, enforcement and records, and vessel equipment requirements. However, there are specific provisions restricting activities that could prove detrimental to the humpback whale and its habitat (see 12) "Ocean Recreation" below for examples).

12) Humpback Whale Approach Regulations

Title 13, Subtitle 11, HAR, §244-40 (a) states that, "(n)o person shall approach by any means, or operate a vessel or other type of watercraft, or cause a vessel or other type of water craft to approach within one hundred yards of any humpback whale within the waters of the State. Chapter 244-40 (b) further states that "(n)o person shall approach by any means, or operate a vessel or other type of watercraft, or cause a vessel or other type of water craft to approach within one hundred yards of any humpback whale." This chapter also incorporates Federal regulations (50 CFR, Part 222, subpart D, §222.31) governing the approach of humpback whales in Hawaiian waters.

13) Ocean Recreation

HAR Title 13, Chapter 244 also details restrictions on specific ocean near-shore recreation activities within: Waikiki ocean waters, Makapuu ocean waters, two sub-zones in Kealakekua Bay ocean waters, Kailua Beach Park ocean waters, Ahihiau ocean waters, Pokai Bay ocean waters, Ala Moana Beach Park ocean waters, Manele-Hulopoe marine life conservation district, Kaanapali ocean waters, and in Maunalua Bay ocean waters. These nearshore areas are defined in detail in the DNLR-DOBOR regulations and prohibited activities for each area are listed. A separate set of rules governing activities in local [shore] ocean waters and shores are contained in Chapter 254. Specific rules are included for Kailua Bay [shore] Ocean Waters [and shores], Brennecke Beach [shore] Ocean Waters, and Point Panic [shore] Ocean Waters. Chapter 255 contains another set of rules for Waikiki Beach. Most of the rules in chapters 254 and 255 deal with nearshore activities that have little relevance to the protection of humpback whales and their habitat, but they may be relevant to the protection of other resources in the future.

HAR Title 13, Chapter 256 contains rules governing activities in the ten ORMAs designated by the State. These include the North Shore Kauai ORMA (Sub-chapter 2), the South Shore Kauai ORMA (Sub-chapter 3), the North Shore Oahu ORMA (Sub-chapter 4), the Windward Oahu ORMA (Sub-chapter 5), the South Shore Oahu ORMA (Sub-chapter 6), the West Maui ORMA (Sub-chapter 7), the South Maui ORMA (Sub-chapter 8), the North Maui ORMA (Sub-chapter 9), the East Hawaii Island ORMA (Sub-chapter 10), and the West Hawaii ORMA (Sub-chapter 11). The primary purpose of the ORMAs and the rules governing activities in them is "to reduce conflicts among ocean water users, especially in areas of high activity" (§13-256-1). There are, however, specific provisions intended to protect humpback whales.

HAR Title 13, Chapter 256 states that thrill craft operations, "shall be curtailed in certain designated areas..., (within the ORMAs)...as necessary,...to avoid possible adverse impacts on humpback whales or other protected marine life..." Thrill craft, which are defined in the rules to include (but not be limited to) jet skis, wet bikes, surf jets, miniature speed boats, and hovercraft, are also prohibited in marine life conservation districts or marine natural area reserves. Recreational thrill craft can operate in non-designated ocean recreation management areas between five hundred feet from the shoreline or the outer edge of the fringing reef, whichever is greater, and two miles off the islands of Kauai, Oahu, Maui and Hawaii (§13-256-17). However, no commercial thrill craft, high speed boating or water sledding activities may be conducted in State waters unless the owner has a commercial operating area use permit and commercial operations are limited to designated areas within the ORMAs (§13-256-18).

Parasailing operations are also limited to designated areas within the ORMAs, with the explicit intention of avoiding, "...possible adverse impact on humpback whales and other protected marine life." During the period from December 15 to May 15, the maximum speed for parasailing is limited to eighteen (18) knots with a lower speed designated for shuttling passengers to and from the parasailing areas (§13-256-19).

HAR Title 13, Chapter 256 (2)-(11) define the geographical boundaries of the ten ORMAs in considerable detail. They delineate areas within the ten zones for which specific rules apply. Prohibited and permitted activities for each of the specific areas are listed. Some areas are limited to recreational use and commercial activities are prohibited. In some areas within ORMAs, activity zones are further delineated and prohibited activities (e.g. operating or mooring a vessel or sailboard) are specified. In some cases, the number of "operators" is also specified.

Recreational thrill craft zones have also been designated for the North Shore Oahu, South Shore Oahu, Windward Oahu, East Hawaii, and West Hawaii ORMAs. Commercial thrill craft zones have been designated within the North Shore Oahu, South Shore Oahu, Windward Oahu, West Maui, and East Hawaii ORMAs. Commercial and recreational thrill craft operations in most designated areas within the ORMA rules are explicitly prohibited from December 15 to May 15 of the following year, although there are some exceptions [e.g., Zone D, Haleiwa Restricted Zones, North Shore Oahu ORMP--HAR, Title 13, Chapter 256-61(d); Zone A, Kualoa Ocean Water Restricted Zone]. These exceptions are reportedly in areas that are shallow and which, according to DOBOR officials, have been determined by NMFS to be areas not frequented by humpback whales.

14) Humpback Whale Protected Waters

HAR Title 13, Chapter 256-112 delineates the Maui Humpback Whale Protected Waters, which overlap portions of the West Maui and the South Shore Maui ORMAs. Within the Humpback Whale Protected Waters, "...no person shall operate a thrill craft, or engage in parasailing, water sledding or commercial high speed boating or operate a motor vessel towing a person engaged in water sledding or parasailing..." between December 15 and May 15 of the following year.

Many of the ocean recreation and coastal area rules contained in Title 13 are clearly aimed at providing protection to the humpback whale and its habitat. However, the Legislative Auditor (1993) reports that boaters complain that the sheer volume of the regulations makes them seem excessive and virtually impossible to understand. Marine Patrol officers have also complained that the complexity of the rules makes them extremely difficult to enforce. The Legislative Auditor's December 1993 report states that "(t)hey do not reflect a comprehensive approach to a boating program" (The Auditor 1993).

15) Fisheries Regulations

DLNR-DAR is responsible for the development and administration of fishery regulations within State waters. State regulations impose minimum size, gear type, bag limits, and/or seasonal restriction on over 20 species of reef, lagoon, and bottomfish species as well as several varieties of crabs and lobsters. Gill nets used in State waters must be inspected every two hours; undersized, illegal, or unwanted catch must be released. Gill nets may not be left in the water for more than four hours in any twenty-four hour period. Under DAR regulations, the taking of live stony corals, clams, oysters, and other shellfish, sea turtles, and monk seals is prohibited. The State prohibits the use of drift gill nets, and fishing with explosives, electro-fishing devices, poisons, intoxicants, and chemicals (Hamnett 1991:40; DLNR-DAR 1993). State law also prohibits long-line fishing in State waters, and Federal regulations prohibit long-line fishing within 75 nautical

miles of Oahu and 50 nautical miles of the islands in Kauai, Maui, and Hawaii Counties (Univ. of Hawaii Sea Grant, 1994).

16) Other State Marine Protected Areas

The State has established Marine Life Conservation Districts (MLCDs) to protect unique areas in the marine environment (HRS §190). MLCDs have been designated at Hanauma Bay (Oahu), Kealakekua Bay (Hawaii), Manele-Hulopoe (Lanai), Molokini Shoals (Maui), Lapakahi (Hawaii), Pupukea (Oahu), Wailea Bay (Hawaii), and Waikiki (Oahu). DLNR-DAR is responsible for promulgating and administering regulations in the MLCDs. Generally, regulations prohibit the taking of marine life except by permit for scientific, educational, and other purposes that would cause minimal environmental impact (HRS 190-4; Tarnas and Stewart 1991:53). Two MLCDs have also been designated State Underwater Parks; Hanauma Bay and Kealakekua Bay (HRS §184).

Fishery Management Areas (FMAs) have already been established in: the Northwest Hawaiian Islands, Waikiki-Diamond Head Shores; Hanamaulu Bay, and Ahukini Recreation Pier (Kauai); Waimea Bay, and Waimea Recreation Pier (Kauai); Kahului Harbor (Maui); Kailua Bay (Hawaii); Manele Harbor (Lanai); Puako Bay, and Puako Reef (Hawaii); and Kawaihae Harbor (Hawaii). DLNR-DAR is responsible for designating and developing regulations to restrict fishing activities in FMAs (HAR, Title 13, Chapter 47-54; Tarnas and Stewart 1991:53).

The State has established the Natural Area Reserve System (NARS) to protect unique natural areas from loss due to population growth and technological advances (HRS §195; Tarnas and Stewart 1991:53-54). The NARS Commission is responsible for recommending criteria and evaluating potential sites for inclusion. DLNR is responsible for administering the NARS which includes a reserve at Ahihi-Kinau on Maui that has a marine component.

Other marine and coastal areas have been designated to restrict consumptive uses of the marine environment. Waters surrounding Coconut Island in Kaneohe Bay on Oahu have been designated a Marine Laboratory Refuge. Fishing and gathering have been restricted within the Alakai Wilderness Preserve on Kauai, Paiko Lagoon Wildlife Sanctuary on Oahu, and sea bird sanctuaries at several sites throughout the State (Tarnas and Stewart 1991:54).

17) Enforcement of State Regulations

There are several Federal and State agencies involved in the enforcement of State and Federal regulations that contribute to the protection of the humpback whale and its habitat. DLNR-Division of Conservation and Resources Enforcement (DOCARE) enforces state regulations concerning fisheries, protected species, hunting and wildlife, MLCD's, MFAs, NARs and underwater parks, in cooperation with other Federal, State, and county agencies. On July 1, 1996, all functions, duties, equipment and personnel were transferred from the Department of Public Safety's Marine Patrol to DLNR-DOCARE. DOCARE was given the added responsibility to enforce boating regulations, to inspect boats for safety requirements, and to conduct search and rescue operations.

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PART III -- ALTERNATIVES AND THEIR POTENTIAL CONSEQUENCES

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TABLE III-1
Summary of Alternatives and Potential Consequences

ALTERNATIVES		Environmental Impacts	Socio-Economic Impacts	Institutional Impacts
Boundaries				
1.	Status Quo - boundary as designated by Congress (100-fathom isobath around Maui County, excluding Kahoolawe waters, and a small portion off Kauai)	(+)	0	(+)
2.	Include only those areas of highest reported concentrations of humpback whales	(+)	0	(+)
3.	Expand Congressional boundary to include 100-fathom isobath around Big Island, parts of Oahu, and eastern Kauai	(+)	0	(+)
4.	Expand Congressional boundary to include 100-fathom isobath around the Main Hawaiian Islands and Kaula Rock	(+)	0	(+)
5.	Expand Congressional boundary to include 1000-fathom isobath around the Main Hawaiian Islands	(+)	0	(-)
Regulations				
1.	Neither incorporate existing regulations nor promulgate new Sanctuary regulations	0	0	0
2.	Adopt existing humpback whale approach regulations; promulgate no independent Sanctuary regulatory prohibitions	(+)	0	(+)
3.	Adopt existing humpback whale approach regulations and additional habitat protection measures; allow all authorized/ permitted activities by other authorities; promulgate no independent Sanctuary regulatory prohibitions	(+)	0	(+)
4.	Adopt existing humpback whale approach regulations; promulgate independent Sanctuary regulations to prohibit certain activities.	(+)	0	(+)
5.	Promulgate strict Sanctuary humpback whale and habitat protection regulations	(++)	(--)	(--)
6.	Promulgate Sanctuary regulations to protect all resources of national significance	(++)	0	(+)

The symbols indicate the net sum of all negative and positive impacts for each category

Legend:
- (+) Beneficial impacts could result
- (++) Significant positive impacts could result
- 0 No impacts anticipated
- (-) Possible negative impacts could result
- (--) Significant negative impacts could result

TABLE III-1 (continued)
Summary of Alternatives and Potential Consequences

ALTERNATIVES		Environmental Impacts	Socio-Economic Impacts	Institutional* Impacts
Management				
1.	Scope of resource coverage:			
	Humpback whale and its habitat	(+)	0	(+)
	Multiple species	(++)	(-)	(+)
2.	Management responsibility:			
	NOAA/SRD	(+)	0	+
	Other Federal agencies	(+)	0	+
	State oversight	(+)	0	+
	Combination of options	(+)	(-)	(-)
3.	Management implementation period			
	Seasonal	(+)	0	+
	Permanent (year-round)	(++)	0	+
4.	Enhance enforcement of existing regulations and laws relating to the protection of Sanctuary resources	(++)	0	(++)

The symbols indicate the net sum of all negative and positive impacts for each category

*Institutional consequences are those impacts on other government agencies that could result from the Sanctuary conducting its operations. Such operations could include reviewing permits or assisting in enforcement activities.

Legend:
(+) Beneficial impacts could result
(++) Significant positive impacts could result
0 No impacts anticipated
(-) Possible negative impacts could result
(--) Significant negative impacts could result

Part III provides a list of alternatives for consideration for the Final Management Plan. Alternatives are considered with regard to various provisions of a comprehensive management plan which contains strategies and goals to protect, increase scientific knowledge, and promote public understanding of Sanctuary resources, while considering the manageability of the Sanctuary, and facilitating compatible human uses of the area. Alternatives include the "No Sanctuary" option (rejected), and the Sanctuary option which assesses various boundary, regulatory, and management (or administration) alternatives for the Sanctuary. NOAA's preferred alternatives are summarized as follows:

NOAA's Preferred Alternatives:

- **Boundary:** All the main Hawaiian Islands (MHI), from the shoreline to the 100-fathom isobath, not including selected areas such as ports, harbors, and small boat basins and significant military use areas on W. Kauai and E. and W. Oahu.
- **Regulations:** Essentially adopt existing Federal and State regulations that provide protection for humpback whales and their habitat.
- **Resources:** Management focus on humpback whales and their habitat, with other resources of national significance to be considered for possible inclusion at a later date.
- **Management:** A year-round Sanctuary presence with a headquarters office on Maui, a Sanctuary manager, education and research coordinators, and a Sanctuary Advisory Council consisting of broad public representation.

The preferred alternatives seek to fulfill the purposes of the Hawaiian Islands National Marine Sanctuary Act and of the Hawaii Ocean Resources Management Plan (ORMP) (Technical Supplement, January 1991, pp. 55-57); that while there are numerous agencies and regulations addressing the management of humpback whales and their habitat, there is little coordination of these mechanisms, a lack of public involvement in the regulatory process, and inadequate enforcement of the regulations. Moreover, through the SAC, the Sanctuary will provide a unique forum to address these issues in Hawaii's marine environment.

A. NO SANCTUARY ALTERNATIVE

1. Background

Even though the Sanctuary was designated by law through Congressional and Presidential action, many people voiced objections to the Sanctuary and the manner in which it was established with no significant public input or concern for potential economic impacts. Comments received at scoping meetings, public comments on the DEIS/MP, as well as petitions signed by many individuals, identified the following objections to the Sanctuary as designated:

- a sanctuary is not needed because humpback whales are already protected by existing laws and their populations appear to be increasing because of these laws ;
- additional Federal government intrusion is not required or desired;
- fear of the imposition of mandatory user fees;
- Congressional boundary promotes inequitable economic impacts to the County of Maui over other island counties; and
- unknown regulations associated with "sanctuary" status raises concerns regarding potential restrictions on marine uses and industries.

Because of uncertainty as to how the Sanctuary would impact ocean and coastal users, many people opposed the Sanctuary out of concern that it would invoke measures such as prohibiting all boating or fishing in Maui County (or statewide) waters, raising the possibility of

loss of livelihoods or restrictions on Native Hawaiian rights of access, and entail serious economic consequences. Several hundred commercial and recreational boaters signed the following petition: "We oppose any further regulation and/or prohibition of fishing activities and Native Hawaiian uses of the ocean that the `Hawaiian Islands Humpback Whale National Marine Sanctuary' might impose." In response to these concerns, sufficient provisions are incorporated into the Final EIS/MP to ensure that boating and fishing activities are taken into account to allow for a mutual accommodation of user group needs and protection of humpback whales and their habitat. Furthermore, this FEIS/MP provides information as to what the impacts of the Sanctuary will be, thus addressing any misperceptions regarding the Sanctuary.

2. Feasibility of a "No Sanctuary" Alternative

Because the Sanctuary was Congressionally-designated, the "No Sanctuary" option is not within NOAA's authority to initiate. Implementation of the "No Sanctuary" alternative can only occur at this point in Hawaii by:

- Congressional Action: Congress can repeal the HINMSA; or

- State of Hawaii Action: The Governor of Hawaii has had two previous opportunities to object to the Sanctuary designation within the seaward boundary of the State of Hawaii; namely, while Congress was considering the HINMSA prior to its enactment (State testimony was supportive of the Act); and 45 days after the date of enactment of the HINMSA (Governor John Waihee sent a letter to NOAA Administrator John Knauss supporting a continuation of the process). There is an additional provision in the Act which permits the Governor to certify to the Secretary of Commerce within 45 days after issuance of the Final Management Plan and regulations that the Final Management Plan, Implementing Regulations, or any terms thereof, are unacceptable. If such a certification is made, such terms **will not take effect in the area of the Sanctuary lying within the seaward boundary of the State.** Under the Act, the Secretary of Commerce could then terminate the entire Sanctuary designation if the Secretary determined that the objections by the Governor would affect the Sanctuary in such a manner that the "goals and objectives" of the HINMSA could not be fulfilled.

3. Consequences of Terminating the Existing Sanctuary

The consequences of terminating the Sanctuary would include:

- existing Federal and State authorities that may protect humpback whales and their habitat would continue to be enforced by the appropriate agencies and would continue to follow the guidance of the Humpback Whale Recovery Plan and any other implementation plans developed by the NMFS or other authority;

- existing coordination mechanisms would remain in place; the general public would not have their concerns addressed via a coordinating forum such as the SAC and thus may have less ability to influence research, education, enforcement, and management as it relates to the humpback whale and their habitat; and

- withdrawal of any potential funding for the conduct of Federally-funded research, education, and information dissemination, and additional enforcement assistance under the NMSA related to Sanctuary resources (i.e., any positive benefits which may accrue as a result of Sanctuary Program implementation). All contracts and contractors that provide services to the Hawaii Sanctuary would be terminated.

- use of the Kihei, Maui and Honolulu, Oahu offices as a public education and outreach facility would be discontinued

- Termination of volunteer water quality monitoring project on Maui

4. Federal Sanctuary without State Waters

Should the State territorial waters could be withdrawn from the Sanctuary by the Governor, a Sanctuary could still be implemented in the remaining Federal waters outside of Hawaii's territorial sea (primarily within the 100-fathom isobath waters of Penguin Bank) (Figure III-1). The Secretary of Commerce would need to determine if the goals and objectives of the HINMSA could still be met within this limited area. This action would have obvious implications for the boundary, regulations, and management options (i.e., education, research, monitoring, and enforcement programs).

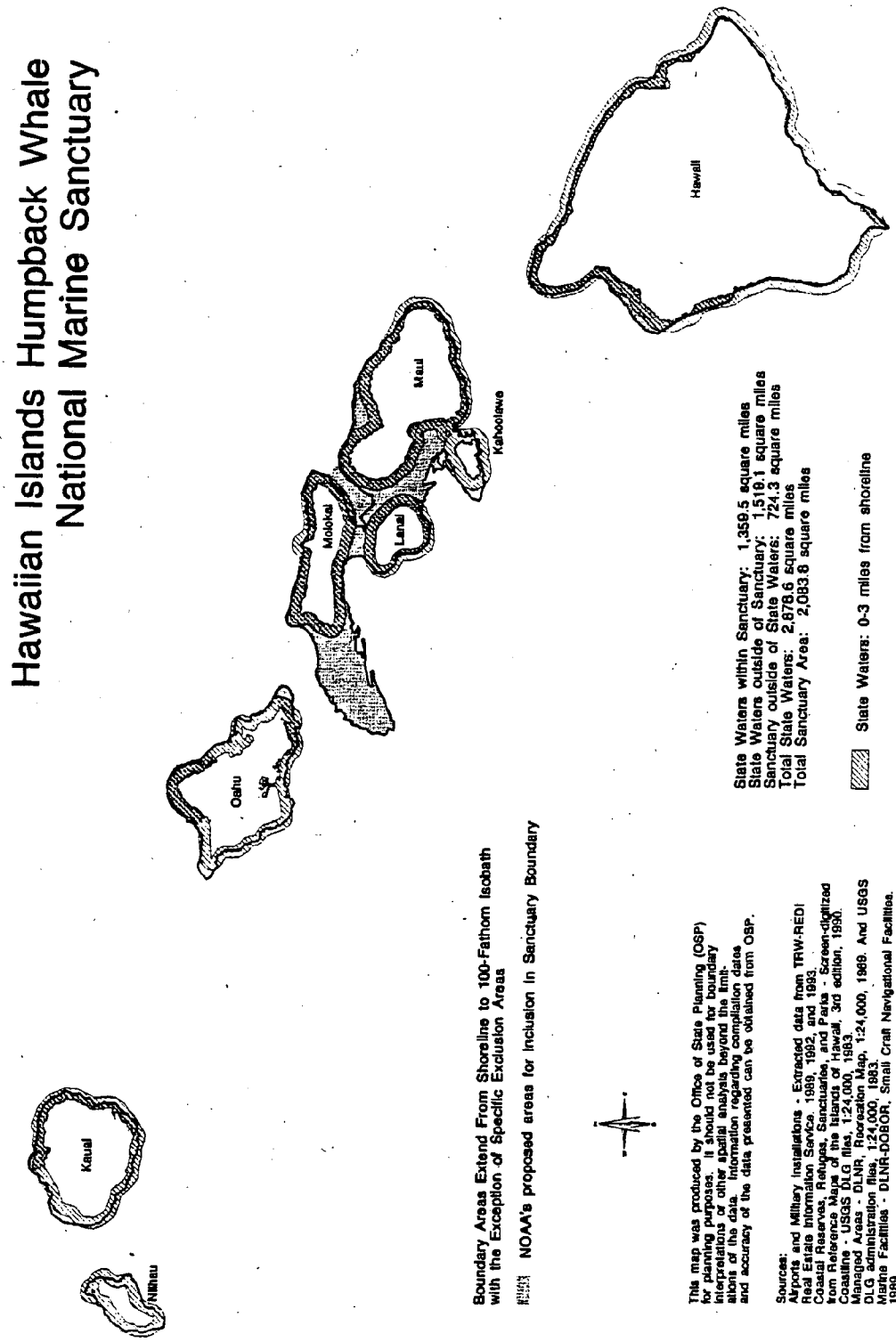

Figure III-1 State Waters (0-3 nmi) and the Proposed Sanctuary Boundary

B. SANCTUARY ALTERNATIVES

1. Boundary Alternatives

a. Background

The boundary defines the primary geographic extent of Sanctuary management and resource expenditure. Although a Sanctuary boundary was initially established by the HINMSA, the Act allows for consideration of boundary modifications.

> **Section 2305(d) BOUNDARY MODIFICATIONS** -- No later than the date of issuance of the draft environmental impact statement for the Sanctuary under section 304(a)(1)(C)(vii) of the Marine Protection, Research, and Sanctuaries Act of 1972 [16 U.S.C. 1434(a)(1)(C)(vii)], the Secretary in consultation with the Governor of Hawaii, if appropriate, may make modifications to the boundaries of the Sanctuary as necessary to fulfill the purposes of this subtitle.

This section examines several boundary alternatives, in addition to the Congressionally-designated boundary, which NOAA considered while preparing the Draft EIS/MP. Each alternative discusses the benefits to the Sanctuary's resources, and the environmental, socio-economic, and institutional[i] consequences. The following two areas are <u>not included</u> in any Sanctuary boundary alternative identified later in this section.

i. Kahoolawe Island Marine Waters

The marine waters around Kahoolawe are depicted in Figure III-2. The HINMSA states that the marine environment within 3-nautical miles of the upper reaches of the wash of the waves on the shore of Kahoolawe was to be automatically included in the Sanctuary on January 1, 1996, unless the Secretary of Commerce certified in writing to Congress that the area was not suitable for inclusion in the Sanctuary. The Secretary made such a certification of unsuitability in December 1995, due to the presence of unexploded ordnance in the waters around Kahoolawe and to await the development of the Kahoolawe Island Reserve Commission's (KIRC) Ocean Management Plan.

The HINMSA was amended in 1996 to eliminate the annual finding of suitability by the Secretary, and instead provided a process by which the KIRC could request for the inclusion of the marine waters within three miles of Kahoolawe in the Sanctuary. Should NOAA determine that Kahoolawe waters may be suitable for inclusion in the Sanctuary, NOAA will prepare a supplemental environmental impact statement, management plan, and implementing regulations for that inclusion. This process will include the opportunity for public comment. Further, the Governor would have the opportunity to certify his or her objection to the inclusion, or any term of that inclusion, and if this occurs, the inclusion or term will not take effect (See HINMSA, Appendix C).

Kahoolawe Island marine waters represent a special case for consideration. After 40 years of being used for military training purposes, in May 1994, Kahoolawe was conveyed back to the State of Hawaii (Title X of P.L. 103-139, 107 STAT 1418, 1479-1484, signed into law on November 11, 1993). Title X provides a mechanism and funding for the U.S. Department of Defense (DOD) to remove a certain amount of unexploded ordnance and for the environmental remediation of the Island so that it may once again be used for cultural, historical, archaeological,

---

[i] Institutional consequences are those impacts on other government agencies that could result from the Sanctuary conducting its operations. Such operations could include reviewing permits or assisting in enforcement activities.

and educational purposes. While the clearance of unexploded ordnance on the land will require a 10-year program of remediation and restoration, there are unanswered questions regarding when and how the marine waters also will be made safe. At best, only those areas of the water where access to land is necessary will probably be cleared, and even then there are problems associated with removing unexploded ordnance in coral reef waters.

An aerial survey of humpback whales near Kahoolawe Island conducted in 1992 indicated that the whales seem to prefer the north shore of Kahoolawe; that the waters may be frequented primarily by reproductively active adults; and that the number of whales observed was substantially less than was found throughout the remainder of the four-island area (Forestell & Brown, 1992). The study noted that it was unknown whether whales avoided these waters due to the military's former use of the Island as a target range, but postulated that increased humpback whale use of these waters in the future *could* be a possibility since bombing had ceased. Conversely, because of limited human access to the area, it is unknown if the whales use Kahoolawe's nearshore waters as a haven from boating activities, notwithstanding military use. Thus, the overall significance of Kahoolawe's waters to the humpback whales is undetermined at this time. However, as boat density is less around Kahoolawe than around other parts of the four-island area, and may remain so into the future if access to Kahoolawe remains limited, the site could increase in significance if the whales seek more sheltered areas.

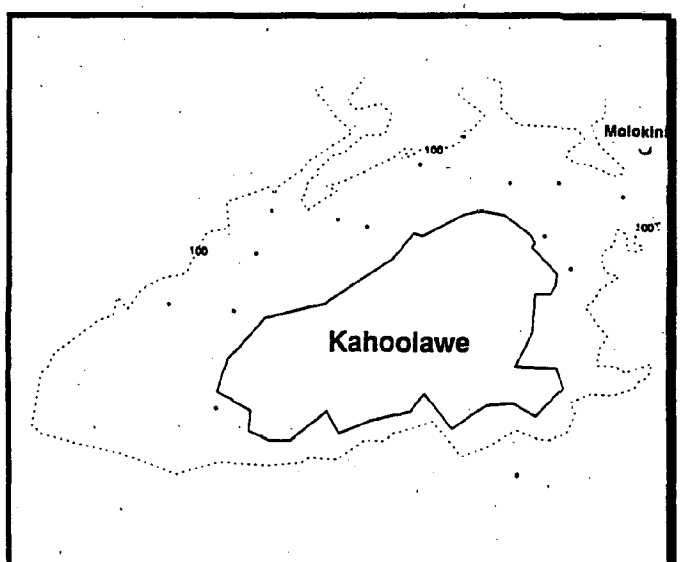

Figure III-2 Kahoolawe Island

In addition to humpback whales, the waters around Kahoolawe harbor an abundance of other natural, cultural, historical, and archeological resources (see Part II for a more detailed description). Natural resources include other species of marine mammals (whales, dolphins, and monk seals), sea turtles, fish, algae, and coral reef ecosystems. Since Kahoolawe has been closed to public access for over 50 years, it offers a unique opportunity for researchers to compare impacts of land-use practices and human use on coral reef environments around Hawaii (Jokiel, et al. 1993). Some of the archeological resources include fishing shrines (*ko'os*), sacred temples (*heiaus*), stone altars used to attract fish (*ku'ula*), and shipwrecks. Native Hawaiians use Kahoolawe as a center for cultural activities and religious practices. The Island and its surrounding waters are important for linking past traditions with contemporary practices. Potential benefits of Sanctuary status include cooperation in educational/interpretative programs on traditional cultural uses (i.e., *ahupua`a* "mountain top to reef" resource use and management), protection of religious and archeological sites (from mean highwater mark seaward to 3-nautical miles), enforcement, and technical assistance for management and research programs.

The Kahoolawe Island Reserve Commission (KIRC) has management authority over the Island and the water out to the 2-nautical mile limit. Until such time as the KIRC has determined its long-term management program for Kahoolawe Island and its surrounding waters, and that all potential issues associated with unexploded ordnance have been resolved, the waters within 3-nautical miles of Kahoolawe will not be included in the Sanctuary.

ii. Northwest Hawaiian Islands

Because this area is not currently considered an important humpback whale winter breeding area, and to date few humpback whales have been reported around the atolls, islands, banks, and reefs of the Northwest Hawaiian Islands (NWHI) (Nitta & Naughton, 1989), NOAA is not considering the NWHI in the boundary alternatives for the Sanctuary.

This area is managed as a National Wildlife Refuge (NWR) in order to protect the many important species both on the NWHI and in their surrounding waters, and there is very limited access permitted (even for research purposes). The U.S. Fish and Wildlife Service and NMFS have some responsibilities in certain State waters around the NWHI, generally limited to protecting selected nearshore waters, such as the lagoons of the French Frigate Shoals and Pearl and Hermes Reefs, for seabirds, sea turtles, and Hawaiian monk seals. Other islands in the NWR, however, such as Nihoa, Necker, Gardener Pinnacles, Lisianski, Laysan, and Midway, have little or no special Federal protection (Harrison, 1985). Beyond the nearshore water areas, marine uses (such as long-line fishing) are regulated by NMFS to protect endangered species of sea turtles, Hawaiian monk seals, and other marine mammal and endangered species.

The NWHI are rich in important endangered species and seabird colonies other than the humpback whale. In the future, should any of these other species be considered for inclusion in the Sanctuary through the selection process identified in Part V(C) of the Management Plan, this area could be considered for inclusion in the Sanctuary if sanctuary status is determined to be beneficial to the protection and comprehensive management of the species considered.

b. BOUNDARY ALTERNATIVE 1 (FIGURE III-3)

Status Quo (Congressionally-designated boundary)
Waters within Maui County and off Kilauea Point, Kauai

This boundary, as currently designated by law, includes the submerged lands and waters off the coast of the Hawaiian Islands seaward of the upper reaches of the wash of the waves on shore:

a. to the 100-fathom (183-meter) isobath adjoining the islands of Lanai, Maui, and Molokai, including Penguin Bank, but excluding the area within 3-nautical miles of the upper reaches of the waves on the shore of Kahoolawe Island;
b. to the deep water area of Pailolo Channel from Cape Halawa, Molokai, to Nakalele Point, Maui, and southward; and
c. to the 100-fathom isobath adjoining the Kilauea National Wildlife Refuge on the Island of Kauai.

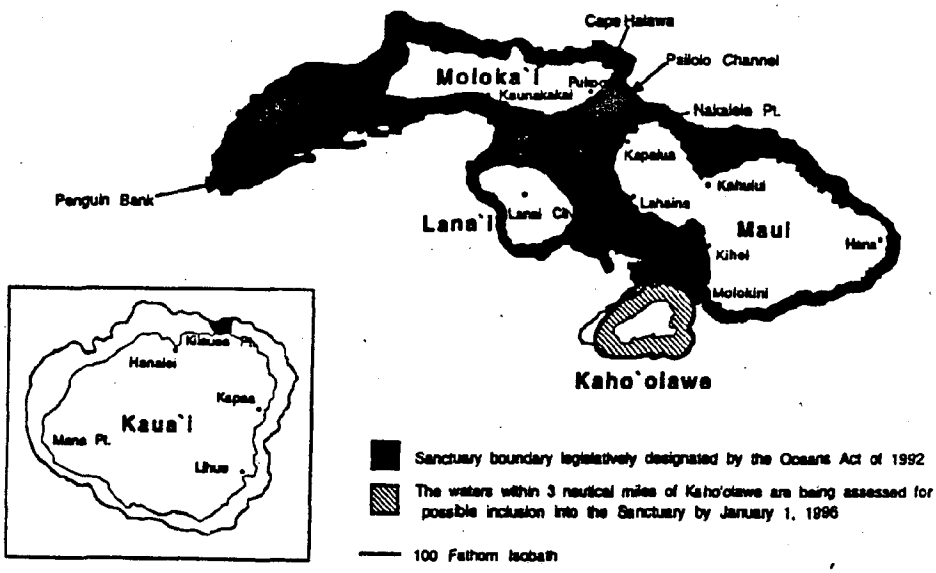

Figure III-3 Boundary Alt. 1: Congressionally-designated boundary

This boundary's coastal mileage is approximately 255 statute miles, with a total ocean area of approximately 1400 square miles. This boundary includes the waters from the shoreline to the 100-fathom isobath and acknowledges the overall importance of the four-island area of Maui County, including Penguin Bank and the Pailolo Channel, to the humpback whale. Research conducted in this area over the past twenty years has shown that humpback whales continually return to these waters in higher densities than to other parts of the State (Nitta and Naughton, 1989; Mobley et al. 1993), and that this area encompasses one of the most important humpback whale cow-calf nursing areas in the State. The area adjoining the Kilauea National Wildlife Refuge on the Island of Kauai, while not as frequented by humpback whales as the waters in Maui County, adds breadth to the Sanctuary with a beautiful vantage point and a visitor center frequented by thousands of visitors annually. The potential compatibility of the Sanctuary with the Refuge is excellent (see Part II.D.1.a). Under this boundary alternative, Maui County and Kilauea Point, Kauai would continue to serve as a focal point of management interests.

The existing boundary has been criticized by some Maui County residents and marine users because it singles out Maui County for potential management and enforcement measures which they believe could have negative impacts to their economy. Some residents have also indicated at public meetings that any sanctuary in Hawaiian waters should include the entire state since whales are found throughout the Hawaiian Islands. Scientific evidence also shows that humpback whales are distributed and utilize habitat throughout the MHI and not just in the Maui County area (Mobley et al., 1993). While it is true that enforcement of existing laws has focused on the four-island area, and/or particular designated cow/calf areas in the past, enforcement has also been applied Statewide. As evidenced by the "deputization" program where the NMFS Office of Enforcement deputized State authorities to assist in the enforcement of the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA), relative to protection of humpback whales,

enforcement should be reflected on a Statewide basis in the future as long as resource needs can be met.

It is not anticipated that implementation of this boundary alternative will result in numerous adverse impacts to Maui County's economy. Rather, the fact that Maui County can claim its waters as a National Marine Sanctuary may provide some economic advantages over other islands. For example, the Maui Visitors Bureau recently developed a poster/activity brochure highlighting a Maui marinescape picture featuring a humpback whale and text that mentions the Sanctuary. Nationally, marine sanctuaries attract tourists, researchers, the media, schools, and educators. In most cases, visitor information/research centers are built and Federal funds are provided for conducting research, education, and interpretive outreach. With the exception of the Kilauea Point National Wildlife Refuge on the Island of Kauai, Maui County would be the greatest beneficiary of the Sanctuary designation under this alternative and of any future funding. Indeed, some Maui residents support a narrow Sanctuary boundary limited only to Maui County as a way of "monopolizing" Sanctuary benefits.

Both NOAA and the State of Hawaii find that this boundary has major limitations with respect to humpback whale distribution which would minimize the potential effectiveness of a comprehensive management plan. NOAA and the State see the need and desirability of having a modified Statewide boundary to which all aspects of the program could be applied (i.e., enforcement, research, monitoring, education, information dissemination, regulatory review, and evaluation of effectiveness).

In conclusion, although this boundary alternative encompasses areas known to be heavily used by humpback whales, it fails to include other areas of the MHI, such as waters around the Big Island, Kauai and Oahu, that humpback whales utilize for transit, courting/mating, breeding, calving, and resting activities. While implementation of this boundary alternative is not anticipated to have adverse impacts, any potential positive or negative socio-economic impacts will be focused in Maui County and the small portion off Kilauea Point, Kauai.

c. BOUNDARY ALTERNATIVE 2 (FIGURE III-4)

Inclusion of Areas of Highest Humpback Whale Concentrations

Although whales may be found throughout the MHI during their winter residency, research indicates there are a number of distinct aggregation areas where the majority of humpback whales frequent. These areas include, in order of relative siting rates: Penguin Bank; the Auau Channel and the area between Maui, Kahoolawe, and Lanai); West Hawaii (between Kailua-Kona and Upolu Point); and near the Islands of Niihau and western Kauai (Figure III-4) (Forestell and Brown, 1992; Nitta and Naughton, 1989; Mobley, et al. 1993; Cerchio 1993). These areas tend to be in waters less than 100-fathoms, on the leeward sides of the MHI, and in areas not heavily influenced by human activities. Whale movement among the major aggregation areas has been documented by photo-identification of individual whales (Darling & Juarez, 1983; Cerchio et al., 1991); it remains unclear, however, to what extent these separate areas may be favored by individual whales (Forestell and Brown, 1991). This boundary alternative would consist of a multi-component boundary based upon these high whale concentration areas. This alternative does not include the areas identified under section B.1.a. of this section: Kahoolawe Island Marine Waters and the NWHI.

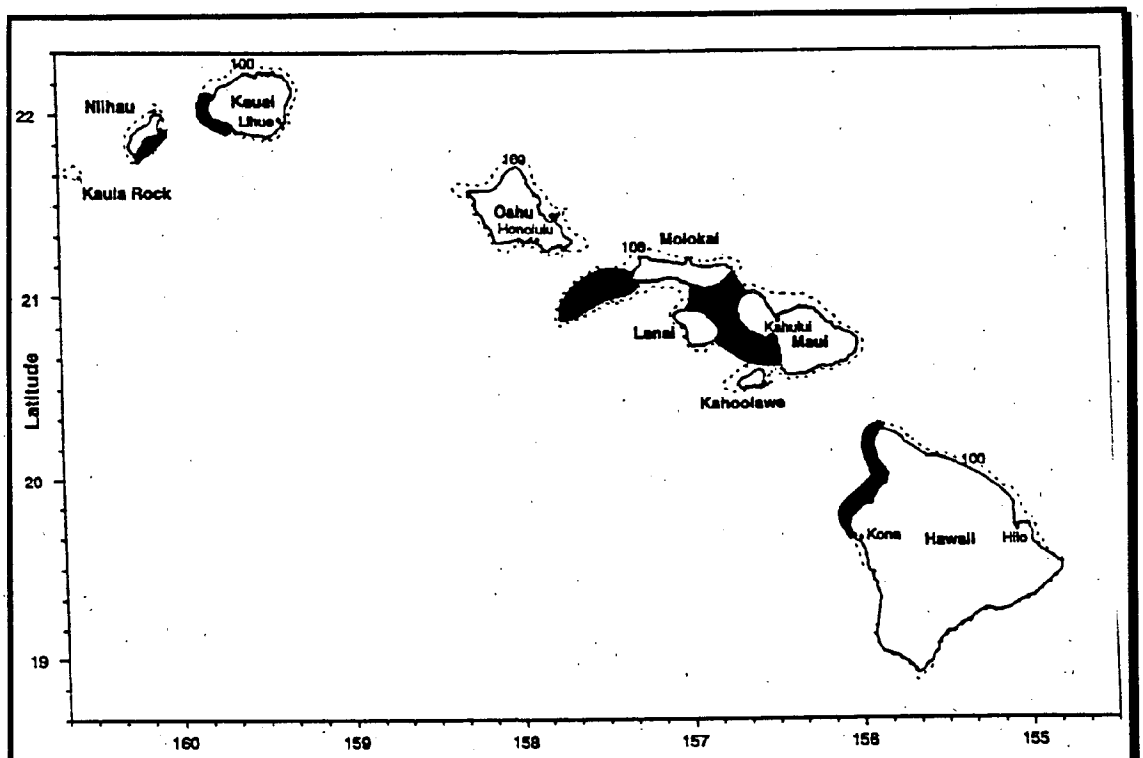

Figure III-4 Boundary Alt. 2: Major areas of humpback whale distribution (modified from Forestell & Brown 1992)

This boundary alternative would establish the Sanctuary in discrete areas in and outside the Maui County area; provide Sanctuary management focus to less than the entire State area; and ensure protection and priority focus on what appear to be the humpback whale's most frequented habitat areas. This boundary alternative, however, is based upon limited whale sighting data and neglects the fact that humpback whales utilize nearly all the waters around the MHI, for transit, courting/mating, breeding, calving, and resting. More recent aerial surveys indicate that other Island waters, such as portions of Kauai, Niihau, and Oahu, also support high humpback whale concentrations (Mobley, et al., 1993; Cerchio, 1994). These same surveys have also found significant numbers of humpback whales utilizing waters deeper than 100-fathoms (Mobley et al. 1993). As whale population densities increase, other areas of the State that are not currently used may become more heavily utilized. Furthermore, this boundary alternative does not take into consideration specific environmental or behavioral factors that can modify humpback whale distributions, including increasing human use and development in some of the high whale density areas which may cause whales to shift their distribution to less disturbed habitat. Implementation of this boundary alternative is not anticipated to have adverse impacts.

In conclusion, although this boundary alternative encompasses a series of discrete areas known to be extensively used by humpback whales, it fails to include other areas of the MHI that humpback whales utilize for transit, courting/mating, breeding, calving, and resting activities. This multi-component boundary does not allow for adequate protection of humpback whales and their habitat throughout their Hawaiian range or address management needs (research, education, and enforcement, among others) uniformly throughout the State. In addition, NOAA, in consultation with the State, determined that this boundary fails to recognize the importance of DOD military use areas and activities that are essential to national security and defense.

d. BOUNDARY ALTERNATIVE 3 (FIGURE III-5)

**** PREFERRED ALTERNATIVE ****
Expansion of Congressionally-designated boundary to include 100-fathom isobath around Big Island, parts of Oahu, and eastern Kauai

Figure III-5 depicts NOAA's preferred Sanctuary boundary based on the best available humpback whale distribution data, management needs, and recognition of human uses. Figures III-6 to III-10 depict enlarged views of each of the islands. This alternative best achieves the primary goals and objectives of the HINMSA, while facilitating compatible human uses of the area. The preferred boundary includes the submerged lands and waters off the coast of the MHI seaward from the shoreline[ii], cutting across the mouths of all rivers and streams--

a. to the 100-fathom (183 meter) isobath adjoining the islands of Maui, Molokai, and Lanai, including Penguin Bank, but excluding the area within 3-nautical miles of the upper reaches of the wash of the waves on the shore of Kahoolawe Island;
b. to the deep water area of the Pailolo Channel from Cape Halawa, Molokai, to Nakalele Point, Maui, and southward;
c. to the 100-fathom isobath around the island of Hawaii;
d. to the 100-fathom isobath from Kailiu Point eastward to Makahuena Point, Kauai; and,
e. to the 100-fathom isobath from Puaena Point eastward to Mahie Point, and from the Ala Wai Canal eastward to Makapuu Point, Oahu.

The term "shoreline" is the inshore Sanctuary boundary. This was changed from the "mean highwater mark," which was used in the Draft EIS/MP, to be consistent with Hawaii Coastal Zone Management Program and Department of Land and Natural Resources definition. The Sanctuary's inshore boundary cuts straight across the mouths of rivers and streams.

This alternative would add approximately 544 statute miles to the Congressionally designated boundary's coastal mileage of 255 statute miles. The total area included in this boundary alternative is approximately 2100 square miles.

[ii] As defined in the Hawaii Administrative Rules, Title 13, Chapter 222, shoreline means, "the upper reaches of the wash of the waves, other than storm and seismic waves, at high tide during the season of the year in which the highest wash of the waves occurs, usually evidenced by the edge of vegetation growth, or the upper limit of debris left by the wash of the waves."

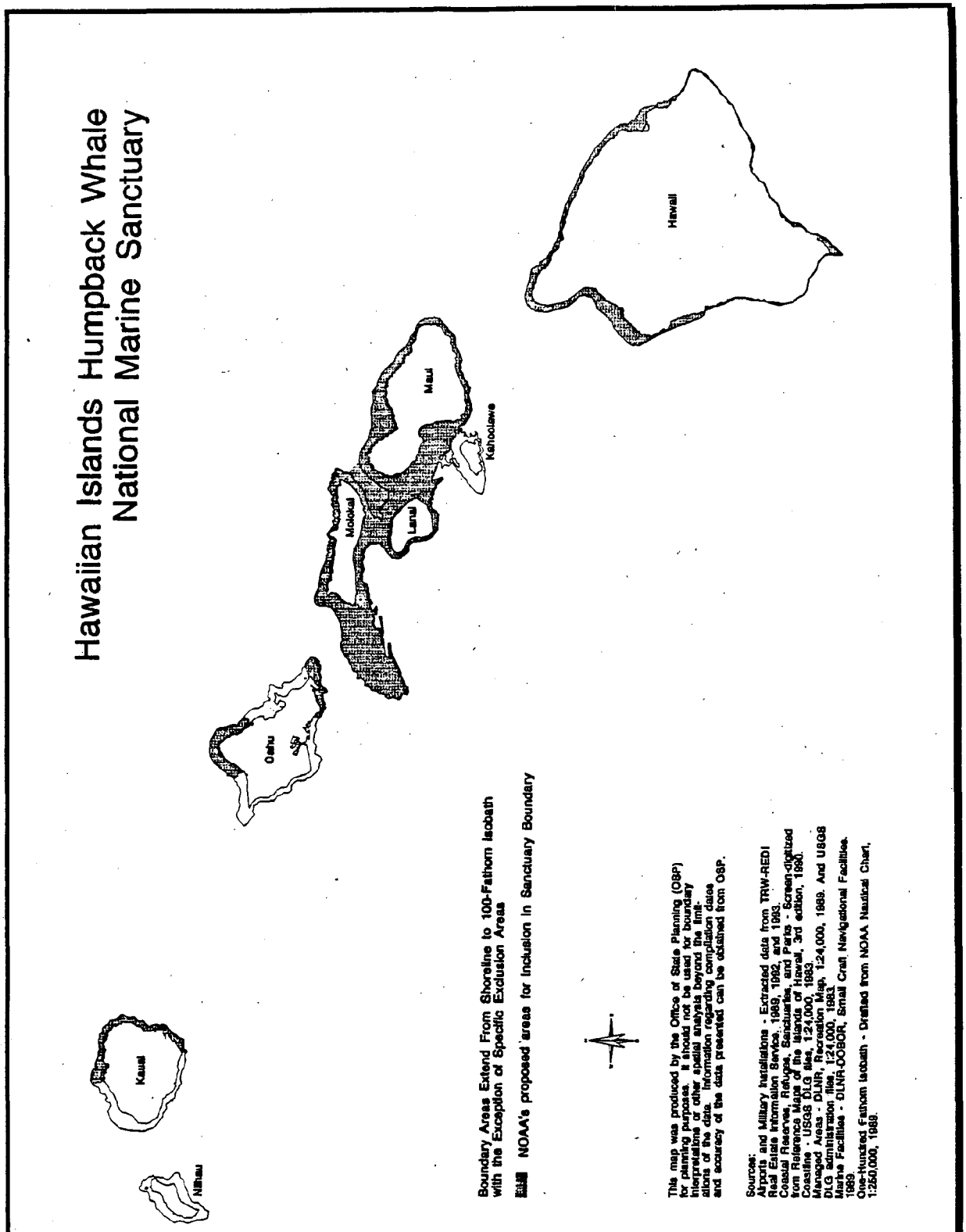

Figure III-5 Boundary Alt 3: NOAA's preferred Sanctuary boundary

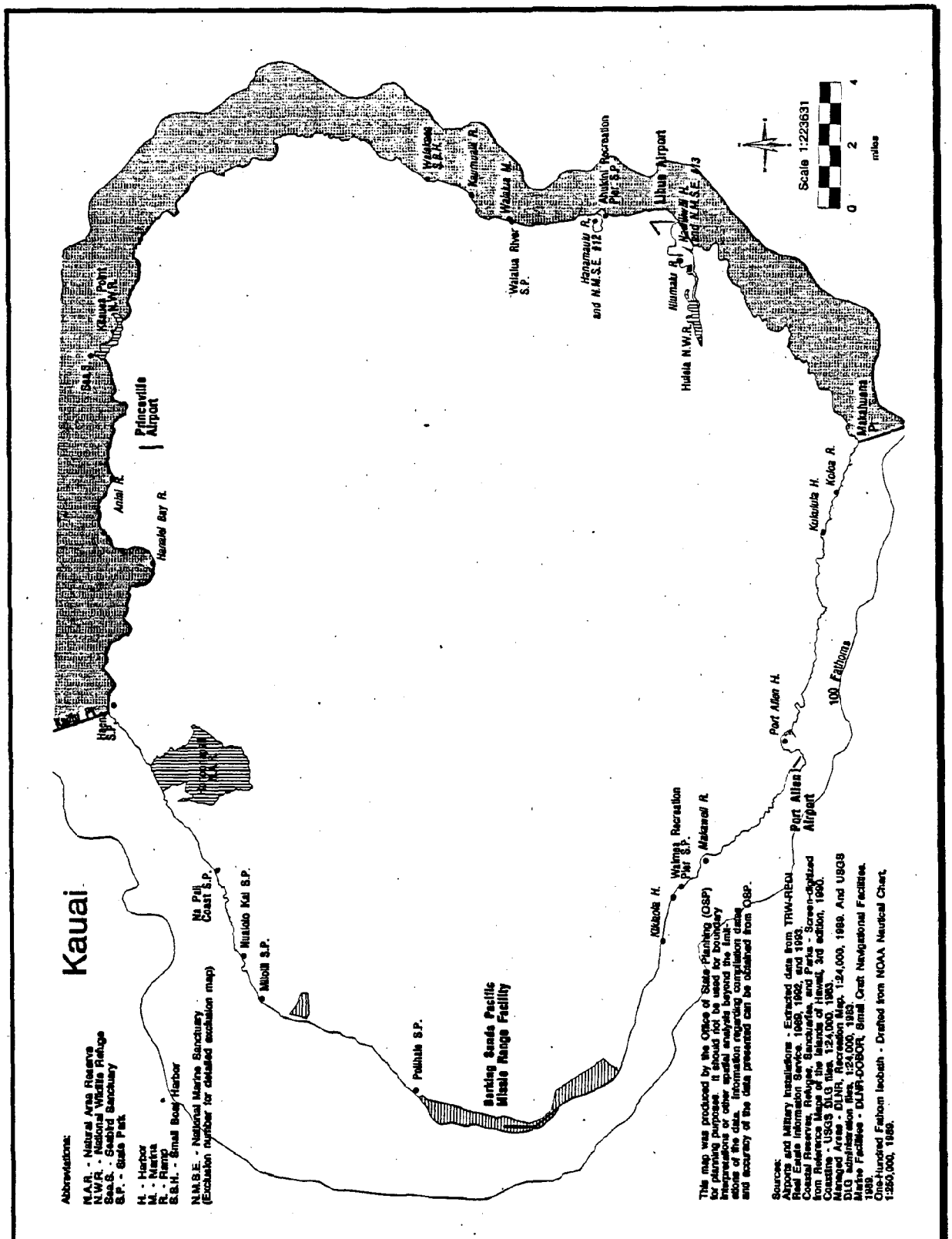

Figure III-6 NOAA's preferred Sanctuary boundary - Kauai

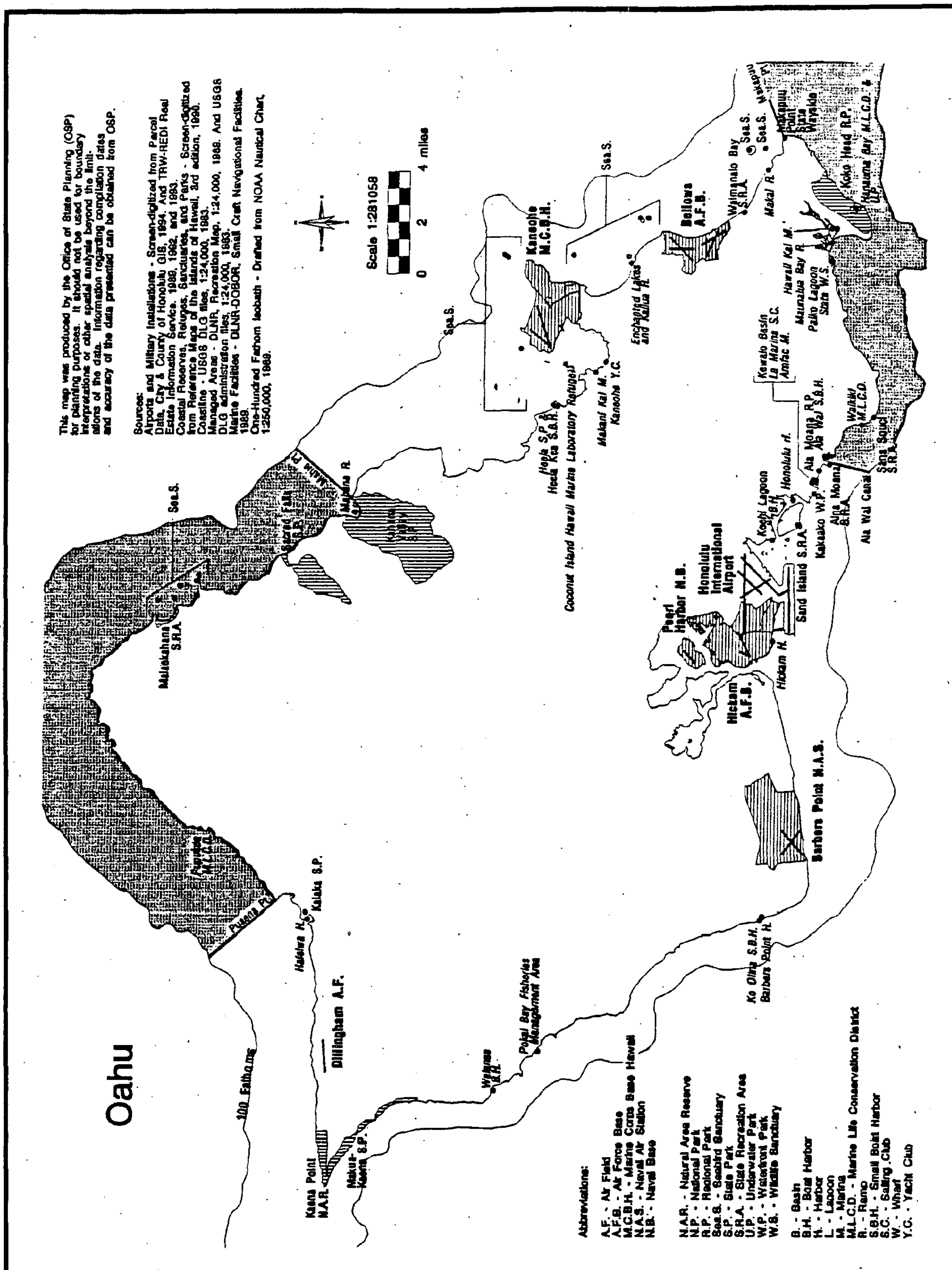

Figure III-7 NOAA's preferred Sanctuary boundary - Oahu

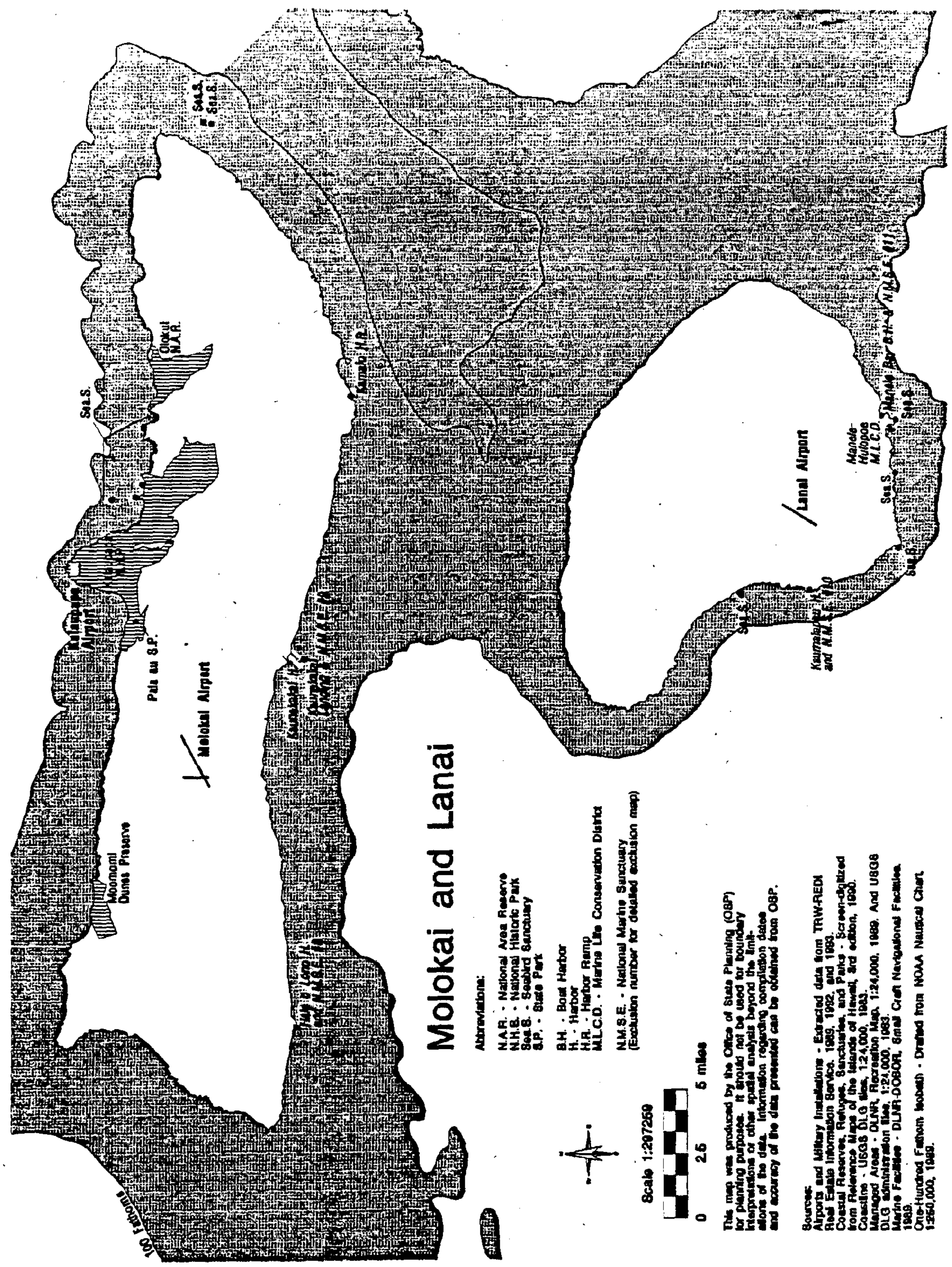

Figure III-8 NOAA's preferred Sanctuary boundary - Molokai and Lanai

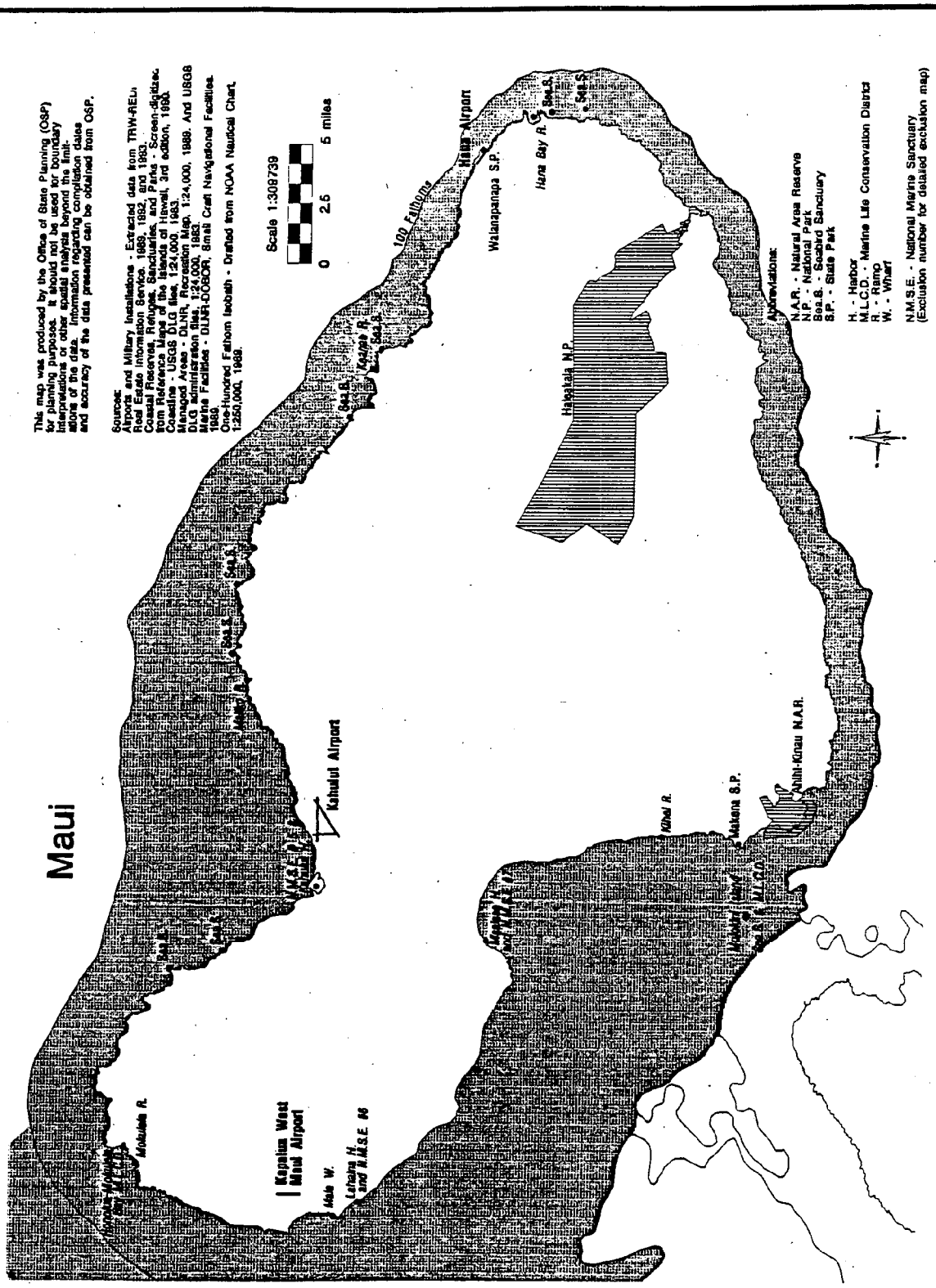

Figure III-9 NOAA's preferred Sanctuary boundary -- Maui

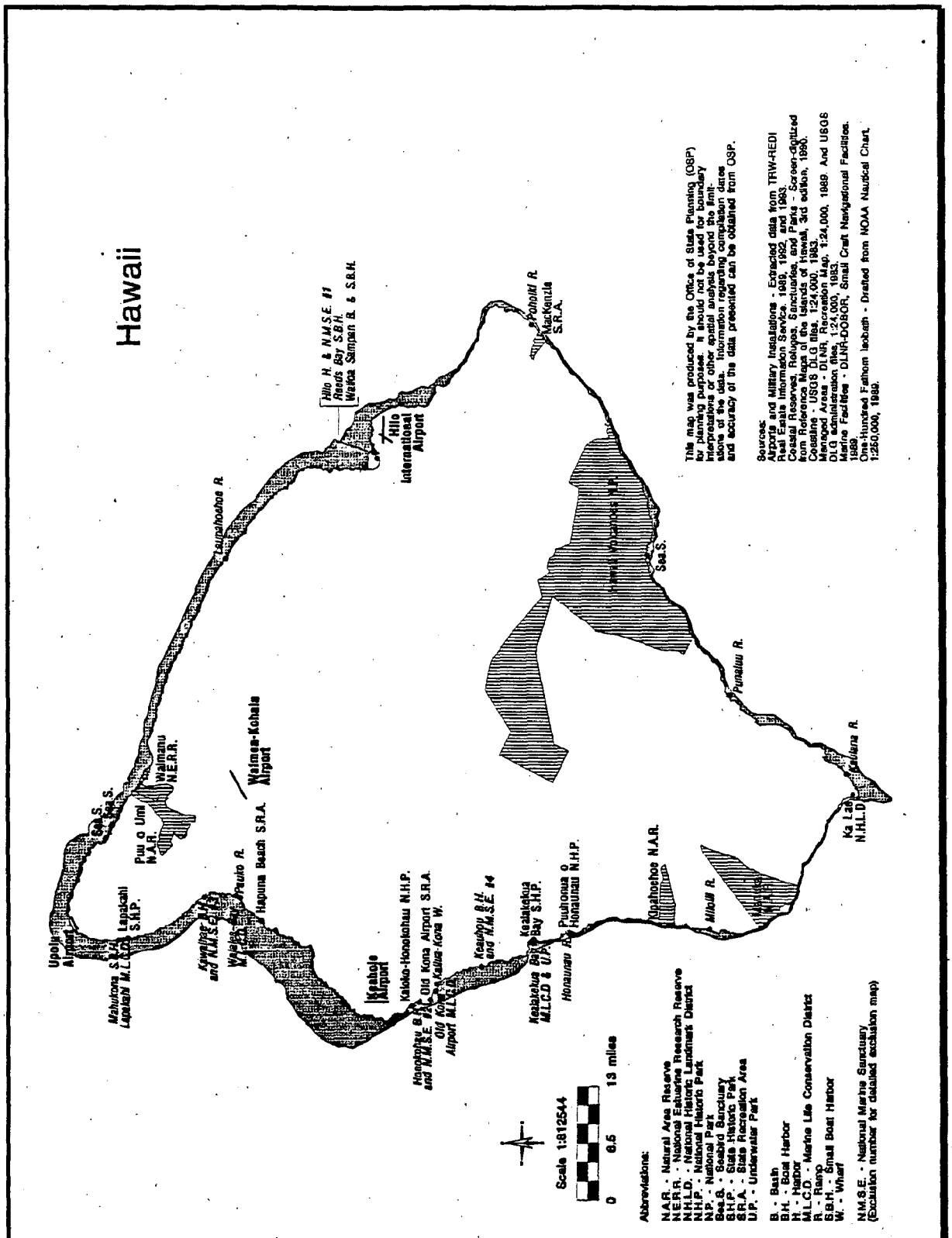

Figure III-10 NOAA's preferred Sanctuary boundary - Big Island

Humpback whale distribution studies indicate that whales do not extensively use harbors or small boat basins as preferred habitat. Although whales may occasionally venture into harbors and boat basins, high levels of human activity and constrained space precludes them from carrying out normal behaviors and activities. In this regard, NOAA did not include major ports, harbors, and small boat basins in this boundary alternative because evidence indicates such areas do not constitute whale habitat and because of activities that occur within harbors (both in and out of the water) that are incompatible with a National Marine Sanctuary. Such activities include, but are not limited to, vessel painting, shore-based boat cleaning, toxic paint releases from moored vessels, and sewage disposal. This exclusion also recognizes the importance of these areas to Hawaii's economy; the numerous necessary operation and maintenance activities which must occur on a routine basis; that such activities are regulated by existing State and Federal processes.

Approaches to ports and harbors and offshore anchorages are not being excluded from the Sanctuary boundary because these areas are considered humpback whale habitat. Humpback whales, especially mothers and calves, regularly use these inshore waters for nursing and resting areas. Vessels traffic in and out of ports and mooring areas will continue to be subject to the existing 100-yard humpback whale approach regulations.

The ports, harbors, and small boat basins which are excluded from the preferred Sanctuary boundary are identified below, and can be seen in Figure III-11.

<u>Maui</u>
Kahului Harbor
Lahaina Boat Harbor
Maalaea Boat Harbor

<u>Kauai</u>
Hanamaulu Bay
Nawiliwili Harbor

<u>Oahu</u>
Ala Wai Small Boat Basin

<u>Hawaii (Big Island)</u>
Hilo Bay Harbor
Honokohau Boat Harbor
Keauhou Bay
Kawaihae Boat Harbor/Small Boat Basin

<u>Lanai</u>
Kaumalapau Harbor
Manele Harbor

<u>Molokai</u>
Hale o Lono Harbor
Kaunakakai Harbor

Under this alternative, the boundary would extend from point to point across the mouths of these harbors, as shown in Figure III-10, and as noted by the geographic coordinates presented in Appendix K. Activities within these selected ports, harbors, and small boat basins would not be subject to Sanctuary regulations, but spillover impacts and new construction seaward of the existing harbors could be subject to Sanctuary review, regulations, and consultation. The Hawaii Department of Health classifies the above ports, harbors, and boat basins as "class A" waters (Hawaii Administrative Rules §11-504-06), which have lower water quality standards to allow for discharge activities associated with port and harbor operations.

Although Sanctuary regulations would not apply in these areas except for discharges outside the boundary that enter and injure a Sanctuary resource, all other Federal, State, and county regulations relating to harbor construction, maintenance, discharges, and humpback whale approach would continue to apply. While the Sanctuary regulations do not prohibit the construction of new harbors or the expansion of existing harbors conducted in compliance with a valid Federal or State permit, plans for such development within the Sanctuary will be reviewed through NOAA's consolidated ESA Section 7 and the NMSA Section 304(d) consultation processes in order to offer recommendations and comments to ensure that Sanctuary resources are adequately considered. At that time, NOAA will determine whether to revise the Sanctuary boundary to exclude the new or expanded port, harbor or boat basin.

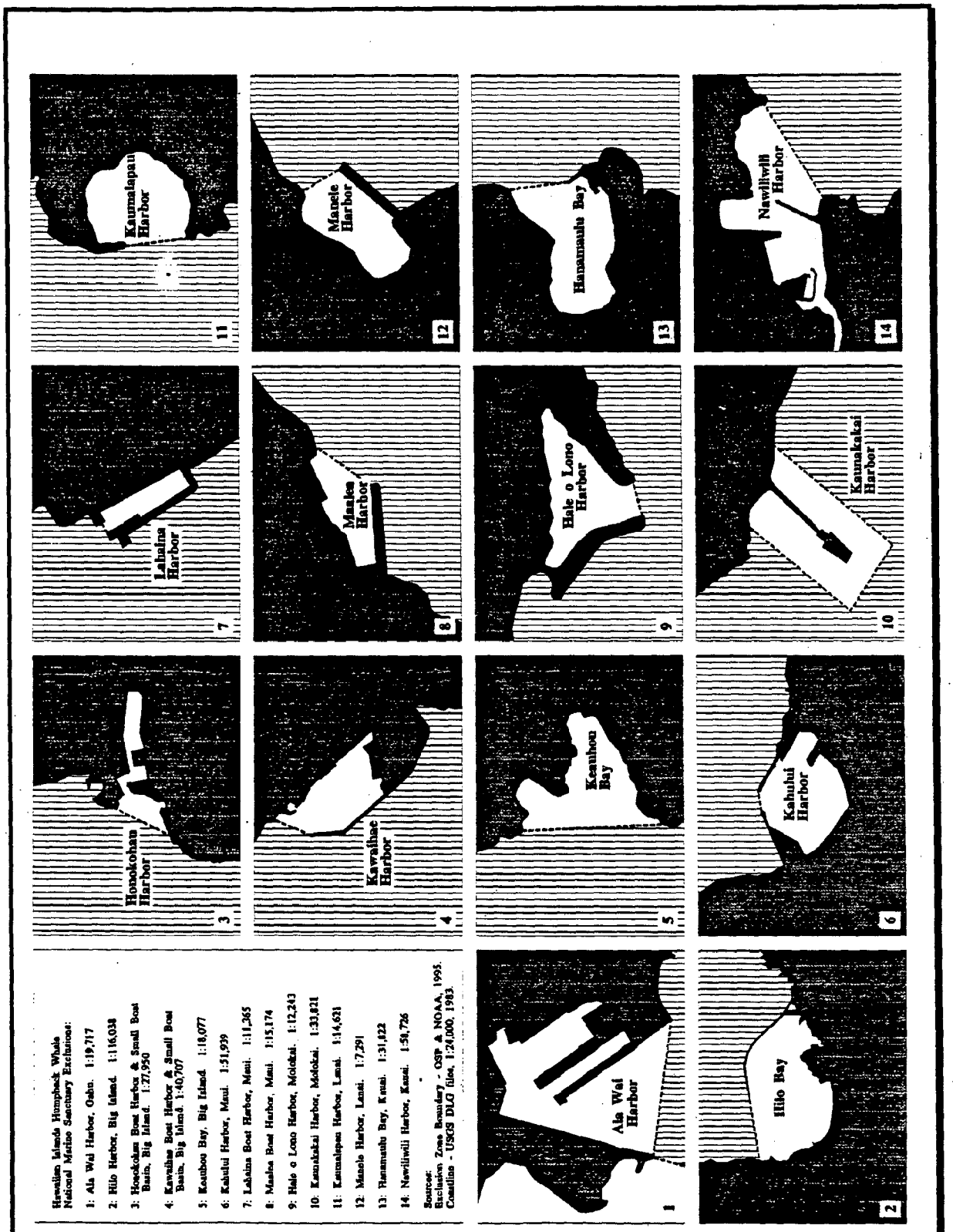

Figure III-11 Boundary Alt. 3: Excluded Ports, harbors and small boat basins

In addition to the above areas, this proposed boundary alternative also does not include certain significant specified military use areas.

i. Description of Military Use Areas

Part of the Sanctuary's mandate is to facilitate human uses of the Sanctuary consistent with the primary purpose of protecting the humpback whale and its habitat. DOD is one of the largest users of Hawaii's marine environment. Specific areas off Kauai, Niihau, Kaula Rock, and Oahu have been identified by DOD as military use areas where the United States and its allies conduct numerous activities that are crucial to the readiness and proficiency of the armed forces. NOAA, in consultation with DOD and the State has determined that not including these selected military use areas in the Sanctuary boundary facilitates the conduct of essential military activities while still achieving an appropriate level of resource protection. While not including such areas may be inappropriate for an ecosystem based sanctuary, it is appropriate here where the only Sanctuary resources are the humpback whale and its habitat, and where DOD remains subject to the ESA, the MMPA, and other relevant Federal environmental laws. In addition, DOD operating procedures include special precautions to ensure the protection of humpback whales prior to any training exercises or testing which may occur during whale season (see list of military activities in Appendix F). NOAA has consulted with DOD on these activities and has determined that the precautions DOD takes (some of which include: visual and instrumental search of range sites for whales, delay testing or use of explosives in presence of whales, avoidance of whales, minimal use of live ammunition, training of personnel to adhere to environmental regulations, and operation orders) are sufficient to adequately protect humpback whales and their habitat.

Selected military use areas not included in this Sanctuary boundary alternative are the Pacific Missile Range Facility (PMRF), located in west Kauai; Niihau; Kaula Rock; and on Oahu Mahie Point (just north of Kaneohe Bay) to Makapuu Point (just south of Bellows Air Force Base) and from the Ala Wai Canal (east of Pearl Harbor) northward along the Waianae Coast to Puaena Point (just east of Dillingham Air Field).

1) Kauai [Barking Sands (PMRF)] and Niihau

Figure III-6 shows the area around the western half of Kauai not included in this boundary alternative (dark area is included in the Sanctuary boundary). DOD conducts many operations at and near PMRF considered essential to national security and defense. Test ranges extend far beyond the 100-fathom isobath, with a great deal of test activities occurring well outside the 100-fathom isobath boundary along the western side of Kauai and the Niihau area. However, the west Kauai and Niihau areas still lie within designated PMRF use zones.

Since this area is also recognized as important to humpback whales [aerial surveys and fluke-photo identification have found apparent increases in humpback whale populations in this area over the last few years (Forestell and Mobley, 1991; Cerchio, et al., 1993; Cerchio, 1994)], the Sanctuary will continue to coordinate closely with DOD and NMFS to ensure that PMRF Command procedures remain adequate for the protection of humpback whales.

2) Kaula Rock

Kaula Rock is a small island and associated coral reef located about 30 miles south of Niihau. Research indicates that humpback whales use the shallow waters around Kaula Rock for reproductive activities (Mobley et al. 1993). The degree of relative distribution of these whales is virtually unknown. Most humpback whale research has not focused on this area and is the result of "spillover" research from Niihau or from other projects around Kaula Rock. In the past, DOD has used Kaula Rock as a bombing range. Though the island is no longer used in this way, some military training activities still occur in the vicinity and the island remains in a designated military

use zone. Also, Kaula Rock is extremely isolated, and effective management of the island would be difficult given current fiscal and human resource constraints.

3) Oahu

Figure III-6 depicts the areas around Oahu which are not included in the Sanctuary's preferred boundary (dark areas are included in the Sanctuary boundary). DOD and its allies conduct numerous operations in the Pearl Harbor area and along the Waianae Coast (west to northwest Oahu) considered vital to national security and defense. The Marine Corps also conducts numerous training activities in the Kaneohe Bay/Bellows Air Force Base area on eastern Oahu vital to national security and defense. DOD takes special precautions to ensure the protection of the whales prior to any training exercises or testing which may occur during whale season. The Sanctuary will continue to coordinate closely with DOD and NMFS to ensure that Naval and Marine Command and operational procedures remain adequate for the protection of humpback whales.

ii. Conclusion

Figures from Part II (II-9 through II-15) also indicate that humpback whales are found throughout the MHI (see Part II.B. for a more thorough discussion of humpback whale distribution). These data represent static observations of humpback whales and the movement of individual whales over time. Researchers are gaining evidence that humpbacks are able to swim the length of the MHI in less than a week, though the frequency or relative amount of interisland migration is unknown. Cerchio (et al. 1991, and 1993) photo-identified a whale off Kauai and a collegue of Cerchio found the same whale seven days later off the Big Island. These studies also showed that humpback whales migrate between the Islands in either direction, though the degree and social structure of humpback inter-island movement is not fully understood. However, it is accurate to say that humpbacks are distributed throughout the MHI and move throughout the Islands during the whale season.

Some areas of the state tend to show higher concentrations of humpback whales than others (i.e., the Kohala Coast of Big Island versus the Hilo side). While the degree of habitat preference is not completely understood, humpback whales are known to distribute themselves in warm, shallow waters (generally less than 100-fathoms) often on the leeward sides of the Islands. Distributions vary according to an individual whale's gender and age and the time of year. For example, mother-calf pairs have been found in waters less than 30-fathoms (360 feet) while the calf is very young (Glockner-Ferrari and Ferrari, 1987). As the calf matures and gains strength and the ability to swim more efficiently, the pair will gradually shift habitats to deeper waters. In contrast, male humpback whales and unaccompanied females (no calf or escort) utilize nearshore waters much less frequently than mother-calf pairs, tending to be found in deeper waters, out to the 1000-fathom isobath and beyond.

Human presence and disturbances may also affect humpback whale distribution and habitat use. It has been hypothesized that whales may move from previously "preferred" habitats to less disturbed sites because of increased boater use, coastal development, and other human disturbances (Darling & Juarez, 1985; Cerchio, et al. 1991). Clearly, there are many complex social, environmental, and human factors that contribute to the overall humpback whale distribution patterns and habitat use. Any comprehensive and coordinated management program must take all of these factors into consideration to be successful.

Numerous complaints were heard throughout the public scoping meetings that whale harassment occurs off Kauai, Oahu, and western Hawaii (Big Island), and that there is little enforcement presence. Apparently, many individuals have the perception that the NMFS whale approach regulations apply only in Maui County. While it is true that in the past some of the rules

(e.g., NMFS's 300-yard approach regulations) applied only to designated cow/calf areas off of Maui and Lanai, current approach regulations (i.e., NMFS 100-yard approach regulations) apply everywhere within Hawaii's 200-mile exclusive economic zone. On islands other than Maui, many individuals claimed they were not aware of the separation rules and therefore, in the absence of information, would approach whales closer than 100 yards. In order to achieve greater compliance with existing humpback whale approach regulations, better dissemination of information and educational efforts are required on a Statewide basis. Both whales and humans use the waters within the MHI. As both the human and the whale populations in Hawaii continue to increase and expand to other parts of the State, there will be a need to consider marine areas other than Maui County for potential management purposes.

In conclusion, this boundary alternative proposes to expand the Congressionally-designated boundary to include waters around parts of all of the MHI (excluding Kahoolawe). NOAA selected this boundary as the preferred alternative because it more accurately reflects the current understanding of humpback whale distribution and habitat use in Hawaii, responds to statewide management needs (including research and long-term monitoring, education and outreach, coordination with statewide agencies, and enforcement of regulations) and recognizes the human uses of the Sanctuary, including those activities DOD considers essential to national security and defense. Implementation of this boundary alternative is not anticipated to have adverse impacts and any potential positive or negative socio-economic impacts will be dispersed throughout the areas included in this boundary.

e. BOUNDARY ALTERNATIVE 4 (FIGURE III-12)

Expansion of Congressionally-designated boundary to include 100-fathom isobath around all MHI and Kaula Rock

As depicted in Figure III-12, this boundary alternative is based on the most recent available data and management needs for the humpback whale. This alternative includes more area to fulfill the HINMSA's primary goal to protect humpback whales and their habitat. The boundary includes Kaula Rock, Niihau, Kauai, Oahu, the existing four-Island area, and the Big Island of Hawaii. This alternative does not include the areas identified under section B.1.a. of this section: Kahoolawe Island Marine Waters and the NWHI. While this alternative is similar to the preferred alternative in having a statewide focus, it includes the waters within 100-fathoms of Niihau and Kaula Rock, as well as those military use areas around Kauai and Oahu. The boundary would extend seaward from the shoreline:

a. to the 100-fathom (183 meter) isobath adjoining the islands of Niihau, Kauai, Oahu, Maui, Molokai, Lanai, and the Big Island (Hawaii), but excluding the area within 3-nautical miles of the upper reaches of the waves on the shore of Kahoolawe Island;
b. to the 100-fathom isobath around Kaula Rock; and
c. to the deep water are of the Pailolo Channel from Cape Halawa, Molokai, to Nakalele Point, Maui, and southward.

The total area included in this boundary alternative is approximately 2600 square miles. This boundary recognizes recent humpback whale distribution data which show that humpback whales are distributed throughout the MHI and around Kaula Rock (Mobley et al. 1993). Humpback whale use of the Kaula Rock area has been noted in other reports (Nitta and Naughton, 1989; Townsend, 1991; Mobley et al. 1993). This boundary also recognizes that Kaula Rock, Niihau, and western Kauai areas are frequented by humpback whales. Aerial surveys and fluke-photo identification have found apparent increases in the number of humpback whales in this area over the last few years (Forestell and Mobley, 1991; Cerchio, et al., 1993; Cerchio, 1994). This

boundary would provide a more uniform boundary that would take into consideration all areas of humpback whale use.

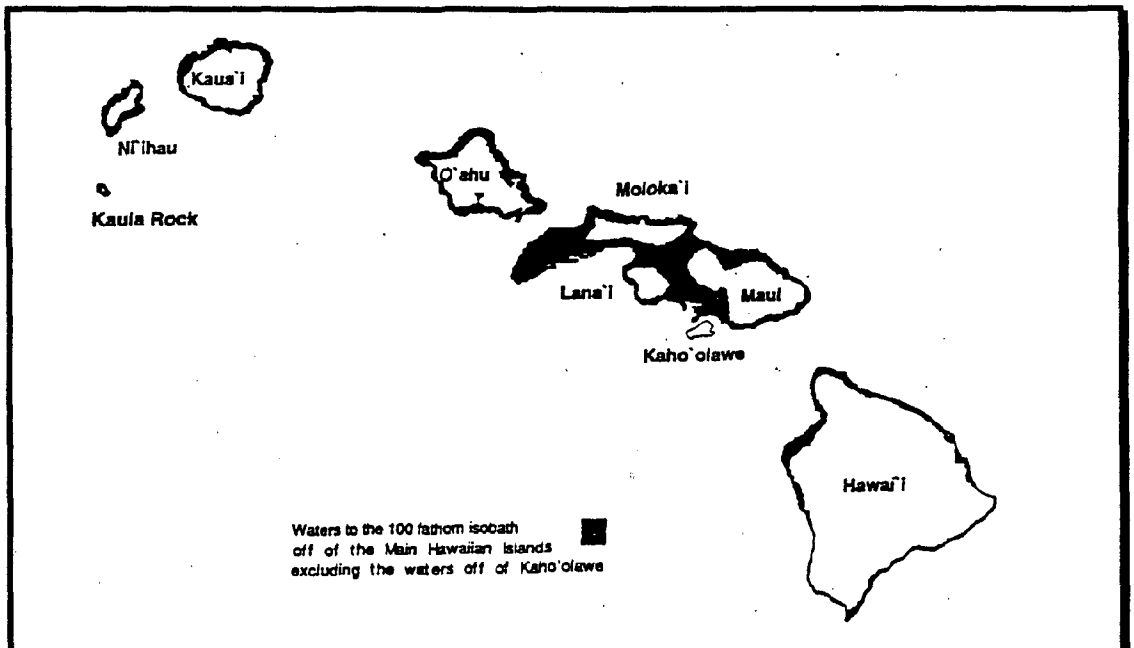

Figure III-12 Boundary Alt. 4: (main Hawaiian Islands shoreline to the 100 fathom isobath

Utilizing the same humpback whale distribution data noted in the final four paragraphs of the alternative "3" section, this Sanctuary boundary alternative allows for protection of humpback whales and their habitat now and in the future uniformly throughout the MHI. As both the human and the whale populations in Hawaii continue to increase, there will be a need to consider all marine areas for potential management purposes. The expanded area recognizes that humpback whale distribution and habitat use is not static and is responsive to numerous social, environmental, and human influences. This boundary would also provide more consistency for marine users of the State than would a piecemeal boundary. A uniform statewide boundary would also best achieve the mandate to promote comprehensive and coordinated management for whales in their Hawaiian habitat.

Although this boundary alternative more accurately reflects the current understanding of humpback whale distribution and habitat use than does boundary alternative "3" -- the preferred alternative -- NOAA, in consultation with the State, determined that from a management perspective, this boundary fails to recognize the importance of DOD military use areas and activities that are essential to national security and defense. Moreover, this boundary alternative is slightly larger in scope than boundary alternative "3", and includes the marine waters around the islands of Niihau and Kaula Rock. The inclusion of these extra marine areas, which are remote and difficult to access, could hinder effective resource management efforts in these areas and detract management efforts from other parts of the MHI. Consequently, this boundary alternative is not the preferred alternative. Implementation of this boundary alternative is not anticipated to have adverse impacts. Any potential positive or negative socio-economic impacts will be dispersed throughout the areas included in this boundary.

f. BOUNDARY ALTERNATIVE 5 (FIGURE 111-13)

Expand Congressionally-designated boundary to include 1,000-fathom isobath around the MHI

It is generally agreed among researchers that humpback whales are primarily distributed in waters less than 100-fathoms (Nitta and Naughton, 1989; Mobley et al. 1993). In recent years, however, it has become evident that a significant number of humpback whales can be found in deeper waters outside the 100-fathom isobath, which may reflect greater efforts and new methodologies used to survey beyond the 100-fathom isobath. While the majority of humpback whale sightings remain in waters less than 100-fathoms, approximately 27 percent of recent survey sightings indicate the presence of whales in waters between the 100-fathom and the 1,000-fathom isobath (Mobley et al. 1993).

This boundary alternative proposes to extend the boundary from the shoreline to the 1,000-fathom isobath surrounding the MHI of Niihau, Kauai, Oahu, Maui, Molokai, Lanai, the Big Island (Hawaii) and Kaula Rock in order to provide a Sanctuary boundary inclusive of the entire humpback whale Hawaiian habitat. This alternative does not include the areas identified under section B.1.a of this section: the waters around Kahoolawe Island and the NWHI. As depicted in Figure III-13, this alternative includes waters which are or may be important humpback whale use areas, particularly as the whale and human populations increase and there is a potential need for "buffer space" outside the 100-fathom isobath. The boundary includes mostly, but not entirely, Federal waters, and would require the same Federal/State partnership existing under the Congressionally-designated Sanctuary.

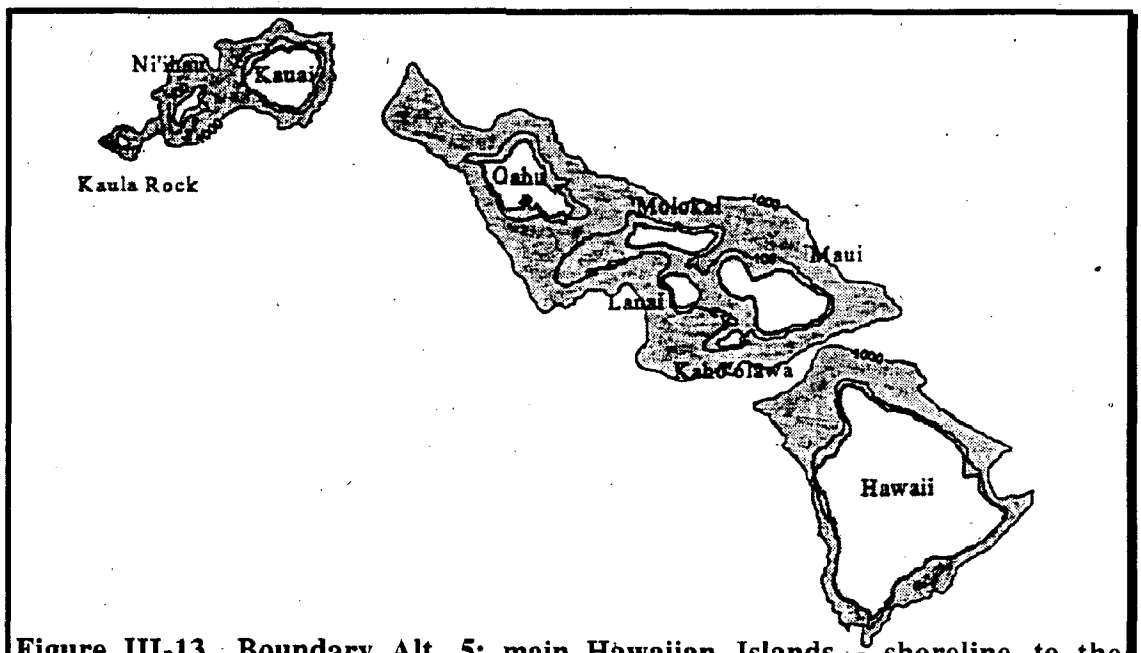

Figure III-13 Boundary Alt. 5: main Hawaiian Islands - shoreline to the 1000 fathom isobath

This boundary extension would not alter the overall focus of Sanctuary management, as currently identified. The boundary would include more marine waters frequented by fishers (commercial, traditional/subsistence, and recreational), but not necessarily change the management regime. This boundary also includes military use areas since this boundary alternative is based

upon a contiguous concept that incorporates most of the known humpback whale habitat in the MHI.

In conclusion, this boundary alternative includes the most comprehensive area reflecting recent data showing that humpback whales are found in waters both within and outside the 100-fathom isobath. Despite the advantage of including nearly all of the humpback whale's Hawaiian habitat in the Sanctuary boundary (management and protection), however, this boundary was not selected as the preferred alternative because it would likely exceed the resources (financial and staffing) of the Sanctuary program needed to effectively manage the site. Most of the proposed area included in this boundary are located significantly offshore (e.g. up to 40 miles in some places). Research and enforcement activities would be dispersed throughout this area and may strain the program's ability to effectively manage nearshore areas of the State. Since most human and whale activities (as well as interactions) occur in relatively shallow waters (generally less than 100-fathoms), Sanctuary management efforts should focus in these areas. In addition, this boundary alternative fails to recognize the importance of DOD military use areas and activities that are essential to national security and defense. Implementation of this boundary alternative is not anticipated to have numerous adverse impacts. Any potential positive or negative socio-economic impacts will be dispersed throughout the areas included in this boundary.

2. Regulatory Alternatives

a. Background

One purpose of the Sanctuary is to manage human uses of the Sanctuary consistent with the HINMSA and the National Marine Sanctuaries Act (NMSA). Section 2306 of the HINMSA requires NOAA to issue a comprehensive management plan and implementing regulations to achieve the policies and purposes for which the Sanctuary was designated. The management plan must also facilitate all public and private uses of the Sanctuary (including uses of Native Hawaiians) consistent with the primary purpose of protecting humpback whales and their habitat. Additionally, section 304(a)(1)(A) of the NMSA authorizes NOAA to issue proposed regulations that may be necessary and reasonable to implement the designation of a National Marine Sanctuary. Therefore, any regulations issued to implement the Sanctuary designation should be necessary and reasonable to achieve the purposes and policies of the HINMSA; primarily to protect the humpback whale and its habitat, while allowing for human uses compatible with this primary purpose of the Sanctuary. Further, Section 304(c) of the NMSA [16 U.S.C. §1434(c)] states that:

> *(1) Nothing in this title shall be construed as terminating or granting to the Secretary the right to terminate any valid lease, permit, license, or right of subsistence use or of access that is in existence on the date of designation of any national marine sanctuary.*
> *(2) The exercise of a lease, permit, license, or right is subject to regulation by the Secretary consistent with the purposes for which the sanctuary is designated.*

Unlike most other National Marine Sanctuaries, which are ecosystem-based, the HIHWNMS is unique in that Congress designated it primarily to protect the humpback whale and its habitat. However, the HINMSA also provides for the Sanctuary to identify other marine resources of national significance for possible inclusion in the Sanctuary. The scope of the management plan and the regulatory alternatives reflect these provisions.

Regulatory alternatives are available under the NMSA and the HINMSA to assist in the management and protection of Sanctuary resources. Sanctuary regulations strive to complement existing Federal, State, or county authorities where those authorities and regulations do not adequately protect Sanctuary resources or where they need to be supplemented to ensure

coordinated and comprehensive protection for humpback whales and their habitat. Generally, NOAA uses the minimal amount of authorities to regulate a narrow range of activities that presently or potentially threaten Sanctuary resources or uses while encouraging compatible uses of the marine environment. At this time, the following human activities have been identified as having possible impacts to humpback whales or their habitat (cause-effect relationships have not been determined in many cases): direct collision by marine vessels; human approaches and/or harassment of humpback whales; whale disturbance or displacement caused by sound; introduction and/or persistence of pollutants and pathogens from waste disposal; point and non-point source pollution; and habitat degradation or loss associated with coastal development (Nitta and Naughton, 1989; NMFS 1991; Townsend 1991).

For activities in the State waters of the Sanctuary, there are a number of existing State administrative mechanisms by which the Sanctuary may participate to make recommendations on issues relevant to the protection and management of Sanctuary resources. The Sanctuary may (1) participate in the development of State regulations by providing public comments and technical assistance when requested, addressing Sanctuary concerns during the public comment period; (2) request the opportunity to review and comment on any permit application for the conduct of an activity that may impact the Sanctuary or its resources at the earliest stages of consideration; (3) request consultation with the State staff reviewing agency to discuss in detail a permit under consideration and NOAA's interest and recommendations in the matter; (4) participate in a hearing to examine an applicant, present evidence, and if requested by the permit granting authority, to prepare draft findings of fact and conclusions of law; (5) seek reconsideration of a State permit and request the Governor to review the particular problem. These mechanisms may be utilized in conjunction with any of the regulatory alternatives listed below.

Six regulatory alternatives are discussed below. The alternatives are presented in "bundles" of regulations proposed to protect Sanctuary resources and ensure comprehensive and coordinated conservation and management of the Sanctuary. The alternatives range from "no additional Sanctuary regulations" to a full-scale regulatory regime to protect and manage an ecosystem-based Sanctuary. In each case, the regulatory alternative also discusses a management philosophy or strategy to which the regulations would be applied, and briefly compares the impacts to resources and uses.

b. REGULATORY ALTERNATIVE 1

Status quo -- no Sanctuary regulations. Neither incorporate existing regulations nor promulgate new Sanctuary prohibitions

i. Description of Proposed Regulatory Action

Under this alternative, the Sanctuary would play a low-key role, relying entirely on existing State, Federal, and county programs to serve as the regulatory and enforcement authorities protecting humpback whales and their habitat. Primarily, this includes the authorities of the NMFS which has responsibilities under the ESA and the MMPA. In addition to regulating the taking and harassment of humpback whales and other marine mammals, NMFS consults under Section 7 of the ESA to comment and make recommendations on the potential impacts of Federal or Federally-funded or authorized projects and activities on humpback whales and their habitat. Further, under Section 304(d) of the NMSA [16 U.S.C. §1434(d)], the Sanctuary also consults and makes recommendations on Federal activities likely to destroy, cause of the loss of, or injure Sanctuary resources.

State and county agencies also have a number of ongoing programs which recognize the importance of the humpback whales and their habitat. For example, in 1976, the humpback whale was designated by the Hawaii State Legislature as the Official State Marine Mammal. In 1990, the Hawaii Department of Transportation passed a law regulating the use of thrill craft in certain cow-calf areas while the whales are present in Hawaiian waters. The State Department of Land and Natural Resources (DLNR) issues permits for NMFS-approved research activities in State waters. There are also several programs that address water quality issues in Hawaii waters. The State Department of Health (DOH) administers the National Pollutant Discharge Elimination System under the Clean Water Act in State waters. In addition, DOH and the Hawaii Coastal Zone Management Program are jointly developing non-point source pollution programs. (See discussion on existing authorities in Part II.E).

Many individuals have expressed concern that there is sufficient existing authority to protect humpback whales and their habitat and that no new authorities or regulations are required at this time. They are concerned about overlapping administrative authorities, financially wasteful duplication of effort, and perhaps more confusion in an already highly-regulated environment. The argument is made that the Sanctuary can best focus its initial efforts on assisting the overall goals of providing better and more focused research, education, and information about the resources and applicable regulations which in turn would greatly assist the overall enforcement program.

Under this alternative, therefore, the Sanctuary would not promulgate new regulations or incorporate existing authorities as Sanctuary regulations. NOAA/SRD would consult with NMFS, State agencies, and others to monitor the status of humpback whales and their habitat. The Sanctuary would principally rely on section 304(d) of the NMSA, in which Federal agency actions internal or external to the Sanctuary, including private activities authorized by licenses, leases, or permits, that are likely to destroy, cause the loss of, or injure any sanctuary resource are subject to consultation with the Secretary of Commerce. The Sanctuary could make recommendations on such activities, including requesting the activity be conducted outside of the Sanctuary. The Sanctuary would have no direct regulatory or enforcement authority over such activities, and could generally not prevent an activity from occurring, or condition an activity to be conducted in a manner that protects Sanctuary resources. Also, non-Federal activities that may harm Sanctuary resources that do not require a Federal license, lease, or permit are not subject to section 304(d), and the Sanctuary would not have consultation authority under the NMSA to review such activities and make recommendations to ensure the protection of Sanctuary resources. The Sanctuary would also rely on section 312 of the NMSA which makes any person who destroys, causes the loss of, or injures any Sanctuary resource liable for response costs and damages.

While there are non-regulatory mechanisms under State law by which the Sanctuary may seek to make recommendations to protect Sanctuary resources, they would not, by themselves, enable the Sanctuary to comprehensively and uniformly manage and protect the humpback whale and its habitat throughout the boundaries of the Sanctuary. Rather, the Sanctuary would have to pursue problems on a case-by-case basis, relying on existing State processes and remedies that may not be timely or adequate, and do not guarantee that the Sanctuary's concerns are addressed. Further, the some of these State processes may not be available to the Sanctuary because of legal restrictions on the Federal government. Also, the existing non-regulatory mechanisms under State law do not apply to activities in Federal waters and the Sanctuary would have to use other mechanisms to address such activities. Finally, even if full reliance on State mechanisms is viable, the Sanctuary's role with respect to activities in State waters that impact the humpback whale and its habitat would be solely that of a commentor on State permits and legislation. This limited role may fail to fulfill the responsibilities Congress, in the HINMSA, imposed upon NOAA as the Federal trustee of nationally significant resources -- the humpback whale and its habitat, to comprehensively manage and protect these resources.

ii. Impact to Resources

Management, coordination, and recovery efforts would continue to be carried out by NMFS under the ESA and MMPA, and by other relevant State and Federal agencies for the protection of the humpback whales habitat. No additional impacts to the resources would be expected. The additional efforts of the Sanctuary Program to focus on the non-regulatory aspects associated with coordination, education, interpretation, research, and long-term monitoring would provide some additional benefits in the way of the lessening the likelihood of taking or harassment undertaken by individuals due to a misunderstanding or ignorance of the laws.

iii. Impact to Users

The status quo would have no additional impact on users, who would remain under current standards and authorities.

iv. Conclusions

Under this alternative the Sanctuary would have no direct regulatory or enforcement authority and limited ability to influence decision making, other than commenting or making recommendations on Federal, State, or county actions, permits or State legislation, or ensure that comprehensive management considerations are taken into account. This alternative has the benefit of not adding an additional regulatory regime and would satisfy the concerns of many who have commented throughout the public participation process. It does not, however, provide the Sanctuary with the authority to comprehensively, uniformly, and directly protect humpback whales and their habitat. Also, relying solely on existing authorities may conflict with Congress' express findings in the HINMSA that existing regulatory and management programs are inadequate and that authority is needed for comprehensive and coordinated conservation and management of humpback whales and their habitat that will complement existing regulatory authorities.

c. REGULATORY ALTERNATIVE 2

Adopt existing NMFS humpback whale approach regulations to provide additional authority to enforce provisions of law under the NMSA; provide Sanctuary support to the full implementation of those laws; promulgate no new, substantive regulatory prohibitions.

i. Description of Proposed Regulatory Action

This alternative would incorporate as Sanctuary regulations, the following humpback whale approach regulations that exist under the auspices of the MMPA and the ESA:

- Approaching, or causing a vessel or other object to approach, within the Sanctuary, by any means, within 100 yards of any humpback whale except as authorized under the Marine Mammal Protection Act, as amended (MMPA), and the Endangered Species Act, as amended (ESA);
- Operating any aircraft above the Sanctuary within 1,000 feet of any humpback whale except when in any designated flight corridor for takeoff or landing from an airport or runway or as authorized under the MMPA and the ESA;
- Taking any humpback whale in the Sanctuary, except as authorized under the MMPA and/or the ESA;
- Possessing within the Sanctuary (regardless of where taken, moved, or removed from) a humpback whale (living or dead) taken in violation of the MMPA or the ESA.

As Sanctuary regulations, NOAA may enforce violations of these approach restrictions under the authority of the NMSA, thus providing the Sanctuary with a management tool to directly protect the humpback whale, and to monitor and assess the number and type of violations within the boundaries of the Sanctuary. Also, the incorporation of these regulations under the NMSA authority allows for increased civil penalties which could be imposed on violators and serve as a greater deterrent to non-compliance, and therefore increased protection for the humpback whale. Further, penalties recovered under the NMSA would be directed back into the Sanctuary to support Sanctuary activities and programs. Although this enforcement capability is provided by the Sanctuary, the primary focus of the enforcement program is on voluntary compliance through education and outreach efforts. See section III(b) or V(d)(4) on enforcement.

The Sanctuary regulations proposed in this alternative focus on activities that directly affect the humpback whale. By incorporating those regulations routinely enforced by the NMFS, the Sanctuary can provide a more effective enforcement capability for protecting and managing the humpback whale in the Sanctuary. Another advantage of the regulations proposed in this alternative is that they do not add a duplicative layer of permitting or approvals necessary to conduct activities that directly affect humpback whales. As the regulations are incorporated, those activities conducted in compliance with a valid permit or authorization under the MMPA or the ESA would not require a separate Sanctuary permit because they would be in compliance with the Sanctuary regulations. The Sanctuary has developed a Memorandum of Understanding (MOU) with NMFS (see Appendix E) to coordinate and consult on permits and authorizations issued under the MMPA or the ESA by which Sanctuary concerns and conditions will be incorporated directly into the NMFS permit. Thus, the Sanctuary regulations proposed in this alternative complement the existing NMFS authorities.

This alternative proposes to supplement NMFS humpback whale approach regulations that protect only the humpback whale. Amendments made to the MMPA in 1994 provide NMFS with greater authority to protect marine mammal habitat (MMPA Amendments of 1994, Public Law 103-238, April 30, 1994). These amendments mandate the creation of Regional Scientific Review Groups to look at impacts of human and environmental factors on marine mammals, and allows the agency to develop and implement conservation plans to alleviate such identified impacts. The Sanctuary would work with NMFS and other agencies and researchers in Hawaii to gain a better understanding of the potential impacts and threats to humpback whales in Hawaii. The Sanctuary would also work closely with existing Federal, State, and county authorities to protect the habitat of the humpback whale, as required by the HINMSA. In an effort to support a comprehensive regulatory/enforcement program to achieve voluntary compliance with regulations that protect the humpback whale and its habitat, the Sanctuary would develop outreach programs to ensure that marine resource users are better informed and educated about the regulations; work on the development of an acceptable monitoring program with respect to compliance with all pertinent authorities; and assist and cooperate in any efforts to make improvements to laws and regulations as appropriate through supporting better research and information on which to base management decisions.

This alternative builds on the status quo alternative, by which the Sanctuary will rely on existing authorities for the protection of the humpback whales' habitat, but would add direct regulatory authority under the NMSA to protect humpback whales.

ii. Impact to Resources

This alternative would offer more protection to the humpback whales because the Sanctuary would have direct regulatory and enforcement authority and a greater ability to influence decision making. Enhanced resource protection also results from the increased deterrence value associated with the potential for increased penalties under the NMSA. Essentially, incorporating the NMFS humpback whale approach and taking regulations provides the Sanctuary with the authority to

ensure greater compliance with these regulations. In addition, enhanced coordination and utilization of the expertise of other State and Federal authorities would continue to provide beneficial impacts to the humpback whale population. The additional efforts of the Sanctuary Program to focus on the non-regulatory aspects associated with coordination, education, interpretation, research, and long-term monitoring would provide additional benefits in the way of lessening the likelihood of taking or harassment by individuals due to a misunderstanding or ignorance of the laws.

iii. Impact to Users

No new additional substantive obligations are imposed under this alternative since marine users are currently subject to the NMFS humpback whale approach regulations. Consequently, there will generally be no negative socio-economic impacts to users of the Sanctuary. There may be greater socio-economic impacts on persons in violation of the approach regulations because the maximum Sanctuary civil penalty could be higher than civil penalties under the MMPA and ESA. An incidental benefit to the Sanctuary and its users could result because monies recovered as penalties for unlawful activities would be used for Sanctuary management and improvement.

iv. Conclusions

This regulatory alternative is not the preferred alternative for many of the same reasons regulatory alternative "1." While the Sanctuary will have regulations that enhance protection for the humpback whale, the Sanctuary would have no direct regulatory or enforcement authority to comprehensively and uniformly protect the humpback whales' *habitat* throughout the Sanctuary boundary.

d. REGULATORY ALTERNATIVE 3

**** PREFERRED ALTERNATIVE ****

Adopt a) existing NMFS humpback whale approach regulations and b) additional State and Federal prohibitions governing the discharge of materials into the Sanctuary and alteration of the seabed of the Sanctuary; allow such activities if authorized/permitted by appropriate Federal or State authorities; promulgate no new substantive Sanctuary prohibitions.

i. Description of Proposed Regulatory Action

This alternative would incorporate as Sanctuary regulations, the following humpback whale approach regulations that exist under the auspices of the MMPA and the ESA:

- Approaching, or causing a vessel or other object to approach, within the Sanctuary, by any means, within 100 yards of any humpback whale except as authorized under the Marine Mammal Protection Act, as amended (MMPA), and the Endangered Species Act, as amended (ESA);
- Operating any aircraft above the Sanctuary within 1,000 feet of any humpback whale except when in any designated flight corridor for takeoff or landing from an airport or runway or as authorized under the MMPA and the ESA;
- Taking any humpback whale in the Sanctuary, except as authorized under the MMPA and/or the ESA;
- Possessing within the Sanctuary (regardless of where taken, moved, or removed from) a humpback whale (living or dead) taken in violation of the MMPA or the ESA.

In addition to the humpback whale approach and "take" regulations listed above, the following regulation would be issued to ensure adequate protection for humpback whale *habitat*:.

- The following activities are prohibited and thus unlawful for any person to conduct or cause to be conducted:

(i) Discharging or depositing any material or other matter in the Sanctuary;
(ii) altering the seabed of the Sanctuary; or
(iii) discharging or depositing any material or other matter outside the Sanctuary if the discharge or deposit subsequently enters and injures a humpback whale or humpback whale habitat, provided that:

such activity requires a Federal or State permit, license, lease, or other authorization, **and** **(1)** is conducted **without such permit**, license, lease, or other authorization; **or** **(2)** is conducted **not in compliance** with the terms or conditions of such permit, license, lease, or other authorization.

Finally, the Sanctuary would also add the following prohibition to ensure the facilitation of Sanctuary enforcement activities, which enhance resource protection:

- Interfering with, obstructing, delaying or preventing an investigation, search, seizure or disposition of seized property in connection with enforcement of either of the Acts or any regulations issued under either of the Acts.

In designating the Sanctuary, Congress found that *"the existing State and Federal regulatory and management programs applicable to the waters of the MHI are inadequate to provide the kind of comprehensive and coordinated conservation and management of humpback whales and their habitat that is available under the [NMSA]."* Further Congress found that *"[authority] is needed for comprehensive and coordinated conservation and management of humpback whales and their habitat that will complement existing Federal and State regulatory authorities"* [HINMSA, sections 2302(11) and 2302(12)]. Thus, while there are an abundance of existing Federal, State, and county authorities with overlapping regulatory jurisdiction within the Sanctuary (see Part II.E.3), they are not coordinated or focused specifically on the protection and management of the humpback whale and its habitat. The SAC will provide the forum for coordinating regulatory agencies, interest groups, Native Hawaiians, and others in the framework of protecting humpback whales and their habitat. Such will also contribute to decision-making regarding permitted activities within the Sanctuary, by providing advice and recommendations to the Sanctuary Manager.

In addition to the benefits described in regulatory alternative "2," the regulations proposed in this alternative seek to complement existing protection for habitat from the adverse impacts that could result from degradation of water quality or physical alteration of the seabed. Greater resource protection will ensue from this alternative because this habitat regulation provides the Sanctuary with direct regulatory and enforcement authority over illegal discharge or deposit, or alteration of the seabed activities that could adversely impact the humpback whale's habitat. Enhanced resource protection would also result from the increased deterrence value associated with the potential for increased penalties under the NMSA.

As discussed in the Introduction to this section, the HIHWNMS is unlike any other National Marine Sanctuary in that its primary purpose is to protect the humpback whale and its habitat. In light of the limited scope of the Sanctuary, the narrow proposed definition of what constitutes the humpback whale's Hawaiian habitat, and in the absence of better scientific information on the specific effects of the impacts of various human activities on this habitat, NOAA finds that at this time it is not necessary to add independent Sanctuary regulatory and administrative

review and approval processes to protect the humpback whale habitat. This is particularly the case since the MMPA was recently modified to expanded the role of NMFS in managing and protecting marine mammal habitat. Section 117 of the MMPA establishes "Scientific Review Groups" (one of which is specific to the Pacific, including Hawaii) which are required to advise the Secretary of Commerce on, among other things, "the actual, expected, or potential impacts of habitat destruction, including marine pollution and natural environmental change, on specific marine mammal species or stocks, and for strategic stocks (e.g., endangered stocks), appropriate conservation or management measures to alleviate any such impacts." Also, Section 112 of the MMPA was revised to include, "If the Secretary determines...that impacts on rookeries, mating grounds, or other areas of similar ecological significance to marine mammals may be causing the decline or impeding the recovery of a strategic stock (e.g., endangered stocks), the Secretary may develop and implement conservation or management measures to alleviate those impacts..." The Sanctuary will work closely with NMFS to ensure that humpback whale habitat management is accomplished in a coordinated and complementary manner.

This alternative recognizes that there are a number of different Federal and State authorities that regulate activities in or near the Sanctuary that may adversely impact water quality or the seabed (the humpback whale's habitat). Existing authorities applicable to water quality and the seabed generally require applicants to meet certain standards and take mitigative actions which in the absence of additional data, are consistent with the purposes of the HINMSA to protect this habitat (e.g., water quality standards, reduced noise from construction). These authorities include: (1) The Fish and Wildlife Coordination Act (FWCA); (2) the Clean Water Act (CWA); (3) the Rivers and Harbors Act; (4) Title I of the Marine Protection, Research, and Sanctuaries Act; (5) the Act to Prevent Pollution from Ships; (6) the Oil Pollution Act (OPA); (7) the Outer Continental Shelf Lands Act; (8) Hawaii Revised Statute (HRS) Chapters 342D-51, 343, 205, 205A, 266-3, and 190D; and (9) Hawaii Administrative Rules, Title 13. (See Part II.E and Part V.G. of the Draft EIS/MP).

During scoping meetings, inter-island meetings, and technical consultations, Federal and State agencies and others identified that problems exist with respect to sufficient resources and capabilities to coordinate, implement, and enforce violations of the various existing laws. Further, these laws have broader or different mandates than that of the Sanctuary. This regulatory alternative, therefore, balances the goal of adding necessary authority which complements existing Federal and State regulatory programs with jurisdiction in the Sanctuary with the need to comprehensively and uniformly manage and protect the humpback whale and its habitat. The regulations proposed in this alternative will complement existing authorities by avoiding a duplicative Sanctuary permitting or approval process for discharge or deposit, or alteration of the seabed activities in the Sanctuary. Further, the regulations enable the Sanctuary to supplement existing authorities by adding an independent enforcement mechanism under the authority of the NMSA for unlawful or, unpermitted discharge or alteration of the seabed activities in the Sanctuary. Regulations proposed in this alternative will also provide the authority for penalties under the NMSA, and therefore greater deterrence, for activities conducted in violation of a State or Federal permit, or for an unpermitted activity. Further, penalties recovered under the NMSA may be used for the benefit of the Sanctuary and its users.

Disadvantages of the regulations proposed in this alternative are that by providing the Sanctuary with only a mechanism to enforce discharge or deposit, or alteration of the seabed activities conducted without or not in compliance with a required Federal or State permits, the Sanctuary has limited independent authority to prevent or stop these types of activity from being conducted in the Sanctuary. Further, there will be no requirement in the proposed regulations for persons conducting activities to obtain a Sanctuary permit, certification, or authorization by which the Sanctuary can impose additional conditions to protect the humpback whale's habitat, if necessary. Similarly, the Sanctuary will be unable to require other agencies to impose any such

conditions to a Federal or State permit for discharge, deposit, or alteration of the seabed activities in order to further protect the humpback whale and its habitat.

However, the Sanctuary may use existing State mechanisms, described in the Introduction, to review and make recommendations on activities at the early stages of a proposal. Combining this management approach with the ability to enforce non-compliance of valid Federal or State permits, or unlawful discharge or alteration of the seabed activities will provide a comprehensive approach to protecting the humpback whale's habitat without duplicating existing authorities. Further, at this time evidence indicates that there are no known unregulated discharge or deposit, or alteration of the seabed activities identified as occurring in the Sanctuary that adversely impact the humpback whale's habitat. Finally, as previously stated, in the absence of additional scientific information to the contrary, it appears at this time that the existing regulatory authorities in place adequately protect water quality and the submerged seabed as they relate to the humpback whale's habitat. The research program proposed in the Management Plan will add to the base of scientific information on the humpback whale's habitat.

To adequately implement this alternative, and provide more comprehensive, coordinated management and protection of the humpback whale and its habitat, the Sanctuary will enter into formal agreements (e.g. Memoranda of Understanding) with Federal and State agencies to allow the Sanctuary to review and propose recommendations on the activity early on in the permitting process. This is consistent with the type of agreement that the Sanctuary and NMFS has prepared for permits and authorizations issued under the MMPA and ESA. Thus, while not having veto authority over activities that are conducted in compliance with valid Federal or State permits, a process will be in place to ensure Sanctuary concerns are addressed. Again, this is based on the determination that existing authorities are in place to generally protect water quality and the physical submerged lands in the Sanctuary. The MOUs also provide a reporting provision whereby the Sanctuary may keep track of and monitor the types of activities that are being conducted in its boundaries, with the perspective of how such activities impact humpback whales and their habitat.

ii. Impact to Resources

Increased protection shall be afforded the humpback whale and its habitat because supplemental education and enforcement capabilities will be available under the NMSA and a greater deterrence value associated with the potential for NMSA penalties which may be used to manage and improve the Sanctuary. Sanctuary regulations to protect the humpback whale and its habitat provide the Sanctuary with a tool to ensure greater overall compliance with existing authorities. In addition, greater comprehensive coordination with and utilization of the expertise of other State and Federal authorities would provide beneficial impacts to the humpback whale population. The additional efforts of the Sanctuary Program to focus on the non-regulatory aspects associated with coordination, education, interpretation, research, and long-term monitoring would provide additional benefits in the way of lessening the likelihood of taking or harassment undertaken by individuals due to misunderstandings or ignorance of the law. Other resources may incidentally benefit from decreases in non-compliance with existing permits designed to safeguard against marine pollution and habitat destruction.

iii. Impact to Users

Human uses in the Sanctuary will not be adversely affected because there will be no new, substantive regulatory restrictions or prohibitions instituted by the Sanctuary under this alternative. The NMFS humpback whale approach and taking regulations continue to apply, and discharge, deposit and alteration of the seabed activities must be conducted in compliance with the terms conditions of the applicable Federal or State permits or authorizations to avoid violating Sanctuary regulations. Thus, no negative socio-economic impacts are expected to result from this alternative. This alternative also does not impose independent Sanctuary permit requirements. However,

through coordination with Federal and State agencies and the public, the Sanctuary may make recommendations to ensure that certain activities are conducted in a manner that does not injure Sanctuary resources. Individual agencies administering the permits or other approvals may or may not choose to accept Sanctuary recommendations. There may be some socio-economic impacts from Sanctuary recommendation is adopted by a State or Federal permitting agency, but these are expected to be small in comparison to the benefits to the Sanctuary. Further, there may be greater socio-economic impact on persons in violation of approach, discharge or alteration of the seabed restrictions because Sanctuary maximum civil penalties could be higher than other Federal and State civil penalties, however these would be less severe than criminal penalties imposed under such other laws.

iv. Conclusions

Unlike most other National Marine Sanctuaries, the HIHWNMS is unique in that Congress designated it to protect primarily the humpback whale and its habitat. Notwithstanding the Congressional finding in the HINMSA that existing regulatory and management programs are inadequate to provide comprehensive and coordinated conservation and management of humpback whales and their habitat, it has been argued by Federal and State agencies and the general public that there are in fact sufficient authorities existing to protect water quality and the submerged seabed in the Sanctuary (humpback whale's habitat). Therefore, as there are a number of existing authorities that directly protect the humpback whale (i.e., ESA and MMPA), and also directly or indirectly protect the humpback whales' habitat (i.e., MMPA, CWA, OPA, HRS Chapter 342D-51), and in the absence of additional scientific information regarding the impact of human uses on humpback whale habitat, the Sanctuary will rely on these authorities as much as possible and seek only to supplement enforcement of non-compliance of valid permits from other Federal or State authorities. By essentially incorporating other authorities as Sanctuary regulations, the Sanctuary seeks to address Congress' findings, achieve and fulfill its trustee and management responsibilities, and avoid adding unnecessary, duplicative administrative procedures, while still ensuring protection of humpback whales and their habitat.

e. Regulatory Alternative 4

Adopt existing NMFS humpback whale approach regulations; and promulgate new Sanctuary regulations governing the discharge of materials into the Sanctuary and alteration of the seabed of the Sanctuary

i. Description of Proposed Regulatory Action

This alternative would incorporate as Sanctuary regulations, the following humpback whale approach regulations that exist under the auspices of the MMPA and the ESA:

- Approaching, or causing a vessel or other object to approach, within the Sanctuary, by any means, within 100 yards of any humpback whale except as authorized under the Marine Mammal Protection Act, as amended (MMPA), and the Endangered Species Act, as amended (ESA);
- Operating any aircraft above the Sanctuary within 1,000 feet of any humpback whale except when in any designated flight corridor for takeoff or landing from an airport or runway or as authorized under the MMPA and the ESA;
- Taking any humpback whale in the Sanctuary, except as authorized under the MMPA and/or the ESA;
- Possessing within the Sanctuary (regardless of where taken, moved, or removed from) a humpback whale (living or dead) taken in violation of the MMPA or the ESA.

In addition, this regulatory alternative would add the following independent Sanctuary regulations to protect the humpback whale's habitat:

The following activities are prohibited and thus unlawful for any person to conduct or cause to be conducted:

- Discharging or depositing, from within the boundary of the Sanctuary, any material or other matter <u>except</u>:

  (i) fish, fish parts and chumming materials (bait) produced and discarded during traditional fishing operations conducted in the sanctuary;
  (ii) biodegradable effluent incidental to routine vessel operations (e.g., cooling water, deck wash down and graywater as defined in section 312 of the Federal Water Pollution Control Act), excluding oily wastes from bilge pumping;
  (iii) engine exhaust.

- Discharging or depositing, from beyond the boundary of the Sanctuary, any material or other matter except those listed in (i)-(iii) above, that subsequently enters and injures a Sanctuary resource or quality.

- Drilling into, dredging, or otherwise altering the seabed of the Sanctuary; or constructing, placing, or abandoning any structure, material, or other matter on the seabed of the Sanctuary, <u>except</u>:

  (i) anchoring vessels;
  (ii) traditional fishing operations;
  (iii) installation of navigation aids by the U.S. Coast Guard or Corps of Engineers.

Under this alternative, discharge and alteration of the seabed activities would be prohibited and would require a Sanctuary permit, certification, or authorization in order to be conducted. The Sanctuary would not wholly rely on existing authorities but rather would have direct, independent regulatory authority to influence activities that may impact humpback whales or their habitat.

With regard to protection of the humpback whale's habitat, existing discharge, deposit, or alteration of the seabed activities being conducted pursuant to valid permits, leases, licenses, etc., executed prior to the effective date of Sanctuary designation (November 4, 1992) could not be terminated by the Sanctuary. Such discharges or deposits, and alteration of the seabed activities would be allowed, subject to all prohibitions, restrictions, or conditions imposed by applicable regulations, permits, licenses, or other authorizations and consistency reviews issued or conducted by the appropriate authority. However, pursuant to the provisions of the NMSA, the Sanctuary may regulate the exercise of these existing permits consistent with the purposes for which the Sanctuary is designated.

The Sanctuary could authorize permits issued by other authorities after the date of Sanctuary designation for activities which are otherwise prohibited by the Sanctuary regulations, such as discharges occurring outside Sanctuary boundaries which could enter and injure a Sanctuary resource or quality. The Sanctuary could deny authorization or require additional conditions necessary to protect the humpback whale and its habitat. In all cases, the Sanctuary would consult with the relevant permitting authority and provide scientific information concerning the humpback whale and its habitat to other regulatory authorities. The Sanctuary would cooperate with other authorities to formalize the consultative and management roles of the Sanctuary. To facilitate such coordination, memoranda of understanding and/or protocol agreements may be developed.

The disadvantage of this alternative is that there is limited scientific evidence on the impacts of human uses on whale habitat and there are existing State and Federal regulatory authorities in place that generally protect humpback whale habitat (water quality as physical alteration of the seabed). Consequently, a Sanctuary permit and approval requirement would add another review layer to the already burdened permit review processes in Hawaii without adding significant additional protection to humpback whale habitat. An independent, comprehensive regulatory review process is warranted when protecting an ecosystem environment where existing authorities are inadequate to do so or need to be supplemented, or if scientific evidence indicates that habitat could be afforded greater protection by such a process. However, the Sanctuary's resources are only the humpback whale and its habitat, and presently there is limited scientific information on human impacts to habitat. Regulatory mechanisms that protect, directly and indirectly, humpback whales and their habitat are already in place, and placing additional regulatory requirements may not translate into greater protection for the resources.

This alternative would provide additional authority necessary to achieve Sanctuary policies and purposes consistent with the HINMSA's finding that "regulatory and management regimes are inadequate" to protect the humpback whale and its habitat as well as the recommendation for improved coordination among managing agencies and the public in resource management issues identified in the Hawaii Ocean Resources Management Plan.

ii. Impact to Resources

Increased protection could be afforded to the humpback whale and its habitat because the Sanctuary will have independent regulatory prohibitions in place, and will more closely review proposed activities that may potentially affect the humpback whale and its habitat. Activities under valid pre-existing permits cannot be terminated by the Sanctuary, but could be conditioned to protect Sanctuary resources. Prohibited activities would require a Sanctuary permit or authorization before they may be conducted. The Sanctuary would also have greater ability to modify or deny activities that could harm Sanctuary resources.

Enforcement capabilities, allowed under the NMSA would also add a greater deterrence value, associated with the potential for Sanctuary civil penalties which could be used for the benefit of the Sanctuary. Sanctuary coordination with and utilization of the expertise of other State and Federal authorities would continue. The additional efforts of the Sanctuary Program to focus on the non-regulatory aspects associated with coordination, education, interpretation, research, and long-term monitoring would provide additional benefits to Sanctuary resources. Other resources may incidentally benefit from compliance with Sanctuary regulations.

iii. Impact to Users

The Sanctuary may not terminate any activity authorized by any valid lease, permit, license, approval, or other authorization in existence on the effective date of Sanctuary designation issued by any Federal, State, or county authority, or by any valid right of subsistence use of access in existence on the effective date of Sanctuary designation, although the Sanctuary could impose terms and conditions to protect Sanctuary resources. After the effective date in which the regulations take effect, the Sanctuary would review, and if necessary, condition certain existing activities permitted by other authorities (point source discharges, alteration of the seabed activities). NOAA may impose some conditions (i.e., conduct the activity during the non-whale season, or limit a use away from a particularly sensitive area) which may in-turn lead to additional economic burdens on the applicant. However, such impact would be warranted to protect Sanctuary resources.

Any activity authorized by a valid lease, permit, license, approval, or other authorization issued after the date of Sanctuary designation (including permit renewals) must have approval

from, and be in compliance with any terms or conditions imposed by the Sanctuary. For activities that involve approaching humpback whales within 100 yards (or overflight within 1000 feet), the Sanctuary would use the existing NMFS MMPA/ESA permit procedures to address its concerns. With independent Sanctuary regulations to protect habitat, the Sanctuary could deny or add conditions on activities that could lead to restrictions in uses or add economic burdens on the applicant. For example, the Sanctuary, upon receiving a permit application for discharging primary sewage, could deny approval or condition approval of the permit (given sufficient information linking primary sewage to negatively affecting the whales or their habitat) on upgrading to secondary treatment. Such a scenario could impose additional costs on an applicant. The Sanctuary will work closely with existing Federal, State, and county authorities to determine which activities may negatively affect Sanctuary resources and thus be more closely scrutinized. This alternative does not necessarily require more stringent standards, however, the Sanctuary may require that certain activities be modified to protect Sanctuary resources. There may also be greater socio-economic impact on persons unlawfully conducting prohibited activities because the Sanctuary civil penalties could be higher than other Federal and State penalties.

iv. Conclusions

Some members of the general public believe that the Sanctuary should provide more comprehensive and direct protection for the humpback whale's habitat which would provide greater protection to the humpback whale. The regulations in this alternative relating to discharges and alteration of the seabed would provide the Sanctuary with additional authority to more independently and directly protect humpback whales and their habitat in Hawaii, and provide greater comprehensive oversight of activities which take place in or out of the Sanctuary which might not otherwise take into account the protection of the humpback whale or its habitat. However, the Sanctuary would be adding an additional review and permitting process for activities that may affect the humpback whale that are already regulated in the Sanctuary with little additional benefit in light of the existing data regarding habitat. Unlike other Sanctuaries where such an overarching review and permitting scheme is necessary to manage and protect an ecosystem environment, the resources of the Hawaii Sanctuary are, at this time, limited to the humpback whale and its habitat. With little scientific information on humpback whale habitat, the effects of human activities on water quality and the physical seabed as they relate to the humpback whale and its habitat appear, at the present time, to be more appropriately regulated using and in coordination with existing authorities.

f. Regulatory Alternative 5

Promulgate strict regulations on all marine uses and activities having the potential to adversely affect the humpback whale and its habitat; provide the greatest protection for the humpback whale and its habitat; maximum regulation for humpback whales and their habitat.

i. Description of Proposed Regulatory Action

Under this alternative, the Sanctuary would not incorporate the NMFS regulations described in regulatory alternatives "2" and "4"; nor would it rely on existing Federal, State, or county authorities. Rather, the Sanctuary would independently regulate activities in and around the Sanctuary that could adversely affect the humpback whale and its habitat.

Many facets of information regarding the humpback whales are missing and perhaps may never be fully known, yet many human use activities have been identified in the Humpback Whale Recovery Plan, and other sources as "possibly" affecting humpback whales.

The range of activities potentially affecting humpback whales is large. Almost anything that humans do in or near the water could affect the whales. Certain activities, however, appear more likely to have possible adverse effects due to the noises they produce or their proximity to whales. They include the following (from Townsend, R., July 1991):

- Marine transport
- Commercial fishing
- Recreational fishing
- Diving and snorkeling
- Thrillcraft operations
- Parasail operations
- Whale watching
- Warship operations
- Commercial submarine rides
- Marine construction
- Near-shore construction
- Near-shore resort operations
- Agricultural operations
- Recreational boating
- Surfing
- Water-skiing
- Kayaking
- Aircraft operations
- Sewage dumping
- Commercial cruising
- Scientific research

In addition, there is the potential for such activities as Ocean Thermal Energy Conversion, Acoustic Thermometry of Ocean Climate, laying of ocean cables, commercial and military rocket launches from near-shore based facilities, hydrofoils or hovercraft, sand mining, and other projects, activities, and uses which have potential impacts but for which there is little information on their actual effects.

The HINMSA defines "adverse impact" as an "impact that independently or cumulatively damages, diminishes, degrades, impairs, destroys, or otherwise harms" [Sec. 2303(1)]. Long-term cumulative adverse impacts on the humpback whale and its habitat from activities in the Sanctuary may not be detectable for years. Therefore, this alternative would impose a variety of regulations to prohibit, restrict, or limit uses, either seasonally or permanently, in an effort to protect the humpback whale, and generally improve the waters around the Hawaiian Islands to provide optimum humpback whale habitat.

This regulatory alternative would place restrictions on marine resource users, where the potential exists for those uses to have adverse impacts on humpback whales, their behavior, health, reproductivity, or habitat. This alternative would represent a "precautionary" approach to regulation partly in recognition of the humpback whale's status as an endangered species. Regulations affecting vessel traffic (vessel separation lanes, vessel speeds, vessel density in specifically identified areas), noise standards for vessels and aircraft, seasonal restrictions on recreational marine activities, regulation of commercial and recreational fishing, more stringent water quality measures, as examples, would be developed as needed. This regulatory approach could use special use zoning much like the State's Marine Life Conservation District authority but be potentially utilized on an extensive scale to ensure safe zones for humpback whale use during the winter months when the whales are present in Hawaiian waters, or to prevent or condition projects or activities occurring throughout the year which might degrade the whale's habitat.

Under this alternative, the Sanctuary would play a greater role in reviewing activities subject to Sanctuary regulations. Activities being conducted pursuant to valid permits executed prior to the effective date of Sanctuary designation (November 4, 1992) could not be terminated by the Sanctuary, although pursuant to the provisions of the NMSA, NOAA may regulate the exercise of activities under such existing permits consistent with the purposes for which the Sanctuary is designated.

ii. Impact to Resources

This regulatory alternative provides the greatest protection for the humpback whale and its Hawaiian habitat. The Sanctuary would prohibit or restrict, and require review and approval for, activities that may potentially impact Sanctuary resources. This option provides greater habitat protection than the previous alternative because it requires that a number of activities be renewed and approved by the Sanctuary, and would impose a variety of use restrictions to limit the amount

of human interaction with the whales. Enforcement of Sanctuary regulations would be one of the priorities of the Sanctuary. The possibility of higher maximum civil penalties under the NMSA will also add a greater deterrence value. Coordination with, and utilization of expertise from other State and Federal agencies would continue. The additional efforts of the Sanctuary Program to focus on the non-regulatory aspects associated with coordination, education, interpretation, research, and long-term monitoring would also provide additional benefits to Sanctuary resources. Other resources will likely benefit from higher water quality standards, restricted human uses of the marine environment, and a greater compliance with Sanctuary regulations.

iii. Impact to Users

The Sanctuary will have the authority to regulate (but not terminate) activities authorized by permits, licenses, leases, etc., in existence on the date of Sanctuary designation. Further, Sanctuary approval would be required for any new activity prohibited by the regulations. The Sanctuary may impose some minor restrictions (e.g., conduct the activity during the non-whale season, or relocate an activity away from a particularly sensitive area) or more major restrictions (uniform 300-yard vessel approach limits, restrict vessels from certain areas when whales are present, establish vessel speed limits, limit the number of whalewatching vessels or the number of vessels viewing each whale, prohibit thrill craft during whale season, limit certain types of discharges within or outside the Sanctuary, develop more stringent water quality standards, limit types of in-water or nearshore construction activities) which will likely add significant socio-economic burdens on marine resource users and the marine recreation industry. Certain activities that are found to, or have the potential to adversely impact, Sanctuary resources would be regulated by the Sanctuary. Aggressive enforcement of Sanctuary regulations could significantly impact commercial and recreational users if fines were repeatedly levied upon these groups. The Sanctuary would work closely with existing Federal, State, and county authorities to determine which activities may negatively affect Sanctuary resources and thus require closer scrutiny and possible Sanctuary regulation.

iv. Conclusions

This alternative would afford the greatest protection to humpback whales in the absence of adequate scientific evidence on the impacts on the humpback whale and its habitat resulting from many of the activities listed above. However, this alternative would likely result in the most severe socio-economic impacts to marine users. NOAA believes that in this instance, where the only resources under the jurisdiction of the Sanctuary is the humpback whale and its habitat, where there is little scientific evidence on human use impacts to humpback whales and their habitat, and where there are other authorities in place to protect, directly and indirectly, humpback whales, this alternative would be overly restrictive. If NOAA/SRD determined that greater restrictions are necessary to protect humpback whales and their habitat, NOAA would work with the SAC and the State as it develops such restrictions, as well as provide notice and comment under the Administrative Procedure Act, and, if necessary, issue a Supplemental EIS/MP.

g. REGULATORY ALTERNATIVE 6

Promulgate regulations to include management concerns related to other resources of national significance (multi-species) and manage the Sanctuary on an ecosystem basis.

i. Description of Proposed Regulatory Action

Under this alternative, the Sanctuary would designate other marine resources and ecosystems of national significance as Sanctuary resources and issue regulations to

comprehensively protect, conserve, and manage these resources. While this regulatory alternative proposes to include more resources than the other alternatives, the level of regulation would not likely be as stringent as those of regulatory alternative "5."

In designating the Sanctuary, Congress recognized the significant and unique marine resources and ecosystems within the Hawaiian Islands, in addition to humpback whales and their habitat [HINMSA section 2302(1) and 2302(4)]. Furthermore, one of the purposes of the Sanctuary is "to manage such human uses of the Sanctuary consistent with (the HINMSA and the NMSA)." [HINMSA, Section 2304(b)(3)]. The NMSA provides for comprehensive ecosystem-based protection and management of national marine sanctuaries. Another purpose of the Sanctuary is "to provide for the identification of marine resources and ecosystems of national significance for possible inclusion in the Sanctuary..." [HINMSA, section 2304(b)(4)]. Other marine resources have been identified in both the scoping meetings and inter-island meetings on the Sanctuary, including: coral and benthic communities, fringe reefs, bottlenose and spinner dolphins, hawksbill turtles, green sea turtles, seabirds, the Hawaiian Monk Seal, and Native Hawaiian cultural and historical resources. Under this alternative, NOAA would include these resources and other marine resources and ecosystems as Sanctuary resources. As a result, certain additional regulations would be required to achieve the more comprehensive management and protection of these resources and qualities. The Sanctuary's review of activities would be broadened to include the potential for adverse impacts to such other resources and qualities (e.g., the impact of water quality on the marine ecosystem or an oil spill impact on a colony of seabirds) in addition to the humpback whale and its habitat.

Consistent with other national marine sanctuaries, which protect and manage ecosystem marine environments, the following activities may be regulated (including prohibition) by the Sanctuary under this alternative:

- Taking of sea turtles, marine mammals and seabirds;
- Removal, taking or injuring of historical and cultural resources;
- Removal, taking or injuring of any live coral;
- Discharge of primary treated wastewater or other harmful discharges into Sanctuary;
- Operation of marine vessels (or activities) that could adversely impact Sanctuary resources;
- Alteration and/or construction of the seabed;
- Mineral mining development; or
- Certain fishing techniques that could damage Sanctuary resources.

As listed in regulatory alternative "4," the ORMP notes that additional measures may be necessary to protect the marine environment in Hawaii. The ORMP indicates that there is inadequate coordination, public input, and enforcement in the management of Hawaii's marine resources. NOAA would initiate a more detailed analyses of existing resource management agencies and programs before it could clearly determine what regulations are necessary to manage and protect an ecosystem environment.

While authorities exist to protect the humpback whale and its habitat (water quality and physical alteration of the seabed), the Sanctuary would supplement such authorities under this alternative to provide enhanced protection for the entire marine ecosystem, as well as for cultural, historical, recreational, and aesthetic resources. The Sanctuary would provide comprehensive review and management of activities in the Sanctuary to ensure that the policies and objectives of the ORMP, the HINMSA, and the NMSA can be achieved for all Sanctuary resources, based on an ecosystem approach.

ii. Impact to Resources

This regulatory alternative is based upon an expanded definition of Sanctuary resources that includes other natural marine resources (sea turtles, seabirds, other marine mammals, coral reef assemblages, fish), Native Hawaiian cultural and historical sites, shipwrecks, and other historical resources. Increased protection will ensue to, not only the humpback whale and its habitat, but all other living and non-living resources of the Sanctuary. Regulations would be those necessary and reasonable to protect and manage all resources and qualities of the Sanctuary. The Sanctuary will have the ability to closely review, condition, and if necessary prohibit activities that may potentially affect any Sanctuary resources. Since the scope of Sanctuary resources is expanded, the Sanctuary would look at activities that may affect resources other than the humpback whale. The Sanctuary would work with existing Federal, State, and county agencies, if possible, to coordinate and seek to use existing permit review procedures and not duplicate ongoing efforts. However, the Sanctuary would have greater authority to modify or stop activities that harm any Sanctuary resource or quality. Enforcement capabilities, authorized under the NMSA, will also add a greater deterrence value associated with the potential for increased penalties. The additional efforts of the Sanctuary Program to focus on the non-regulatory aspects associated with coordination, education, interpretation, research, and long-term monitoring would be expanded to address all Sanctuary resources.

iii. Impact to Users

Regulations protecting and managing an ecosystem-based Sanctuary could result in some adverse impacts to users. In general, however, ecosystem-based sanctuaries regulate only a narrow range of activities with minimal impact to users. Under this regulatory alternative, the Sanctuary would regulate activities from an ecosystem perspective. The Sanctuary may require changes to proposed activities (e.g., conduct the activity to minimize impacts to coral reefs or relocate the activity away from a particularly sensitive resource area) that may lead to additional economic burdens on the applicant. If a proposed activity is determined to adversely impact Sanctuary resources, it may not be allowed to occur in the Sanctuary. Since the scope of Sanctuary resource in this alternative would have been expanded to include other living and non-living marine resources (cultural, historical, other natural resources), the Sanctuary would more closely scrutinize activities that hold the potential to impact these other resources. For example, with regard to discharge activities, the Sanctuary would be looking at potential impacts on coral reefs, algae, plankton, and other components of the ecosystem. Thus, there is a greater likelihood that a particular activity may affect a Sanctuary resource. NOAA will work closely with Federal, State, and county agencies to identify specific activities known to affect various components of the marine environment so that the permit review and approval procedure can be streamlined and occur to the extent practicable within existing permit review processes. This alternative does not necessarily require more stringent standards or independent Sanctuary permits, however, the Sanctuary may recommend that certain activities be modified to protect a broader range of Sanctuary resources. There may be a greater socio-economic impact on persons unlawfully conducting prohibited activities because Sanctuary civil penalties could be higher than other Federal and State penalties.

iv. Conclusions

It is premature to determine at this time what other marine resources should be included in the Sanctuary, or what regulatory authorities might be required to protect and manage those resources. The Sanctuary has not fully assessed or determined whether other marine resources and ecosystems in Hawaii are nationally significant and should be included as Sanctuary resources. Rather, the Sanctuary has developed a process for the consideration of other resources to be included at a future date (see discussion on alternative D.1.a below), with adequate study, review, and public participation. If NOAA/SRD determines that the Sanctuary should be expanded to

include other resources, it may issue a supplemental EIS/MP and proposed regulations specifically identifying the resources proposed to be included as Sanctuary resources and activities of concern to provide for comprehensive management and protection for all Sanctuary resources.

3. Management Alternatives

This section examines different elements of a management program as identified by the Draft Management Plan, including the scope of the resources addressed by the Sanctuary, and the Sanctuary management and administrative framework. To a large degree, the alternatives described below are dependent on which Sanctuary boundary is finally selected (i.e., both the administration and management of the Sanctuary will differ if the Sanctuary includes only the Maui County area, or waters surrounding all four counties and Kahoolawe.).

a. Scope of Resource Coverage

Although the HINMSA identifies humpback whales and their habitat as the Sanctuary's resources, it allows for the identification of other marine resources of national significance for possible inclusion in the Sanctuary's management regime, opening the consideration of a multi-species or ecosystem Sanctuary.

i. (Status quo) Humpback Whale and Its Habitat, With Other Resources Identified at a Later Date for Possible Inclusion
**** PREFERRED ALTERNATIVE ****

This alternative would implement the primary purpose of the HINMSA to focus attention on the humpback whale and its habitat as Sanctuary resources. Habitat increases the scope of management concern, but it does so in a way which links the concerns of the habitat to the needs of humpback whales. For example, sediment plumes from non-point sources of pollution may be smothering coral reefs in a bay, but if there is no linkage to the protection of humpback whales, it would at this point in time not be a priority Sanctuary issue of concern. If that same sediment plume were found to be resulting in the degradation of habitat and contaminants were being absorbed by the whales or causing whale avoidance of the area, then sedimentation would be an issue of concern requiring some remedial action. To focus the Sanctuary Management Program on these resources satisfies the primary purpose of the Sanctuary as well as the concerns of many Hawaii resource users to minimize the amount of management authority the Federal Government would exercise in State waters. It could take many years before all humpback whale management activities are enhanced to the degree that people feel that real progress has been made in furthering the goals of humpback whale protection.

The Act finds that:

> "The marine sanctuary designated for the conservation and management of humpback whales could be expanded to include other marine resources of national significance which are determined to exist within the sanctuary" [Section 2302(16)];

and requires NOAA:

> "to provide for the identification of marine resources and ecosystems of national significance for possible inclusion in the sanctuary designated by (the HINMSA)" [Sec. 2304(b)(4)].

In order to fulfill this requirement of the HINMSA and to meet the concerns of the State of Hawaii and many marine resource users, a special process which resembles the current site

selection process for the designation of National Marine Sanctuaries has been included in the Final Management Plan. This process permits the full consideration of all species put forward through the identification process, allows public and special interest input and deliberation in addition to the advice provided by the SAC. It also provides the State with the opportunity for full review to determine if the inclusion of additional resources in State waters is in the State's interest.

The task of keeping marine ecosystems healthy is costly. Better science and information gathering is necessary. Above all, the cooperation among all levels of government, the necessary input and support from a broad constituency, and the additional financial and technical assistance that can be brought to bear on comprehensive management may be the only way to solve our future problems in the coastal and marine environment. This alternative then provides the time and the process to accomplish this goal of looking at the marine environment as an integrated whole, and not simply as a collection of individual resources and issues.

ii. Identify and Designate Other Resources of National Significance for Inclusion in the Sanctuary Now

Throughout the EIS/MP scoping and public participation process, a number of individuals expressed the desire to see the Sanctuary include multiple resources and that it become comprehensive in scope and work jointly with State authorities to address some of the water quality problems affecting other marine resources. The Sanctuary solicited comments on this issue because of the HINMSA's requirement to investigate other marine resources for possible inclusion in the Sanctuary, but also to assess public expectations of the Sanctuary. In the management of the other marine sanctuaries, SRD believes that managing a sanctuary on a comprehensive, ecosystem basis provides the best type of long-term protection for special marine areas. However, expanding the list of Sanctuary resources also expands the potential management effects on users. The process of Sanctuary selection and designation usually takes a considerable amount of time and resources to conduct studies and ensure full public participation in the selection and designation process.

There is authority to identify and designate other resources of national significance and propose those resources to the public for inclusion prior to issuance of the Final Management Plan and Implementing Regulations. Through public input, many (if not all) resources within the Hawaiian Islands which could be located within the current or expanded Sanctuary boundary were mentioned. Marine turtles, endangered species, (e.g., Hawaiian monk seal), seabirds, coral reefs, and other cetaceans were some of the most frequently resources cited. Moreover, Congress found that this region has many resources of national significance and importance, and that the marine ecosystem is diverse and unique [HINMSA, Section 2302(1) and 2302(4)].

Including these other resources would potentially require different and additional types of management strategies and regulations to ensure the comprehensive protection and management of the resources and to enable the consideration of those resource's requirements (see Regulatory alternative "6" above). Additional research and information gathering is necessary; including an analysis of whether the resources meet "national significance" criteria before final decisions are made.

b. Sanctuary Administration

i. Management Responsibility

1) NOAA/SRD
**** PREFERRED ALTERNATIVE ****

The preferred management alternative is to identify a Sanctuary Manager, who would be a NOAA employee of SRD, as soon as possible following issuance of the Final EIS/MP. The Sanctuary has had an on-site Program Specialist to handle day-to-day activities and outreach since 1991. The SRD Chief and the Pacific Regional Manager (Silver Spring, MD) have been handling policy and administrative matters thus far. The initial proposed staffing of the SRD Field Office would consist (in addition to the Manager) of an administrative assistant and a research or an education/interpretation coordinator. Hiring a Sanctuary Manager immediately upon completion the Final EIS/MP would assist in establishing Sanctuary visibility at an early phase and continue efforts previously performed by the On-site Program Specialist.

Under this alternative, an independent management and administrative system for the Sanctuary would be established and housed in the NOAA-owned headquarters facility located in Kihei, Maui. A satellite office is located in Honolulu. Depending in part on the size and configuration of the final Sanctuary boundary, seasonal satellite offices (or the headquarters) could be opened on other islands. Due to numerous points of access to the Sanctuary, a centralized Sanctuary headquarters/information center may not provide optimum access to the variety of commercial and recreational Sanctuary users. The need for and timing of "satellite" information centers would be determined as development of the Sanctuary programs increased.

A variety of Sanctuary program activities would be phased in, with the initial focus on research and education/interpretation. The Sanctuary headquarters would coordinate directly and actively with other Federal and State agencies in the implementation of the management plan. The Sanctuary Manager and staff, with the advice of the already established SAC would begin the process of informing the public and regional officials of the Sanctuary's mandate, regulations, and research and education programs.

2) Other Federal Agencies

A Federal agency with delegated responsibility for managing Sanctuary resources which is headquartered in the vicinity of the site would be given the role and responsibility of administering the HIHWNMS. NMFS's Pacific Area Office in Honolulu is the most likely candidate to manage the Sanctuary under this option since they already have primary responsibility for managing humpback whales under the MMPA and the ESA, and have ongoing research, education, and management programs for humpback whales in Hawaii. This would also serve to place the responsibility for Sanctuary administration as well as regulatory enforcement all under one agency. Other candidates could be the U.S. Fish and Wildlife Service or the National Park Service of the Department of the Interior which have facilities and infrastructure available on all the MHI.

3) State Oversight

A State agency, such as DLNR, which establishes, manages and regulates Marine Life Conservation Districts and other State facilities, could serve as the on-site manager and enforcement in cases where State waters are involved. In this instance, the State may handle all responsibilities of on-site management and enforcement with the exception of duties assigned by Federal law to Federal agencies, or (through agreement with Federal agencies) handle certain or all of the related Federal responsibilities. This is the option SRD used in the past for management of two Florida Keys sites and for Fagatele Bay, American Samoa. Over the years, however, SRD

began employing Sanctuary managers as Federal employees. Recent full term employee limitations in the Federal workforce may make this a viable option.

4) Combination of Options

This option would rely on the expertise of existing agencies, organizations, and programs to implement the Sanctuary management agenda. Education, research, and/or enforcement would be contracted out or delegated to other agencies. This alternative may prove to be appropriate as the priorities developed in the yearly action plan dictate. Therefore, consideration of this option will be considered on a yearly basis with input from the SAC.

ii. Management Implementation Period

Humpback whales are seasonal and migratory visitors to Hawaii. Many people inquired if the Sanctuary would be in place only six months of the year (December - May) when the whales are present (e.g., the current NMFS enforcement program is a seasonal activity). Concerns were expressed over efficiency and cost of year-round program as well as the need. Consequently two alternatives are under consideration.

1) "Seasonal" (December - May)

This alternative would coincide with the presence of the whales in Hawaii. All aspects of resource protection and management (research, education, monitoring, enforcement) would take place only during this time frame. Programs for education and some aspects of research and monitoring would be limited in their potential during this period as not all such activities are directly related to the physical presence of the whales. This management period would favor the Sanctuary being run by the headquarters office with members of the SRD present for six months of the year, or through contractual arrangements made with other institutions or agencies. This approach would likely limit any efforts for a Sanctuary-sponsored visitor's center, but linkages with existing facilities could be established.

2) "Year-round"
**** PREFERRED ALTERNATIVE ****

Notwithstanding the half-year presence of the humpback whales in Hawaiian waters, there are many activities envisioned by the Sanctuary Program which require year-round effort and presence. Even though the whales are not continually present, efforts to manage and protect their habitat must continue on year-around basis. There are many types of human activities that could affect the whale's habitat (i.e., near-shore or in-water construction projects, water quality and oil spills) that may impact whether or not the whales will return to previously used areas. Continual monitoring of projects is necessary to ensure that humpback whale habitat is maintained and preserved, despite the whales' physical absence. Also, efforts to sponsor and coordinate research, long-term monitoring, and education programs, and to perform administration tasks such as administering the SAC and its working groups and coordinating with other agencies, institutions, and interest groups, are just some of the many reasons for having a year-round presence. The HIHWNMS currently employs a full-time on-site program specialist in Maui and has contracted staff on Oahu and Kauai. These staff are continually busy responding to public information needs, planning activities and events, and developing research and education programs for upcoming whale seasons. During the formative years of program development, there is going to be a significant amount of work on a year-round basis including the need to manage the process for considering other resources of national significance.

iii. Enforcement

1) Status quo

An internal Memorandum of Agreement exists between NMFS and the National Ocean Service, which oversees the National Marine Sanctuary Program, concerning the enforcement of laws within National Marine Sanctuaries (January 1992; and supplement drafted in March 1993). NMFS's Office of Enforcement (NMFS-OE) has the responsibility for enforcement within designated sanctuaries. This measure was developed to achieve greater economy by eliminating duplication of effort in the oversight and administration of NOAA enforcement efforts. While the mechanisms are in place to streamline operation and minimize costs by avoiding duplicate enforcement systems, the most important element is that the decision to prosecute any alleged violation of regulations promulgated under the NMSA rests the Sanctuary, the NMFS-OE, and NOAA's Office of the Assistant General Counsel for Enforcement and Litigation.

2) Enhanced Enforcement
**** PREFERRED ALTERNATIVE ****

The preferred enforcement alternative enhances and complements the existing enforcement arrangement that SRD has with NMFS-OE, and would seek to re-establish the agreement that NMFS-OE had with the State of Hawaii (Marine Patrol and DLNR-Division of Conservation and Resource Enforcement) and Coast Guard for Federally-protected species and fisheries regulations. The Sanctuary would provide assistance and support for NMFS-OE to enforce Sanctuary regulations and to support the enforcement efforts by those State agencies that are deputized to enforce pertinent regulations. The Sanctuary would seek to expand the deputized enforcement agreement between NMFS-OE and the State to include the NMSA and Sanctuary regulations. Enhanced efforts could include:

- Increased interpretive enforcement presence: interpretive enforcement would place a greater emphasis on education and outreach as a tool to reduce harassment and approach violations instead of simply issuing citations. Additional funding through the NMSA would be provided to ensure NMFS and State agencies had sufficient resources (adequate patrol vessels; camera and radio equipment) to accomplish surveillance and interpretive enforcement.

- NMSA resources for increased monitoring and enforcement by State agencies (DOH and DLNR) to increase compliance with relevant permits and other authorizations which protect humpback whale habitat.

- Support for enhanced training in law and procedures for enforcement personnel by supporting attendance at the NMFS Training Center in Georgia and local on-site training.

- Use of a voluntary citizen monitoring program, as exemplified by DLNR's Volunteer Conservation and Resources Enforcement Officer Program, in cooperation with NMFS and State enrichment officials.

The philosophy of enforcement has been described earlier in Part I. The impacts of enforcement are described in Part IV and the conduct of enforcement is described in Part V.

PART IV: POTENTIAL ENVIRONMENTAL AND SOCIOECONOMIC CONSEQUENCES ASSOCIATED WITH ALTERNATIVE COURSES OF ACTION

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A. INTRODUCTION

In selecting the appropriate boundary, regulatory and management alternatives for the Hawaiian Islands Humpback Whale National Marine Sanctuary, NOAA evaluated the potential environmental and socioeconomic consequences of each alternative on Sanctuary users and resources. This section discusses the consequences of the status quo as well as the Sanctuary preferred alternatives. A summary of the environmental impacts are described in Table IV-1 and the socioeconomic impacts are described in Table IV-2.

B. BOUNDARY ALTERNATIVES

1. Introduction

All the boundary alternatives presented in this document would allow some level of coordinated and comprehensive conservation and management and provide protection for humpback whales and their Hawaiian habitat. The positive and negative socioeconomic effects of any boundary decision will depend in large part on which regulatory option is selected for the Sanctuary. Clearly, more restrictive regulatory regimes can be expected to have greater impacts than less restrictive regimes, and such effects will increase with a larger Sanctuary boundary. The main socioeconomic consideration in comparing a Sanctuary boundary around Maui County and a boundary including the waters around all or portions of the main Hawaiian Islands is that in the expanded options, any socioeconomic effects will spread out throughout the expanded area.

With the Congressionally-designated Maui County option, benefits will only accrue largely to Maui County: Maui will become the destination for viewing humpback whales within a "Sanctuary"; research and education programs and Sanctuary funds will be directed to Maui County to address Sanctuary needs; monies for harbor signage, coral reef monitoring and water quality monitoring programs; press articles dealing with national marine sanctuaries will focus on Maui County. Likewise, any costs associated with the Sanctuary will be borne primarily by the Maui County residents: individuals or companies may receive violation notices for harassment of whales; greater attention and scrutiny may be required of proposed projects which could degrade whale habitat. From the perspective of the Statewide boundary option, all the counties will presumably be affected in relation to the area of the Sanctuary around each island, population, visitor use, whale use, and other relevant factors.

TABLE IV-1: Summary of Potential Environmental Impacts Associated with Alternatives

Alternatives → / Resources ↓	Reg. Alt. 1: Status Quo--Use Existing Regs	Reg. Alt. 2: Incorporate Existing NMFS Whale Approach Regs	Reg. Alt. 3: (Preferred Alternative) Incorporate Regs to Protect Whales and Habitat	Reg. Alt. 4: Comprehensive Regs to Protect Whales and Habitat	Reg. Alt. 5: Proactive Humpback Whale Protection Philosophy	Reg. Alt. 6: Regulation to Protect Added Resources	Boundary Alt. 1: Status Quo--Maui County and Part of Kauai	Boundary Alt. 2: Highest Reported Concentrations	Boundary Alt. 3: (Preferred Alternative) Expand Congressional Boundary to Include Big Island, Eastern Kauai, and Parts of Oahu	Boundary Alt. 4: 100-Fathom Isobath Statewide	Boundary Alt. 5: 1000-Fathom Isobath Statewide
Humpback Whales	O	+	+	+	+	+	Potential environmental impacts associated with individual boundary alternatives will depend upon which regulatory alternative is applied. More restrictive regulations (i.e., regulatory alternative 5) may have greater environmental impacts applied over larger areas (boundaries 3-4) as compared to the Congressionally-designated area (boundary 1). All potential environmental impacts associated with any of the regulatory alternatives are expected to be positive.				
Humpback Whale Habitat	O	O	+	+	+	+					
Water Quality	O	O	⊙	+	+	+					
Seafloor/ Benthos	O	O	⊙	+	+	+					
Marine Mammals	O	O	O	O	⊙	+					
Historical/ Cultural	O	O	O	O	O	+					
Seabirds	O	O	O	O	⊙	+					
Sea Turtles	O	O	O	O	⊙	+					
Fish	O	O	O	⊙	⊙	+					
Coral Reefs	O	O	O	⊙	⊙	+					

Key of Symbols:
+ = Significant beneficial environmental impacts
⊙ = Moderate beneficial environmental impacts
O = Status quo or minimal environmental impacts

TABLE IV-2: Summary of Potential Negative Socio-Economic Impacts Associated with Alternatives

Alternatives → / Sanctuary Users ↓	Reg. Alt. 1: Status Quo--Use Existing Regs	Reg. Alt. 2: Incorporate Existing NMFS Whale Approach Regs	Reg. Alt. 3: (Preferred Alternative) Incorporate Regs to Protect Whales and Habitat	Reg. Alt. 4: Comprehensive Regs to Protect Whales and Habitat	Reg. Alt. 5: Proactive Humpback Whale Protection Philosophy	Reg. Alt. 6: Regulation to Protect Added Resources	Boundary Alt. 1: Status Quo--Maui County and Part of Kauai	Boundary Alt. 2: Highest Reported Concentrations	Boundary Alt. 3: (Preferred Alternative) Expand Congressional Boundary to Include Big Island, Eastern Kauai, and Parts of Oahu	Boundary Alt. 4: 100-Fathom Isobath Statewide	Boundary Alt. 5: 1000-Fathom Isobath Statewide
Commercial Transport	O	O	O	O	+	O					
Recreational Boating	O	O	O	O	+	O					
Tour Boats	O	O	O	O	+	O					
Diving	O	O	O	O	⊙	O					
Thrill Craft	O	O	O	O	+	⊙					
Fishponds	O	O	O	O	⊙	O					
Military	O	O	O	O	+	O					
Tourism	O	O	O	O	⊙	O					
Research	O	O	O	O	⊙	O					
Education	O	O	O	O	O	O					
Commercial Fishing	O	O	O	O	⊙	O					
Recreational Fishing	O	O	O	O	⊙	O					
Charter Fishing	O	O	O	O	⊙	O					
Aquarium Industry	O	O	O	O	+	⊙					
Surfing/ Swimming	O	O	O	O	O	O					
Native Hawaiian	O	O	O	O	⊙	O					
Whale Watching	O	O	O	O	+	O					
Agriculture	O	O	O	⊙	+	⊙					
Shoreline Development	O	O	O	⊙	+	⊙					
Industrial/ Municipal/ Discharges	O	O	O	⊙	+	⊙					

Potential socio-economic impacts associated with individual boundary alternatives will depend upon which regulatory alternative is applied. More restrictive regulations (i.e., regulatory alternative 5) may have greater socio-economic impacts applied over larger areas (boundaries 3-4) as compared to the Congressionally-designated area (boundary 1). There are few anticipated socio-economic impacts associated with regulatory alternatives 1, 2, and 3 regardless of the boundary since there are no new regulatory prohibitions proposed by the Sanctuary.

Key of Symbols:

+ = Significant potential for negative socio-economic impacts

⊙ = Moderate potential for negative socio-economic impacts

O = Minimal or no negative potential for socio-economic impacts

2. Boundary Alternatives

a. Boundary Alternative (1): Status Quo - boundary as designated by Congress (100-fathom isobath around Maui County, excluding Kahoolawe waters, and a small portion off Kauai)

The Congressionally-designated boundary is fully discussed in Part III(B)(1)(b), and is shown in Figure III-2. This is the smallest boundary alternative which was considered, and encompasses waters within the 100-fathom isobath around Maui, Lanai and Molokai, including Penguin Bank, and the deepwater Pailolo Channel. A small portion adjacent to the Kilauea National Wildlife Refuge, on Kauai. The waters around Kahoolawe were not included in this boundary alternative in the Draft or Final EIS/MP; the HINMSA mandated their inclusion as of January 1, 1996, unless the Secretary of Commerce certified these waters as unsuitable for inclusion in the Sanctuary. Such a certification was made in December 1995.

The area included in this boundary alternative is heavily used by humpback whales for breeding, calving and nursing and comprises Hawaii's largest area of water less than 100-fathoms deep. The waters off Kilauea Point add an excellent opportunity for humpback whale education and interpretation at the U.S. Fish and Wildlife Service Center, Kilauea Point National Wildlife Refuge, on Kauai Island.

This boundary alternative provides additional protection to humpback whales and their habitat in the specified area through supplemental resource protection, research and long-term monitoring, education, outreach, coordination and enforcement activities. All Sanctuary management efforts would concentrate on the Maui County and Kilauea Point areas, thus benefiting the whales and this specific component of their Hawaiian habitat. Other marine resources in this area may incidentally experience benefits associated with the additional protection and public awareness programs for the humpback whales and their habitat. However, this boundary alternative does not effectively provide for comprehensive or coordinated management throughout the humpback whale's main Hawaiian Island range. Humpback whales inhabit and transit areas throughout all the main Hawaiian Islands, and this alternative will not effectively protect them while they are in waters around Kauai, Niihau, Oahu and the Big Island. Moreover, this boundary alternative will limit the Sanctuary's ability to provide supplemental research, education and enforcement in these other whale habitats around the State.

This boundary alternative, taken in conjunction with the preferred regulatory alternative (3), would focus Sanctuary regulations and corresponding enforcement mechanisms on Maui County and the small area off Kilauea Point. Since regulatory alternative (3) does not add any new substantive regulatory prohibitions, permit requirements or approvals than those already required, implementation of this boundary alternative is not anticipated to result in significant adverse impacts to Maui County's economy or to marine user groups in this area. Any research, education, coordination or enforcement initiated as a result of the Sanctuary will ultimately lead to a better understood marine environment and will benefit both human and non-human users of the area. Any impacts resulting from establishing the Sanctuary, positive (e.g., education, research, monitoring, public participation, enforcement and coordination) or negative (e.g., civil penalties), would be borne exclusively by the residents of Maui County and the small area off Kilauea Point, Kauai.

b. Boundary Alternative (2): Areas of highest reported concentrations of humpback whales.

This boundary alternative is based on a variation of boundary alternatives (1) and (3). It is fully described in Part III(B)(2)(c), and shown in Figure III-3. It was developed partially in response to public comments at scoping meetings and comments received on the DEIS/MP calling for expansion of the Sanctuary to include areas of high whale concentration, and particularly cow-calf areas, near islands other than those in Maui County. The boundaries were drawn based on humpback whale distribution data (Nitta and Naughton, 1989; Forestell and Brown 1992; Mobley et al. 1993).

This boundary alternative would focus Sanctuary management on those discrete areas within the 100-fathom isobath throughout the Hawaiian Islands documented to have higher humpback whale concentrations than other parts of the state. However, this alternative does not take into account the possibility of changes in whale distribution and habitat preference over time because of social, environmental or human influences. Moreover, this alternative does not consider the movement of whales between these areas of higher whale concentration. Overall, this boundary alternative does not provide uniform and comprehensive protection of humpback whales throughout their habitat in the Hawaiian Islands. Resource protection, research, long-term monitoring, education, outreach and management programs would be conducted on a piecemeal basis in the areas included in the boundary.

In general, the environmental impacts of this boundary alternative would be positive for a larger portion of the humpback whale's Hawaiian habitat, as Sanctuary programs would be targeted at areas with a high concentration of humpback whales. Because of this larger focus area for Sanctuary programs, the importance of coordination and cooperation between the Sanctuary management and various state and county agencies, as well as academic and private organizations, would increase. The importance of these cooperative efforts would be heightened, as areas of high humpback whale utilization are subject to potential shifts in or abandonment of habitat, due to human use pressures. This boundary alternative does not allow for future expansion or changes in humpback whale distribution.

This boundary alternative, taken in conjunction with the preferred regulatory alternative (3), would focus Sanctuary regulations and corresponding enforcement mechanisms on discrete areas on Niihau, Kauai, Molokai, Lanai, Maui and Hawaii. Since regulatory alternative (3) does not add any new regulatory prohibitions, permit requirements or approvals than those already required, implementation of this boundary alternative is not anticipated to result in significant adverse impacts to the local economy or to marine user groups in this area. Any research, education, coordination or enforcement as a result of the Sanctuary will ultimately lead to a better understood marine environment and will benefit both human and non-human users of the area. All impacts, positive or negative, will be borne exclusively by the residents adjacent to or who use these waters.

This alternative expands the boundary scope beyond alternative (1) to include specific areas of the main Hawaiian Islands outside Maui County known to have high concentrations of humpback whales. Taken in conjunction with the preferred regulatory alternative (3) which does not add any new substantive regulatory prohibitions, permit requirements or approvals beyond those already required, implementation of this boundary alternative is not anticipated to result in adverse socioeconomic impacts to the economy or to marine users within this boundary. Any research, education, coordination or enforcement initiated as a result of the Sanctuary will ultimately lead to a better understood marine environment and will benefit both human and non-human users of the area. Any impacts resulting from establishing the Sanctuary, positive (e.g., education, research, monitoring, public participation, enforcement and coordination) or negative (e.g., civil penalties), would affect this broader area.

c. Boundary Alternative (3) -- **Preferred Alternative**: Expand Congressional boundary to include 100-fathom isobath around Big Island, parts of Oahu, and eastern Kauai, excluding specified ports, harbors, small boat basins.

This boundary alternative more adequately reflects humpback whale distribution and habitat use in the main Hawaiian Islands (primarily throughout the 100-fathom isobath region) than alternative (1) or (2). It is fully described in Part III(B)(2)(d), and shown in Figure III-5. Over 73% of the whales, and particularly the mother and calves, sighted in aerial surveys conducted during the 1993 season were found to be distributed in waters less than 100 fathoms deep (Mobley et al. 1993). Recent studies have also shown that humpbacks are highly mobile and transit between islands while residing in Hawaii (Cerchio et al. 1991, Cerchio 1994). Boundary alternative (3) takes these factors into consideration and incorporates the majority of humpback whale habitat. This alternative was also developed in response to particular comments from the public and whale researchers and experts during the scoping meetings, other public information meetings, and during the DEIS/MP public comment period. The boundary lines are based on humpback whale distribution data and provide more continuous statewide management regime for research, long-term monitoring, education, outreach and management programs throughout the main Hawaiian Islands.

Although humpback whales have been seen occasionally off the NWHI, less favorable oceanographic conditions including cooler and rougher waters may inhibit reproductive and nursing activities in this area, and research indicates that humpback whales do not use it frequently. Ports, harbors, and small boat basins are normally enclosed or semi-enclosed areas that support heavy levels of human activities. Vessel traffic, dredging, construction, and waste discharge produce noise and pollution which make these places less than ideal for humpback whale habitat.

While preferring the statewide boundary within the 100-fathom isobath, SRD recognizes the important role of the U.S. Department of Defense (DOD) in the Hawaiian Islands both to national security and to the Hawaiian economy. NOAA and the State of Hawaii have determined that not including certain military use areas in the Sanctuary boundary would facilitate military uses and training without compromising protection for humpback whales and their habitat. SRD has consulted with DOD on existing military activities in the Hawaiian Islands and has determined that DOD has institutional mechanisms in place to avoid and minimize disturbances to humpback whales (for a list of activities, see Appendix F). Military activities remain subject to all other applicable authorities (MMPA, ESA, Rivers and Harbors Act, etc.) in Hawaii, and the statutory provisions of the NMSA.

Military use areas and excluded ports, harbors, small boat basins are identified in Part III(B)(2)(d)(i) and III(B)(2)(d) and shown in Figures III-5 and III-11, respectively. The Sanctuary exclusion areas would not significantly diminish the Sanctuary's ability to provide comprehensive conservation and protection for the whales and their habitat.

The environmental impacts of this boundary alternative would be positive. The Sanctuary would have the ability to comprehensively protect humpback whales and whale habitat through education, research, and regulation throughout the majority of the humpback whale's habitat. Although the physical area of the Sanctuary would be smaller than the full statewide 100-fathom isobath and 1000-fathom isobath boundary alternatives (no major exemptions) described below, the protection, education, and management encompassed in the Sanctuary's programs would be extended to a larger portion of the humpback whale's wintering habitat than the status quo alternative or the areas of highest whale concentration.

This alternative expands the boundary scope beyond alternatives (1) and (2) to include most areas of the main Hawaiian Islands from the shoreline to the 100-fathom isobath except for

the waters around Kahoolawe; selected ports, harbors and boat basins; and specific military use areas around W. Kauai and Oahu. Taken in conjunction with the preferred regulatory alternative (3) which does not add any new substantive regulatory prohibitions, permit requirements or approvals beyond those already required by existing authorities, implementation of this boundary alternative is not anticipated to result in adverse socioeconomic impacts to the economy or to marine users within this boundary. Any research, education, coordination or enforcement initiated as a result of the Sanctuary will ultimately lead to a better understood marine environment and will benefit both human and non-human users of the area. Any impacts resulting from establishing the Sanctuary, positive (e.g., education, research, monitoring, public participation, enforcement and coordination) or negative (e.g., civil penalties) would affect this broader area.

d. Boundary Alternative (4): Expand Congressional boundary to include 100-fathom isobath around the main Hawaiian Islands and Kaula Rock, and excluding specified ports, harbors, and small boat basins.

This boundary alternative is a variation of boundary alternative (3). It is fully described in Part III(B)(2)(e), and shown in Figure III-12. The difference is that this boundary alternative includes the waters around Kaula Rock, Niihau and all areas around Kauai and Oahu. Selected ports, harbors and small boat basins are not included, but military use areas around Kauai, Niihau and Oahu would be included in the boundary. This alternative, like alternatives (2) and (3), also responds to public comments received during the scoping meetings, other public meetings, and during the DEIS/MP public comment period calling for an expanded, uniform statewide boundary instead of a Maui County-only boundary. The boundary is based on humpback whale distribution data with the goal of providing a continuous management regime throughout the main Hawaiian Islands. Research, long-term monitoring, education, outreach and management programs are anticipated to be more effective if applied uniformly.

This boundary alternative more adequately reflects the humpback whale distribution and habitat use in the main Hawaiian Islands (primarily within the 100 fathom isobath) and Kaula Rock, especially those areas used my mothers and calves. It also includes the waters around Niihau and the western portion of Kauai, an area that researchers believe is or has always been (only recent focus on that area of the state for humpback whale research) an important humpback whale breeding and nursing area (Mobley et al. 1993; Cerchio et al. 1991; Cerchio 1993). This boundary allows for uniform protection and monitoring of the whales throughout their range in the main Hawaiian Islands and is more easily recognized by the public since there are no major exclusion areas.

Both human and humpback whale populations are increasing throughout the Hawaiian Islands. The fact that whale distribution is not static and is responsive to numerous social, environmental and human influences implies the need for an expanded area to accommodate changes. This boundary alternative allows for the protection of humpback whales and whale habitat now and in the future. The boundary also includes the areas of high human uses so that, should conflicts arise, the Sanctuary managers will have the latitude to directly address them uniformly throughout the humpback whale's range in Hawaii. However, this boundary does not recognize the military use areas in the vicinity of western Kauai/Niihau and Oahu. NOAA, in consultation with DOD and the State of Hawaii, has determined that the existing military use areas are essential to national defense and to the economy of the State of Hawaii. As such, NOAA determined that these areas should not be included in the Sanctuary boundary. Not including such areas is appropriate here, where the only Sanctuary resource is the humpback whale and its habitat, and where DOD remains subject to applicable humpback whale protection laws and regulations. This boundary alternative also includes the waters around two remote islands Niihau and Kaula Rock. Expanding research, long-term monitoring, enforcement, and outreach programs to these

outlying areas may over-extend the existing resources and make overall management throughout the main Hawaiian Islands less effective.

As with the status quo and preferred boundary alternatives, the environmental impacts of this boundary alternative would be positive. The Sanctuary management would have the ability to protect humpback whales and their habitat uniformly throughout the main Hawaiian Islands, through education, research, and regulation. The protection, education and management encompassed in the Sanctuary's programs would be extended to a larger portion of the humpback whale's wintering habitat than under the status quo alternative.

This alternative expands the scope of the Sanctuary to include the waters around all of the main Hawaiian Islands from the shoreline to 100-fathom isobath, including Niihau and Kaula Rock, excluding the waters around Kahoolawe and selected ports, harbors and boat basins. This boundary alternative does not exclude military use areas. NOAA has rejected this alternative because it fails to recognize the importance of DOD military use areas and of activities that are essential to the national security. Taken in conjunction with the preferred regulatory alternative (3) which does not add any new substantive regulatory prohibitions, permit requirements or approvals beyond those already required, implementation of this boundary alternative is not anticipated to result in adverse socioeconomic impacts to the economy or to marine users within this boundary. Any research, education, coordination or enforcement initiated as a result of the Sanctuary will ultimately lead to a better understood marine environment and will benefit both human and non-human users of the area. Any impacts resulting from establishing the Sanctuary, positive (e.g., education, research, monitoring, public participation, enforcement and coordination) or negative (e.g., civil penalties), would affect this larger main Hawaiian Islands area.

e. Boundary Alternative (5): Expand Congressional boundary to include 1000-fathom isobath around the main Hawaiian Islands

This boundary alternative is the largest of all and encompasses most of the Hawaiian habitat range of humpback whales. It is fully described in Part III(B)(2)(f), and shown in Figure III-13. As described in Part II, recent scientific surveys that have included deep-water whale habitats revealed that up to 27% of the humpback whales, particularly males, were found in waters deeper than 100 fathoms (Mobley et al. 1993). This boundary option expands the scope of habitat protection to include deeper water areas used by humpbacks. The previous alternatives are primarily designed to protect calving and nursing areas, while alternative (5) includes additional deepwater habitat areas important to humpback whales such as singing, resting, and breeding. This alternative also responds to public comments received during the scoping meetings, other public meetings, and during the DEIS/MP public comment period calling for the most expansive statewide boundary to protect humpback whales and their Hawaiian habitat. The boundary lines were drawn based on humpback whale distribution data with the goal of providing a continuous management regime that encompasses the greatest amount of humpback whale habitat in Hawaii.

This boundary alternative more than triples the size of the 100-fathom isobath (Statewide) boundary, and allows for the most comprehensive protection and management of humpback whales and their habitat, through research, long-term monitoring, education/interpretative outreach, agency coordination, and enforcement activities. Environmental impacts of this boundary alternative would be positive, because the Sanctuary's resource protection programs would be applied to a continuous statewide area. Nearly all of the whale's habitat would be managed and protected under the Sanctuary regime. Other marine resources would also benefit indirectly from this protection. However, costs and other resource requirements associated with managing this large area may not allow the Sanctuary to achieve or fully implement all of its goals and objectives.

This alternative expands the scope to include the waters around all of the main Hawaiian Islands out to 1000 fathoms, including Niihau and Kaula Rock, and excludes the waters around Kahoolawe, and selected ports, harbors and boat basins. It contains no provisions to exclude military use areas; NOAA has determined that this alternative fails to recognize the importance of DOD military use areas and activities essential to the national security. Taken in conjunction with the preferred regulatory alternative (3) which does not add any new substantive regulatory prohibitions, permit requirements or approvals beyond those already required, implementation of this boundary alternative is not anticipated to result in adverse socioeconomic impacts to the economy or to marine users within this boundary. Any research, education, coordination or enforcement initiated as a result of the Sanctuary will ultimately lead to a better understood marine environment and will benefit both human and non-human users of the area. Any impacts resulting from establishing the Sanctuary, positive (e.g., education, research, monitoring, public participation, enforcement and coordination) or negative (e.g., civil penalties), would affect nearly everyone in the State.

C. REGULATORY ALTERNATIVES

1. Introduction

This section analyzes the environmental and socioeconomic consequences of the five activities included within the scope of the proposed Sanctuary regulations. It also mentions fishing activities, which are not proposed to be regulated in the preferred alternative but are discussed to clarify misperceptions and concerns raised throughout the public process. Each activity is analyzed in the context of both the Sanctuary preferred regulatory alternative and the status quo alternative. There are also two regulations proposed in the preferred Sanctuary alternative which are intended to facilitate enforcement of the other Sanctuary regulations: these prohibit the possession of Sanctuary resources or interference with enforcement.

Overall the proposed regulations are intended: (1) to improve resource protection by instituting supplementary regulatory, surveillance and enforcement measures and authority; and (2) to minimize negative impacts to human uses, particularly those deemed compatible with the purposes of the Sanctuary.

Under section 304(c) of the NMSA, NOAA cannot terminate valid leases, permits, licenses or rights of subsistence use or access existing as of the date of Sanctuary designation, although NOAA can regulate the exercise of such authorizations and rights consistent with the purposes for which the Sanctuary was designated.

2. Fishing Activities:

Status Quo -- **Preferred**: No Additional Regulation

Most fishing gear types used in Hawaii's commercial and recreational fisheries, including longline, handline, trolling, and pole and line, do not pose any immediate threats to humpback whales. Large gillnets and drift nets that have led to marine mammal incidental mortality or injury in other areas, including Alaska, the Pacific West Coast, and the Northeast United States, are not used in Hawaiian waters. Consultations with NMFS, the DLNR's-Division of Aquatic Resources, and the Western Pacific Regional Fishery Management Council[1] staff resulted in NOAA to determine that no regulation of fishing operations are presently needed to protect

[1] DLNR-DAR is the lead State agency responsible for maintaining the aquatic resources within State of Hawaii territorial seas which lie within the Sanctuary. WESPAC is the lead Federal entity that manages fishery resources in Federal waters which lie within the Sanctuary, such as the Penguin Bank area and Pailolo Channel.

humpback whales and their habitat. The Sanctuary managers will work closely with existing State and Federal fishery management agencies to ensure that impacts on humpback whales and their habitat are considered. Sanctuary staff will also continue to work with the commercial and recreational fishing communities to address their concerns.

The preferred regulatory alternative as depicted in the Sanctuary's Management Plan would place no additional restrictions on fishing activities and thus have no negative impacts on the fishing industry. Recreational and commercial fishing will continue to occur within the Sanctuary, subject to regulatory mechanisms currently in place under existing State and Federal authorities, including the 100-yard humpback whale approach regulations, which apply to all users of the marine environment.

3. Impacts of Proposed Regulations

a. Overflights

i. Status Quo: No Additional Regulation

1) Impacts on Resources

Before the institution of regulations in 1987 prohibiting the operation of motorized aircraft within 1,000 feet of any humpback whales, helicopters and airplanes could come in close to individual whales in order to give passengers a clear view of them. Even underwater, whales are visible from aircraft in the clear waters surrounding the Hawaiian islands.

Low-flying motorized aircraft were identified as a source of possible harassment to humpback whales in Hawaii (Herman et al. 1980; Tinney 1988; Nitta and Naughton, 1989; Townsend 1991). The close presence or noise of the aircraft may frighten them and elicit a change in their behavior. Shallenberger (1978) and Herman et al. (1980) found however that humpback whales do not react consistently to aircraft. Aircraft flying as high as 1,000 feet can elicit responses from whales, while aircraft flying at half that height sometimes do not. Factors that may affect humpback whale behavioral responses to aircraft include: aircraft type; engine loudness and pitch; aircraft speed; wind speed, wave height, water depth, distance from shore, and the age, gender, number and activities of the whales. Effects may be greater on calves, who spend more time at the surface than adults.

Low-flying motorized overflights that may effect humpback whales are currently regulated by the NMFS humpback whale approach regulations. Aircraft operations in Hawaii consist of scheduled commercial operations, air taxi and tour services, general aviation (private flying) and military aircraft. The regulations prohibiting the operation of any motorized aircraft within 1,000 feet of any humpback whale applies throughout Hawaii's EEZ and does not target geographical areas of humpback whale habitat or distribution. The National Park Service is also considering promulgating more restrictive overflight restrictions for tour aircraft and helicopters above Volcanoes and Haleakala National Parks.

2) Impacts on Users

The charter helicopter and airplane industry is rapidly growing throughout the main Hawaiian Islands. Tourists are flown to scenic areas -- volcanoes, valleys, mountains, waterfalls and coastal areas -- to experience the beauty and splendor of Hawaii. The 1,000 feet overflight regulation was designed to create a "safety bubble" around humpback whales so they would not be disturbed by low-flying motorized aircraft, especially during their critical breeding stage. NOAA has concluded based on the growth in the local aviation industry since 1987, when the approach regulations were implemented, and the lack of documented complaints from pilots or of problems

with the enforcement, that the regulations have not adversely impacted the tour aircraft industry in Hawaii.

ii. Sanctuary Alternative -- **Preferred**: Prohibit the operation of any motorized aircraft within 1,000 feet of any humpback whale unless authorized by the ESA or MMPA

1) Impacts on Resources

The distinction between this alternative and the Status Quo alternative is the additional authority for the Sanctuary to enforce and penalize any violations of the NMFS overflight regulation, in that violations of the overflight regulations are subject to NMSA enforcement mechanisms. These include a higher potential maximum civil penalty for offenders than those under a MMPA or ESA violation. NOAA-SRD will consult with the NMFS-Office of Enforcement (OE) and the State of Hawaii on any violations of Sanctuary overflight regulations. The existence of a higher maximum civil penalty should provide an additional deterrent to illegal overflight activities, thereby increasing protection for humpback whales. The Sanctuary overflight regulation also ensures that SRD play a role in any future changes in the overflight regulations that may impact humpback whales. In addition, the Sanctuary will continue to offer the context for coordination of various activities that might affect humpback whales and their habitat, including reviewing and commenting on proposed activities that may impact the whales and coordinating with existing agencies to address potential conflicts. The Sanctuary's education and research programs can also help benefit whales and whale habitat.

2) Impacts on Users

Private, commercial, charter and military aircraft regularly fly within the boundaries of the Sanctuary. However, all of these aircraft are presently subject to the NMFS 1,000-foot "safety bubble" over humpback whales. The Sanctuary would not add any new prohibitions or permit requirements so there would be no negative economic impacts to aircraft operators. Passengers would still be able to enjoy general scenic and whale observation opportunities, albeit from altitudes of 1,000 feet or greater if flying above humpback whales. The regulation recognizes that many airports in Hawaii are located near the water and contains a provision that exempts aircraft from the regulation when in any flight corridor for takeoff from or landing on an airport or runway. However, this exemption applies only to Sanctuary regulations (and potential for Sanctuary civil penalties) and does not exempt such activities from the NMFS 1,000 foot overflight regulation.

There may be an overall positive socioeconomic effect on the aircraft and tour industry. Given a better understanding of humpback whales and the regulations protecting them, and given the educational focus of enforcement officers, the helicopter and airplane tour experience would be improved. Better coordination, enforcement, education, and participation in the Sanctuary management process may increase industry compliance with regulations. As such, the industry may actually experience an overall reduction of any impacts of these regulations and better overall dialogue with resource managers. Ultimately this will provide additional protection for humpback whales.

The Department of Defense (DOD) has consulted with SRD on military activities that involve flights below 1,000 feet. The DOD, through the U.S. Navy, also has consulted with NMFS regarding its activities in Hawaiian waters. No adverse affects to listed species were identified, provided that certain mitigative measures were instituted by the various commands active in areas where humpback whales occurred. DOD has standard operating procedures and training protocols in place to assure that pilots avoid humpback whales. DOD remains subject to all applicable requirements of the MMPA and ESA.

Pilots and researchers that need to fly within 1,000 feet of humpback whales for research purposes are required to obtain a NMFS research permit. The Sanctuary will have the opportunity to review and comment on research permit applications submitted to NMFS, with the purpose of ensuring that Sanctuary resources are adequately protected. It is possible that SRD involvement in the review process could result in changes that would involve minor costs in time to applicants, but no significant socioeconomic impacts are anticipated.

b. Approaching Humpback Whales

i. Status Quo: No Additional Regulation

1) Impacts on Resources

There are many different types of vessels currently operating in and near the Sanctuary, including oil tankers, military ships, container ships, tug and barge, fishing boats, cruise ships, tour boats, whalewatching vessels, dive boats, zodiacs, sail boats, kayaks, thrillcraft, and a variety of recreational craft. The effects of vessel traffic on whale behavior have been studied using shorestation observation of whales at varying distances from vessels (Bauer 1986; Baker et al. 1982; Baker 1983, Green 1990), and aerial surveys of boat-whale interactions. Thus far, most research has focused on identifying short-term responses to vessels. Long-term changes to humpback whale distribution or behavior has not been investigated in Hawaii.

Contact between vessels and whales may occur when vessels approach whales or when whales approach vessels of their own accord. Humpback whales will often respond to approaching vessels by avoiding contact. Several scientists have investigated the effects of approaching vessels on humpback whales and noted short-term "horizontal avoidance behavior" consisting of faster swimming and longer dives, followed by "vertical avoidance" behavior, consisting of longer dive times (Baker and Herman 1989; Green 1990; Forestell et al. 1990). There is no clear indication that any one type of vessel has a greater effect on whales than any other, except that small, high-speed thrillcraft or other highly maneuverable craft apparently cause a greater-than-average avoidance response (Green 1990; Forestell et al. 1990). Long-term implications of these short-term behavior modifications are unknown. More research is needed to investigate the long-term effects of human-whale interactions. Increasing humpback whale and human populations will likely mean more interactions in the future.

All approaches to humpback whales are subject to the NMFS approach regulations throughout Hawaii's Exclusive Economic Zone (EEZ). These regulations make it unlawful: (a) to approach a humpback whale within 100 yards; (b) to cause a vessel or other object to approach a humpback whale within 100 yards; or (c) to operate any motorized aircraft within 1000 feet of a humpback whale. The regulations apply to all commercial, recreational and military vessels, and to human swimmers or humans with objects such as windsurfers. The purpose of these regulations is to avoid direct collision with or harassment of whales. The State of Hawaii has incorporated the NMFS approach regulations into State code and can enforce these regulations under State law (HRS Title 13, Subtitle 11, §244-40). The State imposes additional restrictions on commercial and recreational thrillcraft, water sledding, parasailing vessels and high speed motorcraft during the whale season (December 15 to May 15) in its "Humpback Whale Protected Waters" located off West and South Maui (HAR, Title 13, Chapter 256-112). In addition, to reduce the occurrence of a vessel collision or grounding, the U.S. Coast Guard (USCG) established a voluntary vessel traffic lane which routes larger vessels, such as oil tankers and container ships, to the north side of Oahu and into the commercial ports near Honolulu or Barber's Point.

In the short term, these approach regulations help minimize incidences of direct humpback whale harassment and presumably help the whales to carry out their normal activities in Hawaiian waters with reduced levels of disturbance from humans. However, no studies have investigated the long-term effectiveness of these regulations in increasing the humpback whale reproductive rates or rates of survival.

2) Impacts on Users

The NMFS humpback whale approach regulations have been in existence since 1987. Enforcement records indicate there has been no major impacts on vessel traffic or operations (see Table IV-3). These 100-yard approach regulations do not prohibit or unnecessarily restrict the operation of vessels in the Hawaiian Islands. The regulation specifically governs all individuals or vessels approaching whales within 100 yards throughout Hawaii's EEZ. Although citations can be issued for violations of these regulations, no one user group has been entirely restricted or disadvantaged by the presence of the regulation (see Table IV-3). A discussion of enforcement activities is given in Part II(D)(3), Part III(B)(3)(iii), and Part V(D)(4).

NMFS has developed a Cooperative Agreement with USCG and the Hawaii DLNR-Department of Conservation and Recreation Enforcement (DOCARE) regarding enforcement activities related to the humpback whale approach regulations. DOCARE officers have been deputized to enforce the Federal whale approach regulations. The State of Hawaii may also pursue violations of State humpback whale approach regulations and thrillcraft restrictions in specific areas from December 15 to May 15 under State regulations.

ii. Sanctuary Alternative -- **Preferred**: Prohibit approaching or causing another vessel or other object to approach within 100 yards of a humpback whale unless authorized by the ESA and MMPA.

1) Impacts on Resources

Under this alternative, the ESA/MMPA humpback whale approach regulations would be incorporated as Sanctuary regulations. The distinction between this alternative and the status quo alternative discussed previously is the additional authority for the Sanctuary to enforce ESA and MMPA "approach" regulations under the NMSA and to be involved in the NMFS permit review process. Thus, the Sanctuary will have the authority under the NMSA to apply enforcement mechanisms and pursue civil violations of these approach regulations, and will be more directly involved in humpback whale protection and management efforts. The net effect of the regulation will benefit humpback whales and their wintering habitat (as encompassed by the Sanctuary) due to increased deterrence and compliance with regulations in place to protect the whales from potentially harmful approaches. Also, since this regulation focuses attention on a certain types of activity (approaching whale by boat), Sanctuary education and research programs can be focused on these activities that have the most potential for negatively impacting the whales. The overall result is greater knowledge of and protection for humpback whales and their habitat. A public that is better informed because of Sanctuary resource protections regulations will be more aware of the need to respect Sanctuary resources and will be more likely to comply with these existing approach regulations. The net environmental effect of this regulation on the Sanctuary area will be positive.

2) Impacts on Users

As an insular state, Hawaii is dependent upon commercial shipping (and inter-island barging) to import and export goods and petroleum products. The marine recreation industry also contributes significantly to the Hawaii economy: it accounted for $560 million in 1992 (MacDonald and Deese, 1994). SRD recognizes that the boating and shipping industry is crucial

to the economy of Hawaii and is not proposing to institute additional regulatory prohibitions on vessel traffic.

The socioeconomic impacts of this regulatory option are expected to be small and positive. No additional and substantive vessel traffic restrictions would be added to the NMFS 100-yard approach regulations. The Sanctuary regulation is merely supplementing existing prohibitions, and not adding additional permits or authorization requirements. The distinction between this alternative and the status quo alternative discussed previously is the additional authority for the Sanctuary to enforce ESA/MMPA approach regulations under the NMSA. Under the NMSA, the Sanctuary can impose higher maximum civil penalties for violations of Sanctuary regulations than is possible under the MMPA or ESA. The maximum is $100,000 under the NMSA, and $25,000 under the MMPA and ESA. The maximum civil penalty would not normally be applied except possibly for repeat offenders or particularly egregious offenders. Impacted users would be limited to only those persons subject to the regulations (as opposed to all users of the Sanctuary), and of those, only those persons in violation of Sanctuary regulations. The actual impact on those persons in violation of Sanctuary regulations will be relatively small because enforcement mechanisms are not limited to civil penalties. Rather, oral and written warnings are given routinely in lieu of civil penalties (See Table IV-3). Further, with interpretive enforcement, users subject to Sanctuary regulations will be educated as to what the regulations are and why they are in place, thus increasing future voluntary compliance and decreasing those potentially subject to civil penalties. Consequently, there will be few impacts to Sanctuary users.

Education and interpretive enforcement focusing on the Sanctuary approach regulation will result in greater public compliance of the regulation which will benefit humpback whales, thus increasing the experience (enjoyment of the experience as well as recreational and aesthetic experience) of Sanctuary resources for all Sanctuary users. Further, in those instances where a person who violated a Sanctuary regulation was assessed a civil penalty under the NMSA, those civil penalty monies will be returned to the Sanctuary for management and improvement (e.g., education and outreach), as opposed to being deposited in the general U.S. Treasury. Finally, NMSA enforcement will be coordinated with existing State and Federal authorities to minimize duplication of effort, thus minimizing potential cumulative effects on those users in violation of Sanctuary regulations.

c. Taking Humpback Whales

i. Status Quo: No Additional Regulation

1) Impacts on Resources

Humpback whales are currently protected by the MMPA and the ESA, which are both implemented by NMFS. The ESA and MMPA prohibit the "take" of all marine mammals and endangered species, a term broadly defined under the two laws. The MMPA defines "take" as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture or kill any marine mammal,"[2] and the 1994 amendments to the MMPA define harassment as a any act of pursuit, torment, or annoyance which (at Level A Harassment) "has the potential to injure a marine mammal or marine mammal stock in the wild" or (at Level B Harassment) "has the potential to injure a marine mammal stock in the wild by causing disruption of behavioral patterns including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering."

The approach regulations promulgated by NMFS are thus in fact a protective measure to prevent harassment of humpback whales. NMFS also has the authority under the ESA to

[2] The ESA (1988) similarly defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect, or attempt to engage in any such conduct."

designate and protect oceanic habitats that are found to be critical for species listed as endangered, such as the humpback whale. The MMPA, which was reauthorized in 1994, requires NMFS to establish Regional Scientific Review Groups to examine the impacts of human and environmental factors on marine mammals, and to develop and implement conservation plans to alleviate such impacts. The NMFS Regional Scientific Review Groups have not yet been established and their scope will include topics other than humpback whales.

Potential threats to humpback whales range from direct injuries or harassment of a single animal or population to indirect or cumulative degradation of their habitats. Neither the MMPA nor the ESA fully prevent such degradation of habitats. Section 7(a) of the ESA requires consultations on Federal actions which may affect endangered species or their critical habitats. However, this section applies only to activities authorized, funded, permitted, or carried out by the Federal agencies, not to direct private or state actions.

The anticipated net effects of the status quo alternative on Sanctuary resources are expected to be positive. The MMPA and ESA "take" regulations help minimize incidences of direct humpback whale harassment and harm, and presumably help the whales to carry out their normal activities (resting, breeding, calving and nursing) in Hawaiian waters with reduced levels of disturbance from humans. The "take" regulation is a standard regulation applied to all marine mammals under the MMPA and ESA, and prohibits persons from harassing, hunting, capturing, killing or attempting so conduct such an activity. This regulation, as implemented through the MMPA and ESA, was responsible for ending the commercial whaling in the U.S. EEZ and allowing whale populations, including humpbacks, to naturally recover.

2) Impacts on Users

The MMPA/ESA marine mammal "take" regulations have been in existence since 1972. Enforcement records indicate there has been no major impacts on vessel traffic or operations (see Table IV-3). Since 1987, most enforcement actions resulted from persons in violation of the 100-yard approach regulation and not the "take" regulation. The "take" regulation specifically governs all individuals or vessels approaching whales throughout the U.S. EEZ. Although citations can be issued for violations of these regulations, no one user group has been entirely restricted or disadvantaged by the presence of the regulation. A discussion of enforcement activities is given in Part II(D)(3), Part III(B)(3)(iii), and Part V(D)(4).

NMFS has developed a Cooperative Agreement with USCG and the Hawaii DLNR-Department of Conservation and Recreation Enforcement (DOCARE) regarding enforcement activities related to the humpback whale approach regulations. DOCARE officers have been deputized to enforce the Federal ESA/MMPA "take" regulations. The State of Hawaii may also independently pursue violations of State humpback whale "take" regulations.

ii. Sanctuary Alternative -- **Preferred**: Prohibit the "taking" or possession of humpback whales (or parts) unless authorized under the ESA and MMPA.

1) Impacts on Resources

Under this alternative, the ESA/MMPA humpback whale "take" regulations would be incorporated as Sanctuary regulations. The distinction between this alternative and the status quo alternative discussed previously is the additional authority for the Sanctuary to enforce ESA and MMPA "take" regulations under the NMSA and to be involved in the NMFS permit review process. Thus, the Sanctuary will have the authority under the NMSA to apply enforcement mechanisms and pursue civil violations of these approach regulations, and will be more directly involved in humpback whale protection and management efforts. The net effect of the regulation

will benefit humpback whales and their wintering habitat (as encompassed by the Sanctuary) due to increased deterrence and compliance with regulations in place to protect the whales from potentially harmful "takes". Also, since this regulation focuses on a certain types of activity (harass, kill, hunt, capture or attempt to do so), Sanctuary education and research programs can be focused on these activities that have the most potential for negatively impacting the whales. The overall result is greater knowledge of and protection for humpback whales and their habitat. A public that is better informed because of Sanctuary resource protections regulations will be more aware of the need to respect Sanctuary resources and will be more likely to comply with these existing "take" regulations. The net environmental effect of this regulation on the Sanctuary area will be positive.

2) Impacts on Users

The socioeconomic impacts of this regulatory option are expected to be small and positive. No additional and substantive "take" prohibitions would be added by the Sanctuary to the existing ESA/MMPA "take" regulations. The Sanctuary regulation is merely supplementing existing prohibitions and not adding additional permits or authorization requirements. The only distinction between this alternative and the status quo alternative discussed previously is the additional authority for the Sanctuary to enforce ESA/MMPA "take" regulations under the NMSA. Under the NMSA, the Sanctuary can impose higher maximum civil penalties for violations of Sanctuary regulations than is possible under the MMPA or ESA. The maximum is $100,000 under the NMSA, and $25,000 under the MMPA and ESA. The maximum civil penalty would not normally be applied except possibly for repeat offenders or particularly egregious offenders. Impacted users would be limited to only those persons subject to the regulations (as opposed to all users of the Sanctuary), and of those, only those persons in violation of Sanctuary regulations. The actual impact on those persons in violation of Sanctuary regulations will be relatively small because enforcement mechanisms are not limited to civil penalties. Rather, oral and written warnings are given routinely in lieu of civil penalties (See Table IV-3). Further, with interpretive enforcement, users subject to Sanctuary regulations will be educated as to what the regulations are and why they are in place, thus increasing future voluntary compliance and decreasing those potentially subject to civil penalties. Consequently, there will be few impacts to Sanctuary users.

Education and interpretive enforcement focusing on the Sanctuary "take" regulation will result in greater public compliance of the regulation which will benefit humpback whales, thus increasing the experience (enjoyment of the experience as well as recreational and aesthetic experience) of Sanctuary resources for all Sanctuary users. Further, in those instances where a person who violated a Sanctuary regulation was assessed a civil penalty under the NMSA, those civil penalty monies will be returned to the Sanctuary for management and improvement (e.g., education and outreach), as opposed to being deposited in the general U.S. Treasury. Finally, NMSA enforcement will be coordinated with existing State and Federal authorities to minimize duplication of effort, thus minimizing potential cumulative effects on those users in violation of Sanctuary regulations.

d. Discharges or Deposits

i. Status Quo: No Additional Regulation

1) Impacts on Resources

Under the status quo alternative, discharges and deposits will continue to pressure the resources of the coastal zone. As the population of Hawaii continues to increase, human uses of the ocean and adjacent watersheds will result in an increase of discharges and deposits into Hawaii's nearshore waters (OSP 1996). The consequence to humpback whales of continuing with

the status quo will be further degradation of the humpback whale's habitat, particularly in coastal areas which are of critical importance to newly born calves.

The cumulative effects of point source pollution, including sewage spills, and non-point source pollution from surface runoff and airborne contaminants can result in degraded water quality, algae blooms, and other problems (OSP 1996). These problems have begun in particular to affect nearshore areas such as West Maui and Mamala Bay. The impact of degraded water quality on humpback whales is not known precisely, but some of the pollutants can be presumed to be harmful (Dailey 1985; Taruski et al. 1975). Without a coordinated approach and clear goals for protecting the coastal resources, human activities may continue to degrade the humpback whale's habitat. Although numerous laws and regulations apply to the disposal of wastes and other types of discharges into the marine environment, most decisions are made on a case-by-case basis and do not focus specifically on investigating the effects of pollutants on humpback whales or their habitat. A coordinated approach and clear goals for protecting whales habitat from further degradation is currently lacking.

a) Water quality standards

The Hawaii Department of Health (DOH) has developed water quality standards based on Federal EPA water quality standards established under the Clean Water Act (CWA). DOH classifies marine waters as Class AA or Class A waters, and marine bottom ecosystems are divided into Class I and Class II. There are basic water quality criteria applicable to all waters that address floating debris, thermal pollution, turbidity and nearly 100 toxic substances (HAR, Chapter 11-54). These criteria are among the most stringent in the Nation (DOH 1990, Water Quality Management Plan for the City and County of Honolulu). DOH is responsible for monitoring and enforcing these standards.

b) Discharges from Point Sources

The Clean Water Act furnishes some protection to marine resources from the harmful effects of effluent discharges. Under the status quo alternative, the Hawaii Department of Health (DOH) would continue to regulate and monitor point source discharges, including stormwater discharges, through the National Pollution Discharge Elimination System (NPDES) permitting process, water quality certifications, and other general permits. DOH's primary concern is about human health. DOH does not have the staff, resources, or mandate to monitor or consider discharges from the perspective of humpback whale health.

Two outfall plants, the Sand Island and Honouliuli Wastewater Treatment Plants, now discharge partially treated waste directly into ocean waters off Oahu outside the preferred Sanctuary boundary alternative. The Environmental Protection Agency (EPA) and DOH have issued a Clean Water Act 301(h) waiver of secondary treatment requirements for these two wastewater treatment plants until additional studies determine the relative impacts of these discharges on nearshore resources (Mamala Bay Study Commission, 1993). Ocean outfalls and injection wells scattered throughout the state also discharge municipal wastes, industrial wastes and agricultural wastes which have received secondary treatment.

Ocean outfalls, particularly those discharging partially treated matter in nearshore waters, are monitored but must be assessed to determine their impacts to humpback whales and whale habitat. While research specifically investigating water quality effects on humpback whales is lacking, data from more general studies on water quality could be used to address management concerns or structure future research projects. While existing Federal and State regulations are intended to achieve a permanent reduction of harmful waste loads in the interests of marine environmental protection, limitations on resources and other obstacles have hindered implementation and regional waste treatment facilities are still not equipped to render ocean

discharges environmentally safe. For example, a number of discrete areas around Hawaii have degraded water quality to varying degrees, including Kaneohe Bay, Mamala Bay, and West Maui. Local land point-source pollution, including municipal, industrial, and agriculture discharges; and non-point source discharges, from urban runoff and agricultural practices (discussed below) are believed to be the cause of these problems. More research is needed on the relative culpability of these sources; on the potential health threats to whales, and the marine environment generally, and on the best solutions in terms of management.

The continued decline in water quality, reduction in fish catches, and beach closures from occasional sewage spills are all signs of continuing pressure on the marine resources of Hawaii. It can be assumed that the demands of an increasing human population will likely result in further degradation of water quality in the absence of a comprehensive and coordinated management effort. There is no single agency that reviews the discharges from the perspective of their effect on humpback whales or on the health of the habitat which whales depend on.

c) Pollution from Non-Point Sources

Non-point source pollution is mainly a consequence of land use practices of farmers, resort developers, construction companies and everyone else who affects surface runoff in the watershed. Surface runoff may contain various amounts of pollutants including heavy metals, toxins, pesticides, herbicides, fertilizers, infectious pathogens, and inorganic sediments. Evidence is growing that coral reefs and nearshore habitats have been harmed by non-point sources of pollution and sedimentation. It is also possible that pollutants enter the ocean surface from discharges into the air but the magnitude and effects of these airborne pollutants on whales have not been studied. Marine mammals are known to bioaccumulate PCB's and other pollutants in their tissues (Taruski et al., 1975). It is not known how much of this pollution is absorbed directly through their skin, eyes and other membranes in comparison to how much is taken in through swallowing water or eating contaminated food. However, since humpback whales are not known to regularly feed in Hawaii, food ingestion is the least likely of these sources.

Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), which amended the CZMA requires states with CZM programs to develop and implement coastal non-point pollution control programs to be approved by NOAA and EPA. State programs are to be developed jointly by the coastal zone management agency and the water quality agency, and must be based on guidelines developed by the EPA and NOAA. Hawaii responded to these requirements by coordinating the existing efforts of the Hawaii Coastal Zone Management Program (CZMP) and DOH. To assist with program development of the Coastal Non-Point Pollution Control Program Management Plan, the CZM Program convened an informal working group and created five focus groups (agriculture, forestry, urban, marinas and recreational boating, hydromodifications and wetland/riparian areas) which met on a regular basis. The Hawaii CZMP submitted the draft non-point pollution management plan to NOAA and EPA in July 1996. The plan address over 56 management measures which will be implemented through both regulatory and non-regulatory mechanisms. The management measures are based on technical and economic achievability, rather than on cause-and-effect linkages between particular land use activities and particular water quality problems. The intent of the Hawaii coastal non-point pollution control program is to build upon, rather than duplicate, existing programs. The array of existing programs will be loosely bound together in a "network" under the rubric of the Coastal Non-Point Pollution Control Program. The program should be fully developed by the end of 1997.

The Hawaii CZMP and DOH, with significant assistance from other State, Federal, and county agencies, non-governmental organizations, and individuals, have jointly developed Hawaii's Coastal Non-Point Pollution Control Program management plan. The Coastal Non-Point Pollution Control Program will continue to rely on the resources, expertise, program, and authorities of other agencies and organizations during its continuing development and

implementation. In addition, opportunities for public participation will continue to be part of Hawaii's coastal non-point pollution control program.

d) Hazardous Waste, Oil, and Trash Disposal

Pollutants and trash from vessels or upland sources are sometimes transported far distances by ocean currents before reaching the Hawaiian Islands. Marine mammals can ingest litter and have been found entangled in plastic packing material or discarded fishing gear worldwide, although the incidence of marine mammal entanglement is generally higher in areas where commercial fishing activities and marine mammal feeding occur simultaneously, such as Alaska. NMFS has indicated that commercial fishing activities in Hawaii do not pose significant threats to humpback whales (Nitta and Naughton, 1989). The incidence of mortality or disturbance associated with marine debris remains unclear.

The Marine Plastic Pollution Research and Control Act (MPPRCA) of 1987 amends the Act to Prevent Pollution from Ships. The purpose of the amendment is to implement Annex V of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78), which prohibits ships from disposing plastics, such as fishing lines and bags. This protects marine animals and seabirds from ingesting these wastes while foraging, or from becoming entangled in debris. The MPPRCA regulations also prohibit, for example, the disposal by ship of paper, rags, glass, metal bottles, crockery and similar refuse less than 12 nautical miles from the nearest land; the disposal of dunnage lining and packing materials that float less than 25 nautical miles from the nearest land; and the disposal of victual waste less than 12 nautical miles from land (if ground, 3 nautical miles).

Discharges, such as the cooling waters from boat engines and fish wastes, which are used by and discarded from fishing vessels, are unlikely to harm the resources of the Sanctuary. Discharges resulting from military activities in the area, such as smoke markers, sonobuoys and ordinance, are slight and do not appear to pose a threat to humpback whales. As part of their Standard Operating Procedures, the military surveys training sites by air, boat, and passive sonar, when available, for humpback whales, other humans, and wildlife before training activities commence. In the event that humpback whales are present, the activity will be delayed until the range is clear. DOD vessels are also required to be equipped with oil-water separators. The water effluent from these devices must meet standards of 20 parts per million (ppm) oil within 12 nautical miles from land or 100 ppm beyond 12 nmi from land. The oil portion is retained on board for shore disposal.

During 1991, the Hazard Evaluation and Emergency Response (HEER) Office of the Hawaii Dept. of Health received a total of 453 oil and hazardous substance emergency spill notifications (Hawaii State Emergency Response Commission, 1992). Over 83% of these notifications originated in Oahu. Petroleum was the most commonly reported material released, accounting for about 70% of spills, followed by spills of unknown origin at about 6%. Miscellaneous other substances such as paint, soap, mercury and sulfuric acid accounted for another 6%. Some of the possible effects of oil spills on humpback whales include: damage to skin or eyes upon contact, fouling of baleen, and physiological problems from ingestion and inhalation. Although the effects of oil on humpback whales has not been fully investigated, scientists hypothesize that oil could cause short- and long-term harm. Humpback whale calves and pregnant females may be particularly susceptible to spills since they are more likely to be found in nearshore waters and spend more time at the surface.

e) Dredged materials

Dredging activities and their impacts on navigation and the environment are regulated by the U.S. Army Corps of Engineers (Corps) under Section 10 of the Rivers and Harbors Act of

1899 (dredging), by EPA and the Corps under Section 404 (discharge of dredge or fill materials within 3-nautical miles of the shoreline) of the Clean Water Act (CWA), and Section 103 (ocean disposal of dredge materials) of Title I of the Marine Protection, Research and Sanctuaries Act (MPRSA; 33 U.S.C. §1401 et seq.). Permit applicants are also required to comply with Coastal Zone Management Act Federal consistency requirements, and obtain CWA, Section 401, Water Quality Certifications prior to being issued a permit by the Corps. Applicants may also be required to obtain separate permits from State agencies for activities conducted within State waters. For example, a DLNR Conservation District Use Applications (CDUAs) permit is required for activities conducted in submerged lands of the State.

f) Ocean disposal sites

Ocean dumping, municipal outfalls, and dredged material disposal can smother benthic biota and introduce substances into the marine environment which may affect birds, fish and marine mammals. Title I of the MPRSA regulates the transport of materials for the purpose of dumping it into ocean waters. Section 102 of the MPRSA allows the EPA to designate disposal sites or time periods for dumping that will mitigate adverse impact on the environment to the greatest extent practicable. EPA must develop site management plans that include a baseline assessment of the resources, monitoring, management conditions and the type and amount of materials to be dumped. EPA must also consider the potential impacts of the ocean disposal sites on marine sanctuaries and other protected areas. Section 103 of the MPRSA establishes a permit system by which the Corps may issue permits for the transportation of dredged materials for the purpose of dumping it into ocean waters (in EPA approved sites). The Corps must determine that the dumping will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities.

In 1980, the EPA, in cooperation with the U.S. Army Corps of Engineers, designated five dredge material ocean disposal sites in Hawaii. All five sites are located outside the proposed Sanctuary boundary in waters deeper than 100-fathoms. Some "clean" dredge disposal materials are used to replenish beach areas or are used to provide shoreline protection in areas experiencing coastal zone erosion. Because of the complexities of sediment, water, and biological interactions, it is difficult, though necessary for effective management, to analyze the natural disturbance regime at the potential disposal site and its relation with the associated benthic communities. The effects of ocean dumping on humpback whales or their habitat in Hawaii is unknown.

2) Impacts on Users

Under the status quo, existing Federal and State authorities will continue to regulate and monitor discharges and deposits of materials in and outside the Sanctuary. However, most regulatory decisions pertaining to dischargers are made on a case-by case basis with the primary intent of facilitating human uses rather than protecting the environment. Use of nearshore Hawaiian waters for discharges has been adopted as an acceptable alternative without special consideration given to humpback whales or their habitat. Therefore, from the Sanctuary perspective, certain gaps remain in the existing regulatory structure in terms of its mission of protecting humpback whales.

Under the status quo, the Sanctuary manager would attempt to work with existing agencies to ensure that humpback whales and their habitat are given due consideration. No Sanctuary regulations or permit requirements would be added. Impacts to users would be insignificant. Sanctuary education and outreach programs may increase compliance with regulations and help facilitate public efforts to alleviate or eliminate unnecessary discharges into marine waters. Likewise a research program may be able to answer some of the unknowns concerning the effects of discharges on humpback whales.

ii. Sanctuary Alternative -- **Preferred**: Prohibit discharges or deposits that take place without, or in violation of the terms or conditions of a required Federal or State, permit, license, lease or other authorization.

1) Impacts on Resources

Under this alternative, the Sanctuary would supplement the authority of existing agencies that regulate discharge and deposit activities. This regulation improves the protection of humpback whale habitat by supplementing enforcement of existing discharge and deposit requirements, thereby strengthening compliance with the terms and conditions of required leases, permits or licenses issued by Federal or State authorities under the Clean Water Act, River and Harbors Act, Marine Protection, Research, and Sanctuaries Act, and relevant State laws and codes. The proposed regulation complements the existing regulatory system and ensures that humpback whales and their habitat are given consideration in existing permit processes. The Sanctuary would work within the permit review processes of relevant State and Federal agencies to ensure that the humpback whale's habitat is maintained and not degraded.

The distinction between this alternative and the status quo alternative discussed previously is the additional authority for the Sanctuary to enforce violations of existing Federal and State discharge and alteration of the seabed regulations under the NMSA and to be involved in their permit review process. Thus, the Sanctuary will have the authority under the NMSA to apply enforcement mechanisms and pursue civil violations of these discharge and deposit regulations, and will be more directly involved in humpback whale protection and management efforts. The net effect of the regulation will benefit humpback whales and their wintering habitat (as encompassed by the Sanctuary) due to increased deterrence and compliance with regulations in place to protect the whales from potentially harmful discharge and deposit activities.

Since this regulation focuses on a certain types of activity (point and non-point discharges, marine construction, dredging), the Sanctuary education and research programs can be focused on these activities that have the most potential for negatively impacting the whales. The overall result is greater knowledge of and protection for humpback whales and their habitat. A public that is better informed because of Sanctuary resource protections regulations will be more aware of the need to respect Sanctuary resources and will be more likely to comply with these existing regulations designed to maintain water quality and the integrity of the seabed. Finally, any information gained through the Sanctuary's long-term research and monitoring programs will benefit the entire marine ecosystem and, in turn, all industries that depend on a healthy marine environment. The net environmental effect of this regulation on the Sanctuary area will be positive.

a) Water quality standards

DOH has established EPA-approved water quality standards for Hawaii in Chapter 11, HAR, based on Federal CWA standards. Marine waters are classified as either Class AA or Class A (see description of Class AA and A waters in Part II(D)(3)(b)(7)). There are basic State water quality rules that apply to both Class AA and Class A waters that control ocean dumping, thermal pollution, turbidity, and nearly 100 toxic substances (HAR, Chapter 11-54). DOH is responsible for monitoring and enforcing these regulations. The NMSP has no independent water quality standards for individual national marine sanctuaries. NOAA will work with DOH to ensure that water quality is maintained, at a minimum, to the State standards within the Sanctuary. The Sanctuary program will work with other Federal and State agencies to ensure that waters in the Sanctuary are not degraded below these standards or below current water quality levels.

Additional research is necessary to determine the need and type of water quality management strategies specific for the humpback whale and its habitat that should be developed.

As one of the research priorities, NOAA will focus on relating specific water quality parameters, concentrations, or loadings to the "health" of the humpback whale in Hawaiian waters.

b) Discharges from Point Sources

A National Pollution Discharge Elimination System (NPDES) discharge permit is required for discharges from wastewater treatment facilities, stormwater sewers from medium and large cities, electric generating facilities, industries and agriculture facilities. EPA has delegated this permit authority to the Hawaii DOH. NPDES permits require dischargers to monitor outfall areas and submit data to DOH on a periodic basis. DOH also performs pollutant source and ambient water quality monitoring at over 76 fixed monitoring stations statewide.

The Sanctuary will work closely with DOH to ensure that Sanctuary concerns are addressed in their existing NPDES permit program. The Sanctuary will not issue independent discharge permits or have independent approval authority. SRD is developing an MOU with DOH (and DLNR for alteration of the seabed activities) that will specify procedures for Sanctuary review of NPDES permits. A draft of this MOU can be found in Appendix E. The Sanctuary will be able to provide advice and recommendations to DOH on specific permits, but it will not have independent authority to deny any discharge activities issued by DOH. A separate MOU will be developed that will detail enforcement procedures between NOAA and the State.

c) Pollution from Non-Point Sources

SRD recognizes the great amount of effort undertaken by the Hawaii CZM program and DOH to develop the Coastal Non-Point Pollution Control Program, pursuant to Section 319 of the CWA and Section 6217 of the CZARA. This program includes both regulatory and non-regulatory management measures to control non-point source pollution originating from a variety of sources in the State. The Sanctuary will primarily act to assist these agencies implement measures identified in the non-point pollution control program and to identify other technical and financial assistance to implement these programs. The Sanctuary will look toward these agencies to provide guidance and to help identify areas where the Sanctuary can supplement their efforts to implement the water quality plan, especially as it pertains to long-term monitoring programs and efforts to improve the humpback whale's habitat..

Policies that pertain to water quality developed within the Sanctuary program will be closely reviewed and coordinated with the Coastal Zone Management Program and DOH. The Hawaii Sanctuary's regulatory structure will not increase restrictions nor result in reduced flexibility of the Hawaii CZM Program or DOH to implement this program. The Sanctuary has already co-sponsored a coastal water quality position with the West Maui Watershed Program and will provide additional support to the DOH this next year for monitoring projects

d) Hazardous Waste, Oil, and Trash Disposal

NMFS, Southwest Region (SWR) is the NOAA representative on the Oceanic Region IX Regional Response Team (RRT), and on the Area Committee established under the Oil Pollution Act of 1990. NMFS-SWR will continue to represent NOAA's interests, including those of the Sanctuary, on the RRT and the Area Committee. NMFS-SWR will coordinate with the Sanctuary Manager on issues that may effect the Sanctuary, and bring those concerns to the attention of the RRT and Area Committee. As appropriate, the Sanctuary Manager will be invited to participate on the RRT and Area Committee by the U.S. Coast Guard and EPA.

In the event of a spill, NMFS-SWR will coordinate with the RRT and Area Committee according to the provisions outlined in the Federal On-Scene Coordinator Area Contingency Plan. For incidents involving the release or potential release of oil or hazardous materials that injure,

destroy or cause the loss of Sanctuary or other NOAA trustee resources, the Damage Assessment and Restoration Program (DARP) will assume the lead responsibility within NOAA for conducting damage assessment, litigation and restoration activities. SRD may request a co-lead role. NMFS-SWR, Pacific Area Office will coordinate and work with other NOAA members of the Damage Assessment and Restoration Program (DARP), the Sanctuary, and other Federal agencies to ensure that oil spill and hazardous materials wastes disposal response efforts are coordinated.

SRD and NMFS are currently developing an MOU to address NOAA management issues in the Sanctuary, including coordination under the Fish and Wildlife Act and Oil Spill and Hazardous Waste Contingency Planning. The Sanctuary will also work with existing government agencies and the public to promote proper trash disposal and coastal clean-up efforts.

e) Dredged materials

Alteration of the seabed activities, including dredge and fill, and their impacts on navigation and the environment are regulated by the Corps under Section 10 of the RHA (dredging), by EPA and the Corps under Section 404 (discharge of dredge or fill materials) of the CWA, and Section 103 (ocean disposal of dredge materials) of Title I of the MPRSA. Permits are also required by several State agencies for activities in State waters. The Hawaii Department of Transportation issues permits for ocean dredging, filling, construction and dumping materials below the mean high water mark.. A DLNR Conservation District Use Applications (CDUAs) permit may also be required for activities conducted in submerged lands, which is reviewed by the State Land Board for potential impacts to state lands.

The Sanctuary will work within these existing State and Federal permit review processes to ensure Sanctuary concerns are addressed. SRD and NMFS are developing an MOU concerning Federal permits and consultations for activities that affect the Hawaii Sanctuary. NMFS will remain the lead, and work closely with the Sanctuary manager to address Sanctuary concerns through existing permit review mechanisms under NEPA and FWCA, and through interagency teams, such as the Pacific Regional Dredging Team administered by the Corps. This consolidated NMFS and SRD permit review will includes all NEPA actions and other permit programs reviewed under the FWCA, such as the CWA Section 404 and RHA Section 10 permits that may affect Sanctuary resources. NMFS will remain the lead agency and coordinate between the Corps of Engineers and EPA.

In addition, SRD is developing an MOU with the State of Hawaii (DOH and DLNR) to address discharge and alteration of the seabed activities. This MOU will specify procedures for Sanctuary review of applications for State permits relating to discharge and alteration of the seabed activities in the Sanctuary. A draft of this MOU can be found in Appendix E. The Sanctuary will be able to provide advice and recommendations to DLNR on specific permits, but it will not have independent authority to deny any discharge activities issued by DLNR. A separate MOU will be developed that will detail enforcement procedures between NOAA and the State

The Sanctuary will work within these existing permit review structures to ensure their concerns are address, but it will not have independent authority to restrict or deny discharge or alteration of the seabed activities under CWA Section 404, RHA Section 10, State of Hawaii CDUA permits, or other permits issued by other Federal or State agencies.

f) Ocean disposal sites

There are currently five EPA-approved ocean dredge disposal sites in Hawaii. None of these disposal sites are located in or adjacent to the proposed Sanctuary boundary. The Corps regulates the transport of dredged materials to these sites. The Hawaii Sanctuary regulations do not expressly prohibit new ocean disposal sites from being located within or adjacent to the

Sanctuary. However, Title I of the Marine Protection, Research, and Sanctuaries Act (Ocean Dumping Act) establishes general criteria for the selection of disposal sites, including a requirement that EPA consider the impacts of such disposal sites on marine resources and areas possessing significant resources, such as marine sanctuaries. Further, Title I requires EPA to prepare an Annual Report to Congress that assesses the extent to which the marine environment has been impacted by materials disposed at ocean disposal sites, including the movement of such materials into marine sanctuaries.

Prior to citing a new ocean disposal site in or near the Sanctuary, EPA and the Corps would be required to consult with SRD, pursuant to the section 304(d) consultation provision of the NMSA. SRD and NMFS have consolidated the NMSA 304(d) and ESA Section 7 consultation provisions. NMFS will remain the lead contact and work with SRD to ensure that the Sanctuary's concerns are addresses. Further, sections 306 and 312 of the NMSA make it unlawful for any person to destroy, cause the loss of, or injure any Sanctuary resource, and provides for liability should such occur, respectively. As regarding disposal sites located outside the boundary, the Sanctuary would be concerned if authorized disposals result in sediment plumes entering the Sanctuary that could or actually injure a Sanctuary resource. At this time, the relative impacts of degraded water quality and sediments on humpback whales is relatively unknown.

2) Impacts on Users

Under this regulatory preferred alternative the Sanctuary would supplement existing authorities that regulate discharge and deposit activities. This regulation would not place additional substantive prohibitions, more stringent standards, or independent permits on marine users. Instead, the regulation would requires that the Sanctuary work closely within the existing administrative and regulatory framework established by NMFS, EPA, DOH, and the Corps. The Sanctuary would not add a duplicative permitting or approval process and would not prohibit or restrict discharge or deposit activities which do not require Federal or State authorization. Most ports, harbors, small boat basins, and areas of primary sewage discharge in Hawaii are not included in the proposed Sanctuary boundary and would continue under status quo management, although Sanctuary managers could comment on individual projects outside the boundaries which might affect the Sanctuary.

The only distinction between this alternative and the status quo alternative discussed previously is the additional authority for the Sanctuary under the NMSA to enforce violations of the terms and conditions of permits and other authorizations issued by Federal or State authorities for disposal or discharge activities in the Sanctuary. NOAA-SRD will consult with the appropriate Federal or State agency on any violation of discharge and deposit requirements and authorities before any NMSA enforcement action is taken. The actual enforcement process will be detailed in an enforcement agreement that will be developed between NOAA and the State of Hawaii's DOH and DLNR.

This added enforcement authority would provide a greater deterrent to violations of existing discharge and deposit regulations. Under the NMSA, the Sanctuary can impose higher maximum civil penalties for violations of Sanctuary regulations than is possible under the MMPA or ESA. The maximum is $100,000 under the NMSA, and $25,000 under the MMPA and ESA. The maximum civil penalty would not be applied except for repeat offenders or particularly egregious offenders. Impacted users would be limited to only those persons subject to the regulations (as opposed to all users of the Sanctuary), and of those, only those persons in violation of Sanctuary regulations. The actual impact on those persons in violation of Sanctuary regulations will be relatively small because enforcement mechanisms are not limited to civil penalties. Rather, oral and written warnings are given routinely in lieu of civil penalties (See Table IV-3). Further, with interpretive enforcement, users subject to Sanctuary regulations will be educated as to what the regulations are and why they are in place, thus increasing future voluntary compliance and

decreasing those potentially subject to civil penalties. Consequently, there will be few impacts to Sanctuary users.

Education and interpretive enforcement focusing on the Sanctuary discharge and deposit regulations will result in greater public compliance of the regulation which will benefit humpback whales, thus increasing the experience (enjoyment of the experience as well as recreational and aesthetic experience) of Sanctuary resources for all Sanctuary users. Further, in those instances where a person who violated a Sanctuary regulation was assessed a civil penalty under the NMSA, those civil penalty monies will be returned to the Sanctuary for management and improvement (e.g., education and outreach), as opposed to being deposited in the general U.S. Treasury. Finally, NMSA enforcement will be coordinated with existing State and Federal authorities to minimize duplication of effort, thus minimizing potential cumulative effects on those users in violation of Sanctuary regulations.

e. Alteration of the Seabed

i. Status Quo: No Additional Regulation

1) Impacts on Resources

Under the status quo alternative, alteration of the seabed activities will continue to pressure the resources of the coastal zone. Deterioration of coastal habitat and degradation of water quality will continue if predicted increases occur in activities that involve alteration of and construction on the seabed (OSP 1996). These activities include–harbor expansion, nearshore construction, dredging, sand mining and the laying of pipes, cables and mooring buoys on the ocean floor. Such activities can result in the disruption or displacement of habitat by humpback whales and increased turbidity levels. Moreover, loud noises or vibrations associated with blasting, drilling, dredging, and filling may result in the displacement, injury or even mortality of nearby humpback whales (Townsend 1991; Ketten et al. 1993). Large-scale projects, such as the creation of a new harbor, can cause permanent loss of habitat. While such losses may be small in comparison to the total habitat available, secondary effects such as pollution or human-whale interactions my result from more people using the newly created or expanded harbors, boat ramps, moorings, hotels and condominiums and thus increase potential threats due to whales. The consequence to humpback whales of continuing with the status quo will be further degradation of the humpback whale's habitat, particularly in coastal areas which are of critical importance to newly born calves.

Most alteration of the seabed activities are overseen by the Corps (RHA, Section 404 CWA and DLNR (CDUA). Both agencies have permit applications and review processes in place to ensure that navigable waters are maintained, human and wildlife needs are addressed, and that the State's public lands are used wisely. However, these permits are evaluated on a project by project basis, and often no consideration is given to the cumulative effects of such activities on humpback whale populations or their habitat. Without a coordinated approach and clear goals for protecting the coastal resources, human activities may continue to degrade the humpback whale's habitat. A coordinated approach and clear goals for protecting whales habitat from further degradation is currently lacking.

2) Impacts on Users

The Corps is the primary permit-granting authority at the Federal level, and DLNR is the primary permitting authority at the State level through the CDUA process. The Corps and DLNR circulate permit applications to respective Federal and State agencies for review and comment: DOH for impacts on water quality; NMFS for impacts on marine mammals and fisheries; USFWS for impacts on turtle and seabirds; and EPA if a Federal environmental impact statement is

required. The Hawaii CZMP is responsible for determining whether proposals are consistent with the State CZMA. Each project is evaluated on a case-by-case basis as to its potential impacts on commerce, navigation, human uses, and the environment.

The status quo would not add any new regulations or permit requirements. Existing Federal, State and local authorities would continue to regulate projects involving alteration or construction on the seabed. The Sanctuary would comment on the design and scope of projects as they pertain to humpback whales, through the existing permit review processes available to the general public. There would be minimal impacts to human uses from this alternative. The Sanctuary's research and education programs could help ensure that users are familiar with existing rules and regulations. Routine harbor maintenance, expansion or construction would continue to be regulated by the State of Hawaii, the counties, Corps, and EPA. New ocean dump sites could be established within the Sanctuary upon obtaining EPA and Corps permits. Sand mining is currently prohibited, with certain exceptions under State and county regulations. Department of the Navy activities such as the placement of passive hydroacoustic arrays and cable on the ocean floor or other training exercises would not be affected.

ii. Sanctuary Alternative -- **Preferred:** Prohibit alteration of the seabed activities conducted in violation of the terms or conditions of a required Federal or State permit, license, lease or other authorization

1) Impacts on Resources

Under this alternative, the Sanctuary would supplement the authority of existing agencies—EPA, COE, DOH, and DLNR—that regulate alteration of seabed activities such as dredge, drill, fill, and construction. This regulation improves the protection of humpback whale habitat by supplementing enforcement of existing alteration of the seabed activities, thereby strengthening compliance with the terms and conditions of required leases, permits or licenses issued by Federal or State authorities under the Clean Water Act, River and Harbors Act, Marine Protection, Research, and Sanctuaries Act, and relevant State laws and codes. This regulation does not prohibit or restrict those alteration of the seabed activities which do not require Federal or State authorization. The proposed regulation complements and supplements the existing regulatory system and ensures that humpback whales and their habitat are given consideration in existing permit processes. The Sanctuary would work within the permit review processes of relevant State and Federal agencies to ensure that the humpback whale's habitat is maintained and not degraded.

The distinction between this alternative and the status quo alternative discussed previously is the additional authority for the Sanctuary to enforce violations of existing Federal and State alteration of the seabed regulations under the NMSA and to be involved in their permit review process. Thus, the Sanctuary will have the authority under the NMSA to apply enforcement mechanisms and pursue civil violations of these discharge and deposit regulations, and will be more directly involved in humpback whale protection and management efforts. The net effect of the regulation will benefit humpback whales and their wintering habitat (as encompassed by the Sanctuary) due to increased deterrence and compliance with regulations in place to protect the whales from potentially harmful alteration of the seabed activities. The Sanctuary will consult with the appropriate Federal or State agency on any violation before any NMSA enforcement action is taken.

Since this regulation focuses on a certain types of activity (dredge, fill, marine construction, cable laying), the Sanctuary education and research programs can be focused on these activities that have the most potential to negatively impact the whales. The overall result is greater knowledge of and protection for humpback whales and their habitat. A public that is better informed because of Sanctuary resource protections regulations will be more aware of the need to

respect Sanctuary resources and will be more likely to comply with these existing regulations designed to maintain water quality and the integrity of the seabed. Finally, any information gained through the Sanctuary's long-term research and monitoring programs will benefit the entire marine ecosystem and, in turn, all industries that depend on a healthy marine environment. The net environmental effect of this regulation on the Sanctuary area will be positive.

2) Impacts on Users

Alteration of the seabed activities, including dredge and fill, and their impacts on navigation and the environment are regulated by the Corps under Section 10 of the RHA (dredging), by EPA and the Corps under Section 404 (discharge of dredge or fill materials) of the CWA, and by Section 103 (ocean disposal of dredge materials) of Title I of the MPRSA. Permits are also required by several State agencies for activities in State waters. The Hawaii DLNR issues CDUA permits for activities that may affect submerged state lands which are reviewed by the State Land Board. The Sanctuary will work within these existing permit review structures to ensure that Sanctuary concerns as related to the humpback whales and their habitat are addressed. The Sanctuary will not have independent authority to restrict or deny discharge or alteration of the seabed activities under CWA Section 404, RHA Section 10, State of Hawaii CDUA permits, or other permits issued by other Federal or State agencies. This regulation does not prohibit or restrict those alteration of the seabed activities which do not require Federal or State authorization. Most ports, harbors and small boat basins are excluded from the proposed Sanctuary boundary and would continue under status quo management, although the Sanctuary could still comment on projects.

SRD and NMFS are developing an MOU concerning Federal permits and consultations for activities that affect the Hawaii Sanctuary. NMFS will remain the lead, and work closely with the Sanctuary manager to address Sanctuary concerns through existing permit review mechanisms under NEPA and FWCA, and through interagency teams, such as the Pacific Regional Dredging Team administered by the Corps of Engineers. This consolidated NMFS and SRD permit review will include all NEPA actions and other permit programs reviewed under the FWCA, such as the CWA Section 404 and RHA Section 10 permits that may affect Sanctuary resources. NMFS will remain the lead agency and coordinate between the Corps of Engineers and EPA.

In addition, SRD is developing an MOU with the State of Hawaii (DOH and DLNR) to address discharge and alteration of the seabed activities. This MOU will specify procedures for Sanctuary review of applications for State permits relating to discharge and alteration of the seabed activities in the Sanctuary. A draft of this MOU can be found in Appendix E. The Sanctuary will be able to provide advice and recommendations to DLNR on specific permits, but it will not have independent authority to deny any discharge activities issued by DLNR. A separate MOU will be developed that will detail enforcement procedures between NOAA and the State

The only distinction between this alternative and the status quo alternative discussed previously is the additional authority for the Sanctuary under the NMSA to enforce violations of the terms and conditions of permits and other authorizations issued by Federal or State authorities for alteration of the seabed activities in the Sanctuary. NOAA-SRD will consult with the appropriate Federal or State agency on any violation of alteration of the seabed requirements and authorities before any NMSA enforcement action is taken. The actual enforcement process will be detailed in an enforcement agreement that will be developed between NOAA and the State of Hawaii's DOH and DLNR.

This added enforcement authority would provide a greater deterrent to violations of existing alteration of the seabed regulations. Under the NMSA, the Sanctuary can impose higher maximum civil penalties for violations of Sanctuary regulations than is possible under the MMPA or ESA. The maximum is $100,000 under the NMSA, and $25,000 under the MMPA and ESA. The

maximum civil penalty would not normally be applied except possibly for repeat offenders or particularly egregious offenders. Impacted users would be limited to only those persons subject to the regulations (as opposed to all users of the Sanctuary), and of those, only those persons in violation of Sanctuary regulations. The actual impact on those persons in violation of Sanctuary regulations will be relatively small because enforcement mechanisms are not limited to civil penalties. Rather, oral and written warnings are given routinely in lieu of civil penalties (See Table IV-3). Further, with interpretive enforcement, users subject to Sanctuary regulations will be educated as to what the regulations are and why they are in place, thus increasing future voluntary compliance and decreasing those potentially subject to civil penalties. Consequently, there will be few impacts to Sanctuary users.

Education and interpretive enforcement focusing on the Sanctuary alteration of the seabed regulation will result in greater public compliance of the regulations which will benefit humpback whales, thus increasing the experience (enjoyment of the experience as well as recreational and aesthetic experience) of Sanctuary resources for all Sanctuary users. Further, in those instances where a person who violated a Sanctuary regulation was assessed a civil penalty under the NMSA, those civil penalty monies will be returned to the Sanctuary for management and improvement (e.g., education and outreach), as opposed to being deposited in the general U.S. Treasury. Finally, NMSA enforcement will be coordinated with existing State and Federal authorities to minimize duplication of effort, thus minimizing potential cumulative effects on those users in violation of Sanctuary regulations.

D. MANAGEMENT ALTERNATIVES

1. Consequences of No Sanctuary Alternative

Should the Sanctuary be rejected by the State of Hawaii and subsequently terminated by the Secretary of Commerce, the main economic impact will be the loss to the State economy of any Federal Congressional appropriations for the Sanctuary, which would otherwise have been spent in Hawaii for salaries, contracts, supplies, rent, etc. Consumer surplus from improved visitor satisfaction due to the Sanctuary's educational, research and enforcement efforts would also be lost, as would any benefits to the tourist industry from any increases in tourism due to Sanctuary designation. There will be no direct economic impact to user groups from the removal of the Sanctuary from State waters, however, several full time contractors and ongoing education and research projects would be terminated. Existing authorities and regulations will continue to apply, but there will be no central agency coordination, enhanced enforcement, direct public involvement in whale management, and no Sanctuary-sponsored education, research, or interpretation as described in Part V. The human pressure on areas shared with the humpback whale will continue to increase, as will the number of conflicts, even if the whale population remains at its current level. Whether any new institutions would be as comprehensive and timely as the Sanctuary is unknown. Humpback whale critical habitat designation by NMFS under the ESA may become more likely, and would probably include certain areas of the main Hawaiian Islands important for reproduction and nursing activities.

2. Consequences of Accepting Status Quo Alternative

Presently, numerous Federal, State, and various other regional and county government agencies are vested with some regulatory authority over specific resources and human activities. However, no single entity has management jurisdiction to ensure coordinated and comprehensive management and protection of humpback whales and their habitat. Generally, each agency manages a narrow geographic area, species or functional jurisdiction. Present arrangements, therefore, fail to provide the scope and invite the public participation needed for sufficient protection of humpback whales and their habitat. Although humpback whales are protected

primarily under two laws—the MMPA and the ESA—resource limitations have prevented the implementation of numerous education, research and long-term monitoring and enforcement initiatives. Moreover, the humpback whale and its Hawaiian habitat are not the sole focus of these laws. The formal designation of the Sanctuary requires the Sanctuary management to focus on providing coordination of existing regulatory structures and non-regulatory programs to ensure long-term protection of the humpback whales and their habitat.

a. Sanctuary Resources

The HINMSA specifically identifies humpback whales and their habitat as Sanctuary resources. However, the HINMSA also mandates the Sanctuary to identify other "marine resources and ecosystems of national significance for possible inclusion in the Sanctuary." The Sanctuary is not however obligated to include other resources under its management regime. The status quo alternative would only consider the humpback whale and its habitat.

This alternative would focus attention on the humpback whale and its habitat as the primary Sanctuary resources. Habitat increases the scope of management concern, but it does so in a way which links the concerns of the habitat to the needs of humpbacks. This focus on humpback whales satisfies the concerns of many Hawaii resource users who want to minimize the management authority of the Federal Government in State waters. This limited scope may have fewer potential negative or positive impacts on resources users than would the scope of the Sanctuary if it were to include other marine resources or the ecosystem.

b. Administration

The status quo administrative option would delegate most Sanctuary management responsibilities to an existing Federal or State agency. This option could reduce the administrative costs, including office space and staff, needed to manage a site. However, existing agencies are already limited in their budgets for staff and programs, and may not be able to effectively implement the numerous responsibilities of the Sanctuary in addition to their own responsibilities. Existing agencies also lack the institutional knowledge and experience that SRD has in managing national marine sanctuaries. Moreover, in this era of shrinking government agencies, existing agencies may not be able to create the necessary infrastructure or hire sufficient staff to administer the site. Retaining the Sanctuary within an existing agency would also inhibit the development of an independent Sanctuary identity and may actually foster status quo management. In turn, this would not improve and supplement existing management efforts. Sanctuary management would be very complicated and uncoordinated if the research, education and enforcement components of the management program were split up between different State and Federal agencies.

c. Research and Education

The existing management system contains no coordination mechanism for maximizing the area's value for research and education, which could best be done through a comprehensive program framework. A variety of different individuals and organizations conduct significant research and outreach efforts in the Hawaiian Islands. Much of this work has been supported by private or non-profit organizations through public contributions and foundation grants. In addition, government agencies such as the NMFS fund research and education projects when funding is available. However, to date, State and Federal agencies have not had the ability to commit significant resources to support coordinated humpback whale research and education programs. As a result, scientific research and information dissemination on humpback whales has been pursued in a fragmented fashion which often does not address specific management needs.

d. Enforcement

A reliable and effective enforcement capability is necessary to ensure that regulations are observed. Currently, humpback whale approach regulations are enforced by NMFS-OE, with assistance by officers from USCG and the Marine Patrol. Officers from these agencies have been deputized through a Cooperative Agreement with NMFS to enforce Federal regulations for the protection of endangered species, including the humpback whale. These agencies have all been cut back in their budgets for staff and operations and have had to reduce on-water enforcement efforts.

A Memorandum of Understanding (MOU) exists within NOAA between NMFS and NOS concerning the enforcement of laws within National Marine Sanctuaries (Jan. 1992; amended in March 1993). NMFS-OE is responsible for enforcement within designated Sanctuaries. This measure was developed to achieve greater economy by eliminating duplication of effort in the oversight and administration of NOAA enforcement efforts.

3. Consequences of Sanctuary **Preferred** Alternative

This alternative supports full-time staffing and immediate Sanctuary presence in the Hawaiian Islands in order to cultivate Sanctuary support gained, and Sanctuary management conducted, during the development of the site. The wide variety of opportunities for interpretation and research requires the full-time attention of individual research and education coordinators. The Sanctuary Manager would be able to devote her/himself to the comprehensive coordination of existing agencies involved with resource protection. This initiative would help make the transition to full-time management, and to solidify public support for the Sanctuary in its stewardship role.

a. Sanctuary Resources (Future Consideration of Other Resources)

In addition to the humpback whale and its habitat, the HINMSA calls for the identification of other resources of national significance for possible inclusion in the Sanctuary. At this time, NOAA and the State do not believe that an ecosystem-based Sanctuary is appropriate for Hawaii at the present time because of recent efforts by the State to develop and implement the recently completed Hawaii Ocean Resource Management Plan . However, to fulfill the requirements of the HINMSA, the Sanctuary has developed a process which provides for the identification of marine resources and ecosystems of national significance for possible inclusion in the Sanctuary. The Sanctuary is not however, obligated to include other resources in the management regime.

The Sanctuary Management Plan outlines a process to identify and *possibly* include other marine resources based on the support and assistance of the State, the Sanctuary Advisory Council, user groups, and other members of the public. This process allows a reasoned and participatory approach to identifying resources, gathering information, and soliciting input and support from the public. There is little doubt that the community is divided on this issue. In time, NOAA would prefer to see a large marine ecosystem considered *in toto*, and including all major species and resources. However, additional resources will only be included after a very thorough review and public process. The impacts of adding additional resources to the scope of the Sanctuary management program would not be known until a detailed analysis is completed of added management measures, if any are determined to be needed.

b. Administration

Under the preferred management alternative, Sanctuary administration functions and programs would be phased in, with initial emphasis placed on research and education/interpretative activities. An independent administrative and management system would be housed in a NOAA-operated facility; Sanctuary staff members would be hired or contracted as needed. They would work under the direction of the Sanctuary manager to carry out the Sanctuary goals for research,

long-term monitoring, education, outreach and enforcement. As an independent entity that internally has a citizen Sanctuary Advisory Council and other working groups within its management structure, the Sanctuary would be in a better position to coordinate and facilitate discussions between agencies and the public. The socioeconomic impacts would be positive in that the Sanctuary operations would bring money into the Hawaiian economy in terms of salaries, contracts, supplies and facilities, and the programs carried out by the Sanctuary staff would benefit the resources and users of the resources.

c. Research and Education

The impacts resulting from implementation of the research and education program are expected to be positive. The research program would coordinate the study of humpback whales and their habitat with developing effective management strategies. The education and outreach program would be designed to enhance public awareness of humpback whales and their Hawaiian habitat, and the importance of protecting such a special marine resource.

The research program would provide a coordinated effort to obtain vital baseline and monitoring data on humpback whales and their habitat, and on human activities in the Sanctuary. Information on the humpback whale's population abundance, distribution, behavior, and habitat needs would be used in assessing the health of the Hawaiian Islands marine environment and the effects of human activity in the area. This would improve management's ability to develop long-term planning for the Sanctuary and for humpback whale recovery efforts.

While some whale research can be done from observation platforms on land using spotting scopes, studies involving photography for fluke identification, gender determination, behavioral responses, etc. require closer observation of the whales in their natural environment than the 100 yards normally allowed Researchers who approach humpback whales within 100 yards are required to get a NMFS MMPA/ESA research permit. To avoid a duplicative review process, SRD and NMFS-Office of Protected Resources have developed a MOU to jointly review and comment on MMPA/ESA research permit applications. Thus, the Sanctuary will work within the existing MMPA/ESA research permit process to address Sanctuary concerns. The net effect on the research community will be minimal since they will not be required to obtain a separate Sanctuary permit.

One of the purposes of the Sanctuary is to conduct or to sponsor research on Sanctuary resources. Much of the Sanctuary-funded research will address specific management issues and provide opportunities for researchers to share techniques and exchange information. The Sanctuary will work closely with NMFS, the Marine Mammal Commission, MMPA scientific review groups, local and national researchers, and other interested parties to sponsor field workshops, symposia, or other programs to enhance the exchange of information. The Sanctuary will also encourage research on other marine resources and ecosystems so that the Sanctuary Manager, the Sanctuary Advisory Council, and ultimately NOAA can determine whether other resources should be included in the Sanctuary. Research and long-term monitoring programs can provide the Sanctuary and other resource managers with the necessary information for better resource management and protection. The Management Plan proposes that the SAC establish a Research Working Group to focus on complementing existing efforts and filling needed research gaps.

To date, the Sanctuary has provided funds to assist graduate students in the completion of research reports, co-sponsored and funded research coordination meetings and technical consultations, and funded and collaborated with NMFS to organize a "Workshop to Assess Research and Other Needs and Opportunities Related to Humpback Whale Management in the Hawaiian Islands," held in Kaanapali, Maui on April 26-28, 1995. This last workshop brought

together researchers and resource managers to help NMFS and the Sanctuary identify priorities in the implementation of the Humpback Whale Recovery Plan and the Sanctuary Management Plan.

The Sanctuary Education and Outreach Program will also play a crucial role in Sanctuary management efforts. NOAA is a scientific and management agency often described as the "Earth Sciences" agency. The direction received from the leadership of NOAA places great emphasis on using the sciences to benefit the resources as well as the public, either working independently or cooperatively with existing institutions and organizations. Projects will be initiated to achieve one of the purposes of the HINMSA, "to educate and interpret for the public the relationship of humpback whales to the Hawaiian Islands marine environment." The Management Plan [Part V(D)] identifies the goals, objectives, and strategies to achieve those objectives. Funds will be used to develop educational programs or support the development of programs which can be used by schools, information or visitor centers, and marinas.

The Sanctuary has also sought out opportunities for partnerships with government agencies and the private sector to develop educational outreach programs. For example, the Sanctuary worked with the State, Maui County and the Pacific Whale Foundation to develop the "*Watching Hawaii's Humpback Whales*" brochure, worked with NMFS to develop a pocket humpback whale information/approach regulation guide, participated in numerous whale celebrations, and developed educational displays with other organizations and museums. The Sanctuary has also initiated a Maui Education Working Group to help identify priorities for educational programs and to promote information exchange. This group will serve as a model for an SAC Education Working Group.

d. Enforcement

The overall impacts of the Sanctuary enforcement program should be positive since its goal is enhanced coordination and support of existing authorities, and to achieve voluntary compliance through education. The authority vested in NMFS under MMPA and the ESA have been used to protect humpback whales in Hawaii since the 1970s. The Sanctuary Management Plan calls for the continued use of that authority to prevent the "taking" or harassment of whales. The Sanctuary will rely upon a MOU between NMFS and NOS concerning the enforcement of laws within National Marine Sanctuaries. Under the terms of the MOU, NMFS-OE will provide enforcement in the Sanctuary, in consultation with the Sanctuary manager. NMFS also has a Cooperative Agreement with USCG and DLNR-DOCARE, which deputizes these agencies to enforce MMPA and ESA regulations. The Sanctuary will work with DOH, DLNR, EPA, USCG, and COE to cooperatively monitor and enforce existing water quality, discharge, and alteration of the seabed regulations. NOAA will consult with the appropriate Federal or State agencies on any violation of discharge and alteration of the seabed requirements and authorities. Ultimately, NOAA will seek to develop a MOU or other form of agreement between the Sanctuary and other agencies on coordinated enforcement activities and actions.

Throughout the Sanctuary scoping process and at subsequent town meetings, numerous individuals and organizations expressed concern that the Sanctuary would lead to closure of their businesses and loss of their livelihoods or way of life. Many were worried that the Sanctuary would become more intrusive in the future and place restrictions on their activities. Since the existing authorities will serve as the basis for enforcement, an analysis of historical enforcement is provided below.

Table IV-3 shows by year, a history of enforcement of the approach regulations by the NMFS Southwest Enforcement Division, with the number of complaints received (often phoned in by other marine users or other agencies), the type of harassment reported, and warnings and citations issued. While the number of citations reflects to some degree the number of patrol days by agents, it also reflects the reporting of individual observations of violations on land or water.

TABLE IV-3: Record of Enforcement Activities for the Protection of Hawaiian Islands Humpback Whales

		Type of Harassment														
Year	Complaints Received	Sailing Vessels	Power Vessels	Wind Surfer	Hand Power	Thrill Craft	Commercial Fishermen	Aircraft	Whale Watch	Research	Other	Total	Warnings	Citations	Unfounded or Lack of Evidence	Maui Patrol Days
1976-7	58	3	8	0	0	0	0	3	5	9	0	28	2	2-1	-	NR
1977-8	51	6	7	0	0	0	1	4	3	6	0	27	3	4	-	NR
1978-9	35	9	7	0	0	1	1	0	1	2	2	23	6	7	-	NR
NOTICE OF INTERPRETATION OF HARASSMENT PUBLISHED JANUARY 4, 1979																
1979-80	16	3	1	0	0	0	0	6	0	6	0	16	0	1	-	NR
1980-1	24	1	5	0	0	0	0	4	3	8	3	24	0	3	-	NR
1981-2	28	3	7	0	0	0	0	2	4	7	3	26	12	3	-	104
1982-3	66	16	18	3	4	1	1	5	19	11	1	79	21	6	-	116
1983-4	35	5	11	0	2	2	0	0	7	8	0	35	20	2	-	117
1984-5	18	5	3	0	2	1	0	0	6	0	1	18	13	0	-	67
1985-6																
Maui	38	6	9	2	1	2	0	3	7	5	3	38	20	1	15	80
Other Is.	1		1									1				
1986-7																
Maui	35	8	11	3	0	0	1	0	6	4	2	35	12	1	23	76
Other Is.	10	1	4	0	1	0	0	0	1	2	2	11	3	1	8	
1987-8																
Maui	68	19	24	0	4	2	2	1	4	7	6	1	22	7	39	73
Other Is.	26	1	11	1	0	0	0	0	3	6	4	26	7	0	19	
INTERIM RULE ON APPROACHING HUMPBACK WHALES IN HAWAIIAN WATERS BECAME EFFECTIVE DECEMBER 23, 1987																
1988-9																
Maui	38	2	8	0	8	2	1	1	9	6	1	38	8	12	18	57
Other Is.	18	2	7	0	1	0	1	1	2	4	0	18	7		9	
1989-90																
Maui	23	2	10	1	2	1	0	1	3	1	2	23	7	5	11	61
Other Is.	13	0	6	0	0	1	0	2	3	1	0	13	0	0	12	
1990-1																
Maui	40	4	11	0	4	0	1	1	16	7	2	40	12	9	19	65
Other Is.	12	2	7	1	0	1	0	1	0	0	0	12	0	0	11	
1991-2*	86	0	25	12	24	1	0	2	13	0	9	86	11	17	56	202
1992-3*	47	3	10	0	6	1	2	0	9	12	4	47	7	10	30	122
1993-4*	43	3	0	3	8	0	0	0	9	4	8	43	1	3	39	111
1994-5																
Maui	28	1	4	1	7	0	0	2	0	0	13	28	N/A	N/A	27	103
Other Is.	16	0	7	0	0	1	0	0	5	0	3	16	N/A	N/A	0	
1995-6**																
Maui	41	9	9	-	3	3	-	3	4	-	1	41	N/A	N/A	N/A	-
Other Is.	19	1	7	-	5	-	-	2	-	1	-	19	N/A	N/A	N/A	

* NMFS Office of Enforcement concentrates the majority of its humpback whale enforcement in the Four-Island area of Maui County, although the data combines Maui County with the other islands.
** In 1995-6 there were 2 unknown vessels reported and 10 humpback whale strandings.
N/A: Data not available

From 1976 through 1991, most complaints were lodged against power vessel operators, whale watch vessel operators, researchers and sailing vessel operators. Few complaints were recorded against commercial fishers, and no citations have been issued to them. Records show that a substantial number of the complaints have involved activities on islands other than Maui, but that few citations have actually been issued as a result, whether because of a lack of evidence or because the complaints were felt to be unfounded. NMFS-OE requires corroborating evidence to support a complaint in the form of photos, film or video; otherwise, it is difficult to enforce the approach regulations if an enforcement officer is not physically present when the violation occurs. For the latest 1993-1994 season of record, the NMFS investigated a total of 47 complaints during the migration season and took formal action in only eight cases. None of the incidents involved commercial whale watching vessels operating in Maui County. One case involved a charter vessel from Honolulu and another involved a charter helicopter in Kauai County. The remaining six incidents involved private citizens that allegedly violated the NMFS approach regulations (E. Witham, pers. comm. 1994).

NMFS issued nearly three times as many warnings as actual citations—the intent of enforcement is not to issue as many citations as possible, but rather to achieve compliance with the regulations. The enhanced enforcement the Sanctuary will bring does not necessarily imply an increase in the number of enforcement officers or in the issuance of citations for violation of whale approach regulations. Part of the increased effort will be to educate users about the approach regulations and other Sanctuary regulations, as these address activities most likely to have some impact to humpback whales or their habitat. The Sanctuary will also work to initiate and foster better dialogue between the user groups and the enforcement officers. Enforcement efforts will be expanded throughout the main Hawaiian Islands if the preferred Sanctuary boundary alternative is ultimately selected. Successful enforcement, however, will be measured over time by fewer complaints and citations, better informed marine users, and higher compliance with the regulations.

Historically, citations or fines for violation of the NMFS humpback whale approach regulations have ranged from a few hundred to several thousand dollars, and, in a few cases, to the confiscation of personal property such as a wind-surfboard. Fines are levied according to the violation and the surrounding circumstances. Penalties for regulations established under the NMSA are created under civil law and therefore differ from those established under some other Federal/State jurisdictions within the Sanctuary (those established under criminal law). This will have both positive environmental benefits and overall positive socioeconomic benefits for the Sanctuary. The resources of the Sanctuary will receive a greater level of protection by providing civil authority to other agencies through cross-deputization. Enforcement of regulations is best facilitated by agencies cross deputizing to enforce civil penalties.

Civil authority and coordinated enforcement under the NMSA have positive socioeconomic impacts on society in general in that there are cost savings to the public when agencies can share authorities and combine human and material resources. The Sanctuary regulations provide supplemental civil penalty options. In some cases, civil may be more appropriate than criminal. In some cases, use of both civil and criminal may be appropriate. The resources can be better protected when there are more options for individuals enforcing the regulations. This, in turn, should lead to greater environmental and socio-economic benefits.

Civil authority lends itself more freely to an educational and interpretive approach to enforcement of regulations in National Marine Sanctuaries. Simply the message that something is a Sanctuary violation is all that is needed to gain compliance with the vast majority of Sanctuary users. This concept underscore of the most important goals of a Sanctuary enforcement program -- to obtain through education voluntary compliance with regulations in place which provide protection (directly and indirectly) for humpback whales and their habitat. However, if voluntary enforcement is not effective, the NMSA provides the authority for NOAA to assess civil penalties

of up to $100,000 per day, per violation. While it is very unlikely that a violation of the whale approach rules would result in the levy of such a high fine, the Sanctuary program has the option to assess a range of civil penalties based on the circumstances of the violation. Furthermore, civil penalties collected under the NMSA may be used to manage and improve the Sanctuary.

E. UNAVOIDABLE ADVERSE ENVIRONMENTAL AND SOCIOECONOMIC IMPACTS

The implementation of a management plan designed to protect humpback whales and their habitat will not produce adverse environmental impacts, regardless of the management alternative selected for regulations, boundaries, research, long-term monitoring, education, and outreach. Humpback whales and their habitat will benefit from additional research, educational and protective measures. The Management Plan does not envision implementing projects related to the Sanctuary which would degrade environmental quality.

The attention drawn by the mere fact of Sanctuary designation may increase the number of tourists to Hawaii, at least temporarily. This in turn will lead to some socioeconomic benefits, due to increased tourist dollars—and some socioeconomic costs, due to increased pressure on the habitat (pollution and human-whale interactions). However, publicity for Hawaii is already high from other causes, and Sanctuary designation is not expected to add substantially to the rapidly increasing annual flow of tourists. Both positive and negative socioeconomic impacts from increased tourism are expected to be relatively minor. A greater consequence of the Sanctuary is likely to be the enhanced experience of those visitors who would have come to Hawaii in any case.

Certain human activities may be affected because of the need to protect the whales. Since the Sanctuary will essentially rely on existing Federal and State authorities to protect the humpback whales and their habitat, these effects will not be attributable to the Sanctuary per se. For example, the State of Hawaii administers provisions of the Clean Water Act regulating point-source discharges and requiring discharges to meet minimum water quality standards. These requirements would not change under the Sanctuary management regime and the social and economic impacts caused by them would continue. The Sanctuary may make recommendations on permit applications through consultation with other agencies, that conditions be placed on activity permits in order to lessen impacts on humpback whales or their habitat. These recommendations, if adopted, may place some additional economic or social constraints on the applicant, however, any such impacts will likely be outweighed by the benefits to Sanctuary resources. Moreover, agencies are not mandated to follow such recommendations. Finally, if certain violations of law are prosecuted under the NMSA , violators could potentially face civil fines greater than the current maximum under other laws, although it is likely that in most instances, fines will not significantly increase over those assessed under the MMPA and the ESA.

F. RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Hawaii is one of the largest single breeding areas for humpback whales in the world. Sanctuary designation emphasizes the importance of the humpback whale and its Hawaiian habitat. The overall purpose of the Sanctuary's Management Plan and its strategies for agency coordination, research, education, and enforcement is to enhance long-term protection and increase public awareness and appreciation for these resources. The Management Plan does not propose any short-term uses of the environment which would degrade long-term productivity. Increased protection of humpback whale habitat and greater compliance with existing regulations will likely benefit other marine species in Hawaii and contribute to a healthier marine environment in the long-term.

G. RELATIONSHIP BETWEEN THE PROPOSED ACTION AND EXISTING RESOURCE MANAGEMENT PLANS

1. Impacts Related to Management Plan Purposes

Section 2306 of the HINMSA calls for the preparation of a comprehensive management plan to:

- ***Facilitate all public and private uses of the Sanctuary (including uses of Hawaiian natives customarily and traditionally exercised for subsistence, cultural, and religious purposes) consistent with the primary objective of the protection of humpback whales and their habitat.***

The Management Plan and regulations do not open up access to public and private uses where those uses and activities are restricted by other laws, regulations, or governance options. For example, the Sanctuary would not open up access to restricted use zones such as the State MLCD's, military exclusion or target zones, or other areas designated by Federal, State, or county authorities with more restrictive standards. The Sanctuary Management Plan would place no prohibitions on activities and uses which are in compliance with existing authorities. The Management Plan provides for the establishment of a Sanctuary Advisory Council which will be representative of the many public and private uses of the marine environment in order to ensure that the concerns of these users are given every consideration in future Sanctuary related activities (see Part V and Appendix D). The Management Plan also proposes a proactive program to work with various users, including Native Hawaiians, to facilitate their continued use and access to the marine waters.

- ***Set forth the allocation of Federal and State enforcement responsibilities, as jointly agreed by the Secretary and the State of Hawaii; and ensure coordination and cooperation between Sanctuary managers and other Federal, State and local authorities with jurisdiction within or adjacent to the Sanctuary.***

The Management Plan's preferred regulatory alternative is to utilize existing authorities, and allow all activities within or outside of the Sanctuary which are conducted under, and in compliance with, a required permit, license, lease or other specific authorization from other Federal and State authorities. One of the benefits of the program will be its ability to ensure coordination and cooperation among appropriate agencies. The benefits associated with such coordination and cooperation are often subtle, but important, because the potential for conflict is minimized and better management decisions are ultimately made.

- ***Identify research needs and establish a long-term ecological monitoring program with respect to humpback whales and their habitat.***

The Management Plan describes the elements of a long-term research and monitoring program along with priorities and a method for determining research needs. The Sanctuary Manager, the Research Coordinator, the Sanctuary Advisory Council, and NMFS will help to set an agenda to meet the goals and objectives of all pertinent legislation--the ESA, the MMPA, the NMSA, and the HINMSA. The task will be to ensure that funding devoted to research and monitoring will complement other activities and to strive to incorporate research findings into management. Many other interested parties are conducting research on humpback whales in Hawaii, including academic institutions, non-profit organizations, and other government agencies, and all have legitimate roles. There may be a point at which coordination between researchers and sharing a common database or research protocol may benefit not only the research community, but the whales as well.

2. Relationship Between Sanctuary Management Plan and Other Humpback Whale and Ocean Management Plans and Programs

a. Final Recovery Plan for the Humpback Whale

The Final Recovery Plan for the Humpback Whale seeks to achieve a level of 60 percent of the pre-commercial exploitation population (considered a maximum sustainable yield level) before NMFS will consider downlisting it from endangered to threatened, or de-listing the humpback whale as an endangered species altogether (NMFS, 1991). In Hawaii, this would equate to a population of approximately 9,000 whales for the eastern North Pacific stock. Recent estimates indicate that perhaps some 3,000 whales migrate to Hawaii each winter (Mobley et al. 1993). It may take many more years of directed or focused attention, not just in Hawaii, but in Alaska and other Pacific Coast environments and perhaps the waters off Japan, to ensure that the population can continue to increase by ensuring that human activities remain compatible and habitats remain conducive to the recovery effort.

The Final Recovery Plan identifies four major objectives which will help lead to a recovery of the whale population. The objectives include:

- maintain and enhance habitats used by humpback whales currently or historically;
- identify and reduce direct human-related injury and mortality;
- measure and monitor key population parameters; and
- improve administration and coordination of recovery program for humpback whales.

Both the Management Plan and Annual Plans for the Sanctuary will be able to materially assist in achieving these objectives and many of the relevant sub-tasks identified under each objective. The Management Plan suggests that the Recovery Plan serve as a guide to direct some of the future efforts of Sanctuary implementation. Furthermore, in Hawaiian waters, the Sanctuary will be able to provide a leadership role in recovery, as one Sanctuary objective is to provide a comprehensive and coordinating role for the protection of humpback whales. The National Marine Sanctuary Program will be able to form linkages and support for NMFS activities in these other areas of the Pacific in order to develop a more comprehensive program for humpback whale protection.

b. Hawaii Ocean Resources Management Plan

In order to understand how the Sanctuary will be coordinated with the existing management regime in Hawaii, it is useful to examine the State's policy on marine ecosystem protection as articulated in the Hawaii *Ocean Resources Management Plan* (ORMP) developed by

the Hawaii Ocean and Marine Resources Council (OMRC). The ORMP's section on marine ecosystem protection presents main objectives and policies:

The main objective is to:

Provide for protection of marine and coastal ecosystems, and establish a comprehensive system of marine and coastal protected areas within an integrated program which protects, preserves, and enhances marine species and areas of exceptional resource value on each main island, representing each of the natural ecosystems and resources found in the marine and coastal environment of the State (OMRC 1991:27).

The four main policies to implement these objective are:

***Policy A: Expand protection of species, natural habitats, and other resources of exceptional value, thereby minimizing environmental degradation from marine and coastal activities and uses** (OMRC 1991:27).*

Implementing actions direct DLNR and the Hawaii Office of State Planning (OSP) to prepare "a comprehensive and cohesive statewide master plan for marine and coastal protected areas..."; "identify areas of exceptional resource value which should be considered for protected area status"; and "establish a system of marine and coastal protected areas throughout the State to protect the best examples of these natural ecosystems and resources on each island" (OMRC 1991:27). The establishment of the Sanctuary in Hawaii can complement this effort because the HINMSA states that the purposes of the Sanctuary are, inter alia, "...to protect humpback whales and their habitat;" "to manage such human uses of the Sanctuary consistent with this subtitle and Title III of the Marine Protection, Research and Sanctuaries Act;" and "...to provide for the identification of marine resources and ecosystems of national significance for possible inclusion in the Sanctuary."

***Policy B: Facilitate coordinated and comprehensive inter-agency management where jurisdiction overlaps exist between Federal, state, and county governments in marine and coastal protected areas** (OMRC 1991. 28).*

Implementing actions direct DLNR and OSP, in conjunction with appropriate Federal, State, and county agencies, to "facilitate and coordinate Federal, state, and private-cooperative research and monitoring efforts at developing baseline information regarding the locations of critical habitats of endangered and threatened species"; "Encourage the designation of these critical habitats as protected areas"; and "Encourage joint efforts of Federal, State, county, private, and community involvement in marine life and water quality monitoring programs" (OMRC 1991:28). The establishment of the Sanctuary could complement these efforts. According to the HINMSA, the Sanctuary Management Plan is to "ensure coordination and cooperation between Sanctuary managers and other Federal, State, and county authorities with jurisdiction within or adjacent to the Sanctuary."

***Policy C: Improve enforcement of regulations protecting marine and coastal protected areas and species** (OMRC 1991:29).*

Implementing actions include establishing several Memoranda of Understanding between Federal and State agencies to enable personnel from these agencies to enforce both State and Federal regulations" (OMRC 1991:29). The HINMSA states that the Sanctuary Management Plan shall "...set forth the allocation of Federal and State enforcement responsibilities, as jointly agreed by the Secretary [of Commerce] and the State of Hawaii". This builds on efforts already underway such as the cross-deputization of State enforcement agency personnel to enforce Federal laws and regulations. The Marine Patrol has been deputized to enforce NMFS rules regarding

harassment of marine mammals. There have been other efforts to coordinate enforcement activities, such as a UH Sea Grant supported project called REACH (Resource Enforcement And Conservation Hawaii) that sponsored a series of workshops for Federal, State, and county enforcement agencies to improve coordination and public participation.

Policy D: Enhance local community awareness, appreciation, and participation in marine conservation and preservation efforts *(OMRC 1991. 29).*

Various implementing actions include holding public programs focusing on natural, cultural, and historical values; facilitating public participation in ocean resources management plan development; and supporting the development of interpretive centers (OMRC 1991). The HINMSA supports this policy as it states that one purpose of the Sanctuary is to "educate and interpret for the public the relationship of humpback whales to the Hawaiian Islands marine environment." Also, the HINMSA states that the Sanctuary Management Plan will "promote education, among users of the Sanctuary and the general public, about conservation of humpback whales, their habitat, and other marine resources." During development of the Draft EIS/MP, NOAA provided numerous opportunities for public participation in the planning process.

As shown in this analysis, the purposes for which the Sanctuary has been established complements the State's policies and objectives regarding marine ecosystem protection as set forth in the ORMP.

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PART V: SANCTUARY MANAGEMENT PLAN

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A. INTRODUCTION

1. Sanctuary Purposes

The Hawaiian Islands Humpback Whale National Marine Sanctuary (Sanctuary) was Congressionally designated by the Hawaiian Islands National Marine Sanctuary Act (HINMSA, or Act) on November 4, 1992 (Subtitle C of Public Law 102-587, the Oceans Act of 1992). Section 2304 of the Act establishes the Sanctuary's purposes as follows:

(1) to protect humpback whales and their habitat within the Sanctuary;
(2) to educate and interpret for the public the relationship of humpback whales to the Hawaiian Islands marine environment;
(3) to manage human uses of the Sanctuary consistent with the HINMSA and Title III of the Marine Protection, Research and Sanctuaries Act (MPRSA)[1], as amended; and
(4) to provide for the identification of marine resources and ecosystems of national significance for possible inclusion in the Sanctuary.

These purposes are consistent with the overall goals and objectives of the National Marine Sanctuary Program (NMSP), which are to: enhance resource protection through comprehensive and coordinated conservation and management; support, promote, and coordinate scientific research on, and monitoring of, site-specific marine resources; enhance public awareness, understanding, appreciation and wise use of the marine environment; and facilitate to the extent compatible with the primary objective of resource protection, public and private uses of national marine sanctuaries.

2. Comprehensive Management Plan

In addition to designation of the Sanctuary, Section 2306 of the HINMSA requires that NOAA prepare, in consultation with interested persons and appropriate Federal, State and local authorities, a comprehensive management plan and implementing Sanctuary regulations, in accordance with the National Marine Sanctuaries Act (NMSA), to achieve the purposes and objectives of the Sanctuary.

a. Purposes of the Management Plan

Section 2306(a) of HINMSA, states that the management plan shall:

- facilitate all public and private uses of the Sanctuary (including uses of Hawaiian natives customarily and traditionally exercised for subsistence, cultural, and religious purposes) consistent with the primary objective of the protection of humpback whales and their habitat;
- set forth the allocation of Federal and State enforcement responsibilities, as jointly agreed by the Secretary and the State of Hawaii;
- identify research needs and establish a long-term ecological monitoring program with respect to humpback whales and their habitat;
- identify alternative sources of funding needed to fully implement the plan's provisions and supplement appropriations [under section 2307 of this subtitle] and section 313 of the NMSA (16 U.S.C. §1444);
- ensure coordination and cooperation between Sanctuary managers and other Federal, State, and County authorities with jurisdiction within or adjacent to the Sanctuary; and

[1] Title III of the MPRSA is also known as the National Marine Sanctuaries Act (NMSA).

- promote education among users of the Sanctuary and the general public about conservation of the humpback whales, their habitat, and other marine resources.

Finally, section 2306 of the Act requires that NOAA provide for the public's participation during the development of the comprehensive management plan. To fulfill this requirement, NOAA held six public scoping meetings and accepted written and oral comments on each of the main Hawaiian Islands and one in Washington, D.C. during March 15-30, 1993; held seven public meetings and accepted written comments on each of the main Hawaiian Islands (two on the Big Island) during March 10-21, 1994; and participated in four public Sanctuary Working Group (SWG) meetings comprised of members of Sanctuary user groups, Native Hawaiians, and other Federal, State, and county agencies.

The Draft EIS/MP was released to the public on September 15, 1995. During the 90-day public comment period, NOAA held over 25 statewide public information meetings to describe the Draft EIS/MP and answer questions. In addition, seven formal public hearings were also held to receive formal oral and written testimonies. By the end of the comment period, NOAA received over 250 written comments and oral comments on the DEIS/MP. Apart from formal meetings, NOAA's on-site Sanctuary staff person, assisted by two contractors (one on Kauai and one in Honolulu), has conducted outreach efforts and spent considerable time meeting with various public interest groups and government agencies.

b. General Uses of the Management Plan

The specified requirements of the Sanctuary's management plan are compatible with the overall sanctuary management concept embodied in the NMSA, and its implementing regulations (15 CFR Part 922), which require that a management plan be prepared for each national marine sanctuary. The HINMSA requires NOAA to comply with the NMSA in developing the management plan and implementing regulations. Section 2306(a) of the HINMSA requires the Sanctuary to follow the procedures specified in sections 303 and 304 of the NMSA, 16 U.S.C. §§1433 and 1434.

The management plan proposes actions tailored to specific issues affecting the Sanctuary. The plan recognizes the need for facilitating human uses of the Sanctuary compatible with the primary purpose of protecting humpback whales and their habitat. Successful implementation of the management plan will require continuing cooperation and coordination among many Federal, State and county agencies and representatives, as well as private organizations and individuals. Information exchange, sharing of facilities and staff, and coordination of policies and procedures for resource protection will be features of all Sanctuary programs, including research, monitoring, enforcement and education. This management plan is designed to provide guidance for management of the Sanctuary for at least the first five years of its operation. During this period, management initiatives will generally fall into five fundamental program areas: resource protection, research and long-term monitoring, education and outreach, administration, and enforcement. The following sections of this management plan describe the goals, guidelines, and initiatives for each of these programs. In general, the management plan:

- focuses on Sanctuary goals and objectives, management responsibilities, and guidelines for the resource protection, research, education, and administration programs of the Sanctuary; and
- establishes an administrative framework which addresses the need for cooperative and coordinating programs and activities with other Federal and State agencies, as well as private organizations and interested citizens to ensure effective management of the Sanctuary.

The Sanctuaries and Reserves Division (SRD), within NOAA is responsible for overall management of the Sanctuary. SRD has been working in partnership with the State of Hawaii to develop the Sanctuary management plan and will look to develop partnerships with other Federal, State and county resource management agencies, and other organizations, as appropriate, during implementation. As required by Section 304(e) of the NMSA [16 U.S.C. §1434(e)], the Secretary, at a minimum of every five years, shall evaluate the substantive progress towards implementing the management plan and goals for the Sanctuary, and shall revise the management plan and regulations, as necessary, to fulfill the purposes and policies of the Sanctuary. Although variable funding for staff and program development may affect specific aspects of Sanctuary management described in this plan, the goals and objectives of the plan will remain unchanged unless, if after the ongoing and five-year review, SRD makes specific changes.

3. Sanctuary Goals and Objectives

Management strategies planned for the Sanctuary are directed towards meeting specific goals and objectives contained within this management plan. Short-and long term implementation objectives are listed below. Although goals and objectives are discretely identified, in many instances, the goals meet overlapping purposes. For instance, in addition to addressing specific objectives, both research and educational activities also contribute to resource protection and to the enhancement of compatible public uses of the Sanctuary.

The highest management priority for the Sanctuary is the long-term protection of the North Pacific population of humpback whales and their wintering habitat. Effective protection and management of these resources is dependent on the Sanctuary's size, location, accessibility, staffing, budget, and the coordination of management responsibilities between the State of Hawaii, Federal agencies, and the various marine users. The Sanctuary receives moderate-to-high levels of human use, with particularly high levels of visitation year-around. The proximity to shore and accessibility of the site indicate the need for a Sanctuary management structure which provides for coordination of resource protection, research, education, and administrative activities.

Understanding the ecological relationships between humpback whales and the habitats upon which they depend is of primary importance for providing comprehensive and coordinated protection of this endangered species. The Sanctuary management plan proposes research and monitoring programs which will characterize and monitor environmental conditions over the short- and long-term. This continuing program will provide the basis for detecting significant changes in the status of humpback whale populations and their wintering habitat. These data bases and predictive studies will, in turn, provide the basis for improved decision making, the formulation of action plans, and response mechanisms to unforeseen threats to the Sanctuary's environment.

Interested individuals, organizations, and government agencies will play an important role in achieving resource protection goals in the Sanctuary. Inherent to this management plan, and critical to its success, are effective education and interpretive programs to enhance public understanding and support for management objectives. The HIHWNMS will provide a unique opportunity to inform the public about both the value of protecting its valuable resources and the need for long-term management of the overall Sanctuary. Communicating these messages effectively to the public will depend on publications, exhibits, and special outreach events tailored to a variety of public audiences. Mutual objectives shared between NOAA and the State of Hawaii demonstrate clearly the challenges and opportunities outlined in this Sanctuary management plan.

Following is a preliminary listing of short- and long-term objectives for the Sanctuary, involving activities in the resource protection, research and long-term monitoring, education and outreach, administration and enforcement. Additional items and projects will be added as both the need and means are identified.

a: Short-Term Objectives

Facilitate Coordination and Cooperation

An important first Sanctuary task will be to strengthen working relationships with appropriate Federal, State and county agencies to ensure the Sanctuary mandate can be achieved through a cooperative management strategy. Of particular importance to the success of this management plan is the continuing involvement and coordination of various Federal and State authorities involved in activities which either directly or incidentally afford protection for humpback whales and their habitat. Since the Sanctuary is relying on these existing authorities and their permitting processes, it is crucial to develop working partnership so that mutual concerns and mandates are constructively addressed.

Efforts to establish and strengthen working relationships have already been initiated through meetings, communications, and participation on Sanctuary advisory groups/working groups among NOAA on-site Sanctuary Staff and representatives of Federal, State, and county agencies. Sanctuary staff will continue these activities through meetings with, and directed outreach to, other agencies and institutions operating in the Sanctuary area, to solicit their input in the on-going development of the site, to familiarize them with the Sanctuary's mandate and staff, and to determine appropriate working relationships and mutual agendas. These meetings will include, among others, the Departments of Health; Land and Natural Resources; Transportation; Business, Economic Development and Tourism; State Planning; Education; Public Safety; Kahoolawe Island Reserve Commission (KIRC), Office of Hawaiian Affairs (OHA), and the University of Hawaii. Additionally, outreach and discussions will continue with representatives of county governments and agencies, as well as Native Hawaiian groups, local businesses, tourism and recreation industry, agricultural, recreational, and fishing representatives, to ensure that local concerns related to the Sanctuary's management are addressed. Finally, NOAA will continue to develop working relationships and agreements with representatives of Federal agencies with jurisdictional responsibilities in the area of the Sanctuary, including: the National Marine Fisheries Service (NMFS) (within NOAA), Department of Transportation (DOT), U.S. Coast Guard (USCG); U.S. Environmental Protection Agency (EPA); U.S. Department of Defense (DOD) [U.S. Air Force, U.S. Navy, U.S. Marine Corps, U.S. Army, U.S. Army Corps of Engineers (COE)].

The Sanctuary staff will work with other agencies to facilitate coordination of resource management programs, and to encourage the exchange of information related to these programs. The Sanctuary will also support management-related research and monitoring activities through funding, staffing, and by other appropriate means as available. Among the most important items on the Sanctuary's research agenda is a comprehensive characterization of the North Pacific humpback whale's status, vital rates and winter habitat. These data will contribute significantly to refining the Sanctuary's management.

The commercial, recreational, Native Hawaiian and other interested publics can play important roles in attaining resource protection and management goals in the Sanctuary. Educational and interpretive programs will be aimed at improving public understanding of, and hence support for, the Sanctuary's management objectives. Important to the success of these activities is coordination with, and support of, existing interpretive and education programs. Communication tools to aid in this overall objective will include publications, exhibits, school curriculum, and special events that convey the national significance of the Sanctuary's resources, in particular, the humpback whale, to both the in-state and the out-of-state publics. The Sanctuary's management plan, in part through its educational programs, will highlight the linkages between the health of the Sanctuary's resources and qualities, and the future vitality of public uses, such as Native Hawaiian uses, fishing and whale related activities.

Facilitate Sanctuary Advisory Council Activities

The Hawaii Sanctuary Advisory Council (SAC) has met five times since it was established by NOAA in March, 1996. The SAC consists of appointed representatives of Federal and State government agencies, representatives from individual counties, Native Hawaiians, fishermen, research and education organizations, and commercial and environmental interests. The purpose of the SAC is to provide advice and recommendations to the Sanctuary Manager and NOAA on the continued development and management of the Sanctuary. The SAC has helped NOAA respond to public comments received on the Draft EIS/MP and has formed education and research working groups to help the Sanctuary identify Sanctuary priorities and opportunities to work with the local community. The SAC will play a key role in advising on management priorities, and in coordinating Sanctuary activities with those of other State and Federal agencies. NOAA will work closely with the SAC and support its efforts to facilitate coordination with affected user groups and government agencies. NOAA will assist the SAC in forming working groups and helping to ensure broader public input into the management of the Sanctuary.

Upgrade Sanctuary Offices and Hire/Contract Additional Staff

NOAA will continue to upgrade its Sanctuary office in Kihei, Maui, housing administrative offices and staff. The site and facilities are owned by NOAA and will likely remain the administrative headquarters of the Sanctuary. NOAA will also evaluate the financial resources of the Program and determine where, if any, additional Sanctuary offices or staff need to be established. Over the longer term, a Sanctuary Visitor Center may also be established either on-site, or in conjunction with another facility or organization.

b. Long-Term Objectives

Improved Data Base on Humpback Whales and Status of Their Habitat

To meet the primary objective of long-term protection of the central North Pacific population of humpback whales and their habitat, NOAA anticipates implementation of targeted research and monitoring program to address the status of these resources over the long-term. In addition to Sanctuary-supported research and monitoring, it is anticipated that NOAA will also enter into cooperative projects with other Federal, State and/or private agencies, organizations or individuals to achieve the overall primary goal of long-term resource protection.

Establish a Sanctuary Visitor Center, Interpretive Signage, and Education Materials

Following the identification of appropriate locations and funding, NOAA may establish or work with existing organizations to create a Sanctuary Visitor Center, housing interpretive displays and printed materials about the Sanctuary and its resources, other marine resources and Native Hawaiian culture. Interpretive signs would be installed at boat ramps and various access/observation points to inform ocean users of the Sanctuary's resources and applicable regulations. The Visitor Center would also provide a facility for Sanctuary programs developed for interest groups and the general public.

Identify/Establish Alternative Sources of Funding to Implement and Enhance the Sanctuary's Programs

Section 2306 of the HINMSA requires NOAA to "identify alternative sources of funding needed to fully implement the plan's provisions". The NMSA has several mechanisms for the Sanctuary to fulfill this requirement, including seeking cooperative agreements, donations and acquisitions, and working with nonprofit organizations to solicit donations. The Sanctuary will

work with the community to explore the feasibility of enhancing revenues through voluntary measures.

Identify Additional Marine Resources and Ecosystems for Possible Inclusion in the Sanctuary

After the implementation of the final management plan, NOAA anticipates initiating the public process of identifying additional marine resources and ecosystems for possible inclusion in the Sanctuary through a focused initiative as described in Part C(4) of this Management Plan. This process would allow substantial public, State, and county agency input to help the Sanctuary assess whether other resources should be included in the Sanctuary.

Five-Year Review of Management Plan

Not more than five years after the final management plan and regulations become effective, NOAA, in consultation with the Governor, and with the assistance of the SAC, will evaluate the progress made toward implementing the Sanctuary management plan, regulations, and goals. The results of this evaluation will be used by NOAA, in consultation with the Governor, to determine whether changes to the management plan and/or regulations are necessary, and to revise the management plan and/or regulations accordingly. Changes in the terms of the designation document require preparation of an environmental impact statement and Governor approval.

B. SANCTUARY BOUNDARY

The boundary of the Hawaiian Islands Humpback Whale National Marine Sanctuary consists of the submerged lands and waters off the coast of the Hawaiian Islands seaward from the shoreline, cutting across the mouths of all rivers and streams --

(1) to the 100-fathom (183 meter) isobath adjoining the islands of Maui, Molokai, and Lanai, including Penguin Bank, but excluding the area within three nautical miles of the upper reaches of the wash of the waves on the shore of Kahoolawe Island;
(2) to the deep water area of Pailolo Channel from Cape Halawa, Molokai, to Nakalele Point, Maui, and southward;
(3) to the 100-fathom isobath around the Island of Hawaii;
(4) to the 100-fathom isobath from Kailiu Point eastward to Makahuena Point, Kauai; and
(5) to the 100-fathom isobath from Puaena Point eastward to Mahie Point and from the Ala Wai Canal eastward to Makapuu Point, Oahu.

Excluded from the Sanctuary boundary are the following commercial ports and small boat harbors:

Maui
Kahului Harbor
Lahaina Boat Harbor
Maalaea Boat Harbor

Kauai
Hanamaulu Bay
Nawiliwili Harbor

Oahu
Ala Wai Small Boat Basin

Hawaii (Big Island)
Hilo Bay Harbor
Honokohau Boat Harbor
Keauhou Bay
Kawaihae Boat Harbor and Small Boat Basin

Lanai
Kaumalapau Harbor
Manele Harbor

Molokai
Hale o Lono Harbor
Kaunakakai Harbor

The waters around the island of Kahoolawe are not included in the Sanctuary at this time. NOAA has and will continue to work closely with the Kahoolawe Islands Reserve Commission, the State of Hawaii, and the Navy to assess whether Kahoolawe should be included in the Sanctuary at a later date.

The establishment of the Sanctuary in no way conveys, or intends to convey, to NOAA any title or ownership of Hawaii's submerged lands. These lands, including those known as ceded lands, continue to be held in trust by the State of Hawaii. The Sanctuary will exist as a co-steward of the Sanctuary and its resources. Should the status of the submerged lands change at some time in the future (i.e., lands are conveyed to a sovereign Hawaiian nation), the Sanctuary will work with the appropriate entities to redefine its role if necessary.

C. SANCTUARY RESOURCES

1. Humpback Whale

The HINMSA designated the Sanctuary for the primary purpose of protecting endangered humpback whales (*Megaptera novaeangliae*) and their habitat within the Hawaiian Islands marine environment. The Sanctuary will focus its management efforts to protect humpback whales in their Hawaiian habitat by supporting resource protection, research, long-term monitoring, education and interpretation programs and by supporting efforts to improve coordination among the management agencies, researchers, educators and various user groups.

2. Humpback Whale Habitat

The marine waters surrounding the Hawaiian Islands comprise only a portion of the overall habitat of the humpback whale (i.e., Alaskan feeding grounds, migration routes, etc.). But these waters are essential because they provide breeding, calving, nursing and resting areas for the majority of the endangered North Pacific humpback whale population. Thus, Hawaii is one of the most important humpback whale breeding grounds in the world. Most humpbacks can be found in the warm, protected nearshore waters less than 100 fathoms (600 feet) deep (NMFS 1991, Nitta and Naughton 1989). Cows with calves tend to be distributed in more nearshore waters on the leeward sides of islands, often within the 10-30 fathom isobath (60-180 feet) depth (NMFS 1991). SRD, in consultation with NMFS, has defined humpback whale habitat, for purposes of Sanctuary management, as:

> "*those areas in the waters around Hawaii that provide space for individual and population growth and normal behavior of humpback whales, and include sites used for reproductive activities, including breeding, calving and nursing.*"

3. Other Resources of National Significance

The HINMSA established the Sanctuary to focus attention on humpback whales and their habitat as its primary resources. Initial efforts of the Sanctuary will be directed at comprehensive and coordinated protection of humpback whales and their habitat. Section 2304(b)(4) of the Act also requires NOAA to provide for "the identification of marine resources and ecosystems of national significance for *possible inclusion* in the sanctuary." (Emphasis added). Further, Section 2306(a)(6) of the Act states that the Sanctuary Management Plan will "promote education among users of the Sanctuary and the general public about conservation of humpback whales, their habitat, *and other marine resources.*" (Emphasis added).

Within five years after the Final Management Plan has been approved, a process will be put in place that will allow widespread public participation in the identification of other marine resources or ecosystems of national significance. These identified resources may or may not be included in the Sanctuary management regime depending on their national significance, need to supplement existing management authorities to provide and ensure coordinated and comprehensive conservation and management (i.e., through the collaborative management process envisioned by the Sanctuary), and degree of public and State support.

The process to identify other resources and ecosystems will be conducted over a number of years (time frame undetermined) after the final management plan is approved. The initial priority will be to review other resources already identified in public scoping meetings held in March 1993, public meetings held in March 1994, public hearings and comments on the Draft EIS/MP, and recommendations from the SAC. Additional resources may be identified through nominations, review and evaluation, and further impact analysis. The assessment of other resources for possible inclusion into the Sanctuary will be conducted by the Sanctuary Manager in consultation with the SAC and with full public participation.

a. Process to Include Other Resources

SRD developed the following process to allow widespread public participation in the identification of other marine resources for possible inclusion in the Sanctuary. First, the public will be notified of the nomination process. Second, the resources/ecosystems would be identified. Third, the identified resources/ecosystems would be evaluated for national significance and potential management gaps. Fourth, results of evaluations would be given to the Sanctuary Manager for consideration. And fifth, if resources are determined to be candidates for inclusion, public notice and opportunity for comment will be given before any change relating to other resources or management thereof is incorporated.

Step 1. Notification: Three months prior to the start period, the Sanctuary will publish a *Federal Register* Notice, print notices in local newspapers, and use other means to inform the public of the nomination process and to call for nominations (along with criteria and format) for the identification of other marine resources and ecosystems for possible inclusion in the Sanctuary. The Notice will summarize public comments and other pertinent information received up to that point, and provide a standard format for the public to submit recommendations for nominating other resources for possible inclusion into the Sanctuary.

Step 2. Nomination: The period of consideration will be for a specified time period (i.e., 3 to 6 months), at which time the nomination period will close.

Step 3. Evaluation: During this period, a technical working group of the SAC (see "Administration" section) will review the nominations based on standards identified in the Sanctuary Management Plan, research the status of these resources, and review all regulations and management regimes that apply to these resources. The SAC will provide the Sanctuary Manager its recommendations on the nominations.

Step 4. Recommendation to Sanctuary Manager: All proposals, along with their justification, will be integrated and developed for further review, analysis, and evaluation by the Sanctuary Manager (in consultation with NOAA) and the SAC in accordance with an agreed upon review process (see sample process listed below). A consolidated proposal will then be distributed for public review, discussion, and identification of concerns and support.

Resource Review/Evaluation Process

A number of ecological, historical, and cultural resources have been identified as possible Hawaii Sanctuary resources, in addition to humpback whales and their habitat. In examining these resources and their uses, the program will apply the sanctuary designation standards described in NMSA § 303(a), consistent with the HINMSA. The following approach will be used by the Sanctuary Manager and the SAC to assess whether other resources should qualify as sanctuary resources and thus be included in the Sanctuary management regime.

1. Is the resource of special national significance? See Appendix B [NMSA §303(a)(2)(A) and §303(b)(1)]. If not, go to step three.

2a. Are there *management gaps* which the sanctuary program can fill?

Management gaps for the purposes of this review will include any regulatory, administrative, or management deficiency. The review will specify whether the gaps result from shortfalls in regulatory authority or jurisdiction or from agency implementation constraints. Constraints may include, but are not limited to, limitations in non-regulatory management efforts such as education, research, monitoring, enforcement, and staffing. See Appendix B [NMSA §303(a)(2)(B),(D)]. If not, go to step 3.

2b. What are the management gaps and how can they be filled (research, monitoring, education, enforcement, regulation, staffing, etc.)? See Appendix B [NMSA § 303(a)(2)(B),(D)]

2c. Will the designation of the resource as a Sanctuary resource facilitate the objectives of the NMSA and the policies and purposes of the HINMSA? See Appendixes B and C [NMSA §303(a)(1); HINMSA §2304(b)(3)].

3a. Should there be further study of the resource and its management because the resource may be of special national significance and suitable for Sanctuary management? If not, no further action.

3b. What other study is necessary to determine the significance of the resource and the need for additional management measures? Compile a list of research needs based upon this review.

Step 5. Public Review: Further public and agency review will be held prior to any action being taken to include additional resources, along with the proper resource protection and management regime, research, and education needs, etc. If necessary, a supplement to the Final EIS/MP will be prepared and distributed prior to that review. NOAA will work with the State of Hawaii and Federal agencies to assure that such additions are coordinated with the goals of these other agencies.

D. RESOURCE PROTECTION PROGRAM

1. Program Description

The designation of the HIHWNMS focuses attention on the value of and need for protection of the central North Pacific population of humpback whales and their wintering habitat. The resource protection program complements existing non-regulatory and regulatory mechanisms to protect humpback whales and their habitat. To ensure that these resources and qualities are protected, the Sanctuary resource protection program includes: (1) goals and objectives; (2) education and outreach; (3) coordination of permit review and consultations; (4) Sanctuary regulations; (5) enforcement and surveillance; and (6) research and long-term monitoring. The Sanctuary recognizes that the people of Hawaii extensively depend upon the marine environment for commerce, recreation and culture, and will work to facilitate public and private uses of the Sanctuary (including Native Hawaiian uses) consistent with the primary objective of resource protection.

2. Goals and Objectives

The highest management priority for the HIHWNMS is the long-term protection of humpback whales, and their habitat within the Sanctuary's boundary. Approximately 65 percent of the Congressionally-designated Sanctuary lies within the waters of the State of Hawaii, and therefore many of the activities affecting the Sanctuary's resources and qualities are presently governed by existing Federal and State authorities. The Sanctuary will work closely with these existing agencies to ensure coordinated and more efficient management of humpback whales and their habitat.

Two specific plans relate directly to the protection of the humpback whale and its habitat. NMFS developed a *Final Recovery Plan for the Humpback Whale* in 1991 (NMFS Recovery Plan) which summarizes current information on humpback whales, identifies problems that may interfere with their recovery, and recommends research or management actions to restore and maintain this endangered species. The major objectives of the plan are to:

- Maintain and enhance habitat;
- identify and reduce human-related mortality, injury and disturbance;
- measure and monitor key population parameters to determine if recommended actions are successful; and
- improve administration and coordination of the overall recovery effort for this species.

In mid-1990 the State of Hawaii organized a planning team to identify critical issues, prepare technical papers and suggest policies and implementing actions to improve coastal and ocean resource management in the State (Hawaii Ocean and Management Resources Council, 1991). Extensive public input during the creation of the Hawaii Ocean Resources Management Plan (ORMP) revealed several critical concerns about the existing sector-specific management of Hawaii's ocean and coasts by Federal, State and County agencies, including:

- The current system of managing ocean and coastal resources is diffused among State and County planning, management and regulatory activities, poorly coordinated and inadequate.
- Existing mechanisms and procedures for resolving ocean and coastal user and regulatory conflicts are inadequate.
- Existing enforcement systems for ocean use laws and regulations are inadequate.
- Public participation in and awareness of ocean and coastal resources, as well as their management, are lacking.
- Current ocean and coastal management programs are reactive and issue-driven rather than anticipatory.

The Hawaii ORMP identified priority recommendations to address the above concerns. These include:

- Implement a regional planning approach;
- Improve the information base;
- Establish carrying capacities;
- Develop conflict resolution procedures;
- Enforce ocean use laws and regulations;
- Improve public participation; and
- Anticipate critical issues.

The Hawaii ORMP also contains sector-specific recommendations that detail major objectives and policies for implementation by various State agencies.

The goals and objectives of the Hawaii Sanctuary's Resource Protection Program were developed to complement and coordinate existing management and regulatory efforts, fill gaps, enhance public participation and awareness, and to address some of the identified problems, objectives and policies contained within the Hawaii ORMP, the NMFS Recovery Plan, and other programs, such as point and non-point source pollution control initiatives, as they relate to the protection of the humpback whale's Hawaiian habitat. The Hawaii Sanctuary seeks to complement existing management regimes without adding or increasing the current regulatory and administrative requirements.

Sanctuary Goals: The NMSA, HINMSA, and the NMFS Recovery Plan establish the following resource protection goals, including to:

- protect and maintain humpback whales and their habitat;
- provide authority for comprehensive and coordinated conservation and management of the Sanctuary, and activities affecting Sanctuary resources in a manner which complements existing regulatory authorities;
- identify and reduce human related mortality, injury, and disturbance, and manage such human uses of the Sanctuary consistent with the HINMSA and the NMSA;
- set forth the allocation of Federal and State enforcement responsibilities, as jointly agreed by the Secretary and the State of Hawaii;
- ensure coordination, cooperation and improved administration between Sanctuary managers and other Federal, State and county authorities with jurisdiction within or adjacent to the Sanctuary;
- support, promote and coordinate long-term monitoring and scientific research on Sanctuary resources;
- enhance public awareness, understanding, appreciation, and wise use of the Sanctuary; and
- facilitate all public and private uses of the Sanctuary (including uses of Hawaiian natives customarily and traditionally exercised for subsistence, cultural, and religious purposes) consistent with the primary objective of the protection of humpback whales and their habitat.

Sanctuary Objectives: To fulfill the mandate of providing for the long-term protection of the central North Pacific population of humpback whales and their habitat, the Hawaii Sanctuary will rely upon the following objectives and strategies

Objective 1: Coordinate and complement policies and procedures among the various government agencies sharing regulatory responsibility for protection and management of humpback whales and their habitat (see part 4, below);

Strategy 1.1: Develop formal and informal coordination mechanisms with appropriate Federal and State resource management authorities to implement resource protection strategies and to ensure that the protection of the humpback whale and its habitat are considered within the existing resource management framework.

Strategy 1.2: Incorporate existing Federal and State regulations that protect humpback whales and their habitat into the Sanctuary regulatory regime (see part 3 below and Appendix K.).

Objective 2: Complement coordination among appropriate Federal, State and county authorities to enhance enforcement of existing laws and regulations that fulfill Sanctuary goals (see part 5 below);

Strategy 2.1: The Sanctuary Manager will work closely with NMFS-Office of Enforcement (NMFS-OE) to coordinate the enforcement activities of existing Federal and State authorities in the Sanctuary.

Objective 3: Encourage participation by interested agencies and the public in the development of procedures to address specific resource protection and management concerns (e.g., research, monitoring, enforcement, education, and emergency-response programs) (also see Research, Education Sections of the Management Plan);

Strategy 3.1: Facilitate efforts by the SAC to advise the Sanctuary manager and NOAA on Sanctuary policies and program priorities. Encourage the SAC to form working groups to address research, education and other resource protection issues.

Strategy 3.2: Convene workshops and meetings between Sanctuary staff, the SAC, other Federal, State and county agencies and the public to assist in identifying, developing and implementing action plans and assigning responsibilities for education, research and monitoring, enforcement and other resource protection strategies.

Objective 4: Promote public awareness of, and voluntary compliance with, Sanctuary regulations and objectives and other authorities, through education and interpretive programs stressing resource sensitivity and wise use (see Education and Interpretation Section of Management Plan);

Objective 5: Utilize the research and monitoring results from existing management agencies and researchers to develop effective resource protection strategies and to improve management decision making (See Research & Long-Term Monitoring Section of Management Plan).

3. Sanctuary Regulations

Hawaii's humpback whales may be directly affected by vessel approaches or collisions, and noise from boats, aircraft, nearshore or in-water construction or other acoustic generating activities. Indirect impacts may result from the degradation of whale habitat. Sources of habitat degradation include point and non-point source pollution and the physical alteration or disturbance of the seafloor (which can re-suspend contaminated sediments, alter the depth, modify submerged characteristics which provide protection from open seas, change the acoustic properties of a site, and displace whales from preferred nearshore areas). For management purposes, the Hawaii Sanctuary will focus on present and potential activities that may adversely affect the whales directly (harassment and disturbance) and those factors that may impact water quality and/or modify the seafloor -- the two major components of the whale's habitat.

Because there are many existing Federal and State laws and regulations, and conservation efforts by the public, that directly and/or indirectly protect humpback whales and their habitat, the Hawaii Sanctuary will supplement these authorities to the maximum extent practicable by filling gaps and providing a safety net of regulatory protection. The following sections detail how the Hawaii Sanctuary will work within existing regulatory regimes.

a. Humpback Whale Protection

SRD is proposing Sanctuary regulations that supplement existing regulatory regimes to protect humpback whales. The proposed Sanctuary regulations essentially incorporate the NMFS humpback whale approach regulations for Hawaii and regulations that prohibit taking or possessing a humpback whale or parts thereof. Thus, violations of the terms or conditions of these NMFS whale approach regulations would also constitute a violation of the Sanctuary regulations. The Sanctuary prohibitions would not apply if the activity is authorized under the

Marine Mammal Protection Act (MMPA) or the Endangered Species Act (ESA). Specifically, the Sanctuary regulations include the following prohibitions:

- Approaching, or causing a vessel or other object to approach, within the Sanctuary, by any means, within 100 yards of any humpback whale except as authorized under the MMPA, as amended, 16 U.S.C. 1361 et seq., and the ESA, as amended, 16 U.S.C. 1531 et seq.;

- Operating any aircraft above the Sanctuary within 1,000 feet of any humpback whale except when in any designated flight corridor for takeoff or landing from an airport or runway or as authorized under the MMPA and the ESA;

- Taking any humpback whale in the Sanctuary except as authorized under the MMPA and the ESA;

- Possessing within the Sanctuary (regardless of where taken) any living or dead humpback whale or part thereof taken in violation of the MMPA or the ESA;

The State of Hawaii also regulates the operation of commercial and recreational thrillcraft, water sledding, parasailing vessels, and high-speed motorcraft. Commercial thrillcraft activities are limited to Ocean Recreation Management Areas (ORMAs) and commercial operators must obtain commercial operating area use permits from the Department of Land and Natural Resource (DLNR)-Division of Boating and Ocean Recreation to conduct these activities. Recreational thrillcraft operators can operate outside of certain non-designated ORMAs (seaward 500 feet from the shoreline to the outer fringing reef, whichever is greater, and two miles off Kauai, Oahu, Maui and Hawaii). However, commercial and recreational thrillcraft operations are prohibited in most designated ORMA areas, with some exceptions, including the Humpback Whale Protected Waters Area on the west and south coast of Maui, between December 15 and May 15 for the protection of the humpback whales (HAR, Title 13, Chapter 256-112). These regulations are an important step by the State of Hawaii to protect the humpback whale while in Hawaiian waters. The Sanctuary will work with the State, counties and various interests, to assess the long-term effectiveness of these regulations in protecting the whale from certain vessel traffic threats.

b. Humpback Whale Habitat Protection

Degradation of water quality and the physical alteration of the submerged lands within the Sanctuary are concerns regarding the humpback whales' habitat. Scientific evidence generally relates degradation of water quality or alteration of the physical habitat as having potentially adverse impacts on humpback whales, although specific cause-effect relationships have been difficult to establish. The Sanctuary will begin to target research efforts to more clearly characterize the types of activities and degree to which they may impact individual whales and populations in the short- and long-term. In addition, the Sanctuary will work closely to supplement and complement existing Federal and State regulations that address water quality and alteration of the seabed activities that are related to humpback whales and their habitat. To supplement enforcement and enhance compliance with such existing regulations, the Sanctuary regulations include the following prohibitions:

- Discharging or depositing any material or other matter in the Sanctuary; altering the seabed of the Sanctuary; or discharging or depositing, from beyond the boundary of the Sanctuary, any material or other matter that subsequently enters the Sanctuary and injures a humpback whale or humpback whale habitat, provided that:

  such activity requires a Federal or State permit, license, lease or other authorization, and is conducted:

(i) without such permit, license, lease or other authorization; or

(ii) not in compliance with the terms and conditions of such permit, license, lease, or other authorization.

This proposed Sanctuary regulation is based on an analysis of existing regulations and extensive consultations with other government agencies and the public. NOAA concluded that, at this time, there are adequate regulations on the books that generally protect water quality and the physical submerged lands in the Sanctuary. However, NOAA also found that the Sanctuary could help supplement the enforcement of, and improve compliance with, these regulations which will not only increase protection for humpback whales and their habitat, but also improve the marine environment generally. This Sanctuary regulation recognizes and relies on the authorities and permit processes that govern water quality and seabed integrity while bringing the Sanctuary's perspective and expertise to the process.

The proposed habitat regulation provides enhanced resource protection for the whales' habitat since violations of valid Federal or State permits, leases, licenses, or specific authorizations also constitute a violation of Sanctuary regulations. Any authorized discharge or alteration of the seabed activities will not be a violation of Sanctuary regulations. The proposed regulatory regime to protect humpback whale habitat provides a backdrop or safety net to existing authorities to ensure compliance with valid permits, leases, and authorizations, and supplements the enforcement of permit violations and unlawful discharges or alteration of the seabed activities.

c. Future Regulations

NOAA cannot make the guarantee that future Sanctuary regulations will never be necessary. It is possible that in the future resource managers may identify a specific type of activity that could negatively impact Sanctuary resources or create conflicts among other Sanctuary users. Further, if in the future other marine resources and ecosystems are included in the Sanctuary, additional regulations may be necessary to manage and protect such resources. While non-regulatory options would generally be pursued first, regulation is one type of management tool that NOAA may choose to consider in order to protect Sanctuary resources. Prior to issuing a new regulation, NOAA must first identify and support that there is a need for the new regulation (e.g., that a Sanctuary resource is being, or could be negatively affected by some activity or that an activity is creating a conflict among Sanctuary users). NOAA would work with other Federal and State resource management agencies, the research community, and affected user groups to collect all relevant and available information and scientific data that will be used to more clearly define the problem and identify potential solutions. NOAA would also seek advice and recommendations from the SAC and other resource management agencies prior to initiating any rulemaking.

If after coordinating with existing agencies and the SAC NOAA determines to propose a new regulation, NOAA is required to, at a minimum, follow the procedures of the Administrative Procedure Act, requiring that adequate public notice and opportunity for public comment be given for any new regulation. Further, if NOAA proposed a regulation outside the scope of regulations listed in the Sanctuary Designation Document, NOAA would be required to go through the designation process, including public review and comment, at least one public hearing, preparation of a Supplemental EIS, and gubernatorial review and non-objection. If the Governor objects, the regulation would not take effect in State waters. If NOAA proposed to change an existing regulation, NOAA would provide for public review and comment and, although not required to do so, gubernatorial review and non-objection.

4. Enforcement and Surveillance

An essential feature of the resource protection program is an effective enforcement program which includes education. NOAA's primary enforcement objective in the Sanctuary is to achieve resource protection by gaining voluntary compliance with the Sanctuary regulations and other authorities that apply within the Hawaii Sanctuary. The Sanctuary anticipates a State-Federal cooperative enforcement system involving the State of Hawaii DLNR and Department of Health (DOH), USCG, and NMFS. The Sanctuary is also proposing to add a Sanctuary regulation to ensure that enforcement investigations proceed with minimal obstruction. The Sanctuary regulation's prohibit:

- Interfering with, obstructing, delaying or preventing an investigation, search, seizure or disposition of seized property in connection with enforcement of either of the Acts or any regulations issued under either of the Acts.

a. Enforcement Philosophy

The law enforcement program is an essential component of resource protection within the Sanctuary. A goal of Sanctuary enforcement is to primarily prevent adverse resource impacts. The Sanctuary's enforcement program will focus on "interpretive enforcement", emphasizing outreach and education activities for Sanctuary users in order to prevent the occurrence of violations. This style of enforcement seeks voluntary compliance primarily through the education of users. Interpretive law enforcement emphasizes informing the public through educational messages and literature about responsible behavior before they impact Sanctuary resources. This objective will be met by putting into place enforcement personnel on-site to carry-out education/interpretation activities; to deter violations of Sanctuary regulations; and to provide quick response to any violations that do occur. In addition, NOAA will work to expand the existing deputization agreement (see below) to bring Sanctuary concerns into this enforcement framework.

While interpretive enforcement is the primary tool of the enforcement program, preventative enforcement is also necessary. Preventative enforcement is best achieved by maintaining sufficient patrol presence within the Sanctuary to deter violations and by preventing, through education, inadvertent violations of the law. Successful enforcement relies on frequent water or land-based patrols. Water patrols will ensure that users of the Sanctuary resources are familiar with the regulations; deter willful or inadvertent violations of the law; and provide quick response to violations and/or emergencies.

b. Integrating Existing Enforcement Efforts

Across the nation, Federal, State and county/local agencies are increasingly entering into cooperative relationships to more efficiently carry out management and enforcement responsibilities. Federal, State and County laws provide government agencies with a variety of tools to protect marine resources. In so doing, these laws strengthen law enforcement capabilities by allowing agencies to build and rely upon each other's experience and physical resources. In addition, local residents are helping by detecting and reporting various violations including harassment incidences and discharge violations.

The success of Sanctuary enforcement largely depends upon how well the enforcement entities are coordinated. Because of limited resources at the Federal and State levels, current enforcement assets must be targeted and used in an efficient and directed effort to achieve compliance with existing and proposed regulations. Consequently, the coordination of enforcement assets will be an integral component of continuous resource management. To achieve this coordination objective, the Sanctuary may seek to develop an agreement under which Federal Sanctuary enforcement officers are cross-deputized to enforce existing State regulations, and State

enforcement officers are deputized to enforce Sanctuary regulations. Such a cross-deputization agreement already exists between NMFS-OE; USCG; and the Hawaii DLNR-Division of Conservation and Resources Enforcement, and State Marine Patrol to enforce Magnuson Federal Fishery regulations, MMPA, and ESA regulations. However, the recent elimination of the State Marine Patrol necessitates a re-examination of state marine enforcement entities and responsibilities. The Sanctuary will work closely with NMFS-OE to revise such an agreement and include the enforcement of Sanctuary regulations. Cross-deputization would foster a strong working relationship between NOAA and the State of Hawaii, as well as assist in increasing abilities to attain mutual goals of enhanced resource protection for the humpback whales and their habitat.

There is an existing memorandum of agreement between NMFS and the National Ocean Service related to enforcement within the NMSP, which:

- provides a mechanism to address the Sanctuary's enforcement needs;
- contributes to the attainment of NOAA's strategic goals and objectives;
- achieves greater economy by eliminating duplication of effort;
- enhances the availability and effective use of necessary enforcement resources; and
- provides a mechanism for Office of Ocean and Coastal Resources Management (OCRM) and NMFS-OE to systematically and routinely develop enforcement programs for all marine sanctuaries.

Thus, NMFS-OE will remain the primary enforcement entity responsible for enforcing the humpback whale approach regulations in the Sanctuary. NMFS-OE will coordinate enforcement activities in the Sanctuary with the Sanctuary Manager, and with other State and Federal enforcement agencies. NMFS-OE, in close cooperation with the Sanctuary Manager, will continue to investigate potential approach violations, prepare enforcement reports, and coordinate with NOAA's Office of General Counsel (NOAA-GC) to determine whether to pursue potential violations.

The enforcement of Sanctuary discharge and alteration of the seabed regulations will require more close coordination with other agencies, since a violation of this Sanctuary regulation is dependent upon whether there is a violation of an existing discharge or alteration of the seabed regulation of a non-NOAA agency. As such, the Sanctuary Manager will work closely with NMFS-OE and NOAA-GC to coordinate enforcement activities with DOH and DLNR violations of discharge and alteration of the seabed permits and authorizations that also violate Sanctuary regulations. NOAA will rely upon the relevant permit/authorization granting agency to determine if their permit or authorization has been violated. Sanctuary enforcement actions from NOAA may only take place after such determination has been made. NOAA will develop an MOU with the State of Hawaii concerning the coordination of enforcement activities in the Sanctuary.

In general, existing MOUs establish a framework that allows for Sanctuary Program management of enforcement activities in national marine sanctuaries. Under these agreements, NMFS-OE is required to develop, for SRD's approval, an annual enforcement plan for each national marine sanctuary, which identifies enforcement priorities.

c. Conduct of the Enforcement Program

Sanctuary enforcement operations are a major component of Sanctuary management. A NMFS Special Agent (Sanctuary Agent) will serve as coordinator of the operational enforcement program on behalf of, and working in close consultation with, the Sanctuary Manager. The Sanctuary Agent is provided through an existing MOU between NOAA's Assistant Administrator for Fisheries and the Assistant Administrator for Ocean Services and Coastal Zone Management. The Sanctuary agent will coordinate operational enforcement with all participating agencies through

their respective chains of command. Enforcement will be conducted in accordance with enforcement operational plans, to be developed jointly between NMFS-OE and the Sanctuary Manager. Enforcement operating plans, subject to revision as necessary, will include enforcement priorities, patrol schedules, procedures for documenting violations, boarding procedures, information needs, and other instructions to conduct day-to-day enforcement.

Through provisions of the Sanctuary's enforcement plan, the Sanctuary Agent will coordinate the actions of this multi-agency group, and ensure all participants receive appropriate training, equipment and support to conduct enforcement operations. The Sanctuary Agent will also assist in the development and delivery of Sanctuary education and outreach products designed for Sanctuary users and constituents, and intended to improve voluntary compliance with Sanctuary regulations. These activities may include education/interpretive programs for the commercial whale watch industry, commercial and recreational fishing industries, hotel and tourism industries, conservation organizations, civic and business organizations, and public school systems.

As part of the continuous management process, an enforcement review program will be established for the Sanctuary that involves the SAC. This program will ensure that the management issues are being addressed by all agencies involved in Sanctuary enforcement, and that the proper training, background and resource protection information is reaching the enforcement staff. Every effort will be made to provide the enforcement officers with information so they become familiar with the type of humpback whale research that occurs in the area.

d. Enforcement Program Goals and Objectives

Sanctuary Goals: The primary goal of enforcement in the NMSP is to protect Sanctuary resources by achieving voluntary compliance with the applicable authorities. Effective enforcement of relevant Federal and State authorities that protect the humpback whale and its habitat within the Sanctuary is necessary. The principle goals associated with Sanctuary enforcement include:

- Promoting public stewardship of the marine resources through interpretive enforcement efforts; and
- increasing the public's understanding of why it is important to comply with Sanctuary regulations; and
- achieving voluntary compliance with applicable Federal, State and County authorities.

Sanctuary Objectives: To achieve these goals, the Sanctuary manager will work with NMFS-OE and applicable Federal and State enforcement authorities, and the public to accomplish the following objectives:

Objective 1: Establish Cooperative Agreements and Efforts

Strategy 1.1: Develop partnerships with other Federal and State enforcement agencies in order to provide a uniform and coordinated enforcement presence throughout the Sanctuary.

Strategy 1.2: Maintain an active relationship with Federal and State enforcement agencies to identify areas of mutual concern and to develop cooperative responses to enforcement issues.

Strategy 1.3: Enter, if necessary, into memoranda of understanding, cooperative enforcement agreements, and joint operation plans with other enforcement agencies as appropriate.

Strategy 1.4: Facilitate communication among enforcement assets to avoid duplication of effort.

Strategy 1.5: Promote cooperation, standardization of gear, and coordination of limited resources such as vessels, radios, radio frequencies and training.

Strategy 1.6: Promote training and cross deputization among enforcement agencies.

Objective 2: Facilitate Community Involvement

Strategy 2.1: Encourage public involvement by encouraging site-specific interpretive patrols.

Strategy 2.2: Involve USCG, power squadrons, charter boat, whalewatching and fishing organizations in promoting compliance with Sanctuary regulations.

Strategy 2.3: Maintain an active dialogue with citizen groups seeking to enhance compliance with Sanctuary regulations.

Strategy 2.4: Conduct community outreach programs to encourage compliance with Sanctuary regulations and citizen involvement in reporting violations.

Strategy 2.5: Involve the SAC and interested public in assisting develop annual enforcement plans.

Strategy 2.6: Establish an Enforcement/Regulation SAC Sub-Working Group consisting of relevant regional law enforcement organizations and interested Sanctuary user groups.

Objective 3: Develop Education and Awareness Programs

Strategy 3.1: Emphasize education as a tool to achieve compliance with regulations.

Strategy 3.2: Promote stewardship of the general public through specific outreach programs regarding voluntary compliance with Sanctuary regulations.

Strategy 3.3: Train user groups about regulations and procedures for reporting violations (witness statement forms).

Strategy 3.4: Identify major user groups and develop and disseminate specific materials to these groups through meetings and workshops.

Objective 4: Coordinate Operations

Strategy 4.1: Maintain an investigative capability to ensure quick response to unlawful acts.

Strategy 4.2: Develop and maintain the capability to effectively respond to violations of Sanctuary regulations and to emergencies.

Strategy 4.3: Develop enforcement operation plans that identify specific enforcement strategies and priorities and outline the best means of achieving them.

Strategy 4.4: Develop regulations for the Hawaii Sanctuary that are comprehensible to the general public and emphasize ease of enforcement.

5. Agency Coordination

a. Permit Review

The Hawaii Sanctuary is unique among the other national marine sanctuaries when it comes to regulations and permitting. As proposed, the Sanctuary does not contain additional substantive Sanctuary restrictions or prohibitions, nor contain separate requirements for Sanctuary permits, certifications, or authorizations. SRD, in consultation with the State of Hawaii and other Federal agencies, and after reviewing the scientific literature, has determined that the existing Federal and State regulations are presently sufficient to provide protection for humpback whales and their habitat; the only resources of the Sanctuary proposed at this time. As such, SRD is seeking only to supplement existing Federal and State regulations that pertain, directly or indirectly, to the protection of the humpback whale and its Sanctuary habitat. The Sanctuary will work within the permit review processes of these authorities that are already in place to ensure that humpback whales and their Sanctuary habitat are considered. The Sanctuary will also rely upon the collective experience of the Hawaii Sanctuary Advisory Council to provide advice and recommendations to the Sanctuary Manager and NOAA on issues pertaining to Sanctuary management.

i. ESA and MMPA Permit Coordination

In August 1995, NOAA's National Ocean Service and NMFS signed a MOU concerning permits and consultations for activities that affect the HIHWNMS (Appendix E). This agreement sets forth specific procedures by which NMFS-Office of Protected Resources and SRD will cooperate and coordinate on the issuance of permits and other authorizations, and with respect to consultations under the ESA, MMPA, HINMSA, and the NMSA, for activities that may affect humpback whales and their Sanctuary habitat. This MOU was developed to reduce agency duplication and establish a more coordinated NOAA response to activities that could adversely impact humpback whales or their Sanctuary habitat. NMFS will remain the lead agency, and will work closely with the Sanctuary Manager to incorporate Sanctuary concerns into permits issued under the ESA and MMPA.

Most of the permits that will be subject to this MOU will likely concern research conducted within 100 yards of humpback whales in Sanctuary waters issued under the MMPA and ESA. The research permitting procedure will remain virtually unchanged, since the Sanctuary will, through the process described in the MOU, provide its concerns within the 30-day public comment period that NMFS is required to provide the public, thereby ensuring there is no added delay to action taken on the permit. Delays may only occur if the project was particularly controversial or if NMFS and SRD needed additional time to resolve differences concerning the permit. NOAA expects that there will be few instances where this will occur.

ii. Humpback Whale Habitat Permit Review

(a) NEPA and FWCA Coordination

The NMFS Pacific Islands Habitat Conservation Program (HCP) conducts National Environmental Policy Act (NEPA) and Fish and Wildlife Coordination Act (FWCA) reviews of Federal environmental assessments, environmental impact statements, and applications for permits under the Clean Water Act (CWA), and the Rivers and Harbors Act (RHA). These reviews include, but are not limited to, CWA Section 404 permits and RHA Section 10 permits issued by the Corps.

SRD and NMFS are developing an MOU concerning the coordination of management activities of NMFS and SRD in the Sanctuary. In addition to other issues, this MOU addresses the coordination of NOAA's NEPA and FWCA reviews. NMFS-SWR will remain the NOAA lead

for FWCA/NEPA reviews in Hawaii. The NMFS Pacific Islands Environmental Coordinator will notify the Sanctuary Manger (and vice versa), of all FWCA/NEPA reviews for activities that may affect Sanctuary resources and include the Sanctuary in the review process. This consolidation ensures that Sanctuary concerns are coordinated with NMFS, and that they are addressed within existing NEPA and FWCA review processes. The Sanctuary's regulatory structure was designed so that the Sanctuary works within the existing review structures, and as such, it will not have authority to deny discharge or alteration of the seabed activities under CWA Section 404 or RHA Section 10 or other permits issued by other Federal or State agencies.

(b) State of Hawaii Discharge and Alteration of the Seabed Permits

To facilitate coordination and to ensure that comprehensive and coordinated protection of humpback whales and their habitat is effectively achieved using existing authorities, SRD has developed a MOU with DOH and DLNR. The MOU establishes mutually agreeable procedures for coordinated review of activities requiring permits from the State for proposed activities that are subject to Sanctuary regulations (i.e., discharge and alteration of the seabed activities), and that may impact humpback whales or their habitat. In addition, the MOU calls for the agencies to work together to monitor permitee compliance with the terms and conditions of State permits for such activities, and to coordinate the enforcement of violations of Sanctuary regulations and corresponding State regulations or permits.

The Sanctuary will focus its review on those discharge and alteration of the seabed activities that have the potential of adversely impacting humpback whales or their habitat, including: National Pollutant Discharge Elimination System (NPDES), Water Quality Certifications, other general permits, and Conservation District Use Applications. The Sanctuary regulation was developed to supplement existing Federal and State authorities, and as such, does not have authority to deny such permits. The Sanctuary will work closely within these DOH and DLNR permitting processes to ensure that humpback whales and their habitat are given due consideration.

b. Sanctuary Consultation Procedures

Section 304(d) of the NMSA, 16 U.S.C. §1434(d) requires that Federal agency actions internal or external to a national marine Sanctuary, including private activities authorized by licenses, leases, or permits, that are likely to destroy, cause the loss of, or injure any sanctuary resource are subject to consultation with the Secretary of Commerce (or designee). Federal agencies proposing such actions are required to provide the Sanctuary with a written statement describing the action and its potential effects on Sanctuary resources at the earliest time, but no later than 45 days before the final approval of the action. If the Secretary finds that a Federal agency action is likely to destroy, cause the loss of, or injure a Sanctuary resource, the Secretary (within 45 days of receipt of complete information on the proposed project) shall recommend reasonable and prudent alternatives, which may include conduct of the action elsewhere, which can be taken by the Federal agency implementing the agency action that will protect Sanctuary resources. The agency head who receives the Secretary's recommended alternatives shall promptly consult with the Secretary on the alternatives. If the agency head decides not to follow the alternatives, the agency shall provide the Secretary with a written statement explaining the reasons for that decision.

Under section 7 consultation procedures required by the ESA, NMFS routinely reviews and comments on environmental impact statements, proposed permits, or other authorizations for Federal projects (e.g., construction, dredging, sound generation) and Federally permitted activities which may affect humpback whales. As a result of section 7 consultation, NMFS may recommend specific measures to minimize impacts (e.g. changes to timing and/or location of action).

NOAA is committed to avoiding unnecessary duplication of existing consultation requirements under the NMSA and the ESA. The MOU between SRD and NMFS on coordinated permit reviews also addresses coordinated consultation for Federal actions. The MOU consolidates the ESA Section 7 as implemented by NMFS and the NMSA Section 304(d) consultation requirement as implemented by SRD for activities affecting Sanctuary resources in Hawaii (Appendix E). As a result, agencies that initiate ESA section 7 with NMFS for an activity that may impact humpback whales or their habitat, will also have initiated the NMSA section 304(d) consultation. NMFS will coordinate with the Sanctuary and issue one response that satisfies both section 7 and section 304(d) consultations. NMFS will work closely with SRD to ensure that Sanctuary concerns are addressed in the joint-consultation provision. After review and completion of the joint-consultation, NMFS will issue one NOAA response that fulfills both the ESA section 7 and the NMSA section 304(d) consultation requirements; thus eliminating the need for two separate consultations.

c. Oil Spill and Hazardous Waste Contingency Planning

Both living and non-living resources of the Sanctuary are susceptible to natural and human-related changes. Because many of these changes are gradual in nature, they may only be detected or forecast through long-term monitoring of environmental and biological indicators. However, certain changes in conditions which may result from specific, dramatic events (e.g., oil or other toxins introduced into the environment through an accidental vessel collision), pose serious threats to both Sanctuary resources and to public health and safety.

i. Existing Capabilities

Section 4202 of the Oil Pollution Act of 1990 (OPA 90; 33 U.S.C. § 2701 et seq.) amended Subsection (j) of Section 311 of the Federal Water Pollution Control Act [FWPCA; 33 U.S.C. 1321 (j)] to address the development of a National Planning and Response System. OPA called for the creation of planning teams to develop contingency plans to address oil and hazardous waste spills and responses. The National Response Team (NRT) is primarily a planning, policy and coordination body and does not respond directly to incidents. The NRT membership consists of 15 Federal agencies with responsibilities, interests and expertise in various aspects of emergency response to pollution incidents and is responsible for developing a National Contingency Plan (NCP). EPA serves as the chair and USCG serves as vice-chair. The Oceania Regional Response Team (ORRT) is comprised of Federal and State (or Territory) representation. Like the NRT, the ORRT is mainly a planning, policy and coordinating body, and does not respond directly to incidents. The ORRT has Federal and State representation. EPA and USCG co-chair the team. ORRT provides guidance and assistance to Area Committees and is responsible for developing Regional Contingency Plans (RCP).

As part of the National Planning Response and Planning System, Area Committees are to be established for each area designated by the President. These Area Committees are to be comprised of qualified personnel from Federal, State and local agencies. Each Area Committee, under the direction of the Federal On-Scene Coordinator (OSC) for the area, is responsible for developing an Area Contingency Plan (ACP) which, when implemented in conjunction with the National Contingency Plan (NCP) and Regional Contingency Plan (RCP), shall be adequate to remove a worst case discharge of oil or a hazardous substance, and to mitigate or prevent a substantial threat of such a discharge, from a vessel, offshore facility, or onshore facility operating in or near the geographic area. Each Area Committee is also responsible for working with State and local officials to pre-plan for joint response efforts, including appropriate procedures for mechanical recovery, dispersal, shoreline cleanup, protection of sensitive environmental areas, and protection, rescue, and rehabilitation of fisheries and wildlife. The Area Committee is also

required to work with State and local officials to expedite decisions for the use of dispersants and other mitigating substances and devices.

Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) entitled the Emergency Planning and Community Right-to-Know Act (EPCRKA). This Federal statute requires emergency response planning at the State and local level. The State of Hawaii established a Hawaii State Emergency Response Commission (HSERC) to comply with this requirement and designated DOH as the lead agency to implement the EPCRKA. The HSERC was required to delineate emergency planning districts and appoint local emergency response committees to facilitate the preparation and implementation of local emergency plans. Hawaii's four counties (Hawaii, Honolulu, Maui and Kauai) represent the emergency planning districts for the State. The HSERC established a technical subcommittee to draft a State plan to provide statewide guidance on oil and hazardous substances emergency response. The result is Hawaii's Oil and Hazardous Substances Emergency Response Plan. This plan is incorporated in the Area Contingency Plan (ACP).

ii. Sanctuary Action

Contingency plans provide the basis under which agencies and individuals respond to oil spills, chemical releases, vessel groundings and other events which may threaten natural resources and human life. As a resource trustee, the National Marine Sanctuary Program is involved in several levels of contingency planning with various State and Federal agencies. The National Contingency Plan provides the basic framework and organization under which all oil and chemical response efforts are conducted. It provides for a National Response Center, which acts as a nationwide notification and reporting point for all spill incidents, and defines the roles of the regional response teams, Federal and state on-scene coordinators, and special forces. The Regional Response Teams (RRT) are aligned within the boundaries of the Federally defined Regions, and provide for large scale contingency planning and resolution of issues related to response actions at the Federal-state interface level. The regional response plans generally deal with strategic issues which affect large areas, and cross many local jurisdictional boundaries. The Local Area Committees (LAC) are mandated by the Oil Pollution Act of 1990. The boundaries and size of these Local Areas vary from region to region, and generally tend to follow county or city boundaries in most areas. A few Local Areas have been delineated to coincide with the limits of Coast Guard Districts or Marine Safety Office areas. The Local Area Contingency plans are much more detailed in nature and are tasked to consider several potential worst-case-scenarios for the local area, making these plans tactical in scope and effect.

The National Marine Sanctuaries are represented at both the regional and local levels by involvement in the RRT and LAC processes. Information specific to the National Marine Sanctuaries is frequently inserted into the respective plans. In addition, individual sanctuary-specific planning and support activity is underway which will provide detailed information about the sanctuary resources needed by the response agencies in the event of an incident. The sanctuary plan will also provide policy guidance to the sanctuary manager and other staff that deal with the many issues which are involved in emergency response, damage assessment, and restoration planning. One page information briefs have been prepared for insertion into the Regional and Local Area Contingency plans for each National Marine Sanctuary. The purpose of this insert is to inform the Regional Response Team, Local Area Committee members and other individuals and agencies interested in oil and chemical spill response issues about the basic information which would be needed during the first few hours of an emergency response action. Each insert page provides a small map showing the general relationship of the sanctuary boundary to the adjacent coastline, and a listing of the exact coordinates of the boundary on the back of the page. A brief history of the sanctuary includes the date(s) of designation, reference to the major legislative mandates, and the nature of the trustee responsibility. A brief contact list for key sanctuary personnel, and a review of the major natural resources potentially at risk complete the information.

These inserts will be revised as needed and distributed to the DOC Regional Response Team representatives and Local Area Committee members as needed to maintain awareness of the National Marine Sanctuaries' existence and needs.

NMFS and HAZMAT represent NOAA on the Area Committee established under the Oil Pollution Act of 1990 (OPA 90). NMFS assisted the U.S. Coast Guard in the development of the Area Plan for the Pacific Region which incorporates guidelines for response procedures, use of dispersants, in-situ burning, coordination among Federal and State agencies, and damage assessment. The Sanctuary will work in close coordination with NMFS, the Western Pacific Regional Response Team (RRT), and the Hawaii State Emergency Response Commission (HSERC), to ensure that Sanctuary concerns are addressed in these local response plans.

d. Damage Assessment and Restoration Efforts

Section 312 of the NMSA, 16 U.S.C. §1443, authorizes NOAA to commence civil actions to recover for response costs and damages against persons who destroy, cause the loss of, or injure sanctuary resources in National Marine Sanctuaries. In Hawaii, Sanctuary resources include the humpback whale and its Sanctuary habitat. Damages include compensation for: the cost of restoring, replacing, or acquiring the equivalent of the destroyed, lost, or injured sanctuary resource; the value of the lost-use of sanctuary resources pending restoration or replacement or the acquisition of equivalent resources, or the value of a sanctuary resource if it cannot be restored, replaced, or an equivalent acquired; the cost of performing damage assessments; and the reasonable cost of monitoring.

Funds recovered from damage actions must be spent according to specific priorities delineated in the statute. Twenty percent of recovered response costs and damages, up to a maximum balance of $750,000, must be used to finance future response actions and damage assessments. The remaining funds must be spent according to this order of priority: (1) restoring, replacing or acquiring the equivalent of the sanctuary resources which were the subject of the action; (2) managing and improving the National Marine Sanctuary affected by the incident; and (3) managing and improving any other National Marine Sanctuary.

When an incident results in destruction, loss, or injury to national marine sanctuary resources, SRD collaborates with several other elements within NOAA to respond and to initiate the damage assessment and restoration process. Chief among these is the Damage Assessment and Restoration Program (DARP) consisting of the National Ocean Service's (NOS) Damage Assessment Center (DAC), the National Marine Fisheries Service's (NMFS) Restoration Center (RC), and the Office of the General Counsel. Other Federal and State agencies may be involved and include the Coast Guard, Navy, and State environmental protection and maritime enforcement agencies.

NOAA's ultimate goal in damage assessment is to restore injured coastal and marine resources. The natural resource damage assessment process is designed to be fair to the responsible party while obtaining adequate compensation to the public to restore injured resources. Section 312 is codified in the Sanctuary regulations at 15 C.F.R. § 945.9.

6. Research and Long-Term Monitoring

a. Introduction

Research and long-term monitoring are critical to achieving the Sanctuary's primary goal of resource protection for the humpback whale and its Sanctuary habitat. To protect and conserve humpback whales and their habitat for the benefit of present and future generations, it is necessary to improve our present understanding of the humpback's *vital life rates* (age at sexual maturity,

pregnancy rates, variability in reproductive success, calving intervals, age-specific mortality and survivorship rates, longevity), abundance, distribution, movement, behavior and interrelationships with its Hawaiian habitat, and in other areas crucial to the whale's survival, such as the Alaskan feeding grounds. It is also necessary to identify how these parameters change over time due to natural or human-induced factors. While much scientific research has been and continues to be collected on humpback whales, there remain many unanswered questions and unknowns concerning habitat requirements, population dynamics, threats and impacts, and in fully understanding vital rates and social behaviors. Such baseline information is needed to develop an understanding of Sanctuary resources and ensure the effective implementation of management strategies using the best available scientific information.

Information from research and long-term monitoring activities will be used to:

- provide NOAA and the public with a means to evaluate the effectiveness of the Sanctuary in protecting the humpback whale and its habitat;
- provide a means to distinguish between the effects of human activities and natural variability on identified and perceived impacts to humpback whales and their habitat;
- develop hypotheses about cause-effect relationships which can then be investigated;
- evaluate management actions; and
- verify and validate quantitative predictive models used to evaluate and select management actions.

A number of existing local and mainland researchers and institutions currently conduct research on humpback whales and their habitat. They will be encouraged to participate in the development and implementation of the Sanctuary's Research and Long-Term Monitoring Program. In coordination with the SAC's Research Working Group, NMFS, and other researchers and resource managers, the Sanctuary Manager (and research coordinator) will develop a research and long-term monitoring program that will complement existing efforts and fills needed gaps. The Sanctuary research program will also coordinate with the education/interpretation community to broaden public understanding of the need for research on humpback whales and their habitat, the type of research occurring within the Sanctuary, and results from research activities. This coordination will extend to the research agendas of other national marine sanctuaries whose scientific inquiries address humpback whale populations in both the Pacific and Atlantic Oceans.

The Sanctuary Monitoring Program will focus both on North Pacific humpback whales and components of the Sanctuary's habitat which are important to humpback whales (e.g., chemical, physical and biological oceanography, human activities, spatial and temporal needs). Long-term monitoring and the resulting data bases will provide the basis for interpreting and/or predicting natural and human-induced events in the Sanctuary and in areas adjacent to the Sanctuary. General directions and priorities for additional research are provided in this section as a guide for identifying and selecting appropriate future Sanctuary research projects. The process for preparing an annual Sanctuary Research Plan (SRP) and annual report is also discussed below.

Finally, the process to identify additional marine resources and ecosystems of national significance for possible inclusion in the Sanctuary (see Part III, C of the Management Plan) will also involve developing recommendations for research objectives and strategies that correspond with the identified resources. Step 3 of the research review/evaluation process addresses further study of additional marine resources and ecosystems. Inquiry into the significance of the identified resources or the need for additional management may be warranted. The Sanctuary will look for guidance and recommendations from the SAC Working Groups or sub-committees established to assist in this area. These recommendations would be considered in developing a proposal and modifications to the yearly SRP for the Sanctuary. If a supplemental EIS/MP, is necessary, it will

be reviewed by the public before changes are made to the management plan and implementing regulations.

b. Research and Long-Term Monitoring Program Goals and Objectives

The primary goals of a Research and Monitoring Program are to improve understanding of the central North Pacific population of humpback whales and their wintering habitat; to address and resolve specific management concerns; and to coordinate and facilitate information exchange among the various researchers and institutions, agencies, and the general public.

Sanctuary Goals: The HINMSA and the NMFS Humpback Whale Recovery Plan establish the following research and monitoring goals:

- Development of a greater understanding of humpback whales, their habitat requirements and the factors responsible for negatively impacting their recovery;
- Identification of research needs and priorities;
- Establishment of a long-term ecological monitoring program with respect to humpback whales and their habitat;
- Establishment of strong communication and cooperation between the scientific community and resource managers;
- Coordination of research efforts to achieve the most beneficial results;
- Promotion of public awareness and resource stewardship; and
- Identification of resources and ecosystems, in addition to humpback whales and their habitat, for possible Sanctuary management.

The Sanctuary Research and Long-Term Monitoring Program will play an integral role in the overall effort to implement portions of the NMFS Humpback Whale Recovery Plan and other long-term protection plans for the humpback whale and its habitat.

Sanctuary Objectives: To achieve these goals, the Sanctuary Manager and Sanctuary Research Coordinator will work with NMFS and the SAC's Research Working Group to accomplish the following objectives[2]:

Objective 1: Characterize the central North Pacific Stock of humpback whales and their Hawaiian habitat to establish a baseline for detecting and monitoring natural- and human-induced changes.

Strategy 1.1: Survey and evaluate available information on humpback whales to determine baseline information on vital rates, population estimates, distribution, migration, birth and survivorship, and behaviors.

Strategy 1.2: Survey and evaluate available information on humpback whales and their habitat to identify essential habitat and to determine critical data and information gaps.

Strategy 1.3: Survey and evaluate available information to identify potential human activities and natural phenomena responsible for potential injury, harassment or disturbance to humpback whales and their habitat.

[2]Note: The following objectives, strategies and tasks represent goals that the Sanctuary will strive to fulfill over the next 5-10 years. However, resource and staff limitations may hinder the completion of all tasks. Each year, the Sanctuary Manager and Research Coordinator will coordinate with the SAC Research Working Group to develop an annual Sanctuary Research Plan based upon available resources and identified priorities for that year. The Sanctuary research priorities will be congruent with priorities established by the national program.

Strategy 1.4: Provide support to analyze existing and previously collected data and publish in scientific journals or for new projects that fill needed knowledge-gaps.

Objective 2: Establish a coordinating framework and procedures for identifying, selecting and sponsoring research projects to ensure that the research topics are responsive to management concerns and that research results contribute to improved management decision making in the Sanctuary.

Strategy 2.1: Establish a SAC Research Working Group to provide advice and recommendations to the SAC, Sanctuary Manager and Sanctuary Research Coordinator on identifying, selecting and sponsoring Sanctuary research projects based on research and management needs.

Task 2.1.1: Develop guidelines for conducting Sanctuary sponsored research projects.

Strategy 2.2: Annually evaluate the effectiveness and efficiency of the Sanctuary research program and its integration with other resource protection and education objectives.

Objective 3: Develop a comprehensive long-term ecological monitoring program to fill knowledge gaps and address management related issues and concerns. The program should incorporate experimental designs that can help detect and discern the cause or causes of future changes and trends in the vital parameters and the important habitats and habitat components of the humpback population that "winters" in Hawaii.

Strategy 3.1: Develop and implement a coordinated long-term program for monitoring the distribution, abundance, age-sex composition, movement patterns, survival/mortality, habitat use and behavior of whales in, and possibly adjacent to the Sanctuary.

Task 3.1.1: Conduct a thorough analysis of existing photographic mark-recapture data information systems to determine the steps needed to ensure the system can be used to asses population abundance, distribution and movements, and other population parameters.

Task 3.1.2: Support NMFS efforts to continue the statewide mark-recapture effort using researchers through the state.

Task 3.1.3: Collaborate with NMFS to support a coordinated long-term statewide aerial survey program to monitor changes in population abundance and distribution.

Strategy 3.2: Develop and implement a long-term program for identifying, assessing and monitoring threats and impacts to humpback whales and their habitat. Scientific protocols should be designed to discern cause and effect relationships between variables. Identify steps to be taken to assess and eliminate, minimize, or mitigate threats.

Task 3.2.1: Support systematic research of vessel traffic and acoustic impacts on humpback whale behavior and distribution. Studies should investigate cause and effect relationships of how noise, and vessel or aircraft movement, speed, type and density impacts humpback whales.

Task 3.2.2: Monitor water quality and effects of vessel, point and land-based pollution on humpback whales and their habitat. Facilitate scientific studies that discern cause and effect relationships between water quality and humpback whales. Explore other aspects of the humpback whale habitat as indicators of pollutant impacts on the

environment since humpback whale may not manifest the impacts of such pollutants for many years.

Strategy 3.3: Monitor all research activities conducted in the Sanctuary and obtain data and data analyses from such research activities to the maximum extent practicable. Initiate a voluntary research registry for all research projects, whether focusing on the humpback whale or other aspects of its habitat in the Sanctuary.

Objective 4: Develop a data and information management system for tracking and integrating new information into an evolving understanding of humpback whales and their habitat.

Strategy 4.1: Assess the effectiveness of existing databases and information systems used for long-term monitoring of humpback whales and their habitat. Include an analyses of data compatibility, utility, purpose, costs, accuracy (data verification), and accessibility (whether or not researchers will provide proprietary data).

Strategy 4.2: Identify, in consultation with researchers, educators, and Federal, State and county agencies the types of data and information that should be stored, and the most effective and user-friendly means for accessing this data and information.

Strategy 4.3: Explore the feasibility of developing a GIS or other appropriate data/information technologies cooperatively with other Federal, State and county agencies involved in ocean and coastal resource management. The GIS should include information on humpback distribution, the biological, physical, chemical parameters of humpback whale habitat, and human activities in and adjacent to the Sanctuary).

Objective 5: Encourage information exchange among all organizations and agencies undertaking management-related research in the Sanctuary to promote more informed management and decision making.

Strategy 5.1: Facilitate communication with the research and education communities, user groups, and the public to promote mutual understanding of each other's role in encouraging public knowledge and appreciation of humpback whales and their habitat.

Strategy 5.2: Incorporate research results into Sanctuary education and interpretive programs and publications in a format and language useful to resource users and the general public.

Strategy 5.3: Develop a program to disseminate scientific research results, including an information exchange network, conferences, and support for the publication of research findings in peer-reviewed scientific journals.

Strategy 5.4: Develop, in cooperation with local education and conservation organizations, teacher enrichment programs to facilitate the transfer of information into science, math, environmental and social studies into K-12 and curriculum.

Objective 6: Facilitate the process to evaluate marine resources, in addition to humpback whales and their habitat, for possible inclusion in the Sanctuary.

Strategy 6.1: Support research into marine resources, in addition to humpback whales and their habitat, that may be of special national significance and suitable for Sanctuary management. Explore the significance of these resources and the need for additional management measures.

Strategy 6.2: Work with the SAC's Research Working Group in developing additional research objectives and strategies that correspond with identified resources.

c. Framework for Research

The Sanctuary's research program will consist of five principal categories:

- baseline studies to determine features and processes of the North Pacific humpback whale wintering habitat; vital rates, behavior, abundance, and distribution of humpback whales; interactions among the living resources comprising the North Pacific humpback whale wintering habitat; and types and patterns of human activities within and around the Sanctuary;
- monitoring studies to document changes in humpback whale behavior, Sanctuary use patterns, environmental quality of Sanctuary habitat components, and human activities and their effects on Sanctuary resources;
- predictive studies to assess causes and effects of ecological and environmental changes to determine trends and anticipate Sanctuary management issues;
- data and information storage system to catalogue past, present and future research studies so that these results are easily accessible to the public;
- studies of marine resources, in addition to humpback whales and their habitat, for possible inclusion in the Sanctuary.

Each of these categories is described in more detail below:

i. Baseline Studies

Baseline seasonal studies will generally be directed at better understanding the status (abundance, distribution and survivorship), condition (vital rates) and behaviors of the central North Pacific population of humpback whales wintering in Hawaiian waters, their particular habitat requirements, and the status and condition of that habitat. In addition, initial baseline studies may also focus on the effects of human activities on both the humpback whales and on resources comprising their habitat.

ii. Monitoring

In addition to data bases documenting living and non-living components of the Sanctuary, successful management requires knowledge and understanding of long-term changes occurring within the Hawaiian Islands system. Humpback whales reach sexual maturity in 7-9 years. Females calve about every two years. Therefore impacts to humpback whales will take a long time to detect, and a long-term monitoring program will need to recognize and observe trends over a 20-50 year time frame. The monitoring program should include studies that can help detect and determine the probable or possible causes of changes (natural or human-caused) in the distribution, abundance, age-sex composition, and habitat-use patterns of humpback whales and key characteristics of the habitat. Consistent and comparable long-term data are needed to identify spatial and temporal trends in these parameters. Monitoring studies should also be established to investigate the relationship of water quality and human activities on humpback whales and their habitat.

iii. Predictive Studies

The Sanctuary research program will conduct, as necessary, targeted studies that address management needs, analyze the causes and consequences of system changes, and predict the

effects on humpback whales of new or increased levels of human activity within or around the Sanctuary.

iv. Data and Information System

An important component of the research program is to establish a mutually agreeable system for storing/archiving and retrieving past, present and future research data and other relevant information. The Sanctuary will work with researchers and government agencies to determine the best way to facilitate information storage and retrieval. Possible systems could involve a Geographic Information System (GIS), computer accessible network, Internet, on-site data center, fluke-photo catalogue and other appropriate data systems.

v. Marine Resource Studies

Finally, the research program will support research into marine resources, in addition to humpback whales and their habitat, that may be of special national significance and suitable for Sanctuary management. The studies will explore the significance of these resources and the need for additional Sanctuary management measures. The Sanctuary will work with the SAC's Research Working Group in developing additional research objectives and strategies that correspond with identified resources

d. Selection of Sanctuary-Funded Research Projects

Sanctuary funded research projects will primarily focus on management issues and concerns related to the central North Pacific population of humpback whales which frequent the main Hawaiian Islands. The Sanctuary Manager, Sanctuary Research Coordinator, and SAC Research Working Group will develop research selection procedures to ensure that the Sanctuary's research program is consistent with the policies and directions of the NMSP. Sanctuary-funded research projects will be selected in accordance with research priorities and monitoring needs identified in the annual Hawaii Sanctuary Research Plan.

Several preliminary areas of research have been identified by the public during the development of this final management plan. These include:

- Characterization of the humpback whale habitat within the 100 fathom isobath;
- Determination of humpback whale population vital rates (e.g., age at sexual maturity, pregnancy rates, variability in reproductive success, calving intervals, age-specific mortality and survivorship rates, longevity) and population abundance and distribution.
- Assessment of various human impacts on humpback whales and their habitat (e.g., vessel traffic type and volume; acoustics; water quality; research; deep-sea waste disposal, alterations of the seabed).
- Development of temporal and spatial data bases to measure the "carrying capacity" of human activities, with respect to humpback whales and their habitat.
- Compilation of an annual report on Sanctuary-sponsored research on humpback whales and their habitat to enhance Sanctuary management and resource protection.

Sanctuary funded research will be coordinated by the Sanctuary Research Coordinator, who will work closely with the SAC's Research Working Group, NMFS Southwest Region/Center, and the National Marine Mammal Laboratory (NMML). Coordination will be particularly important between NMFS and the Sanctuary since NMFS is involved with the coordination of humpback whale research throughout the entire Pacific basin. As such, Sanctuary funded research priorities may differ from those by NMFS given to humpback whale research

efforts throughout the larger Pacific basin area. The Sanctuary Advisory Council's Research Working Group will be responsible for providing advice and recommendations to the SAC and the Sanctuary Manager on: priorities for research topics; establishing evaluation criteria for Request for Proposals (RFP's); establishing reporting and publishing guidelines; monitoring the quality of ongoing research; and distributing preliminary findings for peer review. The Sanctuary Research Coordinator will consult with NMFS-SW and the NMML to ensure that the proposed research is consistent with the objectives of other NOAA humpback whale research efforts in the Pacific. Final Sanctuary approval for research projects will be made following receipt by the principal investigators of necessary permits from appropriate agencies. Where possible, collaborative research projects will be developed to study humpback whales in summer feeding grounds in Alaska and migration routes to and from these areas. The Pacific Region of the NMSP provides an excellent platform for research since humpback whales are found off the Olympic Coast, Gulf of the Farallones, Cordell Bank, Monterey Bay, Channel Islands, and Fagatele Bay National Marine Sanctuaries.

i. Research Permits

Research activities that involve approaching humpback whales within 100 yards, or taking as defined by the MMPA and ESA are required to obtain a NMFS research permit. For such activities conducted in State waters, a DLNR-DAR research permit is also required. No new or additional Sanctuary permit will be required to conduct such research in the Sanctuary. SRD has developed a MOU with NMFS to work within their existing permitting structure to review and provide recommendations on proposals to conduct research on humpback whales within the Sanctuary. This review process will occur during the thirty-day public review process required under the MMPA.

ii. Annual Sanctuary Research Plan (SRP)

An annual SRP will be prepared by the Sanctuary Manager, with assistance from the SAC Research Working Group. The annual SRP is a brief description of the research goals for each fiscal year and a description of how these goals fit into those of the Sanctuary management plan. SRD will then incorporate the annual SRP into a national plan that includes SRPs for each sanctuary. Steps in the annual process include:

(1) Identifying Sanctuary management concerns;

(2) Establishing research priorities, based upon the identification of management concerns. Research priorities will be established by the Sanctuary Manager in consultation with the SAC and its Research Working Group, and relevant NMFS Scientific Review Groups. Important factors to be considered in establishing research priorities include:

- whether immediate or evolving management issues can be resolved through directed research by the Sanctuary or other means;
- prospects of related research in progress; and
- availability of funding and equipment for research support.

(3) Holding research workshops on an occasional basis to facilitate the identification of research problems or opportunities. After the management issues and research priorities are developed, a draft SRP is prepared.

(4) Preparing a SRP that includes documentation of how each project meets SRD's selection criteria.

(5) A research announcement and request for detailed research proposals is prepared. The announcement and request for proposals will discuss the identified management concerns, and summarize past and current related research. Its purpose is to solicit proposals from the scientific community that satisfy the criteria specified in the SRP.

iii. Monitoring Research Project Progress

The Sanctuary Manager (or Research Coordinator) will coordinate with NMFS Pacific Area Office to monitor humpback whale research in the Sanctuary. The Sanctuary Manager will assist NMFS, as necessary, to maintain records of all current research, equipment being used on the site, frequency of researchers' visits to the site, and progress to date on each current research project. To the extent possible, the Sanctuary Manager will help facilitate research activities within the Sanctuary. Final research reports may be peer reviewed by scientists recognized in the particular field of inquiry, as well as by resource managers before final approval of the report by NMFS. Particularly outstanding research reports may be published by SRD or NMFS in its Technical Report/Memorandum Series.

iv. Information Exchange

Direct SRD funding for research is limited. To complement and augment directly funded research, SRD encourages research funded by other sources, particularly where it supports management objectives to protect the humpback whale and its habitat. For example, water quality or whale monitoring programs conducted by a Federal, State, or county agency provide a wealth of data which have direct application for Sanctuary management. To assist in this information exchange effort, SRD will make available to other agencies and interested private institutions Sanctuary resource data obtained from past and ongoing research projects.

7. Education and Outreach

a. Introduction

Public awareness, understanding, and appreciation for the special values of humpback whales are essential for their protection and continued vitality. The Sanctuary education and interpretive program will focus on enhancing public understanding and appreciation of humpback whales and their relationship with the Hawaiian Islands marine environment. A well-informed public and user community will not only cultivate a greater appreciation of the need to protect Sanctuary resources, but also enhance voluntary regulatory compliance. The Sanctuary will accomplish this by working with existing public and private-sector educational programs and institutions to produce and disseminate information, promote public participation, develop outreach activities for the visitor and local population, and provide information to various user groups on the Sanctuary regulations designed to ensure resource protection.

Changing information gaps and needs demand that education and outreach be a continuing and evolving process. Information translation, packaging and dissemination is an important part of resource protection. While the primary purpose of the Sanctuary is protection of resource and site qualities, the Act also requires NOAA to facilitate public and private uses (including Native Hawaiian uses) consistent with the primary objective of resource protection.

There are two major groups of people that the Sanctuary intends to target: residents and visitors of Hawaii. State of Hawaii statistics indicate that 80 percent of the visitors and residents engage in some form of ocean or coastal activity. It is imperative that these ocean users are educated users. Effective education programs occur at the community level. The Sanctuary will work with communities and groups to ensure that this occurs.

The HINMSA mandates the development of an education and interpretation program for the humpback whale and its habitat, and other marine resources found within the Hawaiian environment. Strong support for such an education program was received from the public during the March 1993 and 1994 public meetings and technical consultations. In addition, the NMFS Humpback Whale Recovery Plan and Hawaii Ocean Resources Management Plan specifically promote education and outreach as an important management tool for resource protection.

A number of existing local agencies and private institutions currently provide education opportunities on these resources. These agencies will be encouraged to participate in the development and implementation of the Sanctuary's Education and Interpretation program. Through partnerships, MOUs, and cooperative agreements, the Sanctuary will work to complement and assist existing efforts to develop and disseminate information about the humpback whale and its habitat, and other resources to visitors and residents /state-wide. In addition, the Sanctuary will encourage and work with researchers to develop and incorporate research results into educational programs and products.

b. Education and Outreach Program Goals and Objectives

The primary goals of the Education and Outreach Program are to: enhance knowledge of the Sanctuary's purposes, goals and regulations; improve public awareness and understanding of the humpback whale and its habitat; facilitate responsible human uses within the Sanctuary; encourage public participation; and facilitate information exchange between the various environmental educators and interpreters, scientists, agencies, and the general public.

Sanctuary Goals: The NMSA and the HINMSA, have established additional education and outreach goals, to:

- promote public understanding, support, and participation in the Hawaiian Islands National Marine Sanctuary and the NMSP;
- educate and interpret for the public the relationship of humpback whales to the Hawaiian Islands marine environment;
- promote education among users of the Sanctuary and the general public about conservation of humpback whales, their habitat, and other marine resources
- enhance public awareness, understanding, appreciation, and wise use of the Hawaiian Islands marine environment;
- facilitate environmental education opportunities for all segments of society;
- promote and foster a clear awareness of the economic, biological, recreational, educational, research and diverse cultural values of the Hawaiian Islands, as well as the interdependence of these values upon one another;
- facilitate all public and private uses if the Sanctuary (including uses of Hawaiian natives customarily and traditionally exercised for subsistence, cultural and religious purposes) consistent with the primary objective of protection of humpback whales and their habitat; and
- provide opportunities for citizen involvement in developing and implementing education programs.

Sanctuary Objectives: To achieve these goals, the Sanctuary Manager and Education Coordinator will work with the SAC's Education Working Group to accomplish the following objectives[3]:

Objective 1: Enhance public awareness, understanding and appreciation of humpback whales and their habitat.

Strategy 1.1: Develop and disseminate, in cooperation with existing education organizations, educational materials and programs aimed at enhancing public awareness and appreciation for humpback whales and their winter habitat, and demonstrate the need for their protection.

Task 1.1.1: Develop pamphlets, brochures, newsletters, marine education resource directories, videos, fact sheets, and education packets on the humpback whale's biology, behavior, migration, distribution and habitat preferences in a variety of languages for broad public distribution.

Task 1.1.3: Develop cooperative arrangements with existing institutions to develop information products and programs and to co-locate information displays on humpback whales and their habitat throughout the Sanctuary.

Strategy 1.2: Educate users about the possible threats and impacts to humpback whales in Hawaii and elsewhere and actions that can be taken to prevent or mitigate these impacts.

Task 1.2.1: Provide educational materials to the public about impacts from human activities in Hawaii (approaching and disturbing whales, pollution, runoff, vessel traffic, noise, high seas driftnets).

Task 1.2.2: Support existing efforts to expand the annual Boat Captains training program for whalewatch captains and other interested boaters.

Task 1.2.3: Encourage public stewardship. Provide action items that individuals and groups can do to ensure the protection for humpback whales and their Hawaiian habitat (i.e., reduce pollution and degradation, observe humpback whale approach regulations, participate in marine conservation and outreach programs).

Objective 2: Create public awareness of the HIHWNMS and the NMSP.

Strategy 2.1: Distribute and present information about the national program mission and other sites to interested groups.

Task 2.1.1: Develop brochures, newsletters and other media, including multi-lingual interpretive signs and kiosks at various vantage points (boat ramps, scenic lookouts, tourist information centers) to educate the public about Sanctuary resources and the HIHWNMS.

[3]Note: The following objectives, strategies and tasks represent long-term goals that the Sanctuary will strive to fulfill over the next 5-10 years. However, resource and staff limitations may hinder the completion of all tasks. Each year, the Sanctuary Manager and Education Coordinator will coordinate with the SAC Education Working Group to develop an annual Sanctuary Education Plan based upon available resources and identified priorities for that year. The Sanctuary education priorities will be congruent with priorities established by the national program. Many of the following objectives, strategies and tasks directly resulted from the many ideas suggested by the public during the statewide March 1993 and March 1994 public meetings and technical workshops.

Task 2.1.2: Participate in environmental awareness celebrations, festivals, conferences and workshops.

Strategy 2.2: Clearly articulate the purpose, goals and objectives, regulations and resources of the HIHWNMS with specific emphasis on the need to use the resources and area wisely to ensure sustained use.

Strategy 2.3: Promote, in cooperation with other non-profit organizations, the concept of support groups and cooperating associations to facilitate public and volunteer participation, and add additional resources to implement the HIHWNMS program.

Strategy 2.4: Develop an information/education/research network with other marine sanctuaries conducting research on humpback whales and their habitats.

Task 2.4.1: Collaborate with other national marine sanctuaries and summarize existing research and education efforts on humpback whales and their habitat.

Task 2.4.2: Initiate cooperative education/research programs and projects among other sanctuaries with humpback whales.

Objective 3: Establish a coordinating framework and procedures for identifying, selecting and sponsoring education projects to ensure that the education topics are responsive to management concerns and that the education products contribute to greater understanding and appreciation of the Sanctuary, humpback whales and the broader Hawaiian Islands marine environment.

Strategy 3.1: Establish a Sanctuary Advisory Council Education Working Group to provide advice, recommendations, and information to the Sanctuary Manager, Sanctuary Education Coordinator, and the SAC on identifying: (1) current activities in the education community; (2) methods and opportunities to establish cooperative efforts; (3) direction for the Sanctuary Education Program; (4) ways to prevent duplicative efforts; (5) guidelines for the production of educational materials; and to (6) develop annual Sanctuary education and outreach plan.

Strategy 3.2: Develop standards and application criteria for Educational Request for Proposals (RFPs).

Strategy 3.3: Develop, with assistance from the SAC Education Working Group, guidelines for project selection and awards.

Strategy 3.4: Create opportunities for public involvement to encourage feedback on the effectiveness of education/interpretive programs, so that ineffective programs can be restructured and successful ones promoted.

Objective 4: Encourage information exchange among all persons, organizations and agencies undertaking environmental education and research activities in the Sanctuary.

Strategy 4.1: Collaborate with other education organizations and institutions to generate joint opportunities to provide interpretive/education services, including extension and outreach programs, marine curriculum, newsletters, volunteer programs and workshops.

Strategy 4.2: Initiate a coordination network with humpback whale educators and researchers in the North and South Pacific and Atlantic Oceans.

Strategy 4.3: Facilitate communication between the education and research communities and tourism/recreation industry to promote mutual understanding of each other's role in encouraging public knowledge and appreciation of humpback whales and their habitat.

Strategy 4.4: Incorporate research results into Sanctuary education and interpretive programs and disseminate publications in a format and language useful to resources users and the general public.

Objective 5: Develop a user friendly depository for information and research results pertaining to Sanctuary resources and management information.

Strategy 5.1: Archive research results and reports in depositories/libraries in at least one central location and explore the possibility of using the public library system throughout the islands to make information accessible to the public.

Task 5.1.1: Explore the feasibility for an on-line computer interactive information storage/retrieval system (e.g., Internet or an on-line server), after assessing existing computer interactive resources.

Objective 6: Establish cooperative education programs with Native Hawaiian groups to develop programs that educate the general public about Native Hawaiian traditions, culture, resource uses and religion as they relate to Hawaii's marine environment.

Strategy 6.1: Nurture a cultural awareness based upon the Native Hawaiian tradition of respect for the ocean and its resources as a central theme of the Hawaiian culture.

Strategy 6.2: Document Native Hawaiian knowledge of traditional and cultural management techniques for incorporation into management and education programs.

Task 6.2.1: Recognize and encourage the rehabilitation of traditional Native Hawaiian resource management and subsistence demonstration projects (Ahupua`a, Konohiki fisheries, Taboos, fish ponds, etc.)

Strategy 6.3: Support efforts to translate Native Hawaiian stories, myths and legends concerning the marine environment into written records.

Sanctuary education programs and activities will be coordinated by a Sanctuary Education Coordinator who will work closely with the SAC's Education Working Group. The Education Working Group will be responsible for providing advice and recommendations on: the development of annual Sanctuary Education Plans; generating and establishing priorities for education topics; establishing evaluation criteria for Request For Proposals (RFPs); monitoring the quality of ongoing education programs; and distributing preliminary findings for peer review. The Sanctuary Manager and Education Coordinator will work to implement the recommendations of the SAC Education Working Group. The effectiveness of the Education Program will be evaluated annually by the Sanctuary Manager, Education Coordinator and SAC.

c. Education and Interpretation Opportunities

Education and interpretation opportunities for the Sanctuary will be targeted toward three basic user audiences: visitors to the Sanctuary; visitors to the Sanctuary headquarters and satellite offices; and interested individuals or organizations not visiting either location (off-site). Numerous education and interpretation opportunities exist for all types of audiences.

The accessibility of the Hawaiian Islands Humpback Whale National Marine Sanctuary to numerous recreational and commercial boaters, swimmers, surfers, divers, commercial fishermen, and scientific researchers, provides a variety of ways in which to reach the visiting public with information about the Sanctuary's resources and programs. Various tools exist to reach on-site users: brochures and other informational materials distributed aboard whalewatch vessels; recreational charterboat captains; and research and educational institutions sponsoring vessel trips to the site.

The establishment of the Sanctuary headquarters on Maui with other potential satellite offices on the neighbor islands will provide a focal point for interested members of the public who may or may not intend to actually visit all areas of the Sanctuary. These offices will make available information and interpretive materials on humpback whales, Hawaii's marine ecosystem, Native Hawaiian traditional and cultural activities, recreational activities, and Sanctuary regulations.

Some of the educational and interpretive materials will be presented in audio-visual formats; others in printed form. The Sanctuary headquarters will also provide a location for the public to learn about other private or government marine resource management activities occurring within or near the Sanctuary. Information will also be provided on how the Sanctuary program coordinates with other public and private institutions or agencies to ensure the continued protection and viability of Hawaii's humpback whales and their habitat.

Finally, Sanctuary interpretive staff will conduct outreach activities to make Sanctuary information available to individuals, schools, and organizations throughout the main Hawaiian Islands. These materials will be directed to both those persons who frequently use the Sanctuary and those who are not likely to use the Sanctuary, but who are nonetheless interested in learning about the HIHWNMS and the NMSP.

d. Education and Interpretation Programs

Interpretation for the Sanctuary will consist of three distinct programs:

- on-site visitor programs for whalewatching vessels, and other recreational marine users and visitors to the Sanctuary;
- visitor center programs for individuals visiting the Sanctuary headquarters, or other satellite information centers; and
- outreach programs for interested individuals and groups not visiting the Sanctuary or its headquarters, but who desire to learn more about the Sanctuary's resources and qualities.

i. On-Site Visitor Programs

On-site education and outreach provided by the HIHWNMS Manager (or education coordinator) will consist primarily of printed materials describing humpback whales and their habitat, and the Sanctuary management program. These materials will be made available for distribution at local government offices, marine recreation businesses, marinas, whalewatching vessels, humpback whale interpretive centers, tourism information centers, airports, harbors and other local establishments. The program will rely heavily on the cooperation of the tourism, whalewatching and marine recreation industry for successful implementation. Many of the commercial whalewatch vessels incorporate the onboard services of a naturalist to identify and discuss various species of cetaceans. The Sanctuary will work with these services to incorporate verbal information on the Sanctuary in their interpretive discussions, in addition to brochures or other printed materials which excursion participants may carry home with them. Local organizations and businesses, such as the Whale Museum, Pacific Whale Foundation, Save the

Whales, Whales Alive, Hawai`i Wildlife Fund, Earthtrust, Waikiki Aquarium, Sierra Club, and others may also be interested in co-sponsoring special excursions to the Sanctuary.

ii. Visitor Center/Headquarters Programs

The establishment of a Sanctuary headquarters in the area and the existence of other visitor and information centers throughout Hawaii provide an opportunity to inform visitors to these sites about humpback whales and their habitat, and the Sanctuary program. Although most visitors and residents use Hawaii's marine waters for a variety or purposes, many do not fully understand or appreciate the significance of this national resource. Educational exhibits and brochures about the Sanctuary's resources can only help to enhance people's appreciation for the special qualities of this unique marine environment. Exhibits, audio-visual information, and printed materials will be available to the public at the Sanctuary visitor center/headquarters. Additional potential distribution points for Sanctuary brochures and other materials include NMFS's Honolulu Laboratory, Kilauea Point National Wildlife Refuge on Kauai, Kealia Pond NWR in Maui, at various national parks in Hawaii, Hanauma Bay MLCD and other aquariums, museums and environmental centers throughout Hawaii.

iii. Outreach Programs

The Sanctuary educational program will aim to reach groups throughout the Hawaiian Islands and elsewhere who have an interest in Hawaii's marine environment, but who may not visit or experience the area first-hand. This project entails identifying these groups and making educational materials and presentations available to them.

These programs will be carried out in conjunction with similar local programs to provide off-site education. Where possible, the Sanctuary will involve coordinating the cooperative efforts of local and regional environmental education programs and organizations (e.g., Department of Education, DLNR, Waikiki Aquarium, University of Hawaii Sea Grant and Marine Options Programs, environmental organizations, and Native Hawaiian groups). Additionally, Sanctuary staff will make interpretive materials and presentations available to local and regional schools, universities and interested user groups. Materials may include slide presentations and traveling exhibits, curriculum materials and other teacher aids. Opportunities will be assessed for Sanctuary outreach locations in areas of heavy public visitation, such as highway scenic pull-offs, State parks and public docks.

E. ADMINISTRATION

This section of the management plan describes the administrative roles of the Sanctuary, the SAC and the various agencies that will be involved in Sanctuary management. It also identifies strategies to coordinate their activities, and provides for periodic evaluation of the overall effectiveness of the management plan. Sanctuary management consists of five basic functions: resource protection (including enforcement), research, education, and administration. Administration oversees all other functions and establishes who is responsible for implementing specific programs. The administrative framework ensures that all management activities are coordinated.

SRD will develop a cooperative partnership with the State of Hawaii and NMFS to implement components of this Final Management Plan for the Sanctuary. SRD will coordinate its on-site activities through cooperative agreements and/or specific MOUs with existing Federal and State agencies, and non-governmental organizations, as appropriate. The general administrative roles of each agency are described below and listed in Part II(E)(3) of this Final EIS/MP.

1. Site Administration

The NMSP is administered by SRD. SRD is headquartered in Silver Spring, Maryland, and has on-site Sanctuary staff that are responsible for managing each of the individual sanctuary sites. SRD works with the on-site Sanctuary Manager to develop a site budget and implement program policies on the local level. Funding priorities will be reviewed and adjusted annually to reflect evolving conditions in the HIHWNMS and NMSP priorities and requirements. SRD also establishes policies and procedures in response to specific issues in each Sanctuary. Detailed SRD responsibilities are listed under the resource protection, research, education/interpretation, and general administration sections which follow.

Depending on the budget and personnel assigned to the HIHWNMS, staffing would include a NOAA Sanctuary Manager, an administrative assistant, a research coordinator, an education coordinator, a volunteer coordinator, and one or more interpreter/enforcement positions. Staff will be distributed between the headquarters office in Kihei, Maui, other satellite offices located on other islands, or within other State or Federal agencies. Arrangements may be made between various levels of government agencies and private sector organizations through cooperative agreements or MOUs to provide personnel and/or resources to carry out the duties associated with the coordinator positions. As an example, Sanctuary staff will work closely with NMFS, USCG, and the State of Hawaii, specifically with DOH, and DLNR to monitor harassment, discharge and alteration of the seabed activities in the proposed Sanctuary. The need for additional staffing will be determined during the first two years of Sanctuary operation.

The Sanctuary Manager and other field staff for the HIHWNMS manage and operate the site. They report to the Pacific Regional Manager at NOAA-SRD Headquarters in Silver Spring, Maryland. In this capacity, the Manager represents SRD and is the primary spokesperson for the HIHWNMS. The Sanctuary's headquarters is currently located at a NOAA-owned facility in Kihei, Maui. Additional Sanctuary contractors work in Honolulu and Kauai. The Sanctuary will continue to assess the need to create other "satellite" offices and information centers on other Hawaiian Islands.

2. Sanctuary Advisory Council

Under Section 315, (16 U.S.C. §1445a) of the NMSA, the Secretary of Commerce is authorized to establish sanctuary advisory councils (SAC) to provide assistance to the Secretary regarding the designation and management of national marine sanctuaries. In order to ensure that local concerns are addressed in the ongoing development and management of the Hawaii Sanctuary, SRD established a 25-member SAC in March 1996 (see Figure V-1 and Appendix D). The SAC has broad representation and has been instrumental in advising NOAA and the State on matters pertaining to the continued development of the Sanctuary. The SAC represents the coordination link between the Sanctuary and the many State and Federal management agencies, Native Hawaiians, user groups, researchers, educators, policy makers, and others which serve the function of focusing efforts and attention on the humpback whale and its habitat. In this capacity, the SAC is a critical part of the Sanctuary's identity and function because it provides a forum by which Sanctuary management issues can be raised and addressed in an ongoing and relatively informal manner, thereby enhancing the efforts of the Sanctuary in managing and protecting humpback whales and their habitat.

The SAC functions in an advisory capacity to the Sanctuary Manager and will be instrumental in helping produce annual operating plans and reports by identifying education, outreach, research, long-term monitoring, resource protection and revenue enhancement priorities. The SAC will also play an instrumental role in identifying marine resources and ecosystems of national significance for possible inclusion in the Sanctuary through a process outlined in Part V(c)(3) of the management plan. The SAC works in concert with the Sanctuary Manager by

keeping her or him informed about issues of concern throughout the Sanctuary, offering recommendations on specific issues, and aiding the Manager in achieving the goals of the Sanctuary program within the context of Hawaii's marine programs and policies. The SAC Charter details specific roles and responsibilities of the SAC (Appendix D).

In order to function efficiently in an advisory capacity and incorporate the different concerns from all the main Hawaiian Islands, the SAC may appoint subcommittees or working groups that correspond to the main Sanctuary management areas of education, research, resource protection, regulations/enforcement, revenue enhancement, and others as necessary. Additional subcommittees or working groups may be formed to provide recommendations to the SAC on the identification and assessment of other marine resources and ecosystems of national significance for possible inclusion into the Sanctuary.

Since its establishment, the SAC has met five times to provide advice and recommendations to NOAA on the public comments received on the DEIS/MP and on the continued development and management of the Sanctuary. The SAC has also elected a Chair, Vice Chair, and Secretary, and formed several subcommittees.

3. Other Federal Agencies

There are numerous Federal agencies that have significant resource management responsibilities in or near the Sanctuary. The Sanctuary will seek cooperative partnerships with these Federal agencies in order to better facilitate and streamline resource management in the Hawaiian Islands. The Sanctuary will also develop, as appropriate, MOUs to clarify and streamline coordination roles and permit review processes and other cooperative management projects. The Sanctuary will also seek other Federal agency participation to collectively sponsor and promote management related research and education projects. In particular, the Sanctuary will continue to work closely with NMFS to ensure more coordinated and comprehensive management of the humpback whale and its habitat. Other Federal agencies with resource management responsibilities include: EPA, USCG, COE, National Park Service, U.S. Fish and Wildlife Service, and DOD.

4. State, Regional, and County Agencies

Much of Hawaii's coastal waters are included within the boundary of the Sanctuary. SRD recognizes the importance of establishing strong partnerships with the many State and county agencies that have resource management responsibilities in the Sanctuary. The Sanctuary will work closely within the existing administrative framework of State resource management agencies such as: the State of Hawaii's OP; DLNR; DOH; DBEDT; DOT; OHA; KIRC; and the individual county planning offices. NOAA will also work closely with the Hawaii Coastal Zone Management Program (CZMP) to ensure wise management and protection of coastal resources, and to coordinate mutual objectives of the CZMP and the Sanctuary.

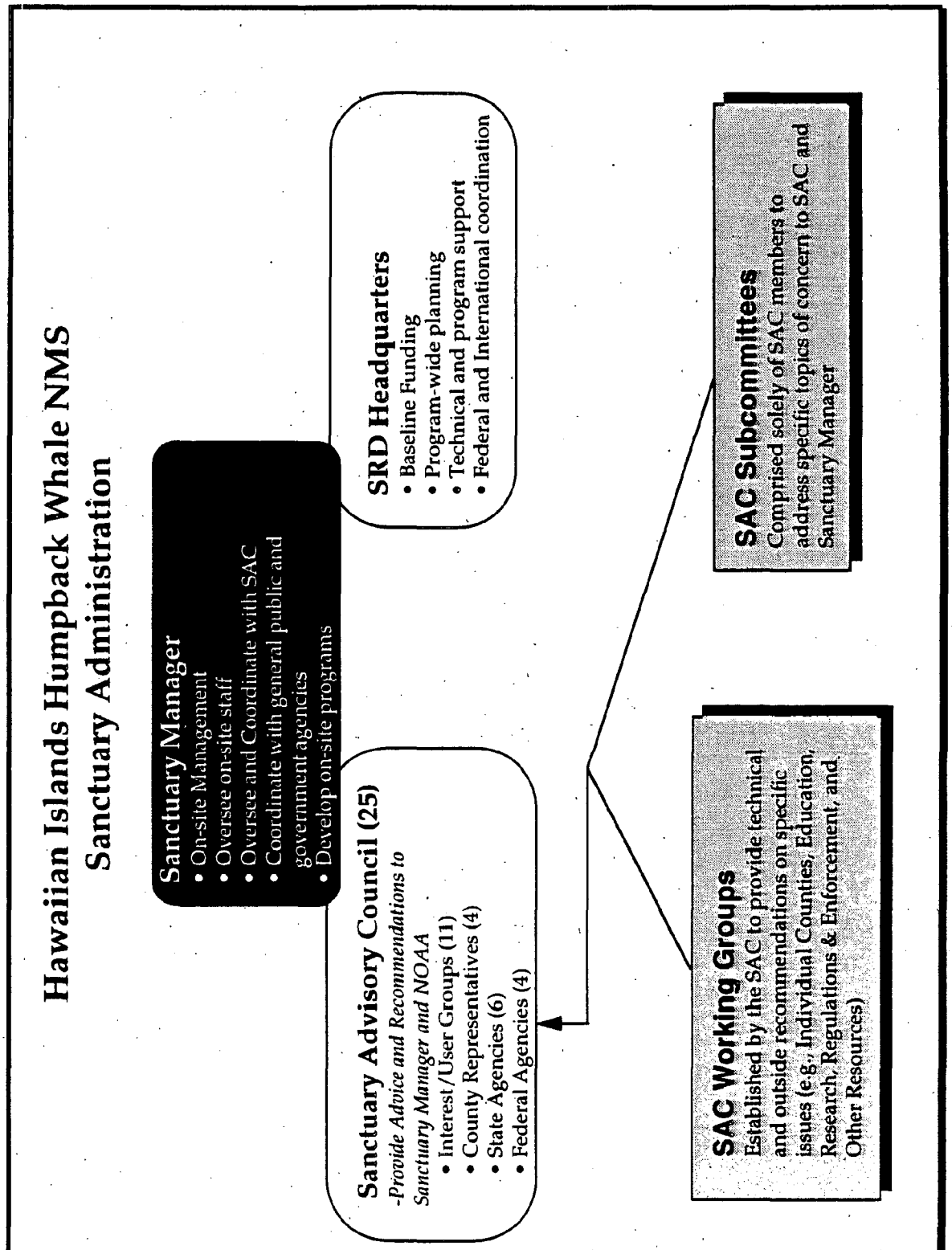

Figure V-1 Sanctuary Administration

The Sanctuary has worked in close partnership with OP and consulted with the 50 member SWG and the 25-member SAC, each composed of various Federal, State and county agencies and marine user groups to develop the draft and final environmental impact statement and Sanctuary management plan. SRD will continue this close partnership and look toward establishing other cooperative arrangements with other State and county agencies to ensure a coordinated approach to the coastal and ocean resource management responsibilities of all agencies. This cooperation will involve the formalization of cooperative agreements, MOUs and the deputization of state enforcement officials, as appropriate.

5. Compatible Uses of the Sanctuary

An important element of the Hawaii Sanctuary's management program is the encouragement of public uses of the site that are compatible with the overall objective of long-term protection of Sanctuary resources.

Sanctuary Goal: Section 2306(a)(1) of the HINMSA specifically calls for the Sanctuary to:

> "Facilitate all public and private uses of the Sanctuary (including uses of Hawaiian natives customarily and traditionally exercised for subsistence, cultural, and religious purposes) consistent with the primary objective of the protection of the humpback whale and its habitat"

Sanctuary Objectives: To meet this goal, and to foster compatible uses, the Sanctuary will initiate the following activities:

- Develop educational materials and programs aimed at enhancing public awareness and appreciation for the humpback whale and its winter habitat, and for other Sanctuary resources, and demonstrate the need for their protection;
- provide relevant information about Sanctuary regulations and use policies;
- exchange information with pertinent agencies and interested user groups on commercial and recreational activities and opportunities occurring within the Sanctuary;
- collaborate with public and private organizations in encouraging and promoting compatible uses of the Sanctuary;
- consult with other agencies on proposals and policies for management of activities which may affect Sanctuary resources;
- work with the Native Hawaiian Community to identify customary and traditional uses of the marine environment and educate the general public about these uses; and
- monitor and assess the levels of use to identify and control potential degradation of resources, and to minimize potential user conflicts.

Anticipated monitoring and information exchange programs are discussed below under Research (Section III); development of public materials is discussed below under Education/Interpretation (Section IV).

Section 2306 of the HINMSA directs NOAA to develop a Sanctuary Management Plan that, among others, "facilitates all public and private uses of the Sanctuary (including uses of Hawaiian natives customarily and traditionally exercised for subsistence, cultural, and religious purposes) consistent with the primary objective of the protection of humpback whales and their habitat." NOAA has not promulgated any regulations that would independently prohibit, restrict or regulate fishing, subsistence gathering or any other access to the water or the Sanctuary resources. NOAA will work with the Native Hawaiian community to develop joint education and research projects that facilities their use of the marine environment and increases the general public's understanding of their practices and culture.

NOAA will work closely with Native Hawaiian interests to facilitate Native Hawaiian uses of the marine environment customarily and traditionally exercised for subsistence, cultural, and religious purposes consistent with the primary objective of the protection of humpback whales and their habitat. SRD recognizes the ongoing efforts of the Native Hawaiian sovereignty movement for self-governance and will continue discussions with Native Hawaiian and State officials throughout this process to acknowledge and facilitate Native Hawaiian uses within the Sanctuary, and initiate efforts to work cooperatively with Native Hawaiian groups to educate other members of the public about their cultural, traditional and historical relationship to Hawaii's marine environment.

6. Five Year Review of Management Plan

The NMSA requires NOAA to periodically review sanctuary management plans and make changes as necessary. During the five years following implementation of the final management plan, SRD, in cooperation with the State, will conduct research on humpback whales and their habitat, assess the adequacy of Sanctuary regulations, the adequacy of existing authorities in protecting the humpback whale and its habitat, and the adequacy of the Federal-State partnership in protecting the whale and its habitat. The SAC will be encouraged to establish a working group on resource protection to review existing authorities and monitor the effectiveness of these authorities in protecting the humpback whale and its habitat.

By the time of the five-year review of the Management Plan, SRD should also have completed its process to identify other resources of national significance (e.g., other marine species and ecosystems, cultural or historical resources) for possible inclusion in the Sanctuary. Based on these assessments, SRD may revisit and revise the management plan, including the regulations to include other resources into the Sanctuary. Any proposed change to the Designation Document (e.g., new regulations or boundary modification) is required to be executed by the same procedures by which the original was developed, including preparing an environmental impact statement, holding at least one public hearing, and providing for gubernatorial review and non-objection to the changes. Any proposed substantive (those which are not procedural, administrative, technical, or editorial in nature) amendment to the existing Sanctuary regulations will also require public review, and be subject to review, and non-objection by the Governor. An outline of the five-year management plan review can be found on the following page.

7. Special Use Permits

NOAA is not proposing to implement special use permits in the Hawaii Sanctuary. The HIHWNMS regulations contain no requirements for obtaining independent Sanctuary permits or approvals, including special use permits. Special use permits would only be implemented through changing the HIHWNMS regulations to independently prohibit a certain activity unless authorized under a special-use permit. Such a regulatory change, however, would require notice and comment to the public, and review and non-objection by the Governor of Hawaii.

Review of the Sanctuary Management Plan

Evaluation

(1) Not more than five years after the final management plan and regulations become effective, and subsequently not more than every consecutive five years thereafter, SRD, in consultation with the Governor of Hawaii, shall evaluate the progress made toward implementing the management plan, regulations, and goals for the Sanctuary.

(2) In evaluating the management plan, regulations, and goals for the Sanctuary, SRD, in consultation with the Governor, shall specifically address the following issues:

- Sanctuary resource protection measures, including Sanctuary regulations and enforcement;
- The effectiveness of the Sanctuary boundary in achieving the purposes of the HINMSA and NMSA, and in meeting ongoing State resource management concerns;
- Sanctuary education, information, and outreach program;
- Sanctuary research and long-term monitoring program;
- Sanctuary coordination and cooperation with other Federal, State, and county agencies;
- Native Hawaiian uses of the Sanctuary;
- Public involvement in Sanctuary management;
- Positive and negative socio-economic impacts on marine users, including, but not limited to the following industries, groups, and/or organizations: commercial and recreational fishing, shipping and transportation, ocean recreation, whale watching, tourism, education, research, and conservation; and
- The effectiveness of the Sanctuary in facilitating all public and private uses of the Sanctuary consistent with the primary objective of the protection of humpback whales and their Sanctuary habitat.

Results of Evaluation

(1) The results of the evaluation shall be used by SRD, in consultation with the Governor, to determine whether changes to the management plan and/or regulations are necessary, and to revise the management plan and/or regulations accordingly.

(2) NOAA/SRD shall submit the final revised management plan and regulations for the Sanctuary. to the Committee on Commerce, Science and Transportation of the Senate and to the Committee on Resources of the House of Representatives.

Gubernatorial Review of Modifications to the Designation Document or Existing Regulations

(1) Any proposed change to the Designation Document (e.g., new regulations or boundary modification) is required to be executed by the same procedures by which the original was developed, including preparing an environmental impact statement, holding at least one public hearing, and providing for gubernatorial review and non-objection to the changes. Any proposed substantive (those which are not procedural, administrative, technical, or editorial in nature) amendment to the existing Sanctuary regulations will also require public review, and be subject to review and non-objection by the Governor.

8. Resource Protection: Roles and Responsibilities

a. SRD

- Approves priorities for funding for resource protection and monitors and maintains a record of research activities within the sanctuary;
- Monitors the effectiveness of interagency agreements for surveillance and enforcement and negotiates changes where required;
- Develops contingency and emergency-response plans and based on these plans, negotiates applicable interagency agreements;
- Monitors the effectiveness of existing Sanctuary regulations and promulgates changes, in conjunction with the State, where necessary;
- Coordinates efforts to protect and manage Sanctuary resources with other Federal, State, and county agencies, and with public and private organizations; and
- Ensures involvement of commercial and recreational marine interests in Sanctuary resource protection issues, through their participation on the SAC and by other appropriate means.

b. Sanctuary Manager

- Develops priorities for the allocation of funds annually to support resource protection efforts, considering the advice of the SAC and relevant groups to ensure consistency with the Sanctuary Management Plan;
- Coordinates regularly with commercial and recreational marine users, primarily through the SAC, on resource protection issues affecting these users;
- Assists, in the conjunction with the designated Sanctuary enforcement officer, the coordination of surveillance and enforcement activities by providing liaison with the Federal, State, regional and county agencies;
- Reports regularly to the SRD on surveillance and enforcement activities, and emergencies;
- Provides information for use in training Sanctuary enforcement officials;
- Monitors and evaluates the adequacy of emergency-response plans and procedures in the Sanctuary;
- Maintains a record of emergency events (e.g., oil spills) in and around the Sanctuary;
- Evaluates overall progress toward the resource protection objectives of the Sanctuary program and prepares semi-annual and bi-monthly progress reports highlighting activities for the SRD; and
- Coordinates with existing Federal, State, and county groups such as the Marine and Coastal Zone Management Advisory Group (MACZMAG) or DLNR groups.

c. Sanctuary Advisory Council

- Advises the Sanctuary Manager on the effectiveness of interagency agreements for surveillance and enforcement;
- Advises the Sanctuary Manager on the effectiveness of the Sanctuary regulations in providing adequate resource protection;
- Recommends improved methods of resource protection; and
- Establishes working groups and/or subcommittees on such topics as research, education, resource protection, enforcement, or as needed, to provide technical advice and recommendations.

d. Federal Agencies

- NMFS implements the MMPA, provisions of the ESA and participates in consultation as required under the Fish and Wildlife Coordination Act. NMFS works closely with DLNR-Division of Aquatic Resources, under the Magnuson Fishery Conservation and Management Act (MFCMA), on approving and enforcing Fishery Management Plans (FMPs) prepared by WESPAC to ensure protection of fishery resources;
- USCG holds broad responsibility for enforcing all Federal laws throughout the Sanctuary, including coordination with NMFS on enforcement of Fishery Management Plans. USCG also provides on-scene coordination and Regional Response Center facilities under the National Contingency Plan for the removal of oil and hazardous substances in the event of a spill that threatens Sanctuary resources;
- EPA implements regulatory responsibilities regarding sewage outfalls (Clean Water Act, via the NPDES permits); and ocean dumping [Title I of the MPRSA] to protect water quality. EPA has delegated NPDES permitting responsibilities to DOH;
- COE grants, based on EPA guidelines, permits for disposal of dredged materials at EPA-designated disposal sites, and monitors the effects of disposal activities. The COE also grants permits (under the Rivers and Harbors Act) for marine construction, excavation or fill activities in any navigable waters of the U.S. The COE may refuse to issue permits on the basis of threats to navigation or potential adverse effects on the environment; and
- Minerals Management Service leases and permits (under the Outer Continental Shelf Lands Act) marine mining activities for resources other than hydrocarbon resources, subject to safety and environmental regulations.

e. State, Regional, and County Agencies

- OP provides oversight for individual county planning efforts and for statewide initiatives. OP also oversees the implementation of the Hawaii CZMP by coordinating the planning, policy development, and implementation activities of other State agencies and county governments; is developing and implementing the §6217 Coastal Non-Point Source Pollution Control Program; and in certain geographic areas, issues permits for the protection of coastal resources and the management of orderly economic development throughout the coastal zone. In addition, the 1995 Hawaii Legislature gave OP a new responsibility for coordinating and implementing the 1991 Ocean Resources Management Plan.
- DLNR is responsible for managing living and historic resources (such as fisheries and historic sites), and protected areas such as State parks, Marine Life Conservation Districts, Natural Areas Reserves, and State forests. DLNR has jurisdiction over all state owned lands and submerged lands and has adopted regulations for the protection and use of public trust lands and resources in the

coastal zone. DLNR-DOCARE officers are deputized to enforce all state laws and specific Federal laws throughout the sanctuary (e.g., MMPA, ESA, MPRSA);

- The State Historic Preservation Office, within DLNR, is the State agency responsible for the preservation of representative and unique archaeological, paleontological, and historical sites in the land and water areas of the state;
- DBEDT oversees ocean industry and recreation development and is, in part, responsible for ocean energy resources development and management;
- DOH:
  a) regulates and monitors water quality for all nearshore coastal waters under state jurisdiction. DOH is also working with CZMP to develop and implement the statewide Coastal Non-Point Pollution Control Program;
  b) is charged with the maintenance and enhancement of the ambient air quality of the State. DOH has set air quality standards designed to meet National Ambient Air Quality Standards; and
  c) the Office of Hazard Evaluation and Emergency Response provides on-scene coordination of State clean-up response in the event of an accidental oil spill or hazardous materials which threaten the State's fish and wildlife resources.
- DOT oversees commercial and recreational ports and harbors, and boating activity in Hawaii.
- The Department of Agriculture (DOA) is responsible for controlling non-indigenous species importation, and implementing various non-point source pollution programs in Hawaii;
- OHA is responsible for overseeing Native Hawaiian issues and administering programs;
- KIRC oversees the restoration and management of the Island of Kahoolawe and its waters out to two nautical miles;
- OP, DLNR, DOH, DOA, DOT, and the Office of Environmental Quality Control monitor the effectiveness of State regulations within the Sanctuary and consider recommended changes to the State regulations through the State Legislature and the Governor's Office; and
- The individual counties are responsible for creating and implementing county wide land use and recreation plans; implementing the CZMP, specifically the Special Management Area permits for development activities; implementing erosion and sedimentation programs; and operating municipal sewage treatment facilities.

9. <u>Research: Roles and Responsibilities</u>

a. SRD

- Reviews and approves annual SRPs and budgets prepared by the Sanctuary Manager for research activities in each Sanctuary based upon the purposes and goals of the National Research Plan (NRP);
- Sets dates for contracts and procurements based on the SRP and the NRP;
- Administers interagency agreements and contracts for research;
- Reviews all interim and final research reports submitted by the Sanctuary Manager and permitted researchers/contractors; and
- SRD and NMFS have developed a MOU to streamline the review and issuance of permits issued under the MMPA and ESA for activities that affect the Sanctuary. SRD and NMFS use the existing permit process to satisfy requirements for both programs.

b. Sanctuary Manager or Research Coordinator

With assistance from the SAC's Research Working Group and the Pacific Coast Regional Scientific Review Group (established pursuant to the 1994 MMPA reauthorization), the Sanctuary Manager will:

- Recommend areas of research to resolve management issues and prepares Request for Proposals (RFP's);
- Develop and implement the SRP;
- Review research documents and progress reports submitted by researchers and contractors;
- Prepare assessments of research needs and priorities based on management requirements and research continuity;
- Provide recommendations to SRD for the annual research component of the overall Sanctuary Budget;
- Implements the SRP;
- Coordinates research and monitoring activities in the Sanctuary in cooperation with the SRD and other interested agencies or parties;
- Coordinates an on-site process for reviewing and evaluating research proposals and permit requests, considering the views of the SRD and concerned individuals and interest groups;
- Submits to NMFS suggested recommendations and conditions on permit applications and requests for authorizations under the MMPA or ESA; and
- Coordinates Sanctuary-sponsored research in the Sanctuary.

c. Sanctuary Advisory Council (Research Working Group)

- Advises the Sanctuary Manager on review of research proposals, interim, and final reports; and
- Advises the Research Coordinator and the Sanctuary Manager on priority research needs.

10. Education/Interpretation: Roles and Responsibilities

a. SRD

- Reviews and approves the list of annual priorities for education and the annual education budget prepared by the Sanctuary Manager;
- Reviews and approves design proposals for all educational facilities;
- Reviews all educational/ interpretive materials prepared for the Sanctuary; and
- Evaluates progress toward accomplishing objectives for education/interpretation, and adjusts long- term priorities accordingly.

b. Sanctuary Manager or Education Coordinator

With assistance from the SAC's Education Working Group, the Sanctuary Manager will:

- Recommend annually to SRD a list of priorities and an annual budget for education;
- Prepare and circulate as required Requests for Proposals (RFPs) for educational/interpretive projects;
- Supervise the design and production of educational/ interpretive materials and facilities for the Sanctuary;
- Make available training for educational staff assigned to the Sanctuary;
- Encourage local and regional organizations to participate in Sanctuary education;

- Disseminate information about the NMSP and the Sanctuary;
- Oversee the development of any facilities constructed for the Sanctuary, review site analyses and design specifications, make recommendations as to construction and maintenance contracts, and perform similar tasks;
- Coordinate Sanctuary-sponsored educational/ interpretive activities; and
- Establish quality product standards for in-house and contracted educational products.

c. Sanctuary Advisory Council (Education Working Group)

- Advises the Sanctuary Manager in efforts to raise public awareness of the Sanctuary and advises on the development of an informed local constituency by means of brochures, presentations, structured events, articles for publication, and other activities consistent with the management plan; and
- Advises the Education Coordinator and the Sanctuary Manager on priority education and outreach needs;

11. Site Administration: Roles and Responsibilities

a. SRD

- Ensures that the Sanctuary is operated in a manner consistent with established National Program policies and with applicable national and international laws, and provides guidance to the Sanctuary Manager and the SAC;
- Identifies, analyzes, and resolves major Sanctuary management problems and issues that have National Program implications;
- Formulates comprehensive, long-term management plans for the Sanctuary and revises the Management Plan as necessary;
- Directs and assists the Sanctuary Manager in the implementation of the Management Plan;
- Coordinates Sanctuary management with other Federal and State agencies and private organizations;
- Evaluates the effectiveness of Sanctuary management and regulatory measures;
- Prepares a program budget for the Sanctuary based upon recommendations from the Sanctuary Manager;
- Provides funding for overall Sanctuary management and administration; and
- Makes recommendations to the Director of the OCRM as to the actions the agency may need to take in regards to controversial projects that could impact or injure Sanctuary resources.

b. Sanctuary Manager

- Coordinates on-site efforts of all parties involved in Sanctuary activities, including State, Federal, and county agencies, and the public;
- Reviews the management plan periodically and recommends changes to SRD as needed;
- Prepares site budget for submission to SRD for approval and funding;
- Oversees day-to-day operation of the Sanctuary, including administrative functions such as bookkeeping, purchasing, and keeping records of visitor activities;
- Supervises Sanctuary staff and other personnel, including education, research, and enforcement employees assigned to the Sanctuary;
- Represents the Sanctuary viewpoint on local issues and at public forums; and
- Consults and works within the permit review processes of other agencies to ensure humpback whale and habitat concerns are considered.

c. Sanctuary Advisory Council

- Advises on the specific plans for Sanctuary development;
- Advises on proposals for activities within the Sanctuary;
- Advises on an overall plan for the use, development and maintenance of Sanctuary lands and facilities; and
- Advises the Sanctuary Manager on projects and activities that may impact Sanctuary resources.
- Advises the Sanctuary Manager on actions that should be taken to improve effective management of the resources.

d. Federal, State, and County Agencies

- Assists in the preparation and implementation of a comprehensive, long-term management plan for the Sanctuary;
- Assists in the periodic review of the management plan; and
- Appropriate permit issuing agency considers Sanctuary comments and recommendations on projects that may impact Sanctuary resources.

F. REVENUE AND RESOURCE ENHANCEMENT

Section 2306 (a)(4) of the HINMSA requires that the Sanctuary Management Plan "identify alternative sources of funding needed to fully implement the plan's provisions and supplement appropriations under Section 2307 of the Act." Section 311 of the NMSA provides several mechanisms for the Sanctuary to utilize alternative voluntary sources of funding to work with other government agencies and non-profit organizations to implement the Management Plan's provisions [NMSA §1422(a)-(d)]. These include:

- NOAA may enter into cooperative agreements, financial agreements, grants, contracts, or other agreements with States, county governments, regional agencies, interstate agencies, or other persons to carry out the purposes and policies of the HINMSA and NMSA.
- NOAA may enter into such agreements with any nonprofit organization authorizing the organization to solicit private donations to carry out the purposes and policies of the HINMSA and NMSA.
- NOAA may accept donations of funds, property, and services for use in designating and administering national marine sanctuaries. Donations accepted under this section shall be considered as a gift or bequest to or for the use of the United States.
- NOAA may acquire by purchase, lease, or exchange, any land, facilities, or other property necessary and appropriate to carry out the purposes and policies of this title.

Revenue enhancement in terms of Sanctuary management means supplementing baseline funding levels for the purpose of conserving and managing Sanctuary resources. Revenue enhancement may include, but is not limited to: the creation of partnerships with government and/or private-sector organizations; support though foundations; donations of property or funds; product marketing; corporate sponsorships; volunteer user fees; internships; volunteer opportunities; and other innovative fundraising initiatives. *The Sanctuary recognizes significant public opposition to mandatory user fees and is <u>not</u> proposing mandatory broad-based user fees to supplement baseline funding.* This is consistent with the recommendations of a "Marine Sanctuary User Fee Workshop" held in Monterey, CA during November, 14-16, 1994, which reaffirmed support for the Sanctuary Program, but called for the immediate abandonment of using mandatory user fees to supplement program funding. Further, the 1996 reauthorization of the NMSA provides a *statutory provision against mandatory user fees for any activity within or use of the*

Sanctuary. Public involvement will play an essential role in planning and implementing any revenue enhancement efforts.

The NMSP will continue to pursue revenue enhancement measures for individual sites and the national program. The NMSP faces the huge challenge of protecting and managing some of the nation's most cherished coastal and marine resources. This effort does not come without costs, and in today's challenging budget times, the Program must consider every available funding option. NOAA will work with the local community to develop and implement creative measures to supplement the NMSP's base funding levels. NOAA believes that sanctuary users appreciate the practical need for increased funding to better manage and protect Sanctuary resources.

Another example of a revenue enhancement measure is the National Marine Sanctuary Logo Pilot Project. In 1992, Congress directed the Sanctuary Program to enhance funding for the designation and management of National Marine Sanctuaries through a pilot project consisting of the creation, adoption, and marketing of a logo. Section 2204 of the NMSA directed the Sanctuary Program to solicit and designate official sponsors of the Program or of individual sanctuaries. These sponsors would be authorized to manufacture, reproduce, or use the logo. A national design and selection process resulted in the official approval of the whale's tail logo pictured below. This logo was published in the *Federal Register* on March 28, 1995. The Sanctuary Program has Congressional authorization to sell "rights" or uses of the logo and retain the funds to enhance and manage National Marine Sanctuaries. In the 1996 reauthorization of the NMSP, the logo program was made a permanent provision of the NMSA.

NATIONAL MARINE
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It is anticipated that identifying and using alternative sources of funding will be a continuing activity, to meet and support the stated purposes of the management plan [see A(2)(a) of the MP, "Purposes of the Management Plan"]. The Sanctuary will work cooperatively with the State of Hawaii, the SAC, and interested organizations and individuals to identify and establish innovative and creative solutions to enhance funding for Sanctuary programs. The HIHWNMS will seek opportunities to develop cooperative agreements and partnerships with government agencies and the private-sector; establish or work with existing non-profit organizations to help the Sanctuary carry out the programs and purposes of the Sanctuary; and continue efforts to initiate other forms of revenue enhancement and program support measures. For example, the Hawaii Sanctuary has already developed numerous partnerships with other government and private sector organizations. Such partnerships have included the cooperative public/private venture to develop the "*Watching Hawaii's Humpback Whales*" brochure; the development of a pocket humpback whale information/approach regulation guide; cooperatively developed education displays and materials with other organizations and museums; and the acquisition of Federal property in Kihei for the Maui Sanctuary office. Opportunities to creatively enhance baseline revenues and staff resources without mandatory fees are abundant.

PART VI: LIST OF PREPARERS

Final Environmental Impact Statement and Management Plan (FEIS/MP):

Mr. Brady Phillips: Program Specialist, Sanctuaries and Reserves Division (SRD). Mr. Phillips was responsible for compilation of the Final EIS/MP, including writing, editing, policy development and analysis, and assembling the individual components. He also was the primary coordinator for the Draft EIS/MP team. He has worked on the development of the Hawaii Sanctuary since February 1993. He also is the SRD headquarters contact for the Fagatele Bay NMS in American Samoa, and has experience in helping develop an island-wide resource management program in Kosrae, Federated States of Micronesia. He has a B.S. in Zoology and Environmental Studies from the University of Wisconsin-Madison, and a M.S. in Marine Resource Management from Oregon State University.

Mr. Brian Burnett: Consultant, SRD. Mr. Burnett assisted Mr. Phillips in compiling the Final EIS/MP, including policy analysis, writing, editing, formatting, and assembling components, as well as coordinating the internal review/clearance process. He has worked on the development of the Hawaii Sanctuary since its Congressional designation in November 1992, though the majority of that time was spent working for the Hawaii Office of State Planning (OSP). As part of OSP, he was one of the lead State contacts throughout the development of the Draft EIS/MP and the initial stages of the Final EIS/MP. His B.A. is a double major in Political Science and Economics from the University of Hawaii at Manoa.

Ms. Nina Garfield: Program Specialist, SRD. Ms. Garfield was responsible for reorganizing Part 1 of the Draft EIS/MP for the Final EIS/MP. She also assisted in the writing, editing, and final policy analysis of various aspects of the document. She has a B.A. in Sociology and Psychology from Kalamazoo College in Kalamazoo, Michigan, a M.S. in Marine Affairs from the University of Rhode Island, and course work in Chemistry and Physics at the University of Pittsburgh, and Mariculture at the Marine Biological Laboratory in Woods Hole, Massachusetts.

Ms. Naomi McIntosh: Consultant, SRD. Ms. McIntosh wrote and updated significant portions of Part II, as well as provided guidance on policy issues. She has worked with SRD since March 1994. As the Oahu contact, she interacts closely with other agencies, user groups, and the public to provide information about the Hawaii Sanctuary and to raise awareness on the importance of protecting humpback whales and their habitat. She has previously worked at the Kewalo Basin Marine Mammal Laboratory and the Naval Ocean Systems Center. She has a B.A. in Psychology from the University of Hawaii and a Certificate of Completion in Environmental Studies also from the University of Hawaii.

Mr. Allen Tom: On-site Program Specialist and liaison. Mr. Tom is responsible for coordinating daily activities of the Hawaii Sanctuary including the other Sanctuary contractors on Oahu, Kauai and Maui. Mr. Tom assisted in developing the FEIS/MP by coordinating public outreach and awareness efforts, response to public comments, on-site policy development, the Sanctuary Advisory Council, and other State and Federal government agencies. He has a B.S. in Biology from the University of California, Davis and a M.S. in Animal Science (Aquaculture) from the University of Hawaii.

Draft EIS/MP:

Mr. Ben Mieremet: International Affairs Specialist, Policy Coordination Division in the Office of Ocean and Coastal Resource Management. Mr. Mieremet had co-lead responsibility for the preparation of the Draft EIS/MP. He is the principal author of 12 previous EISs, numerous

environmental assessments on coastal related issues, and 20 years experience in coastal zone management. He has a B.S. in Conservation and Resource Development from the University of Maryland, a M.A. in Water Resources Management from the University of Michigan, and a M.A. in International Relations from Salve Regina College in Rhode Island.

Ms. Janice Sessing: Formerly the Hawaii On-site Program Specialist, SRD. Ms. Sessing shared responsibility for the preparation of the Management Plan (Part V) and obtained input from Federal, State, and local agencies, interested public, and Sanctuary user groups used to develop management alternatives. Ms. Sessing has represented NOAA at the domestic and international level on various marine and environmental topics. Her B.S. is a double major in Marine Science and Biology, with a Chemistry minor from the University of Miami, Florida and a M.S. from the University of Hawaii at Manoa.

Ms. Sherrard Foster: Program Specialist, SRD. Ms. Foster shared responsibility for the preparation of the Management Plan (Part V) and for coordinating the internal Draft EIS/MP review/clearance processes. She holds a B.A. in English, with a minor in Biology, from Lynchburg College, Lynchburg, Virginia. Before joining SRD in 1984, she served as Director of Marine Issues, Defenders of Wildlife, Inc., Washington, D.C.

Mr. David Kennard: Economic Development Planner with experience as a consultant on environmental and economic development issues in the Pacific. Assisted the drafting team through the Pacific Basin Development Council to provide much of the socio-economic data found in Part II.

Dr. Michael Hamnett: Senior Policy Analyst with the Pacific Basin Development Council has 25 years of policy research, technical assistance, and training experience in the Pacific island region. Among his many experiences, he was a member of the planning team that drafted the Hawaii Ocean Resources Management Plan during 1989-90. He provided information on Hawaii's State authorities described in Part II.

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PART VII: LIST OF AGENCIES AND ORGANIZATIONS RECEIVING COPIES OF THE FINAL EIS/MP

FEDERAL AGENCIES

Advisory Council on Historic Preservation
Council on Environmental Quality
Department of Agriculture
Department of Commerce
- National Marine Fisheries Service -
  Office of Enforcement
  Office of Protected Species
  Southwest Regional Office
  Pacific Area Office
  National Marine Mammal Laboratory

Department of Defense
- Adjunct General Office
- Department of the Air Force
- Department of the Army
- Department of the Army/Corps of Engineers
- Department of the Navy/Marines
- Pacific Missile Range Facility - Kauai

Department of the Interior
- Fish and Wildlife Service
  - Kealia Fishpond NWR
  - Kilauea Pt. NWR
- National Park Service
  - Haleakala National Park
  - Volcanoes National Park

Department of State
Department of Transportation
- U.S. Coast Guard

Environmental Protection Agency
- Region 9
- Pacific Regional Office

Federal Emergency Management Agency
Marine Mammal Commission
Western Pacific Regional Fishery Management Council

CONGRESSIONAL

Honorable Daniel K. Akaka, U.S. Senate
Honorable Daniel K. Inouye, U.S. Senate
Honorable Neil Abercrombie, U.S. House of Representatives
Honorable Patsy T. Mink, U.S. House of Representatives
Honorable Diane Fienstien

HAWAII STATE GOVERNMENT AGENCIES

Commission on Employment
Department of Agriculture
Department of Business, Economic, Development and Tourism
Department of Defense
Department of Education
Department of Land and Natural Resources
- Division of Aquatic Resources
  - Aquaculture Development Program
- Division of Conservation and Resources Enforcement
  - Division of Parks

Department of Health
Department of Public Safety
- Marine Patrol

Department of Transportation
Kahoolawe Island Reserve Commission
Office of the Attorney General
Office of Environmental Quality
Office of the Governor
Office of Hawaiian Affairs
Office of the Lt. Governor
Office of Planning
- Coastal Zone Management Program

State Public Library - Hawaii
University of Hawaii
- Center for Hawaiian Studies
- Environmental Center
- Research Corporation of Hawaii
- Hamilton Library Collection
- Leeward Community College
- Kauai Community College
- Maui Community College
- UH Hilo Library
- Marine Options Program
- Seawords Editor
- School of Public Health
- Hawaii Ag. Research Center
- Sea Grant Extension / Communication
- Richardson Law School

HAWAII COUNTY GOVERNMENT AGENCIES

Mayor's Offices (Kauai, Oahu, Maui. Hawaii)
City and County of Honolulu Planning Office

•Wastewater Department
County of Hawaii Planning Office
County of Kauai Planning Office
County of Maui Planning Office
Representative Nestor Garcia
Representative Ken Hiraki
Representative Calvin Kawamoto
Represenatative Alex Santiago
Representative David Tarnas
Representative Cynthia Theilen
Senator Rossalyn Baker
Councilmember Duke Bainum
Councilmember Steve Holmes
Councilmember James Arakaki
Councilmember Patrick Kawano
Councilmember Alice Lee
Councilmember Wayne Nishiki
Councilmember Sol Kaho'ohalahala
Councilmember Al Smith
Councilmember Lloyd Can De Car

NATIONAL INTEREST GROUPS

Albright College - Biology
American Cetacean Society
American Fisheries Society
American Protection of the Cruelty to Animals
American Oceans Campaign
Boating Industry Association
Cascadia Research Collective
Center for Action Endangered Species
Center for Law and Social Policy
Center for Marine Conservation
Center of Whale Research
Cetacean Society
Coast Alliance
Cornell University
Defenders of Wildlife
EDAW, Inc.
Environmental Defense Fund, Inc.
Environmental Law Institute
Environmental Policy Center
FEDECAS - Columbia
Findhorn Foundation
Friends of the Earth
Great Barrier Reef Marine Park - Library
The Greenpeace Foundation
Hatfield Marine Science Center
Hubbs Sea World Research Institute
International Bird Rescue
International Medcom
LEROS
Marine Mammal Commission
Moss Landing Marine Labs
National Association of Conservation Districts
National Association of Counties
National Audubon Society
National Federation of Fishermen
National Fisheries Institute
National Oceans Industries Association
National Parks and Conservation Association
National Recreation and Park Association
National Research Council
National Wildlife Federation
Natural History Museum - Los Angeles
Natural Research Council
Natural Resources Defense Council
New York Department of Education
Ocean Advocates
The Oceanic Society
P & W. Software
Reef Keeper - Florida
The Rhett Company
SAIC Maritime Center
San Jose State University - Department of Geography
Save Our Reefs
Save Our Shores
Scripps Institution
Sunset Magazine
Teledyne Brown Engineering
United Nations Environmental Programs - Nairobi
University of California - Berkeley
University of California - Los Angeles
University of Texas - Marine Mammal Program
Vector Omni - International
The Whale Center
Whales Alive - Australia
Whale Fund
Whale Museum
Wilderness Society
William Wanket, Inc.
Woods Hole Oceanographic Institution
World Wildlife Fund - U.S.

LOCAL INTEREST GROUPS

Aaron's Dive Shop
Activity Owners Association of Hawaii
Ala Moana Pacific Center
Alexander and Baldwin
American Fisheries Society, Hawaii Chapter
American Hawaii Cruise Lines
Animal Rights Hawaii
Architects, Hawaii, Ltd.

Atlantis Submarine - Hawaii
BHP Petroleum Americas (Hawaii), Inc.
Belt Collins, Hawaii
Bill's Scuba Shack
Bishop Museum
Carl Smith et. al (inc).
Center for Whale Studies
CEROS
Chaminade University - Biology Dept.
Chevron USA, Inc.
Chamber of Commerce of Hawaii
Citizens for the Protection of the North Kohala Coast
Clean Islands Council
Club Lanai
Council of Hawaii Organizations
Dive Maui
Earth Island Institute
Earthtrust
Elsa Nature Conservancy - Japan
Environment Hawaii
Environmental Science Designs
Expeditions
Estate of James Campbell
Friends of the Hana Coast
Friends of the Makalawena
Friends of Queen's Beach
Friends of the Puako Reef
Garden Island Times
Garden Island Trollers
Gemini Charters
Grove Farms - Kauai
Group 70 International
Hanalei Community Association
Hawaii Audubon Society
Hawaii Boaters Council
Hawaii Environmental Education Association
Hawaii Fishermen's Association
Hawaii Fishing News
Hawaii Hochi Ltb.
Hawaii Hotel Association
Hawaii IMAX
Hawaii Maritime Center
Hawaii Nature Center
Hawaii Ocean Industry Fund
Hawaii Pacific University
Hawaii Whale Research Fund
Hawaii Wildlife Fund
Hawaii Visitors Bureau
Hawaii's Thousand Friends
Hawaiian Tug/Young Bros.
Helbert, Haster and Yee
Hinatea Sportfishing
Honolulu Advertiser
Honolulu Star Bulletin
Honolulu Weekly
Iao School
Kaanapali Beach Resort Assn.
Kailua Elementary School
Kamehameha Schools
Kaneohe Bay Yacht Club
Kau Landing Paper
Kauai Friends of the Environment
Kauai High School
Kauai Times
Kewalo Basin Marine Mammal Lab
KGMB
Kihei Community Assn.
Kilauea Point National Wildlife Refuge
KITV Channel 4 News
Kona Iki Trollers
Kukui'ula Development Corp.
Lady Ann Cruises
Lahaina Divers
Lahaina Times
Lahaina Town Action Committee
Lahaina Yacht Club
Lanaiians for Sensible Growth
Life of the Land
Living Ocean Adventures
M& M Pacific Inc.
Maalaea Boat and Fishing Club
Matson Navigation
Maui - Molokai Sea Cruises
Maui Chamber of Commerce
Maui Divers of Hawaii
Maui Economic Development Board
Maui Radio Group
Maui Trailer Boat Club
Maui Visitors Bureau
Mauiana Magazine
Mauna Kea Divers
Mauna Lani Sea Ventures
Mid- Pacific Hawaii Fisheries
Mike Severns Diving
Moanalua Garden's Foundation
Molokai Advertiser - News
Na Lani Video Services
Na Pali Adventures
Native Hawaii Ad. Council
Native Hawaiian Fisherman Assn.
The Nature Conservancy
Natural Resources Defense Council, Hawaii
Navitek
Ocean Drifters
Ocean Rafting Maui
Ocean Riders
Ocean Sport Waikoloa

Oceanic Institute
Oceanit
Ohana O Hawaii
One Earth Foundation
Pacific Islands Institute
Pacific Museums Inc.
Pacific Whale Foundation
PANGALEA
Papa Ola Lokahi
People Opposed to the Whale Sanctuary
Protect Kahoolawe Ohana
Rainbow Divers
Royal Hawaiian Cruises
St. Andrew's Priory
Save Our Bays and Beaches
Save our Seas
Sea Bird Cruises
Sea Life Park
Scotch Mist Sailing Charters
Sierra Club
Sierra Club Legal Defense Fund
Thousand Friends of Kauai
Tongg & Tongg
TORCH
TOS Hawaii. Inc.
Trilogy Cruises
Ultimate Rafting
United Fishing Agency
Wa Ula O Kai
Waikaloa Land Company
Waikiki Aquarium
West Hawaii Today
West Maui Taxpayers Assn.
West Maui Watershed Project
Whales Alive
Wilson Okamoto Assn.
Windjammer Cruises
Yama's Specialty Shop
Zi-purr Charter

PART VIII -- APPENDICES

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Appendix A

RESPONSES TO COMMENTS

The FEIS/MP provides an analysis of the impacts of the proposed action and its alternatives. Public and agency review of the DEIS/MP helps to ensure the FEIS/MP is responsive to public and agency comments.

The DEIS/MP was released to the public in September 1995, initiating a 90-day public comment period that ended on December 15, 1995. Over twenty-five statewide informational meetings were held to assist the public in understanding the preferred alternatives and to answer questions and concerns. SRD also held seven formal public hearings throughout the main Hawaiian Islands. In total, over 250 written comments and oral testimonies were received by NOAA during the comment period. SRD reviewed and responded to all substantive comments which were not statements simply for or against the proposal. That is, those comments requiring additional explanation, analysis of data, or those which debated facts or conclusions reached in the DEIS/MP.

Significant issues and substantive comments were addressed in the response to comments section which follows and by making changes to the EIS, as appropriate. Because many comments were duplicative in nature, SRD summarized the similar substantive comments by issue (i.e., regulations), and then further defined subtopics (i.e., regulatory alternatives, future regulations). This allows the reader interested in a particular issue to easily identify that issue and NOAA's response.

BOUNDARY

1. **Comment:** All boundary alternatives should exempt commercial harbors from the Sanctuary and allow for further expansion of existing harbors. Harbor exemptions should also include approaches and off-shore anchorages.

Response: The Sanctuary boundary excludes major ports, harbors, and small boat basins primarily because they do not constitute humpback whale habitat. Whales tend to avoid such areas because of the number and types of activities that occur within such ports, harbors, and small boat basins (both in and out of the water). Such activities include, but are not limited to, vessel painting, shore-based boat cleaning, toxic paint releases from moored vessels, and sewage disposal. NOAA has determined that the nature and level of these activities are not appropriate for inclusion within the Sanctuary. By excluding these areas, NOAA will be able to focus Sanctuary management on the long-term protection of other areas that do constitute humpback whale habitat and are less heavily impacted by human activity. The list of excluded ports, harbors and small boat basins can be found at section 945.2 of these regulations. These final regulations add the Ala Wai small boat basin on Oahu to the list of excluded areas. While the Sanctuary regulations do not prohibit the construction of new harbors or the expansion of existing harbors conducted in compliance with a valid Federal or State permit, plans for such development within the Sanctuary will be reviewed by NOAA in order to offer recommendations and comments to ensure that Sanctuary resources are adequately protected. At that time, NOAA will determine whether to revise the Sanctuary boundary to exclude the new or expanded port, harbor or boat basin. Approaches to harbors and offshore anchorages are not excluded from the Sanctuary boundary because these areas are more frequently used by humpback whales and provide an important link between the nearshore and deeper water habitats.

2. **Comment:** NOAA should only include those areas on leeward sides of the islands in the Sanctuary boundary since that is where the whales seem to be located.

Response: NOAA disagrees. Humpback whale distribution studies over the last ten years have shown that humpbacks are commonly found in waters less than 100-fathoms throughout the main Hawaiian Islands (windward and leeward). Though distribution studies have shown that humpbacks can be found in greater numbers in leeward areas, they still use windward areas for breeding, calving, and nursing activities. At present, scientists do not fully understand distribution patterns and habitat preference for humpbacks, though it is accurate to say that humpback whales are distributed throughout the main Hawaiian Islands, particularly in waters less than 100-fathoms. Given that humpback whales are very dynamic and swim among the different islands, NOAA has determined that the boundary should include windward and leeward sides of the islands.

3. **Comment:** NOAA should adopt a Sanctuary boundary that includes waters around all the main Hawaiian Islands from the shoreline to the 1000-fathom isobath to better encompass all the whales' habitat.

Response: NOAA recognizes that this boundary alternative would include most if not all the humpback whale habitat in the main Hawaiian Islands, but has concluded that this alternative is far too large for effective management under current and foreseeable financial and staff resources. Most of the area in this boundary alternative is located significantly offshore (e.g., up to 40 miles from each main Hawaiian Island). The dispersion of management activities (e.g., research and enforcement) in these areas would strain the program's ability to effectively manage other nearshore areas of the Sanctuary. Since most human and whale activities and interactions occur in relatively shallow waters (generally less than 100-fathoms), NOAA believes the focus of Sanctuary management efforts would be better placed in these areas. This alternative also fails to consider the importance of U.S. Department of Defense (DOD) military use areas in Hawaii that are essential to national security and defense.

4. **Comment:** NOAA should adopt a zoned boundary; an outer boundary around the 1000-fathom isobath (no regulations -- advisory only) and an inner boundary constituting the Congressionally-designated boundary.

Response: NOAA disagrees. Although this option would incorporate most humpback whale habitat in the Sanctuary, NOAA believes that such a boundary is too large to effectively manage (see previous response). NOAA believes that a 100-fathom isobath boundary is more manageable since research, education, and other resource protection measures can be focused in those nearshore areas where whales and human activities are more likely to come into conflict. This core 100-fathom boundary is included as the NOAA preferred boundary alternative, excluding DOD military use areas that are essential to national security and defense (see response #8).

5. **Comment:** The shoreline does not need to constitute the Sanctuary's border since whales don't go that close to shore.

Response: The shoreline was chosen as the Sanctuary's inshore boundary because the purpose of the Sanctuary is to protect the humpback whale and its habitat. Humpback whales use the shallow, nearshore areas (less than 100-fathom isobath) around the main Hawaiian Islands for certain reproductive activities (i.e., calving and nursing). The bathymetry around the Hawaiian Islands is variable, with some adjacent marine areas dropping off steeply very close to shore and, therefore, whales may be found in these areas. Further, impacts to the nearshore waters of humpback whale habitat could impact waters further offshore as well, where whales are also found. The shoreline is also more easily recognized as a definable, uniform inshore boundary than

are offshore areas. Finally, a boundary that includes the shoreline also provides more protection for stranded whales or whale carcasses that wash up on shore.

6. **Comment:** Define what makes a boundary manageable versus non-manageable. The Statewide boundary is too large for NOAA to effectively manage.

Response: The National Marine Sanctuary Program has 14 different sites, each encompassing unique resources in a defined geographic area. Their sizes range from 0.25 square miles to over 5,000 square miles. Manageability must be looked at on a site by site basis taking into account area's size and resources, existing management authorities, accessibility to the site, types and impacts of human uses, suitability for research, monitoring and enforcement activities, and fiscal and staffing resources of the National Marine Sanctuary Program. In selecting a sanctuary boundary, NOAA assesses whether the boundary will both facilitate the goals for which the sanctuary was designated and whether its is manageable given resource and practical limitations. NOAA has determined that it could successfully supplement and help coordinate research, long-term monitoring, education, and enforcement programs within a statewide Sanctuary boundary (with certain exceptions) encompassing the waters from the shoreline to the 100-fathom isobath.

7. **Comment:** NOAA should adopt the Congressionally designated boundary (Maui County and part of Kauai).

Response: Although Maui County has historically had and continues to have the highest reported concentration of humpback whales, other areas of the State (i.e., Kauai, Oahu, and the Big Island) include important whale habitat used for breeding, calving, and nursing activities. Many different scientific research studies have concluded that humpback whales are primarily distributed within the 100-fathom isobath throughout the main Hawaii Islands, including Kauai, Oahu, and the Big Island. NOAA believes that a statewide boundary is necessary to provide comprehensive and coordinated management of humpback whales throughout Hawaii, and that the benefits associated with a National Marine Sanctuary, including research and educational efforts, and enhanced enforcement of existing laws, should be available to all the islands of the State.

8. **Comment:** The expansion of the Sanctuary beyond Maui County is not justified, especially in light of the fact that the military exclusion zones contain high reported concentrations of humpback whales (West Kauai, Oahu). Military areas should not be excluded from the boundary since activities occurring in these areas can impact the whales.

Response: In choosing a boundary for a sanctuary, NOAA must take into consideration many factors, including a area's size, resources, manageability, and the human uses of the area (see earlier response). The Department of Defense (DOD) is a significant ocean user in Hawaii, and many of its activities are essential to our nation's security and defense. NOAA has formally consulted with DOD on their existing military activities and has concluded that they have sufficient resource protection measures within their standard operating procedures to ensure the protection of humpback whales and their habitat. DOD activities remain subject to the provisions of the Marine Mammal Protection Act (MMPA), the Endangered Species Act (ESA), and other laws and regulations relating to water quality and the. To facilitate DOD military uses, NOAA, in consultation with the State of Hawaii and DOD, determined that the Hawaii Sanctuary boundary should not include certain military use areas in order to support the military's interests and activities now as well as into the future, and to maintain our nation's national security interests.

9. **Comment:** NOAA should expand the boundary of the Sanctuary to include waters surrounding the entire State, including the Northwest Hawaiian Islands (NWHI).

Response: NOAA agrees that the boundary of the Sanctuary should be expanded beyond the Congressionally-designated boundary (i.e., Maui County). However, NOAA does not believe that the NWHI should be included within the Sanctuary boundary for a variety of reasons. First, few humpback whales have been reported around the atolls, islands, banks, and reefs of the NWHI. Second, this area is managed as a national wildlife refuge, significantly restricting access to the area, even for research purposes. Finally, the inclusion of these waters, which are remote and difficult to access, could hinder effective resource management efforts in these areas and detract management efforts from other parts of the main Hawaiian Islands.

10. **Comment:** NOAA should expand the boundary of the Sanctuary to include areas of humpback whale habitat throughout the U.S. Exclusive Economic Zone (EEZ).

Response: NOAA does not believe that a Sanctuary encompassing all of Hawaii's EEZ is necessary or manageable. Most humpback whales can be found within the 100-fathom isobath around the main Hawaiian Islands. An EEZ-sized Sanctuary would expand the Sanctuary to areas that are very remote -- hundreds of miles from human population centers. As a result, comprehensive management, including additional research, long-term monitoring, and enforcement demands would significantly strain financial resources and curtail effective management efforts in other areas of the State where both whales and humans are more likely to interact. Regulatory protection offered by the MMPA and the ESA, however, still protects the humpback whale throughout Hawaii's EEZ.

11. **Comment:** NOAA should adopt a boundary that encompasses areas of highest reported concentrations of humpback whales so that the Sanctuary does not include areas where whales are not typically present.

Response: Although this boundary encompasses a series of discrete areas known to be extensively used by humpback whales, it fails to include other important identified areas of the main Hawaiian Islands that humpback whales utilize for transit, courting/mating, breeding, calving, and resting activities. In addition, this boundary does not consider the fact that an increasing whale population will eventually require more space to successfully reproduce, calve, and nurse, and it does not allow for the adequate comprehensive protection of humpback whales and their habitat throughout the Hawaiian range. Finally, this boundary fails to recognize the importance of DOD military use areas and activities that are essential to national security and defense.

12. **Comment:** NOAA should adopt as a boundary for the Sanctuary the 100-fathom isobath surrounding all the main Hawaiian Islands including Kaula Rock.

Response: While this boundary accurately reflects the current understanding of humpback whale distribution and habitat use in Hawaii, it fails to recognize the significance of DOD military use areas and activities that are essential to national security and defense. Furthermore, this boundary is slightly larger in scope than the NOAA preferred boundary, as it includes marine waters surrounding Niihau and Kaula Rock. The inclusion of these waters, which are remote and difficult to access, could hinder effective resource management efforts in these areas and detract management efforts from other parts of the main Hawaiian Islands.

13. Comment: NOAA should exclude the Big Island from the Sanctuary's boundary because there are not as many whales around the island as in other parts of the State, and the Big Island residents do not want the Sanctuary there.

Response: NOAA has received oral and written comments both in opposition to and in support of the inclusion of the Big Island within the boundary of the Sanctuary. NOAA believes that the waters around the Big Island constitute important habitat for the humpback whale. Research has shown that the northwest portion of the Big Island contains high concentrations of whales. The whales are also known to use other areas around the Big Island for reproduction, calving, and nursing activities as well. NOAA believes that inclusion of the Big Island will help ensure that comprehensive management and protection of humpback whales and their Hawaiian habitat will be applied statewide. NOAA does not believe that the inclusion of the Big Island will result in significant adverse socio-economic impacts on marine users, and that the benefits associated with a national marine sanctuary (including research and educational efforts, and enhanced enforcement of existing laws) would be distributed throughout the main Hawaiian Islands.

14. Comment: NOAA should include the Big Island in the Sanctuary boundary.

Response: NOAA agrees and the Big Island has been included in the boundary with the exception of harbors, ports and small boat basins (see previous response).

15. Comment: All of the boundary alternatives should be justified by whale needs and through supportable scientific evidence.

Response: In developing the boundary alternatives and selecting the preferred boundary alternatives, NOAA used the most current scientific evidence to determine whale locations around the main Hawaiian Islands. Since population studies have shown that humpback whales frequent the 100-fathom isobath region more than other areas of the State, NOAA decided on a statewide boundary using that depth contour as an outer limit. Certain areas around the State have not been included, however, based on and because of DOD national security interests (see response #8). Not including such areas should not compromise the purposes of the HINMSA

KAHOOLAWE

16. Comment: There is a discrepancy between the authority of the Kahoolawe Island Reserve Commission (KIRC) (shore to two nautical miles) and the Hawaiian Islands National Marine Sanctuary Act (HINMSA) language excluding the waters around Kahoolawe (shore to three nautical miles). This one mile gap in jurisdiction needs to be corrected.

Response: Although there is a one mile gap between the Congressionally designated Sanctuary and KIRC's authority in the water surrounding Kahoolawe, in the preferred alternative NOAA does not propose to include the one mile area into the Sanctuary boundary at this time. In December 1995, the Secretary of Commerce certified that the three mile area was unsuitable for inclusion into the Sanctuary. The HINMSA was amended in 1996 to allow the KIRC to request inclusion into the Sanctuary the marine waters within three miles from Kahoolawe. If at some point in the future such waters are deemed suitable for inclusion, the entire three mile area would likely be included within the Sanctuary. Special management measures would likely be necessary for the area lying within two nautical miles of Kahoolawe to reflect KIRC's management authority and responsibility.

17. Comment: The waters around Kahoolawe could be added to the Sanctuary without the opportunity for public comment. This would be a violation of the National Marine Sanctuaries Act (NMSA).

Response: The public has had at least two formal opportunities (March 1993 scoping meetings and September-December 1995 public hearings and comment period on the DEIS/MP) to comment on the inclusion of the waters around Kahoolawe in the Sanctuary. In December, 1995, the Secretary of Commerce certified that the waters around Kahoolawe are unsuitable for inclusion in the Sanctuary and, therefore they are not part of the Sanctuary boundary. In 1996, the HINMSA was amended, in part to provide that should NOAA determine in the future that Kahoolawe waters may be suitable for inclusion in the Sanctuary, NOAA will prepare a supplemental environmental impact statement, management plan, and implementing regulations for that inclusion. This process will include the opportunity for public comment. Further, the Governor would have the opportunity to certify his or her objection to the inclusion, or any term of that inclusion, and if this occurs, the inclusion or term will not take effect. NOAA is committed to providing additional opportunities for public input, and will also seek recommendations and advice from the Sanctuary Advisory Council (SAC). In addition, NOAA will work closely with the KIRC and the State concerning the inclusion of Kahoolawe waters in the Sanctuary.

REGULATIONS

Existing Regulations

18. Comment: Humpback whales are already protected by the MMPA, the ESA, and State regulations. There is no need for additional regulatory protection.

Response: In 1992, Congress enacted the HINMSA, recognizing the important role that the Hawaiian Islands play in the preservation and long-term vitality of the endangered humpback whale. The waters around the Hawaiian Islands constitute essential breeding, calving, and nursing areas for this important national resource, and are subject to damage and to loss of their ecological integrity from a variety of disturbances.

The HINMSA directed NOAA to develop a comprehensive management plan and implementing regulations for the Sanctuary in consultation with appropriate Federal, State, and local government authorities, as well as other interested persons (i.e., marine users and the general public). The purpose of the Sanctuary designation is to promote the comprehensive and coordinated protection of the humpback whale and its habitat, which NOAA has determined can be achieved through research, monitoring, education, and better enforcement of existing regulations.

NOAA reviewed the scientific literature concerning potential impacts to humpback whales and the existing Federal and State regulations and programs designed to protect humpback whales and their habitat, and concluded that no additional independent regulatory prohibitions or restrictions are needed for their protection at this time. NOAA believes that other coordinating and non-regulatory protection measures are needed, however, to ensure the long-term recovery and vitality of humpback whales and their habitat. While direct regulation is certainly one means of providing protection for resources, NOAA believes that education, research, monitoring, coordination, and better enforcement of existing laws are also necessary to ensure comprehensive protection for humpback whales and their habitat.

NOAA has found that there are adequate existing regulations in place to provide protection of humpback whales and their habitat in Hawaii at this time. However, NOAA, in consultation with other Federal and State agencies, resource managers and researchers, has determined that

enforcement of existing authorities needs to be supplemented to provide for greater, coordinated and comprehensive protection of humpback whales and their habitat. Supplementation will be accomplished by incorporating certain existing restrictions as Sanctuary regulations. Such action will enable the Sanctuary to bring the humpback whale perspective to the application of these existing authorities, and to allow for enforcement mechanisms and, when appropriate, civil penalties to be brought under the National Marine Sanctuaries Act for violations of such authorities.

NOAA also recognizes that existing authorities do not provide the necessary resources for agencies to develop comprehensive and coordinated education, research, monitoring, and enforcement programs to ensure the continued viability of humpback whales and their habitat. Nor do these laws provide the degree of public input into managing these resources as does the NMSA. NOAA has therefore determined that there is a need to supplement these other non-regulatory resource protection management tools, and that the Hawaii Sanctuary can play an integral role in facilitating dialogue and in coordinating with the other Federal, State, and county agencies, and the general public. The Sanctuary Management Plan provides a comprehensive and coordinated regime, that complements existing efforts, to protect, manage, and conserve humpback whales and their habitat in Hawaiian waters so they may be enjoyed by both present and future generations.

19. Comment: How will the Sanctuary provide more protection for the whales given that they are already protected by existing regulations?

Response: NOAA believes that "protection" encompasses more than regulatory measures. Education, research, monitoring, coordination, and enforcement all contribute to protecting Sanctuary resources. In response to public and agency comments, NOAA is not issuing new, independent Sanctuary prohibitions or restrictions in Hawaii to protect humpback whales and their habitat. Instead, NOAA will essentially incorporate existing regulations to make up the regulatory portion of the Sanctuary management regime (see previous comment). This will increase protection for humpback whales and their habitat in several ways. First, this gives authority for the Hawaii Sanctuary to be a resource management agency that actually "sits at the table" and reviews permit applications for potential harm to Sanctuary resources. The Hawaii Sanctuary has a different and much more focused mission than any of the other agencies in Hawaii inasmuch as its primary concern is to ensure that humpback whales and their habitat are not adversely impacted. Since the Sanctuary is relying on existing regulations, the Sanctuary will not issue independent permits, but will work within the existing permit structures of agencies to ensure that potential impacts to whales are addressed. Memoranda of Understanding (MOUs) with the such agencies will detail how the Sanctuary will coordinate in reviewing permit applications.

Second, Sanctuary regulations also provide the necessary authority for the Sanctuary to directly work with Federal and State enforcement agencies to coordinate enforcement of permit violations. Although there are several different Federal and State enforcement entities, all are facing severe financial resource limitations. The Sanctuary can supplement these limited resources and enhance education and outreach efforts to ensure that the public is informed about existing regulations.

Finally, the regulations may provide an added deterrence to potential violators in that the Sanctuary program has a $100,000 potential maximum civil penalty for persons violating Sanctuary regulations (whale approach and harassment, discharges, and alteration of the seabed). All Sanctuary fines assessed as a result of Sanctuary enforcement actions will, however, be based on a civil penalty schedule developed for the Sanctuary that will be made publicly available.

Non-regulatory features of the Sanctuary that will provide greater protection for humpback whales and their habitat include: the SAC, which can provide a framework for continuous dialogue between the Sanctuary Manager and resource managers, researchers, educators, enforcement agencies, marine users, and the public; research used to address management-related issues and to

answer unknown questions such as how and why whales change their behavior in response to various human disturbances; and proactive efforts to work with existing organizations and marine user groups to produce and disseminate information about how humans can minimize their impacts on humpback whales and their habitat and on the existing laws that protect Sanctuary resources.

20. **Comment:** Although Sanctuary program staff have stated that there will be no "new" Sanctuary regulations, doesn't the fact that the Sanctuary is incorporating existing regulations as part of its regulatory structure constitute new regulations? How is this different than the status quo in terms of permits, veto authority over projects, and enforcement?

Response: NOAA is essentially incorporating certain existing Federal and State regulations that protect (directly and indirectly) humpback whales and their habitat into the Sanctuary management regime as Sanctuary regulations. However, the Sanctuary regulations do not impose any new restrictions inasmuch as the regulations only impose the substantive restrictions which were already in place before the designation of the Sanctuary. They do not place any additional prohibitions or restrictions on marine users aside from those that already exist. Nor do the Sanctuary regulations provide authority to require and issue Sanctuary permits. The Sanctuary is developing MOUs with appropriate Federal and State agencies to facilitate review by the Sanctuary of other agency permit applications for activities that could impact Sanctuary resources, and, if necessary, provide recommendations to the agency considering issuing a permit on ways to prevent, minimize, or mitigate harm to these resources. These would be recommendations only, and the permitting agency ultimately determines whether to include the recommendations as part of its permit conditions. The Sanctuary regulations do not provide the authority for NOAA to veto, deny, or approve permits issued or authorized by these other agencies. The only "new" feature of these regulations would be that if an activity is conducted without a required permit, or in violation of the terms and conditions of an existing permit, such action would be a violation of the Sanctuary regulations. The Sanctuary would then coordinate with the appropriate Federal or State agency on any necessary enforcement actions. This regime is consistent with the input NOAA received throughout the public process from Federal and State agencies, resource managers, researchers and others regarding the adequacy of existing regulations as they pertain to protection of humpback whales and their habitat in Hawaii.

21. **Comment:** The current humpback whale approach regulations are flawed. The Sanctuary should create a "right of safe passage" or show some "intent to harass" so that as the humpback whale populations continue to increase and vessel-whale interaction becomes more common, vessel operators will still be allowed to transit an area without fear of being cited for a violation of an approach regulation.

Response: In 1987, the National Marine Fisheries Service (NMFS) published an interim rule under the ESA (52 FR 44912) establishing a 100-yard approach limit for vessels (or people), a 300-yard vessel approach limit in cow/calf areas, and a 1000-foot overflight limit to provide better protection for humpback whales and to minimize the effects of increasing vessel traffic on humpback whales. A final rule was published by NMFS in January 1995 (60 FR 3775) that retained the 100-yard vessel approach limits and 1000-foot overflight limit, but eliminated the 300-yard cow-calf areas.

NOAA recognizes a difference between approach and proximity to humpback whales, and that whales may approach vessels. The 100-yard approach regulation clearly states that approaching (moving toward) a humpback whale within the prescribed limits is prohibited. A vessel would not ordinarily violate the regulation by inadvertently being inside the 100-yard limit, or if a humpback whale surfaces or approaches within of 100 yards of a vessel. NMFS Enforcement agents and the NOAA Office of General Counsel (GC) assess alleged violations on a case by case basis to determine whether an approach has occurred, and whether an enforcement action is warranted.

The existing approach regulations appear to have successfully achieved protection for the whale while avoiding enforcement actions for merely being within 100 yards of a whale.

The National Marine Sanctuary Program is incorporating the NMFS approach prohibitions into the Sanctuary management regime. The Sanctuary program cannot independently make changes to regulations promulgated under other authorities (MMPA, ESA, or any other Federal or State regulation). The Sanctuary program, however, recognizes the concerns of the boating community over the enforcement of these regulations and the potential conflict due to increases in both the whale populations and in boating activities in Hawaii. The Hawaii Sanctuary will help coordinate and facilitate dialogue between concerned boaters and NMFS (Office of Protected Species and Office of Enforcement) and NOAA-GC. In addition, the Sanctuary's Management Plan will undergo a formal evaluation after five years, including a determination of the effectiveness of the Sanctuary regulations at protecting Sanctuary resources, and their impacts on marine users.

22. Comment: The Sanctuary should, in cooperation with boat operators, promote proper disposal of sewage from boat heads, encourage compliance with existing laws, and help implement existing regulations and programs.

Response: NOAA agrees. Water quality is one component of the humpback whale habitat that many people want to see improved and maintained. The Sanctuary can use the expertise available on the SAC and associated working groups to work with the boating community and operators to develop voluntary education programs aimed at achieving proper vessel sewage disposal and compliance with existing regulations. The Sanctuary is also supplementing existing regulations that pertain to discharges or deposits that could affect humpback whales or their habitat by making illegal discharges or deposits a Sanctuary violation.

Future Regulations

23. Comment: The Sanctuary has not provided a guarantee that there will be no new Sanctuary regulations in the future.

Response: NOAA cannot make the guarantee that future regulations will never be necessary. It is possible that someday resource managers may identify a specific type of activity that could negatively impact Sanctuary resources or create conflicts among other Sanctuary users. While other non-regulatory options would be pursued first, regulation is one type of management tool that NOAA may choose to consider in order to protect Sanctuary resources or minimize user conflict. NOAA could not issue a new regulation, however, without first going through an extensive public review and comment process (see following response). The Governor would also have the opportunity to object to any new Sanctuary regulation as it pertains to State waters.

24. Comment: Should new regulations be necessary in the future, what is the process?

Response: NOAA must first identify and support that there is a need for a new regulation (e.g., that a Sanctuary resource is being, or could be negatively affected by some activity or that an activity is creating a conflict among Sanctuary users). NOAA would work with other Federal and State resource management agencies, the research community and affected user groups to collect all relevant and available information and scientific data that will be used to more clearly define the problem and identify potential solutions. NOAA will also seek advice and recommendations from the SAC and other resource management agencies prior to initiating any rulemaking.

If after coordinating with existing agencies and the SAC a decision is made to propose a new regulation, NOAA is required to, at a minimum, follow the procedures of the Administrative Procedure Act, requiring that adequate public notice and opportunity for public comment be given for new regulations. Further, if NOAA proposed a regulation outside of the scope of regulations

listed in the Sanctuary Designation Document, NOAA would be legally required to go through the designation process, including public review and comment, at least one public hearing, preparation of a Supplemental EIS, and gubernatorial review and approval. If the Governor objects, the regulation would not take effect in State waters. Finally, if NOAA proposed to substantively change an existing regulation, NOAA must provide for public review and comment and, although not legally required to do so, gubernatorial review and approval.

25. Comment: There should be no new regulations unless:

i) the need for a new regulation is clearly demonstrated;

ii) the disturbance results in loss of humpback whale life;

iii) the negative impacts of the activity have been documented and substantiated by legitimate research; and

iv) regulations are first approved unanimously by the SAC.

Response: NOAA agrees that there should not be any new sanctuary regulations unless there is a demonstrated need. NOAA will work closely with existing agencies, the SAC, the scientific community, and marine users to identify and clarify any potential problems before promulgating new regulations. NOAA will make all efforts to collect existing relevant scientific data or provide resources to fund research if necessary to investigate the nature, scope, and cause of such problems.

NOAA does not agree, however, that it should only regulate an activity if the activity is found to kill a humpback whale. NOAA firmly believes that resource protection should be proactive in nature and be responsive to potential problems as they arise -- this means acting when the problem is identified and confirmed, rather than waiting until after death occurred before taking any action.

NOAA fully intends to seek input from the SAC on the scope of any potential problems as well as solutions on how to solve those problems (regulatory and non-regulatory). NOAA views this SAC input, as well as those from other agencies and the public, as extremely important in shaping Sanctuary policy. NOAA disagrees, however, that it must first seek "unanimous approval" by the SAC before it could ever consider issuing a regulation. The SAC is an advisory body whose role is to provide advice and recommendations to the Sanctuary Manager on policy issues, including regulation. Unanimous approval is not necessary and is unrealistic given the broad spectrum of interests represented on the SAC. NOAA will consider the advice and recommendations of the SAC, as well as comments received during the general public comment period on a proposed regulation, to evaluate whether to proceed with promulgating a new regulation.

Habitat Regulations

26. Comment: The Sanctuary program should develop a more detailed definition of habitat in the regulations to clarify how the Sanctuary will interface with other permitting agencies.

Response: NOAA's humpback whale habitat definition for the Sanctuary was developed to be consistent with those habitat definitions of the MMPA and the ESA. At this time, humpback whale habitat is based on known whale distributions and on those activities and behaviors that occur in these areas. More scientific research is needed to investigate those specific chemical, physical, and biological components of the marine environment that are truly an important or necessary component for humpback whales before a more precise definition can be proposed. This is also the primary reason the Sanctuary is relying on, and only supplementing, other authorities that regulate discharges and alteration of seabed activities.

As previously noted in an earlier response, the Hawaii Sanctuary is currently developing MOUs with relevant Federal and State agencies to more clearly define the types of permits the Sanctuary

would review and specific procedures for Sanctuary review and comment. The draft MOUs are included in Appendix E of the FEIS/MP.

Regulatory Alternatives

27. Comment: New regulations are not needed and NOAA should focus on research and education only.

Response: NOAA disagrees. Resource protection is the primary goal of the National Marine Sanctuary Program and NOAA, as a co-manager in partnership with other Federal and State agencies, must be able to provide adequate protection for those resources. NOAA has determined that a national marine sanctuary must have some minimum level of regulation as part of a Sanctuary's management regime, primarily to protect Sanctuary resources. As detailed in earlier responses, NOAA explained why additional protection is needed for humpback whales and their habitat, and how essentially incorporating certain existing regulations into the Sanctuary management regime adds more protection. By having no direct role or authority to manage resources of the Sanctuary, NOAA would not be able to fulfill the responsibilities imposed by Congress in the HINMSA to comprehensively manage and protect the Sanctuary and its primary resources, the humpback whale and their habitat.

Furthermore, NOAA would be constrained in its ability to expend Sanctuary resources to enhance enforcement of these existing regulations if it did not, at a minimum, incorporate certain existing restrictions as Sanctuary regulations. Such enhanced enforcement is an integral component of the Sanctuary management regime's protective measures, and is consistent with the overall recommendations contained in the Hawaii Ocean Resources Management Plan (ORMP).

Like research and education, regulation and enforcement are management tools necessary to protect Sanctuary resources. Further, additional Sanctuary resources could be wisely spent to enhance existing enforcement efforts by NMFS, the State Department of Health (DOH), or DLNR. Such enhancement could be in the form of funding for educational materials about what protective regulations currently exist for the humpback whale and its habitat, for convening workshops for ocean users to discuss enforcement activities, or for funding research to determine adequacy of enforcement actions. Furthermore, the Sanctuary Program is examining the feasibility of funding additional monitoring or enforcement positions within DOH and DLNR.

28. Comment: NOAA should support compliance with existing regulations.

Response: NOAA agrees, and has identified this alternative as the preferred regulatory alternative. NOAA believes this regulatory alternative will best allow the Sanctuary to fulfill its responsibilities to protect Sanctuary resources without unnecessarily duplicating existing Federal and State agency rules and regulations that provide protection (directly or indirectly) to humpback whales or their habitat. This alternative also addresses the concerns raised regarding additional Sanctuary regulations and permits. The Sanctuary regulations have no requirements to obtain separate Sanctuary permits to conduct otherwise prohibited activities.

29. Comment: NOAA should not supplement existing regulations because there is a real potential for future and more stringent regulations, and for higher fees, fines, and penalties.

Response: NOAA disagrees. The final Sanctuary regulations are limited in scope to essentially incorporating those existing Federal and State regulations that provide protection to the humpback whale and its habitat. It is impossible for NOAA to predict whether new regulations will ever be needed or if they will be more stringent. The procedures for issuing new regulations, however, will involve broad public input and gubernatorial review (see response #24).

NOAA has never proposed any mandatory user fees for the Sanctuary, so there will be no added fees for marine users other than any fees that are already being assessed by other Federal, State, and county agencies. Further, in 1996, the HINMSA was amended, in part, to prohibit NOAA from instituting any user fee under the HINMSA or NMSA for any activity within the sanctuary or any use of the Sanctuary or its resources.

To alleviate the public's concern that any violation of a Sanctuary regulation will result in the assessment of the maximum $ 100,000 civil penalty, NOAA's Office of General Counsel is developing a civil penalty schedule for the Sanctuary, which will be made publicly available. The civil penalty schedule will identify the ranges of fines that could be assessed for violating Sanctuary regulations, taking into account such factors as number of prior violations and the severity or type of violation.

30. Comment: NOAA should adopt comprehensive regulations to protect the humpback whale and its habitat. Since the MMPA and ESA are currently being watered down, the Sanctuary should have independent regulations to provide supplemental protection.

Response: While NOAA agrees that a complete suite of independent Sanctuary regulations and permits may provide greater protection for humpback whales, it also recognizes the concerns raised by other Federal, State, and county agencies and marine users for duplicative laws and permitting processes. Because this Sanctuary protects the humpback whale and it's habitat, already protected by other Federal and State authority NOAA has attempted to craft a resource protection plan that does not add unnecessary regulation, permits, or time requirements to an already complicated and overburdened system. As such, NOAA believes that working cooperatively with other agencies will best allow NOAA to achieve its limited resource protection goals while minimizing its impact on other agencies and Sanctuary users. If significant changes to existing authorities occur, NOAA may re-evaluate the Sanctuary regulations to determine whether they should be amended.

31. Comment: Any Sanctuary regulatory alternative (alternatives "4," "5," and "6") that allows the Sanctuary to issue independent permits is good as long as the logistics of permit review are maintained and the whales are actually getting adequate attention and protection.

Response: Permits only provide additional protection for resources if the permit review procedures are followed, monitored, and evaluated over time. Throughout this process, NOAA repeatedly received comments and information from Federal, State, and county agencies and the general public that Hawaii already has too many separate permit requirements and that the real problems lie in monitoring and enforcing violations of existing permits and regulations. As the majority of the Sanctuary lies in State waters and because NOAA is essentially only incorporating existing prohibitions and restrictions as Sanctuary regulations, NOAA is not adding any additional Sanctuary permit requirements, but will work within the existing permit review processes to ensure that humpback whales and their habitat are considered and that adequate monitoring and enforcement of these permits occurs.

32. Comment: NOAA should adopt strict regulations on marine users and activities to protect humpback whales and their habitat so that it has direct authority to provide more protection for humpback whales and a greater ability to prevent those actions that do harm humpback whales or their habitat.

Response: NOAA disagrees. This regulatory alternative is not presently justified by the available data concerning impacts to humpback whales or their habitat.

33. Comment: National marine sanctuaries should entail ecosystem based management. NOAA should issue regulations to protect the ecosystem so that it can address the true resource management needs in Hawaii.

Response: NOAA does not agree that all marine resources should be included in the Sanctuary and that comprehensive regulations for ecosystem management be implemented at this time. NOAA is required by the HINMSA to identify other areas and ecosystems of national significance for possible inclusion in the Sanctuary. NOAA agrees that an ecosystem based Sanctuary should be given more consideration, and has detailed a process in Part V(c) of the final Management Plan (Sanctuary Resources), that will involve substantial input from the SAC, other agencies, and members of the public prior to including additional marine resources or ecosystems. This process will clearly identify and clarify what, if any, such resources should be included in the Sanctuary and what role the Sanctuary should take in their management and protection.

FISHING

34. Comment: The Sanctuary will restrict fishing in Hawaii.

Response: NOAA disagrees. The proposed management plan and regulations for the Sanctuary did not include the regulation of fishing activities. The final management plan and regulations have not changed. Moreover, fishing is not included as an activity listed in the scope of activities in the Designation Document as being subject to regulation. Thus, any regulation of fishing would constitute a change in the term of the designation, as contained in the Designation Document for the Sanctuary, for which the Secretary of Commerce must follow the applicable requirements of section 304 of the NMSA. Such requirements include providing the Western Pacific Regional Fishery Management Council (WESPAC) with the opportunity to determine if fishing regulations are necessary and if so, to draft such regulations for the Sanctuary. NOAA would also consult with the State and the SAC, as well as the fishing industry to determine an appropriate course of action to address concerns over impacts to Sanctuary resources from fishing activities. Further, NOAA would be required to solicit public comments, conduct at least one public hearing, and prepare a Supplemental EIS. Finally, the Governor of Hawaii would have the ability to review and veto the amendment to the Designation Document and new Sanctuary regulation before it can take effect in State waters.

All fishing activities in Federal waters are managed by WESPAC and NMFS, and in State waters by the Hawaii Department of Land and Natural Resources (DLNR). There is little evidence to indicate that humpback whales extensively feed while in Hawaiian waters (though opportunistic feeding may occur). As such, whales and fishermen do not extensively interact, or at least, at a level necessitating the creation of Sanctuary regulations governing fishing activities. While fishermen, as well as other marine users, are subject to the existing NMFS regulations prohibiting approaches closer than 100-yards, current enforcement data confirms this relatively low level of disturbance as fishermen have never been cited for harassing a whale in Hawaii. In fact, most fishermen fish in areas that do not have high whale concentrations because of claims that whales scare the fish away.

The Hawaii Sanctuary recognizes the importance of fishing for livelihood and enjoyment in Hawaii. Additionally, the Sanctuary recognizes the importance of protecting Native Hawaiian fishing and gathering rights and will work to ensure these are not unnecessarily impacted by new regulations.

35. Comment: The Florida Keys National Marine Sanctuary is proposing to have replenishment zones and that will restrict fishing -- Hawaii will be next.

Response: Each of the 12 National Marine Sanctuaries protects different marine resources and requires a different set of management tools to protect those resources, especially if they are developed to complement existing Federal, State, and local agencies. The Florida Keys National Marine Sanctuary and the Hawaiian Islands Humpback Whale National Marine Sanctuary are very different types of sanctuaries, and as such, have very different management regimes. The Florida Keys Sanctuary protects the entire ecosystem, from seagrass beds to sandy bottoms to coral reefs. The Florida Keys National Marine Sanctuary and Protection Act required NOAA to consider zoning as a management tool for that sanctuary and, consequently, NOAA is proposing a zoning approach to resource protection, including certain zones that restrict fishing activities. NOAA is not proposing a zoning approach for the Hawaii Sanctuary, nor is it proposing to regulate fishing (see response # 34). Further, for any new regulation, including zoning restrictions, the Governor of Hawaii will have the ability to review and approve such regulation before it can take effect in State waters.

ENFORCEMENT AND PENALTIES

36. Comment: Civil penalties implies an "all or nothing" approach to enforcement. The potential economic consequences of scaring boaters with excessive fines should be noted. The fine structure should be expanded to include degrees of violations, both intentional and unintentional. The inadvertent accident of a well-meaning citizen should not be the grounds for a severe penalty. Who will develop the penalty structure? What public review process will the penalty structure go through. The $100,000 maximum potential fine is scary to ocean users. The Sanctuary needs to clarify what maximum fines are for certain types of violations.

Response: The civil penalty section of the Hawaii Sanctuary regulations (§922.186) describes the maximum statutory civil penalty, $100,000, that can legally be assessed for a violation of the NMSA, HINMSA, or any regulation or permit issued under those laws. A civil penalty schedule for the Sanctuary with recommended minimum and maximum penalties will be developed by the NOAA's Office of General Counsel for Enforcement and Litigation with input from the Office of Law Enforcement, in consultation with the Sanctuary program. The schedule will set forth a range of civil penalties that could be assessed for a violation of each Sanctuary prohibition, taking into account aggravating and mitigating factors such as prior violations and the severity of the violation. The civil penalty schedule will be made publicly available and will be similar to other penalty schedules that are presently available for other sanctuary sites (e.g., Key Largo and Looe Key). This schedule should alleviate concerns over the maximum potential penalty being assessed for minor infractions of the law.

Penalties for regulations established under the NMSA are created under civil law and therefore differ from some of those established under other Federal/State jurisdictions within the Sanctuary (those established under criminal law). This will have both positive environmental benefits and overall positive socioeconomic benefits for the Sanctuary. The resources of the Sanctuary will receive a greater level of protection by providing civil authority to other agencies through cross-deputization. Enforcement of regulations is best facilitated by agencies cross deputizing to enforce civil penalties.

Civil authority and coordinated enforcement under the NMSA have positive socioeconomic impacts on society in general in that there are cost savings to the public when agencies can share authorities and combine human and material resources. The Sanctuary regulations provide supplemental civil penalty options. In some cases, civil may be more appropriate than criminal. In some cases, use

of both civil and criminal may be appropriate. The resources can be better protected when there are more options for individuals enforcing the regulations. This, in turn, should lead to greater environmental and socio-economic benefits.

Civil authority lends itself more freely to an educational and interpretive approach to enforcement of regulations in National Marine Sanctuaries. Simply the message that something is a Sanctuary violation is all that is needed to achieve compliance from the vast majority of Sanctuary users. This concept underscore of the most important goals of a Sanctuary enforcement program – to obtain through education, voluntary compliance with regulations protecting (directly and indirectly) humpback whales and their habitat.

Many commenters have expressed concern about the discretion of enforcement officers in handling violations. Such discretion is applied on a case-by-case basis and, as a result, most violations are addressed through written or verbal warnings. Civil penalties are recommended by the NOAA-GC enforcement attorney upon completion of an investigation by the enforcement officer and review of the case specifics, and will be guided by the Sanctuary civil penalty schedule.

37. Comment: The Sanctuary brings the added potential for people to get their vessels seized.

Response: In addition to vessel seizure provisions contained within the ESA, the MMPA, and other fishery, customs, and boater laws, the NMSA also contains provisions that authorize vessel seizure in connection with or as a result of any violation of the NMSA or the implementing regulations for the Hawaii Sanctuary. However, it is unlikely that NOAA would seize someone's vessel for violating the humpback whale approach and harassment regulations unless seizure is necessary because the violation was particularly egregious, or if there was a risk the violator intended to leave Hawaiian waters.

38. Comment: A greater enforcement presence is not justified in the Draft EIS/MP.

Response: NOAA disagrees. Throughout the scoping and public meetings, the issue of enforcement was raised repeatedly. Many individuals noted that the existing laws protecting humpback whales and their habitat were adequate, but that the enforcement of those laws was insufficient. With respect to the notion of enhanced enforcement, many factors relating to marine enforcement in Hawaii changed during the development of the Draft EIS/MP. First, faced with a fiscal crisis, the State of Hawaii eliminated their Marine Patrol division from within the Department of Public Safety. Though 18 of the 43 enforcement personnel positions have been transferred to DLNR, there has been a net loss of 25 enforcement personnel throughout the State. In addition, the NMFS Office of Enforcement (NMFS-OE) has cut the number of enforcement personnel in Hawaii to three officers. This past year, NMFS-OE, faced with budget and staffing shortfalls, eliminated their presence on Maui during the whale season. This reduction further hampers NMFS's ability to adequately enforce ESA and MMPA measures. The ability of these existing laws to continue to protect the endangered humpback whale and its habitat is greatly compromised when enforcement is reduced to such a great extent. NOAA believes that the Sanctuary may provide a mechanism to leverage more resources for increasing marine enforcement in Hawaii closer to the level that existed prior to the budget cuts at both the State and Federal levels. Further, NOAA can provide for coordination among the remaining enforcement entities to more effectively and efficiently utilize the limited resources.

39. Comment: Since user fees, penalties, and fines collected under the Hawaii Sanctuary are credited back to the Sanctuary program, there is more incentive for Sanctuary management to enhance revenues through enforcement actions. The general public is afraid of overzealous officers out to make money for the Program.

Response: NOAA does not view civil penalties as a method to enhance appropriations. The National Marine Sanctuary Program is developing new means of revenue enhancement, including licensing merchandise, soliciting donations, and other voluntary methods. The Program's philosophy is that such measures are much more effective than attempting to increase program funding through increased enforcement action and penalties. The authority to retain civil penalties for use in managing and improving the Sanctuary ensures that monies obtained for violations of the HINMSA, NMSA, or Sanctuary regulations may be used directly for further educational outreach and research efforts, rather than being returned to the U.S. Treasury. Further, the Sanctuary Program in Hawaii will not have its own independent enforcement presence. Enforcement of Sanctuary violations will be carried out through NMFS-OE, a separate entity within NOAA. Consequently, any perception that NMFS-OE would carry out enforcement in order to increase Sanctuary Program funding should be minimal.

40. Comment: The Sanctuary should be used for research and education only -- not to enforce existing regulations.

Response: NOAA disagrees. Like research and education, regulation and enforcement are management tools necessary to protect Sanctuary resources. Further, additional Sanctuary resources could be wisely spent to enhance existing enforcement efforts by NMFS, the State Department of Health (DOH), or DLNR (see response #38). Such enhancement could be in the form of funding for educational materials about what protective regulations currently exist for the humpback whale and its habitat, for convening workshops for ocean users to discuss enforcement activities, or for funding research to determine adequacy of enforcement actions. Furthermore, the Sanctuary is examining the feasibility of funding additional monitoring or enforcement positions within DOH and DLNR.

41. Comment: Local boat operators are responsible for self-policing. There is no need for additional enforcement since there are few interaction problems.

Response: NOAA recognizes that Hawaii's boat operators are some of the most responsible in the nation, if not the world. And, based on the limited number of citations issued by NMFS over the past few years, there appears to be but a few interaction problems between vessels and humpback whales in Hawaii's waters. However, that self policing results in fewer violations does not necessarily obviate the need for additional enforcement. Moreover, the Sanctuary is also responsible for protecting the humpback whale's habitat. As such, additional enforcement of habitat regulations will facilitate the efforts of local State enforcement agencies such as DOH or DLNR. Such an increase in enforcement is also called for in the ORMP, which encompasses the entire marine ecosystem of the main Hawaiian Islands, and claims that the enforcement of existing regulations is one of the greatest resource management needs (see response #100).

MANAGEMENT AND ADMINISTRATION
SCOPE OF SANCTUARY RESOURCES

42. Comment: Sanctuary should be administered on a year-round basis.

Response: NOAA agrees. Although humpback whales are only present in Hawaii's waters for about six months each year, their habitat and threats to their habitat need to be addressed on a year-round basis. In addition, NOAA believes that long-term habitat monitoring, education, outreach, and coordination with other agencies needs to happen on a year-round basis to ensure comprehensive resource protection.

43. Comment: If the final Sanctuary boundary includes areas on all islands, then each of the islands should have a contact person so that all citizens have equal access to Sanctuary resources and management.

Response: NOAA's goal is to have Sanctuary liaisons or contacts on all the major islands within the Sanctuary's boundary. In addition, the SAC has representatives from all the counties and nearly every island. The SAC will be encouraged to coordinate various user groups and interests to ensure that local concerns are discussed and addressed (see responses #53-55).

44. Comment: NOAA should have a mixture of Federal and State agencies and private sector citizens manage the Sanctuary.

Response: NOAA believes that the day-to-day management of a Sanctuary should be made by the on-site Federal Sanctuary Manager and his or her staff. To allow for public and agency input into the management of the site, however, NOAA has created the SAC. The SAC provides advice and recommendations to the Sanctuary Manager and NOAA on the management of the site, and is a mixture of Federal, State, and nongovernmental citizens, representing a number of varied and diverse interests in Hawaii. The SAC provides recommendations on various management issues, including recommendations on education, research, regulations, enforcement, and other funding priorities. Additionally, SAC members may form working groups with island representatives and other members of the public to keep appraised of local issues and concerns regarding the Sanctuary. All SAC meetings are open to the public and the public may participate in agenda items or ask to have certain issues addressed if approved ahead of time by the SAC Chair and the Sanctuary Manager (see responses #53-55).

45. Comment: The State of Hawaii or county governments should manage the Sanctuary.

Response: The proposed boundaries of the Hawaii Sanctuary encompass waters of both Federal (beyond three nautical miles) and State (shoreline to three nautical miles) jurisdiction. As such, it is imperative that the Sanctuary have sufficient management and regulatory jurisdiction over all of these waters to ensure that Sanctuary resources are fully protected. The counties or the State do not have jurisdiction to manage Federal waters and as such, the Sanctuary is best managed through a single Federal agency; NOAA. The Hawaii Sanctuary, however, acknowledges the existing Federal and State agencies that have management jurisdiction in or near the Sanctuary, and is developing cooperative partnerships and MOUs to clarify the role of each agency vis a vis the Sanctuary to enhance coordination (see response #20). In addition, the Sanctuary Manager may obtain advice and recommendations from the 25 member SAC on the management of the Sanctuary (see responses #53-55).

46. Comment: There is fear that the Sanctuary will be managed or at least major decisions affecting local sanctuaries will originate from Washington D.C. Local citizens do not have any control over these decisions.

Response: Each individual National Marine Sanctuary is managed by the on-site Sanctuary Manager. The on-site Manager and other staff make day-to-day decisions concerning planning, managing, implementing, and funding site priorities. The on-site Manager may obtain advice and recommendations from the 25 member SAC on management of the site, including research, education, regulations, enforcement, and funding priorities. The Hawaii Sanctuary is part of a national program, and certain policy issues are reviewed by the headquarters office to ensure consistency among the various sites, when appropriate. The headquarters office also reviews policies generated from the sites and provides technical assistance when possible. Certain program-wide policies are also developed at headquarters, but with extensive input from the individual sanctuary managers. Funding comes from the headquarters office, based on the recommendations of the individual site and regional managers.

47. Comment: How will the Sanctuary accomplish comprehensive protection and management of the humpback whales and their habitat.

Response: NOAA intends to comprehensively manage and protect humpback whales primarily through coordination with other agencies and the public. The Sanctuary is proposing to essentially incorporate certain existing regulations that protect humpback whales and their habitat into the Sanctuary Management Plan. The Sanctuary is working with relevant Federal and State agencies to develop MOUs to clarify how the Sanctuary will interface with their permit review processes to ensure that humpback whales and their habitat are being adequately considered. In addition, the Sanctuary will work closely with the SAC, and those working groups and subcommittees set up under the SAC, to identify concerns and policy issues and to coordinate the implementation of the Sanctuary Management Plan. The SAC, and thus the Sanctuary, will evolve into being a true public and agency sounding board where issues can be raised and solutions discussed in an open, structured forum. This forum will become an effective tool to facilitate an ongoing dialogue between the existing resource management agencies and the public, leading to a resource management that is responsive to the public and agency needs.

48. Comment: The Hawaii Sanctuary is the only single-species sanctuary in the national system. This is not in accordance with the mission of the program and it sets a bad precedent.

Response: While the Hawaii Humpback Whale National Marine Sanctuary is the only National Marine Sanctuary focused solely on a single, biological species, it is not the only single resource Sanctuary in the national system. The U.S.S. *Monitor* National Marine Sanctuary was established solely to protect the wreck of the famous Civil War Ironclad.

In addition, the National Marine Sanctuary Program was established to be flexible in its approach to ocean management. There is no one management approach or standard set of regulations that fits all sites. NOAA develops site specific management plans that are based on the uniqueness of each sanctuary area, and on the area's existing management entities. The Hawaii Sanctuary clearly fits the resource protection and management mandate and mission of the Program. NOAA does not believe that the Hawaii Sanctuary has set a negative precedent for the Program, but that it merely represents NOAA's commitment to developing site-specific management plans tailored to the needs of the local community and its resources.

Furthermore, while the Congressional mandate for the Sanctuary is to focus on the humpback whale and its habitat, it also allows for the identification of other resources of national significance for possible inclusion the Sanctuary. This creates the opportunity for a more comprehensive Sanctuary, and NOAA has developed a process in the Part V of the FEIS/MP to address this issue.

49. Comment: The ocean is an interrelated system. Focusing on one species is not cost efficient or what the State needs. A humpback whale sanctuary does not address other, more important and pressing marine issues in Hawaii as it takes away attention from these resources. Humpback whales are only seasonal visitors to Hawaii and are not representative of Hawaii's unique marine ecosystem.

Response: NOAA agrees that all chemical, physical, and biological components of the marine environment are ultimately interrelated, and that a healthy marine environment is needed for all organisms to live and reproduce. The qualities of the marine habitat that are required to support the humpback whale are also needed to sustain healthy fish stocks, coral reef ecosystems, and human recreation. NOAA believes that the knowledge and research gained from investigating components of the humpback whale's habitat will ultimately help other resource managers in their efforts to protect and sustain other marine environments. Any resource protection measures that

improve the habitat for the humpback whale will subsequently improve the habitat for other organisms living there as well.

NOAA further believes that a sanctuary that focuses on a particular species and its habitat does not divert attention away from other marine issues, but effectively creates a forum in which these other issues can be addressed. The Sanctuary will ultimately increase local resident and visitor awareness of not only humpback whales, but also of Hawaii's unique marine environment. In its efforts to ensure protection of the humpback whale and its habitat, the Sanctuary Program will work with existing agencies and groups to identify problems and issues that affect the entire marine ecosystem. This ecosystem will benefit from our increased knowledge and research, and better coordinated management. For example, the Hawaii Sanctuary Program has co-funded a project designed to better address the water quality issues and the algal blooms off of Maui as well as to develop educational material designed to teach people about Hawaii's unique marine habitat. Additionally, NOAA has included a public process in the Sanctuary Management Plan to identify, and possibly include, other resources and ecosystems of national significance in the Sanctuary (see response #50).

50. Comment: NOAA should include other marine species such as sea turtles, Hawaiian monk seals, coral reefs, fish, seabirds, and other endangered species as resources of the Sanctuary. NOAA should adopt an ecosystem-based sanctuary to address true resource management needs in Hawaii.

Response: NOAA has included in the Final Management Plan (Part V) a process for identifying, and possibly including in the Sanctuary, other resources and ecosystems of national significance. The addition of other resources and ecosystems will require a lengthy public and SAC review process. Should this public process identify additional resources and management measures to include within the Sanctuary's management purview, the Sanctuary would need to develop a Supplemental EIS/MP, and hold additional public hearings. Further, the Governor of Hawaii would have the authority to decide whether those resources and associated management measures (e.g., regulations) would be included in State waters of the Sanctuary.

51. Comment: Water quality is a major management concern in Hawaii. The Sanctuary should protect nearshore and coastal habitats to identify water quality issues and other related management problems (coral reef and fish declines). The Sanctuary should approach water quality monitoring of non-point source pollution in a comprehensive manner and in cooperation with existing Federal, State, county, and community efforts.

Response: NOAA agrees. The Sanctuary's Management Plan was developed to provide protection for humpback whales <u>and</u> their habitat. The preferred regulatory alternative provides supplemental protection for the whale's habitat and the Sanctuary will review and comment on permit applications that may impact water quality. In addition, the boundary of the Sanctuary extends from the shoreline out to the 100-fathom isobath and includes most nearshore and coastal areas. Coastal waters comprise an important component of the humpback whale's habitat, especially newborn calves, and the Sanctuary will work with Federal, State, and county agencies and the general public to ensure this habitat can sustain humpback whales and other marine resources. The Sanctuary will work with relevant agencies and marine user groups to develop and/or supplement education, research, long-term monitoring, and enforcement programs so that water quality is maintained or improved. As an example, the Sanctuary has worked with DOH and Maui County to co-sponsor a much needed water quality monitoring project for the entire island of Maui. This project utilizes volunteer citizens through the county and was a priority for both the West Maui Watershed project, as well as the State of Hawaii, DOH. (See responses #18-19, #22, and #90.)

52. Comment: Depletion of bottomfish is a more serious problem that humpback whales.

Response: NOAA acknowledges that other marine resources in Hawaii are facing depletion or are damaged and need management attention. The Sanctuary will support research and long-term monitoring on the humpback whales' habitat which in turn may be used by other resource management agencies. Fisheries management is not, however, a component of the Sanctuary's management. At this time, bottomfish depletion is an issue that is better addressed by WESPAC and DLNR.

SANCTUARY ADVISORY COUNCIL (SAC)

53. Comment: NOAA should establish a formal advisory group to help develop the Final Management Plan and to help manage the site once the Final Plan is approved. This group should have real-decision making authority.

Response: NOAA has established a Sanctuary Advisory Council (SAC) to provide advice and recommendations to the Sanctuary Manager and NOAA on the continued development and management of the site. In February 1996, NOAA solicited names for membership to the SAC. Through a lengthy process outlined in its charter, the SAC was selected and has been meeting since March 1996 to provide advice to SRD on comments received on the Draft EIS/MP. The SAC has formed subcommittees to focus on issues such as administration, regulations, and the Sanctuary's boundary. The SAC is expected to also form working groups to address research, education, and county-specific concerns. NOAA values this advice and would not deviate from it without good reason. However, the SAC is an advisory body only and has no authority to independently operate, or make management decisions. NOAA must ultimately be responsible for management decisions and has final decision-making authority.

54. Comment: NOAA should establish a community-based advisory panel within each county.

Response: In response to public comments, and to facilitate more dialogue with the community, representatives from each of Hawaii's four counties sit on the SAC and will be encouraged to set up county-specific working groups that will meet in each of the four counties.

55. Comment: The SAC should have adequate representation of the different types of ocean users. Include commercial transport industry representative as permanent member of SAC.

Response: The Hawaii SAC consists of 25 members, including ten government and 15 non-government representatives. NOAA has limited membership to 25 to ensure the SAC is manageable and provides meaningful advice. The 15 non-government seats include representatives of the following groups or interests: Honolulu, Kauai, Maui and Hawaii counties; conservation; fishing; whale watching; business/commerce; education; tourism; ocean recreation; research; Native Hawaiian; and two citizen-at-large seats. The Sanctuary Program realizes that there are many more agencies and individuals who would like to be a part of the SAC, but believes there is a broad representation of the major interests and Sanctuary users. Each of the group or interest representatives will be encouraged to dialogue with other members of their community.

NOAA has attempted to facilitate dialogue with the commercial transport industry by replacing the Department of Education seat (which was declined) with a Department of Transportation seat. At this time the 15 non-government seats are already occupied. This does not preclude interested members of the commercial shipping industry, for example, or other members of the public from participating in SAC meetings (all meetings are open to the public) or submitting to the Chair of the

SAC or Sanctuary Manager Sanctuary related issues that they would like raised and discussed at meetings.

56. Comment: Oppose the SAC since it has no real management power and is only a rubber stamp body.

Response: NOAA views the SAC as a very important component of the Sanctuary. Established pursuant to Section 315 of the NMSA, the SAC is a formal body of the Hawaii Sanctuary that is officially authorized to provide advice and recommendations to the Sanctuary Manager and NOAA. The SAC functions as a forum that brings together various marine user groups and resource management agencies to discuss various local issues concerning humpback whales and their habitat. NOAA weighs the SAC recommendations very carefully and considers their input crucial to the local on-site Manager and NOAA. Although the SAC normally will interact with the on-site Manager, results from all the meetings are relayed to the headquarters office to ensures that local concerns are considered at that level as well.

The Hawaii SAC members take their roles seriously, as evidenced by their level of involvement and participation, and their formation of working groups. Community involvement is critical to the success of the National Marine Sanctuary Program, which is a program that actively solicits community input and recommendations as part of the continuous management process. Sanctuary Advisory Councils do not rubber stamp NOAA policy, and in fact, provide valuable input in helping NOAA shape policies before they are finalized and implemented (see response #53). Those sanctuaries with established Sanctuary Advisory Councils have greatly benefited from their assistance.

RESEARCH

57. Comment: Despite years of research, neither NOAA nor any of the whale researchers have been able to tell the public exactly how many humpback whales are in Hawaii.

Response: Determining the exact number of humpback whales in Hawaii is a difficult task for a number of reasons. First, humpback whales are not static animals: they spend most of their time underwater, they continually swim to new locations, they are distributed over the entire main Hawaiian Islands making individual identification difficult (and expensive), and there is some mixing of the Hawaii sub-population with the Mexico and Japan humpback whale sub-populations. Second, there has been relatively little government research monies available to conduct the needed statewide survey efforts. Over the years, however, many different private research teams have managed to obtain funding to study humpback whales. These teams have used a variety of different methods to estimate the whale population, which has made data comparison difficult. As a result, researchers can only provide an estimate of the Hawaii humpback whale population. In the last five years, there have been several statewide collaborative efforts to study the whale population dynamics. These studies will need to continue indefinitely so that researchers and resource managers better understand the population dynamics in Hawaii.

Although exact figures for Hawaii's humpback whale population are not available, researchers have indicated that the number of whales wintering in Hawaii has been increasing over the last ten to fifteen years. At present, the estimated population of humpback whales in Hawaii ranges between 1,500 and 3,000. Better estimates as well as different population transecting techniques, however, will provide improved understanding of how many whales are coming to Hawaii each year. Part of these population studies have and will be funded by the Hawaii Sanctuary.

58. Comment: Scientific evidence suggests that the humpback whale population is recovering. If so, why is there a need for a humpback whale Sanctuary?

Response: NMFS, and many researchers, have indicated that the humpback whale population is showing initial signs of recovery since the 1960s when commercial whaling reduced their numbers in the central North Pacific to about 1,000 animals. Recent estimates put the current central North Pacific population (those that winter in Hawaii) in the range between 1,500 and 3,000 whales (see response #57). In order to be considered recovered, NMFS has determined that the population will need to reach approximately 9,000 whales before the central North Pacific Stock of humpback whales can be considered for removal from the endangered species list.

In this regard, there needs to be more research conducted on humpback whale population dynamics (population size, distribution, birth, survivorship and mortality rates, and degree of mixing with other populations) before conclusive statements can be made about their actual rate of recovery. The California gray whale, also thought to number as few as 1,000 whales after commercial whaling, was recently taken off the endangered species list after its population was estimated to be about 10,000 animals. Since MMPA and ESA protection measures were at a minimum for both species, and even more stringent for Hawaii's humpbacks because of NMFS approach regulations, there is a question as to why the gray whale population was able to increase nearly eight times faster than the humpback whale population. This question, and many others, still remain to be answered. There is no one agency or research group that has all the necessary resources to answer such questions or to even help coordinate such efforts. The Sanctuary, however, through its research and management working groups, can help provide a forum and the resources necessary for researchers to focus on management related questions. In addition to research, the Sanctuary will work with existing agencies and private sector organizations to supplement education and enforcement programs, and to increase dialogue between the public and the resource management agencies. The Sanctuary provides a coordinating role primarily to protect the humpback whale in the long-term.

Unlike the ESA, recovery of the humpback whale is not the end goal of the Sanctuary. The Sanctuary was designated to provide long-term protection of humpback whales and their habitat for future generations to enjoy and the Sanctuary will serve its purpose long after the humpback is taken off the endangered species list.

59. Comment: The research presented in the DEIS/MP is biased and out of date. The information does not justify the boundary selections. NOAA should update the sections on humpback whales.

Response: NOAA has thoroughly investigated the existing published and unpublished research concerning humpback whales in Hawaii, including the most up-to-date information available. When possible, NOAA has referenced and included the results of research published in peer reviewed scientific journals. Much of the research conducted in the last few years, however, remains unpublished in scientific journals. As a result, NOAA has made numerous efforts to bring Hawaii whale researchers and other marine mammal experts and resource managers together to discuss the current understanding and status of humpback whales and their habitat, and to identify future research needs. For example, NOAA has used this information as the basis for providing boundary alternatives and, in part, to select its preferred boundary (see responses #8 and #15). In response to public comments and to include the most updated information, NOAA will update and restructure the section on humpback whales in the Final EIS/MP [Part II(B)].

60. Comment: More research should be conducted before a Sanctuary is designated as there are too many unknowns.

Response: NOAA disagrees. There still are many unanswered questions that researchers and resource managers need answered before we can better understand the humpback whale's population dynamics and the effects of human activities on humpback whales. These efforts will require additional resources and coordination, one of the fundamental purposes of the Sanctuary. Resource managers need more management-related research to help them be responsive to the needs of both whales and humans. Hawaii's marine waters constitute one of the world's most important humpback whale reproductive habitats and is essential for the recovery and continued existence of this species. Research and long-term monitoring efforts are crucial elements of a comprehensive management program for this species since there is so much to learn. Congress has acknowledged the importance of these waters and has designated the Hawaii Sanctuary to ensure that research, long-term monitoring, education, and other resource protection programs are implemented and coordinated to protect the humpback whale for future generations.

61. Comment: There is no clear data as to what constitutes humpback whale habitat.

Response: NMFS and the research community have stated in past technical consultations that more research is needed to more clearly articulate the chemical, physical, and biological parameters that constitute humpback whale habitat in Hawaii. Research has shown that humpback whales can be found in certain areas in Hawaii year after year in high concentrations. These areas tend to be in waters less than 100-fathoms deep, though whales, especially single males, can be found in deeper waters. Mothers with calves tend be found in shallower waters, often in the leeward areas of islands. Substrate may prove to be important for such activities as singing and sound transmission. Researchers have not found much evidence of whales feeding in Hawaii. All of these reports are consistent with other humpback whale wintering areas. The Sanctuary acknowledges that there is not conclusive data defining specific parameters of humpback whale habitat in Hawaii, but this will be one of the priority issues the Sanctuary will address through its research program. Despite these information gaps, NMFS and the researchers agree that water is a necessary component for the whale, and that the marine environment around the main Hawaiian waters is needed for breeding, calving, and nursing activities (see response #26).

62. Comment: NOAA should determine if fish or other potential food sources are a critical component of the humpback whale habitat in Hawaii.

Response: Humpback whales have been studied in both the Atlantic and Pacific Oceans, and in the northern and southern hemispheres. In general, the migration of whales is thought to represent a seasonal movement between subtropical or tropical breeding grounds and polar or subpolar waters, where intensive feeding occurs in the summer. Little evidence of feeding has been reported in the lower latitudes of the southern hemisphere, and only occasional feeding (fish and zooplankton) has been reported in low latitude areas of the northern hemisphere (Dominican Republic and Baja, Mexico). In Hawaii, there has been only a few reports of feeding: One researcher documented a vertical lunge (feeding behavior) by a subadult whale off Maui (Salden, 1989) and other people have reported feeding-like behaviors in the presence of fish. Based on the existing research data and after consulting with whale researchers, NOAA does not believe that these limited observances of opportunistic feeding in Hawaii necessarily make fish or other potential food sources a critical component of the whale's Hawaiian habitat (see responses #26, #34, and #61).

63. Comment: The Sanctuary should explain how fishing and research activities can impact whales.

Response: Humpback whales migrate to the Hawaiian Islands primarily to engage in breeding, calving, and nursing activities. Although opportunistic feeding has been observed, NMFS and other whale researchers have stated that this is not a common occurrence (see response #62). As such, whales are not likely to interfere with fishing gear, including lines, hooks, and nets (see response #34). Whale interactions with fishing activities is more of a concern in Alaska, where fishermen and whales directly compete for fish resources, and where whales become incidentally entangled in gear. There have only been a few reports of humpback whales interacting with fishing gear or nets in Hawaii.

Research impacts on whales result primarily from vessel approach and harassment. Often, researchers need to get closer to humpback whales than the 100-yard approach limit allows. These researchers are required to get a research permit from NMFS. In deciding to issue the permit, NMFS will weigh the benefits associated with a particular research project, in terms of increasing our understanding and knowledge of the humpback whales, with those potential impacts resulting from harassment or injury to the whale. Some research may also require the scientists to take skin or tissue samples and require more intrusive techniques. NMFS permits contain terms and conditions in its permits to minimize the potential for harassment or injury.

64. Comment: NOAA has not provided a clear analysis of potential threats to the humpback whale. How can Sanctuary be justified if the data is inconclusive? There is no significant evidence that current human activities are negatively affecting humpback whale movement, breeding, or calving activities.

Response: NOAA has reviewed the existing scientific literature, and consulted with scientific experts concerning potential human impacts to humpback whales and their habitat. The scientific literature has shown that humpback whales can be directly impacted by physical disturbances (approaches and sound), and indirectly by habitat modifications (pollution, nearshore development, disturbing the seabed). There are a number of different human activities that can elicit physical responses (vessel approaches, overflight, acoustic sound) and a number of activities that can degrade the whales aquatic environment (discharges, dredging, construction, non-point source pollution). A summary of this information was presented in the DEIS/MP, and has been expanded and updated in the FEIS/MP.

In reviewing the scientific literature, NOAA found that there is a need for additional research to determine the degree of impact, if any, of specific human activities on individual whales or their population. This is especially true for the more indirect impacts associated with water quality and is one of the reasons supporting the designation of a Sanctuary in Hawaii. There are many different research and education needs that the Sanctuary will help existing agencies and organizations fill. The Sanctuary can also help coordinate activities and become a venue where the research community interacts with the resource managers and the general public. National Marine Sanctuaries are not necessarily designated because there is an imminent problem or significant threat that currently exists in the local ocean community. More often than not, National Marine Sanctuaries are created in areas with resources of outstanding national significance to ensure that these areas are comprehensively managed and protected for future generations to enjoy. As both the population of humpback whales and humans increase in Hawaii, so too will there be a need for better coordinated management and planning. It is possible that with advice from the SAC, the research community, and NMFS that the Hawaii Sanctuary can better identify what factors are favorable or are detrimental to the humpback whales and how to best manage human uses within the Sanctuary.

65. Comment: The Sanctuary should add information about the acoustic environment of whales and other potential sources of impacts on humpback whales. The Sanctuary-sponsored research and long-term monitoring programs should focus on potential human-related impacts to humpback whales and their habitat, including: whale displacement or disturbance caused by sound, human approaches and/or harassment of whales, direct collision by marine vessels, and pollutants and pathogens from coastal waste disposal, coastal runoff and development, and causes and consequences of a decline or changes in the ocean environment.

Response: NOAA has updated, clarified, and expanded the section describing humpback whales in Part II(B) of the Final Management Plan. This section includes more information about humpback whale distribution, population dynamics, habitat use, the acoustic environment of whales, and those known and potential impacts resulting from human activities, including sound. The research and long-term monitoring section of the Management Plan has also been reviewed and clarified to be responsive to management needs.

The Sanctuary will work with other Federal, State, and county agencies and the SAC to help develop annual research plans that identifies priorities. The SAC will be encouraged to form a research working group that will include members of the existing SAC and other researchers, to provide technical assistance and to develop recommendations to NOAA on research priorities and Sanctuary-sponsored research priorities.

NOAA has already undertaken efforts to develop community-based monitoring programs. The Hawaii Sanctuary is working with DOH and the West Maui Watershed Program to support a volunteer coastal water quality monitoring program for the island of Maui. Currently there are more than 30 beaches that are being monitored. The Maui water quality monitoring project has been renewed for a second year, based in part to the funding available from the Hawaii Sanctuary.

Projects like the water quality monitoring project that provide information on the habitat of the humpback whale will ultimately provide greater understanding of what water quality parameters are needed for the humpback whale's survival. NOAA acknowledges that many commenters stated that water quality is a major issue facing all ocean users in Hawaii. To that end, the Sanctuary program is committed to working closely and cooperatively with the existing agencies and community-based programs to ensure that Hawaii's marine environment remains healthy and can support a diverse assemblage of species and human uses.

66. Comment: The Sanctuary should play a leadership role in bringing together researchers working on humpback whales.

Response: NOAA agrees. A fundamental component of the Hawaii Sanctuary is to support management-related research and long-term monitoring efforts that increase our collective understanding and knowledge of humpback whales, their habitat, and those factors that may negatively or positively impact either one. The Sanctuary will not usurp or suppress ongoing research in the Sanctuary, but rather will provide a forum to bring these many different researchers and resource managers together to discuss humpback whales, knowledge gaps, research priorities, funding opportunities, and when possible, to initiate collaborative research efforts. The Sanctuary will use the expertise and diverse interests of the SAC and its research working group to foster dialogue and coordinate the diverse range of interests. In addition, the Sanctuary will also facilitate efforts to bring together researchers and other technical experts to enhance the collaborative knowledge foundation. For example, the Sanctuary co-sponsored a workshop with NMFS a "to assess research and other needs and opportunities related to humpback whale management in the Hawaiian Islands" in April 1995, that brought together over 75 researchers and resource managers. The Sanctuary will also strive to develop a worldwide database of humpback whale research data, accessible to as many people as possible.

67. Comment: All research and monitoring efforts should be benign, non-intrusive, non-invasive and be clearly necessary to protect the overall welfare of humpback whales.

Response: NOAA believes that humpback whale research should focus on management-related issues and be conducted with minimal impact to the whales. All researchers that intend to conduct research with 100-yards of a humpback whale must first obtain a research permit from NMFS. Both NMFS and the Sanctuary Program will review applications for permits to conduct humpback whale research in or near the Sanctuary, and if necessary, provide conditions to alleviate or mitigate potential impact to the whales or their habitat (see response #70).

68. Comment: What are the means for funding research?

Response: Research can be funded in any number of ways. Many researchers have been conducting research for years by creatively "finding" monies from any number of sources (grants, government agencies, non-profit foundations, donations, fund-raising, whale watching). This source of research money, however, is not stable and varies from year to year. In addition, any one source is usually insufficient to conduct the type of ongoing comprehensive statewide surveys needed to fully understand the humpback whale's population dynamics. Other agencies, such as NMFS, have historically provided limited funding opportunities through Congressional appropriations under the MMPA and ESA. These appropriations, however, are not targeted for humpback whales in Hawaii, and NMFS distributes its funding for research on other endangered species and marine mammals as well. The Hawaii Sanctuary brings additional Federal monies into Hawaii and provides the opportunity to leverage technical support and finances from other funding sources that are known to support research efforts in international and national marine protected areas.

69. Comment: The Sanctuary needs to ensure that funds are available to carry out research, otherwise the research plan will be ineffective.

Response: NOAA agrees and is committed to directly allocating a portion of the Hawaii Sanctuary budget toward supporting research and long-term monitoring projects in the Sanctuary. The amount of funding for research will be related to the annual Congressional appropriation for the Sanctuary program and the annual site budget. If direct Congressional appropriations are not sufficient to implement portions of the Management Plan, the Sanctuary will look toward leveraging additional funds from other agencies and foundations, and other voluntary revenue enhancement methods. Research and education are two of the major components of the Hawaii Sanctuary program and will therefore be priorities for the site. In addition, the SAC and its individual working groups will provide recommendations to NOAA for funding Sanctuary programs (education, research, and management). The Sanctuary Manager will factor in these considerations with the identified Sanctuary's priorities and the annual funding availability.

70. Comment: Legitimate scientists need protection from bureaucracies created to protect the humpback whale. There are too many hurdles for researchers to jump through and too many measures in research section.

Response: Any researcher intending to approach a humpback whale within 100-yards must obtain a research permit from NMFS pursuant to the MMPA. The Sanctuary is incorporating the NMFS approach regulations as part of the Sanctuary regulatory regime but will not require persons to obtain a separate Sanctuary research permit. The Sanctuary has developed a MOU with NMFS for reviewing applications for permits to conduct research within the Sanctuary. NMFS will remain the primary point of contact for researchers. All permit applications will be forwarded by NMFS to the Sanctuary Program for comments within the public review period. NMFS will continue to issue the permit, but with the Sanctuary Program's concerns incorporated. This Sanctuary review process will be "transparent" to the permit applicant and will not place additional

burdens or paperwork requirements on the applicant. One primary role of the Sanctuary is to facilitate and coordinate research, not hinder it.

EDUCATION

71. Comment: The Sanctuary education programs should focus on school education. There is not enough marine education in the schools today.

Response: Education is one of the main components of the Hawaii sanctuary. NOAA strongly believes that education at all ages is necessary to increase the local community's awareness and understanding of marine resources, and the need to sustain the environment for all users and persons that enjoy the marine environment. The Sanctuary is committed to working in partnership with existing education organizations and school districts to develop and implement needed marine education curricula and programs. The SAC will be encouraged to form an education working group. This working group will serve as a sounding board and will help to coordinate those efforts that are ongoing and to assist in developing new education programs as needed.

72. Comment: The Sanctuary is biased towards humpback whales and not the other resources and those human users who depend on the marine environment.

Response: The Hawaii sanctuary was designated by Congress primarily to protect humpback whales and their habitat, and to educate and interpret the relationship of the humpback whale to the Hawaiian Islands marine environment. NOAA was given a clear mandate to promote education among users of the Sanctuary and the general public not only about the conservation of humpback whales and their habitat, but also about other marine resources in Hawaii. The Sanctuary also recognizes that the Hawaiian Islands have a rich history that continues today for human use of the marine environment, including uses of Native Hawaiians customarily and traditionally exercised for subsistence, cultural, and religious purposes. The Sanctuary will include elements within the education section of the Management Plan aimed at increasing the general public's knowledge and understanding about the diverse human uses and traditions in Hawaii's marine environment.

73. Comment: The Sanctuary should include a review process in the development of its education program so that it clearly addresses Sanctuary objectives, contains appropriate content, and is unbiased.

Response: NOAA agrees. The SAC will be encouraged to form an education working group that includes those interested agencies, organizations, and individuals working on marine education programs. This working group will help provide advice and recommendations to the SAC, which will advise the Sanctuary on identifying, selecting, implementing, and funding Sanctuary education programs. In addition, the working group and SAC will be used to help the Sanctuary develop criteria and program standards for Sanctuary-sponsored education programs.

NATIVE HAWAIIAN

74. Comment: How will future Native Hawaiian sovereignty rights be impacted by the Sanctuary?

Response: The Hawaii Sanctuary is essentially incorporating certain existing restrictions into the Sanctuary Management regime. It is not adding any new restrictions or prohibitions other

than those already in place, and will not require or issue independent Sanctuary permits or have approval authority over other existing authorities. The Hawaii Sanctuary is committed to recognizing Native Hawaiian uses. One purpose of the HINMSA is to facilitate uses of Hawaiian natives customarily and traditionally exercised for subsistence, cultural and religious purposes consistent with the primary objective of the protection of humpback whales and their habitat. Few other Federal laws and programs have language specifically recognizing Native Hawaiian uses.

The issue of Native Hawaiian Sovereignty rights in Hawaii is still being discussed and debated, and will remain unclear for at least the foreseeable future. NOAA will closely follow the Native Hawaiian Sovereignty movement as it develops and will strive to honor any new rights or privileges granted.

The SAC includes a Native Hawaiian representative to ensure that Native Hawaiian concerns and issues, as they pertain to the Sanctuary, are addressed. This representative will be encouraged to facilitate dialogue with other Native Hawaiian sovereignty groups to help the Sanctuary understand and recognize Native Hawaiian uses and rights as they concern the Sanctuary. This dialogue will continue well into the future and it is hoped the Sanctuary can work with the Native Hawaiian community to educate others about the unique aspects of Native Hawaiian culture and uses of the Sanctuary.

75. Comment: All submerged lands are ceded lands, held by the State in trust for Native Hawaiian people. The Federal Government has no jurisdiction over ceded lands. What changes will the Sanctuary impose on submerged/ceded lands?

Response: The establishment of the Sanctuary in no way conveys, or intends to convey, to NOAA any title or ownership of Hawaii's submerged lands. These lands, including those known as ceded lands, will continue to be held in trust by the State of Hawaii. The Sanctuary will only exist as a co-steward of the Sanctuary resources within the Sanctuary boundary. Should the status of the submerged lands change at some time in the future (i.e., the lands are conveyed to a sovereign Hawaiian nation), the Sanctuary will work with the appropriate entities to redefine its role if necessary.

76. Comment: Why does the DEIS/MP not address Native Hawaiian concerns?

Response: The DEIS/MP (pages 68-74) described various aspects of Native Hawaiian culture and uses of the marine environment as they relate to the Hawaii Sanctuary. NOAA has expanded and clarified this section in the FEIS/MP (see response #74).

77. Comment: Native Hawaiians have traditional fishing entitlements that the U.S. Government fails to recognize. Sanctuary should protect Native Hawaiian gathering and fishing rights by helping to restore coastal habitats and fisheries. How will the sanctuary be different from the other parts of the Federal Government? There is no trust and no reason to trust the Federal Government.

Response: The Hawaii Sanctuary is committed to recognizing traditional Native Hawaiian fishing and gathering uses and is required by the HINMSA to facilitate all public and private uses of the Sanctuary, including uses of Hawaiian natives customarily and traditionally exercised for subsistence, cultural, and religious purposes, consistent with the primary objective of the protection of humpback whales and their habitat. While the Sanctuary and NOAA do not have legal authority to formally Federally recognize Native Hawaiian groups, few other Federal programs, if any, have language specifically recognizing Native Hawaiian uses.

The Sanctuary program will continue to seek new partnerships and opportunities to work with the Native Hawaiian community to facilitate and support educational and research projects that will

help define and educate others as to the past and present traditional Native Hawaiian subsistence, cultural, and religious uses of the marine environment. Hopefully, this information will lead to a better understanding and appreciation of the Native Hawaiian culture. The National Marine Sanctuary program has experience with traditional Native American and Samoan rights and uses in two sanctuaries; Olympic Coast and Fagatele Bay, respectively. Incorporating these traditional rights and practices, as well as recognizing those rights identified under Federal law, are identified in the management plans of both sites. Additionally, each of the four Federally-recognized Native American tribes within the Olympic Coast National Marine Sanctuary has a seat on the Olympic Coast Sanctuary Advisory Council. Similarly, the Hawaii SAC has a Native Hawaiian representative.

USER FEES

78. Comment: Mandatory user fees are inevitable if the Sanctuary is adopted, and will be established either by NOAA or by Congress.

Response: NOAA acknowledges the near universal public and agency opposition of "user fees" to fund and manage individual sanctuaries. NOAA did not propose broad-based mandatory user fees in the Draft EIS/MP. Further, in 1996, the HINMSA was amended, in part, to prohibit NOAA from instituting any user fee under the HINMSA or NMSA for any activity within the Sanctuary or any use of the Sanctuary or its resources. NOAA has clarified references to user fees in the Final Management Plan to eliminate any confusion over this issue.

79. Comment: The Sanctuary will collect fees through special-use permits.

Response: NOAA has not provided for the issuance of special-use permits in Hawaii. NOAA has generally only issued special-use permits in a few sanctuaries to allow an activity to occur that would otherwise be prohibited by a specific Sanctuary regulation. The Hawaii Sanctuary has not proposed, in either the Draft or Final EIS/MP, issuing independent permits, including special-use permits.

PROGRAM FUNDING

80. Comment: Who will pay for the administration and implementation of the Management Plan? There is a perception that the Sanctuary would be a Federal "cash cow" bringing money to the State. The cost of administering the Sanctuary, and the fiscal restraints of Congress, make it unlikely that the program would be able to afford to do much more than administer itself. Will the State of Hawaii or local users have to pay for the Sanctuary?

Response: The National Marine Sanctuary Program (NMSP) receives annual appropriations from Congress. In 1991, the National Marine Sanctuary Program was appropriated $5 million. This amount increased to $12 million in 1995 and $11.7 million in 1996 and 1997. This Congressional appropriation funds all 12 National Marine Sanctuaries and part of the Program's headquarters office. Sanctuary designation means the Program's annual appropriations will now be allocated to the Sanctuary and will be available for use on Sanctuary-related projects. The NMSP is funded entirely through Federal appropriations, and no State fiscal commitments are required. Additional funding opportunities often become available through other NOAA funding sources and through cost sharing arrangements with other Federal and State agencies. The NMSP may also supplement Congressional appropriations by entering into agreements with any non-profit organization to solicit private donations to carry out the purposes and policies of the Sanctuary. This and other means of voluntary revenue enhancement measures are being pursued

by the Sanctuary program nationwide as a way of generating funding for projects which may otherwise not have enough Congressional funding to cover. Part V of the FEIS/MP discusses the revenue enhancement initiative of the NMSP.

The Hawaii Sanctuary's budget is determined each year by the on-site manager, the regional manager, and the Sanctuaries and Reserves Division (SRD) Chief according to site needs and priorities. Although the site will not be a "cash cow" or have money to immediately implement every provision contained in the Final Management Plan, the site's budget will allow the Sanctuary Manager to begin implementing priority items.

81. **Comment:** The Sanctuary is an unfunded mandate.

Response: NOAA disagrees. An unfunded mandate is a government program that requires a Federal or state agency to carry-out a function without providing the fiscal resources to do so. The National Marine Sanctuary is not an unfunded mandate inasmuch as Congress has funded the Program and no monies are required from the State of Hawaii or local users.

82. **Comment:** The Sanctuary is an unwarranted increase in government spending. It is unwise and irresponsible to spend Federal dollars on a Sanctuary that was neither wanted or needed.

Response: The National Marine Sanctuary Program receives annual appropriations from Congress to fund the 12 individual sites and the national program. This amount varies from year to year, though it has increased over the last five years. The designation of the Hawaii Sanctuary has not resulted in an increase in government spending, only that some of the annual appropriations are now spent in Hawaii. If the Hawaii Sanctuary was de-designated, this money would be re-absorbed into the NMSP and redistributed among the 11 other sites and the national program (see response #81).

Many State and community participants feel that the expenditure of Federal monies on Sanctuary-sponsored education, research, long-term monitoring, and enforcement programs is an important and needed use of Federal funds, especially given the fiscal crisis of the State government. With Sanctuary monies supplementing existing State and county programs, all agencies are able to implement more projects that are of top priority but currently unfunded.

83. **Comment:** How much money will go towards administration, research, and education? What is the budget breakdown for the site?

Response: Each operating National Marine Sanctuary has a site specific operation budget. This budget depends on the size, staffing, resources to be protected, and overall needs of the site. The Hawaii Sanctuary has been both in a development and semi-operational phase since it was designated in 1992. Since the Sanctuary is not fully operational at this time, it is difficult to estimate how much the fully operational site budget would be and how much would go towards education, research, administration, and other activities. The current level of funding ($372,000 in FY'96) may not adequately represent the budget of a fully operational Hawaii Sanctuary as it will likely increase somewhat. Once the site is operational, the annual operating budget will be a matter of public record. In addition, the SAC will help the Sanctuary Manager determine priority items and thus focus where NOAA should prioritize its funding.

SOCIO-ECONOMIC IMPACTS

84. Comment: The Sanctuary proposes to incorporate the National Marine Fisheries Service humpback whale approach regulations that were amended in 1994. The Sanctuary should analyze the socio-economic impacts of these 1994 amendments.

Response: The Sanctuary program has no direct jurisdiction over the MMPA or its amendments which were signed into law by Congress in 1994. Congress, in coordination with affected agencies, must consider the environmental and socio-economic impacts of new or modified laws and regulations prior to their enactment. The Sanctuary program is not required to evaluate the socio-economic impacts of the 1994 amendments to the MMPA. However, NOAA has assessed the socio-economic impacts of incorporating the NMFS regulations into the Sanctuary's management regime. Based on the assessment, NOAA has determined that there will be minimal, if any, negative socio-economic consequences associated with incorporation of the regulations into the Sanctuary's management regime. Part IV of the Final EIS/MP discusses socio-economic consequences more in-depth.

85. Comment: The DEIS/MP does not clearly describe the socio-economic impacts of the Sanctuary on the ocean users of Hawaii.

Response: NOAA prepared a socio-economic assessment of the Draft EIS/MP in compliance with the NMSA and the National Environmental Policy Act (NEPA). As required under these laws, NOAA must describe the socio-economic effects of the implementation of the Sanctuary designation, including any negative impacts produced by management restrictions on income-generating activities. NOAA has determined that the Hawaii Sanctuary will not have negative socio-economic impacts on Hawaii's marine users since the Management Plan is not adding any new independent Sanctuary regulations, permits, or approval authority.

In an effort to maximize protection and minimize impacts on users, NOAA considered socio-economic impacts as it made changes to the Final Management Plan. NOAA has clarified and provided a more thorough socio-economic assessment of the preferred alternative in Parts III and Part IV of the FEIS/MP.

86. Comment: The socio-economic impacts of future regulations has not been clearly articulated in Part IV (the socio-economic impacts analysis section) of the DEIS/MP.

Response: NOAA has not assessed the socio-economic impacts for future regulations because the need or likelihood of such regulation is speculative. NOAA has determined, based on existing information, that no new regulatory prohibitions or restrictions are needed to protect humpback whales and their habitat. NOAA cannot say if new regulations will be needed in the future, how restrictive they will be, or which user groups will be affected.

87. Comment: Unnecessary Sanctuary regulations and restrictions will have a direct negative-effect on the cost of transporting goods between neighbor islands.

Response: NOAA disagrees. NOAA is not adding any new independent regulatory prohibitions or restrictions to those already in place. Rather, NOAA is essentially incorporating certain regulations already in existence to protect humpback whales and their habitat. For example, the 100-yard humpback whale approach regulations have been in place and enforced by NMFS since 1987. These regulations have not had significant adverse effects on the cost of transporting goods between islands, and could only impact the cost of transporting goods if a vessel captain was in violation of these regulations

88. Comment: The Draft EIS/MP states that the Sanctuary could lead to increased tourism. If so, what are the socio-economic impacts of this increased tourism.

Response: While it is true that some travelers may view the presence of a Humpback Whale Sanctuary as another reason to visit Hawaii, it is doubtful that the Sanctuary, by itself, would result in a significant increase in tourism above and beyond what is already occurring. More accurately, the presence of a Sanctuary would likely create a greater awareness among those tourists who are already in Hawaii that there are whale watching opportunities and protection measures within the Sanctuary. Thus, the Sanctuary may actually enhance the visitor's experience of Hawaii. This greater recognition of the resources as well as the potential for advertisement has occurred in other sanctuaries (e.g., Monterey Bay, Florida Keys, and Channel Islands). Many of the local communities advertise the presence of the Sanctuary as a means of attracting more visitors from an increasingly competitive market and educating those visitors about the area's unique marine resources and the commitment to protecting these resources. Despite the added "attraction" value, however, the designation of these areas as sanctuaries has not resulted in a dramatic increase in tourism.

In Hawaii, NOAA believes that the Sanctuary, working with the local community and marine industries, will help develop a greater understanding and appreciation of humpback whales, their habitat, and those regulations designed to protect them. This increased awareness will hopefully prevent or minimize harassment and other negative impacts associated with human presence (pollution and habitat destruction), while enhancing the beneficial experience of tourists visiting Hawaii.

89. Comment: Describe the potential impacts of the Sanctuary to existing resource management programs dealing with water quality issues.

Response: The Sanctuary is not issuing independent regulations, permits, or authorizations that would curtail or impede the authority of the existing water quality management agencies. The Sanctuary is developing MOUs with the relevant water quality agencies (i.e. Department of Health) in order to work within their existing permit application review procedures to ensure that Sanctuary concerns are addressed. The Sanctuary will not have authority to prevent the permit issuing agency from approving a project and will work with that agency to supplement monitoring and enforcement efforts (see response #51).

90. Comment: NOAA should recognize and protect the existing uses of ocean users.

Response: NOAA agrees. NOAA recognizes the many ocean users and industries that continue to operate in Hawaiian waters and that have incorporated measures to voluntarily protect humpback whales in their day-to-day operations. National Marine Sanctuaries are multiple use areas and the Hawaii Sanctuary will facilitate public and private uses (including uses by Native Hawaiians customarily and traditionally exercised for subsistence, cultural, and religious purposes) consistent with the primary objective of protection of humpback whales and their habitat.

Voluntary compliance with existing regulations is a primary goal of the Sanctuary. The Sanctuary will make every effort to work with the different marine user communities and involve them in the implementation of the Management Plan. The SAC is one mechanism that the Sanctuary has established to formally recognize and involve Sanctuary users in advising on the development of the Final Management Plan and ongoing implementation and management of the Sanctuary (see response #53).

91. Comment: NOAA should exempt all commercial transport activities from Sanctuary regulations because of negative economic impacts.

Response: NOAA does not agree that commercial transport should be singled out as the only industry that should be exempted from the Sanctuary regulations. The Sanctuary regulations essentially incorporating certain existing restrictions as Sanctuary regulations and is not adding independent Sanctuary regulatory prohibitions or restrictions, permits, or approval requirements beyond what is already. Consequently, the Sanctuary will not pose negative socio-economic impacts on the commercial transport industry and determined that exempting that industry from Sanctuary regulations is neither necessary nor consistent with achieving the purposes of the HINMSA. The commercial transport industry has never been cited for whale harassment.

NEED/DUPLICATION OF EXISTING EFFORT

92. Comment: There is no need for the Hawaiian Islands Humpback Whale National Marine Sanctuary.

Response: NOAA disagrees. NOAA believes that additional resource protection is needed to ensure the long-term recovery and continued vitality of humpback whales and their Hawaiian habitat, and that this can occur primarily through non-regulatory (research, long-term monitoring, education, and coordination) mechanisms. Because of its mandate and its public participation component, the National Marine Sanctuary Program is ideally suited to provide these functions. Moreover, the 25 member SAC provides a forum for representatives of the many different marine users and resource management agencies to discuss management issues concerning the Sanctuary. The SAC has formed working groups to discuss research, education, enforcement, and the continued development of the Sanctuary. Essentially, the SAC has given marine users and resource managers the opportunity to meet, learn, and coordinate with each other (see response #53). The National Marine Sanctuary program can also supplement resources and provide technical support for research, long-term monitoring, education, and existing enforcement programs (see responses #18-19).

Even though the MMPA and the ESA offer protection for the humpback whale, the Sanctuary program offers a broader range of comprehensive protection and management. And while the main focus of the ESA is the recovery of an endangered species, the Sanctuary helps in the recovery of the humpback whale through the additional protection of humpback whale habitat and will offer continued protection through research, education, enforcement, and monitoring long after the species' recovery and removal from the endangered species listing, should that occur.

93. Comment: It is not clear what the Sanctuary is protecting humpback whales from.

Response: The primary purpose of the Hawaiian Islands Humpback Whale National Marine Sanctuary is to provide comprehensive protection for both humpback whales and their habitat. Since NOAA cannot protect whales from natural predators and other natural causes of mortality, it will focus its management attention on those potential impacts resulting from human activities that are known to presently, or have the potential to adversely impact humpback whales and their habitat. After receiving input from other agencies and searching the current body of scientific literature, NOAA has determined that the existing regulatory measures are adequate for protecting the whales from harmful vessel interactions (see responses #18-19). The Sanctuary will primarily focus its efforts on educating the public on the existing regulations designed to protect humpback whales, enhancing the enforcement of these laws, and working cooperatively with other agencies and researchers to increase the knowledge and understanding of humpback whales, their habitat, and those potential human activities that could adversely impact the whales and their habitat.

94. Comment: The Sanctuary will only add an unnecessary layer of bureaucracy and is duplicative of existing management efforts.

Response: NOAA disagrees. Throughout the development of the Hawaii Sanctuary, NOAA was repeatedly informed by agencies and the public that there were enough regulations on the books protecting humpback whales and their habitat. NOAA was also told that additional efforts were needed to coordinate existing authorities and to supplement research, monitoring, education, and enforcement efforts. The Sanctuary Management Plan, which relies on existing regulatory authorities, was designed in response to such public comments. NOAA made significant efforts to eliminate duplicative permitting and approval procedures. Since the Sanctuary is relying on existing Federal and State regulations and permits, the Sanctuary is not issuing independent permits, but will work within the existing permit review structures of agencies to ensure that potential impacts to humpback whales and their habitat are addressed. MOUs with the affected agencies will detail how the Sanctuary will coordinate with these agencies, within existing timeframes. The impact on the permit applicants and permit granting agencies will be minimal (see response #20).

The Hawaii Sanctuary will not duplicate existing efforts to protect Hawaii's marine environment, but will help coordinate and integrate such efforts, with a particular focus on the humpback whale and its habitat. Coordination with existing authorities and the private sector will help reduce duplication and focus efforts on filling management and information needs. The Sanctuary can also provide fiscal, personnel, and technical resources to supplement education, research, and enforcement efforts that are not available with the existing programs. Finally, the SAC and associated working groups will, for the first time, provide a forum for resource managers, researcher, educators, Native Hawaiian, and marine users to provide recommendations and advice to the Sanctuary Manager regarding management of the Sanctuary..

95. Comment: The Draft EIS fails to explore other options in lieu of the Sanctuary such as giving funds to NMFS, the State, or other organizations.

Response: Upon passage of the HINMSA which designated the Sanctuary, Congress directed NOAA to develop a comprehensive Management Plan and regulations to implement the designation and fulfill the purposes of that Act. NOAA assessed the available resources used by existing Federal and State humpback whale resource protection programs, and found that the amount does not adequately fund necessary research, education, enforcement, monitoring, and coordination programs. In developing the Plan, NOAA considered various options, including a no-Sanctuary option, which were not selected as the preferred option. Under the Act, NOAA is required to complete and issue a final management plan and regulations for the Sanctuary. De-designation of the Sanctuary can only occur if the Governor of Hawaii objects to the management plan, regulations, or any term thereof and the Secretary of Commerce subsequently determines to de-designate the site, or if Congress repeals the HINMSA.

The National Marine Sanctuary program is funded through Congressional appropriations to develop and manage National Marine Sanctuary sites and the national program. The Sanctuary program does not have authority, nor the surplus resources, to support efforts in-lieu of having a Sanctuary.

96. Comment: The State should implement and support community resource management programs.

Response: While this comment is directed to the State and not to NOAA, NOAA does intend to assist the State in efforts to support community resource management programs. The Hawaii Sanctuary was not designated nor developed to replace these community-based efforts, but to become another means of supporting such efforts that are consistent with the Sanctuary's goals and objectives. The Sanctuary will look at the community-based plans and programs as a knowledge source and as a resource management partner. Close coordination will be required to truly complement efforts, and the Sanctuary has already initiated such efforts to work at the local level. On Maui, DOH and Maui County, in partnership with the Sanctuary, developed the Maui volunteer water quality monitoring program. The Sanctuary has also worked with local conservation groups to develop whale watching brochures, and educational programs concerning the coral reef initiative throughout the State. Many of these community and State efforts would not have been accomplished without fiscal support from the National Marine Sanctuary Program. While the Sanctuary program is supportive of such State initiatives, however, the program has no authority to dictate that the State undertake such measures.

97. Comment: The Hawaii ORMP already exists and the Sanctuary detracts resources (money and staff) away from implementing that plan.

Response: NOAA disagrees. The State of Hawaii initiated a statewide effort to develop the ORMP in the late 1980s. This plan was finished in 1991 and is far more comprehensive in scope than the Sanctuary Management Plan. However, it has remained a plan and is not being fully implemented because of fiscal constraints. The Hawaii Sanctuary was not intended to replace the ORMP, but to complement this statewide community effort. Many elements of the Sanctuary Management Plan, including greater agency coordination, community involvement, education, research, and enforcement are fundamental resource management needs identified by the ORMP. Through proper coordination with the State (such as through the SAC or the State's Marine and Coastal Zone Management Advisory Group), the Sanctuary can be used to help implement portions of the ORMP that are consistent with the Sanctuary Management Plan. Part IV of the Final EIS/MP identifies several components of the ORMP that are compatible with the Sanctuary. The Sanctuary will not compete or take fiscal resources away from ORMP implementation since the ORMP is a State initiative and the Sanctuary is Federally funded. In this regard, the Sanctuary Program has already participated in a number of scoping and planning meetings on how to best implement the ORMP and how the Sanctuary can co-fund portions that also address the Sanctuary's goals and mission.

98. Comment: If the Sanctuary is so critical to the recovery of the humpback whale, why was it not included in the NMFS Humpback Whale Recovery Plan?

Response: The NMFS Humpback Whale Recovery Plan was completed and released to the public in 1991 -- one-year before the Sanctuary was designated. Although NMFS and SRD are both divisions within NOAA, they each have separate responsibilities and congressional mandates. SRD has been delegated the authority to administer the National Marine Sanctuary Program, including the development of new sites. NMFS does not have authority to designate or manage National Marine Sanctuaries, and as such would not normally undertake sanctuary designation as a means of protecting marine mammals. NMFS would more likely pursue other alternatives within their purview, such as designating critical habitat and/or promulgating regulations under the ESA to protect endangered species. Critical habitat was one of the measures identified in the recovery plan. NOAA believes that the Sanctuary is a tool which can be used to facilitate the implementation of the NMFS Recovery Plan.

99. Comment: The marine recreation and user community has been educating and self-regulating itself for years. Extensive humpback whale research and education efforts have been funded by the private sector since the 1970's, and government involvement is not needed. Why does the Sanctuary have to step-in and replace these on-going efforts? The Sanctuary does not recognize these existing efforts.

Response: NOAA will not replace the efforts of existing marine recreation, education, research, and other groups. The Sanctuary recognizes and applauds the past and present efforts that the local researchers, educators, marine recreation industry, and environmental organizations have undertaken to conduct research, educate the public, and self-regulate themselves and their constituents. The Sanctuary views these ongoing and future private efforts as crucial to the implementation and success of the Sanctuary Management Plan. The Sanctuary will work with these organizations and individuals to develop partnerships, cooperative agreements, and other working relationships to ensure that existing and future conservation and research efforts are complementary. Public participation through the SAC and other associated working groups (education, research, management) will help the Sanctuary and the local community identify, fund, and implement priorities in the upcoming years. Such community-based input will lead to better coordination, less duplication, and overall better protection for the humpback whale and its habitat.

100. Comment: The Hawaii Sanctuary will add few benefits to the State.

Response: NOAA disagrees. There are numerous benefits associated with a national marine sanctuary, including enhanced opportunities for research and long-term monitoring, additional marine educational material development, and increased support for the enforcement of existing laws. NOAA has formed a SAC which gives the public more opportunity and input in the management the Sanctuary (see response #53). This enhanced communication and coordination will become a powerful tool to bring the public into discussions as they concern the management of humpback whales and their habitat. SAC working groups or sub-committees on education, research, regulations, and enforcement, as well as county representation will ensure public input from across the State and from a diverse range of marine users. Additionally, the presence of a sanctuary draws attention to the fact that the marine waters of an area are of national significance and worth protecting. This perception can lead to enhanced ecotourism opportunities previously unavailable, as has occurred in other National Marine Sanctuaries. (See response #19 for a more detailed discussion as to the added protection benefits to humpback whales and their habitat.).

DESIGNATION PROCESS

101. Comment: The Sanctuary's Congressional designation circumvented public input and is in violation of the intent of the National Marine Sanctuaries Act.

Response: NOAA disagrees. There are two ways by which a National Marine Sanctuary can be designated. The first way a National Marine Sanctuary can be designated is for anyone to nominate the site for consideration by NOAA as a Sanctuary. The site is evaluated and, if chosen, NOAA prepares a draft and final EIS in accordance with the NMSA and NEPA. The Sanctuary is not officially designated until after the close of a review period of forty-five days of continuous session of Congress beginning on the date notice of designation is issued. During this time, the Governor of a state with waters included in the proposed Sanctuary may object to the Management Plan or regulations, or any term thereof, and that management plan, regulation, or term will not take effect in the state waters of that Sanctuary.

The second way a sanctuary can be designated is by legislation (see response #103), which is how, for example, the Hawaiian Islands Humpback Whale and the Florida Keys National Marine

Sanctuaries were designated. Once a site is designated, Congress requires NOAA to prepare a management plan and pursuant to the NMSA and the NEPA. The Governor of a state with waters included in the Sanctuary is provided the opportunity to review and object to the management plan and implementing regulations or any terms thereof. If a Governor does object, the management plan, regulation, or term will not take effect in State waters of that Sanctuary.

Therefore, the processes for both the development of and for the Governor's acceptance and approval of the final EIS/MP are the same for both types of designations, the only difference being the impetus which begins the process.

102. Comment: NOAA has avoided public disclosure of information and bypassed NMSA procedures in making Sanctuary boundary amendments.

Response: The Hawaiian Islands Humpback Whale National Marine Sanctuary was designated by Congress, an action which is fully within Congress' purview. In subsequently developing the management plan, NOAA has not avoided any form of disclosure of information. NOAA held a series of statewide scoping meetings in March 1993 to gather public comments to assist in development of the management plan and regulations to implement the Congressional designation. In the summer of 1993, NOAA and the State jointly convened a Sanctuary Working Group (SWG) to offer advice and guidance on the direction of the Sanctuary and the development of the DEIS. All SWG meetings were given public notice through press releases and direct mailings to over 400 individuals and organizations, and were open to the public. (The SWG remained in effect until the DEIS was published in 1995.) In January 1994, a Discussion Paper was published to gather input to direct NOAA in the development of the Sanctuary's management regime. A series of statewide public meetings were held to solicit more public input on the paper in March 1994. In summer 1994, a Summary of Proposals for Possible Inclusion in the DEIS was released to the SWG for their review. In 1995, NOAA published the DEIS/MP in which NOAA described a preferred boundary alternative that expanded the Congressionally designated boundary. NOAA held over 25 statewide public information workshops to present the document to the public and to answer questions regarding its content. SRD also held seven public hearings throughout the main Hawaiian Islands to receive comments on the DEIS/MP. In total, over 250 written comments and oral testimonies were received by NOAA during the 90-day comment period. Finally, in March 1996, the 25 member SAC was created by NOAA to provide a more formalized means of providing advice and recommendations to the Sanctuary Manager and NOAA on the continued development of the site, including such issues as boundary, regulations and administration (see response #53).

NOAA has not bypassed any, and in fact has gone well beyond the minimum required, NMSA and other requirements for public input in developing the management plan, including making proposed boundary amendments. The Congressional law which designated the Sanctuary specifically allows NOAA to amend the boundary as necessary to fulfill the purposes of the Act. NOAA's preferred boundary alternative reflects this change.

103. Comment: Why does the Sanctuary continue despite the opposition? Many ocean users oppose Sanctuary.

Response: While NOAA recognizes that there are certain factions of the general public in Hawaii opposed to the Sanctuary, there are also certain factions that are in support. By passing the HINMSA, Congress designated the Sanctuary and directed NOAA to develop a comprehensive management plan and implementing regulations for the Sanctuary.

FEDERAL PRESENCE

104. Comment: Citizens of Hawaii do not want the Federal government in State waters usurping county and State agency jurisdiction. The Sanctuary is unwarranted intrusion in State waters.

Response: The Sanctuary program will not usurp the State's authority (or any other Federal agency's authority) or rights within the Sanctuary boundary. The Sanctuary program will work with the State of Hawaii to cooperatively manage and protect humpback whales and their habitat. The Sanctuary is not proposing to have independent permit requirements or approval authority, but will work cooperatively within the existing permit review framework. NOAA is working with DOH, DLNR, and NMFS, to develop MOUs to clarify permit review procedures and interactions with the Sanctuary program. Where the boundary of the Sanctuary lies outside of State jurisdiction, existing Federal programs will continue to have jurisdiction.

The State of Hawaii initially worked with their Congressional delegation to get the Sanctuary designated in 1992. The Governor's Office of Planning (OP) (formally the Office of State Planning) has been the lead state agency working in partnership with the National Marine Sanctuary program for over 3-1/2 years to ensure that the State's jurisdiction and rights are maintained and not relinquished. OP has gone on record as supporting the Sanctuary designation process, and representatives have attended nearly all the public workshops and public meetings held since 1992. OP has worked with NOAA to develop the DEIS/MP and the FEIS/MP.

COMMENTERS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT AND MANAGEMENT PLAN

TESTIMONY MATRIX

Public Testimony Matrix
*Numbers correspond to regulatory alternatives and letter refer to boundary alternatives listed in the DEIS/MP

Agencies	1 Boundary	2 Kahoolawe	3 Regulations	4 Fishing	5 Enforcement	6 Management/ Scope	7 Advisory Council	8 Research	9 Education	10 Native Hawaiian	11 User Fees	12 Funding	13 Socio-Economic Impacts	14 Need	15 Designation	16 Federal Presence
1. City and County of Honolulu													X			
2. County of Hawaii			X	X							X	X	X	X		X
3. Department of Land and Natural Resources -- Kauai Office	*4			X		X		X		X		X	X	X		X
4. Hawaii Air National Guard			X			X										
5. Kahoolawe Island Reserve Commission		X								X					X	
6. Office of Hawaiian Affairs										X				X		
7. National Marine Fisheries Service			X		X	X		X	X					X		
8. State Department of Transportation	X		X										X			
9. University of Hawaii -- Environmental Center	X		X			X								X		
10. U. S. Department of the Army--Corps of Engineers	X					X								X	X	X
11. U. S. Department of the Navy	*C															
12. U. S. Environmental Protection Agency			X			X		X					X	X		
13. Western Pacific Regional Fishery Mgmt. Council			X			X										

Organizations	1 Boundary	2 Kahoolawe	3 Regulations	4 Fishing	5 Enforcement	6 Management/ Scope	7 Advisory Council	8 Research	9 Education	10 Native Hawaiian	11 User Fees	12 Funding	13 Socio-Economic Impacts	14 Need	15 Designation	16 Federal Presence
1. 1000 Friends of Kauai	*D		X			X								X		
2. A & B Properties	X											X		X		X
3. Conservation Council of Hawaii				X							X	X				X
4. Earth Island Institute			X	X		X								X		
5. Eye of the Whale	X		X				X	X	X			X				
6. Hanalei Community Association	*D		*3/6			X				X						
7. Hawaii Audubon Society			X			X	X	X	X					X	X	
8. Hawaii Chamber of Commerce -- Maritime Committee			X					X			X	X				
9. Hawaiian International Billfish Association	X													X		
10. Hui Moana	X		*3					X						X		
11. Ka Lahui Hawaii				X						X	X	X	X	X		X
12. Kauai Sierra Club	X													X		

Organizations (Continued)	1 Boundary	2 Kahoolawe	3 Regulations	4 Fishing	5 Enforcement	6 Management/ Scope	7 Advisory Council	8 Research	9 Education	10 Native Hawaiian	11 User Fees	12 Funding	13 Socio-Economic Impacts	14 Need	15 Designation	16 Federal Presence
13. Marine Mammal Research Program						X	X	X								X
14. McBoat	X		X		X		X							X		X
15. Mililani Neighborhood Board	X					X							X			
16. Molokai Ranch			X			X	X						X			X
17. Moss Landing Research Laboratory	*B					X		X								
18. Personal Watercraft Industry Association	X		X						X					X		X
19. Sierra Club- Kauai	X					X				X			X	X		
20. Sierra Club - Hilo	X				X			X	X					X		
21. Sierra Club - Oahu	*D		*3			X								X		
22. Waikoloa Land Company			X			X							X	X		X
23. Whales Alive			X			X								X		X

Individuals	1 Boundary	2 Kahoolawe	3 Regulations	4 Fishing	5 Enforcement	6 Management/ Scope	7 Advisory Council	8 Research	9 Education	10 Native Hawaiian	11 User Fees	12 Funding	13 Socio-Economic Impacts	14 Need	15 Designation	16 Federal Presence
1. (Anonymous - Hilo)													X	X		
2. (Unknown R.), Terry														X		
3. (Unknown), Joan														X		
4. Laureen Elizabeth				X										X	X	X
5. Nano				X				X	X					X		
6. Agard, Louis														X		
7. Aila, William	X		X	X			X			X	X	X		X		
8. Aki, Dennis	X		X			X		X			X			X		X
9. Andersen, Mike			X										X	X	X	X
10. Anderson, Captain Gary	*C															X
11. Anderson, Laurie														X		
12. Bailey, Michael							X							X		X
13. Bal, Vernon					X	X						X	X		X	X
14. Bautista, Ronald								X						X		
15. Berg, Carl	*D		*IV			X			X							
16. Bernard, Hannah				X		X								X		
17. Bilbo, Pete												X				X
18. Block, Richard														X		X
19. Bonk-Abramson, Keiko	X			X		X		X	X	X	X		X	X		X
20. Bosma, Rudy					X							X				X
21. Brindo-Vas, Norman				X	X	X		X								
22. Butler, Stan			X			X								X		X

Individuals (Continued)	1 Boundary	2 Kahoolawe	3 Regulations	4 Fishing	5 Enforcement	6 Management/ Scope	7 Advisory Council	8 Research	9 Education	10 Native Hawaiian	11 User Fees	12 Funding	13 Socio-Economic Impacts	14 Need	15 Designation	16 Federal Presence
23. Caccia, David	X													X		
24. Campbell, Brian	X				X											
25. Canja, Susan														X		
26. Carlisle, Sandra			X		X								X	X		
27. Carrillo, Bianca														X		
28. Cho, John														X		
29. Choi, Dick	X		X											X	X	
30. Chong, Herman	X		X	X							X			X		
31. Choun, Sumay														X		
32. Chuan, Ray			X	X										X		X
33. Coleman, Richard	X		X											X		
34. Collins, Tori	X					X								X		
35. Coon, Jim												X	X			X
36. Corder, Ron				X		X					X			X		
37. Croydon, Guy				X								X	X			X
38. Curtis, Henry			X	X						X				X		
39. Davis, Rick				X					X					X		
40. Decosterd, Kutria														X		
41. Dodge, Susie									X					X		
42. Dods, Walt				X				X						X		X
43. Dunn, Corbin														X		
44. Dumin, Jennifer														X		
45. Evans, Chris			X	X	X				X					X		
46. Fairbanks, Keoni		X								X						
47. Fang, Fanny														X		
48. Fleming, William				X					X			X		X		X
49. Flores, Amanda														X		
50. Fonoimoana, Kent				X										X		X
51. Fonoimoana, Ted				X										X		
52. Forestell, Paul	X		X													
53. Frahme, Carl														X		
54. Fung, Po Ying														X		
55. Gaffney, Rick	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
56. Godinez, Elizabeth														X		
57. Goedecke, Diane														X		
58. Gomes, James	X		X	X									X	X		X
59. Grossman, Kim														X		
60. Gutierrez, Brennan														X		
61. Hanada, Paul				X										X		X
62. Hart, Carol	X		X			X					X	X	X	X		X
63. Hawley, Julie														X		

Individuals (Continued)	1 Boundary	2 Kahoolawe	3 Regulations	4 Fishing	5 Enforcement	6 Management/ Scope	7 Advisory Council	8 Research	9 Education	10 Native Hawaiian	11 User Fees	12 Funding	13 Socio-Economic Impacts	14 Need	15 Designation	16 Federal Presence
64. Heick, James														X		X
65. Hendrick, Todd			X											X		
66. Hernandez, Natalie								X						X		
67. Himschoot, Rebecca				X				X	X			X		X		X
68. Ho, Nelson							X			X				X		X
69. Hofelich, Bob														X		X
70. Holt, Kate				X												
71. Hong, Glenn			X			X			X	X				X		X
72. Housh, Jim						X					X	X	X		X	X
73. Hudson, Rob	*D		*6									X	X	X	X	X
74. Huffman, Steve														X		
75. Hylkema, Jim				X					X			X				X
76. Inaba, Don				X										X		X
77. Ishikawa, Ralph	X	X	X			X									X	X
78. Johnson, Chuck	X		X	X							X			X		X
79. Jordan, Rick														X		X
80. Juarez, Steve											X			X		X
81. Kahui, Craig, V.	X			X				X		X						X
82. Kaing, Earl								X						X		X
83. Kaleiopu, Ben			X							X			X	X		
84. Kamakana, Wilma	X								X	X						
85. Kawamura, Walter	A			X							X	X		X	X	X
86. Kaufman, Greg												X	X	X	X	X
87. King, William			X	X				X	X		X	X				X
88. Koehne, Cindy			X						X					X	X	X
89. Krown, Steven			X													
90. Lai, Virginia														X		
91. Le, An								X								
92. Lee, Wayde														X		X
93. Lilly, Dr. John C.													X			
94. Linser, Elizabeth	X							X						X		
95. Lofstedt, Curtis												X	X			X
96. Luckey, Jim								X	X					X		X
97. Lui, Susanna														X		
98. Luuwai, Kalei			X	X				X		X		X		X		X
99. Martin, Lady									X			X		X		X
100. Matsushima, (Mr.)				X										X		
101. Mawai, Kelii				X					X			X	X	X		
102. May, Jen									X					X		
103. Mazzuca, Lori						X		X						X		X

Individuals (Continued)	1 Boundary	2 Kahoolawe	3 Regulations	4 Fishing	5 Enforcement	6 Management/ Scope	7 Advisory Council	8 Research	9 Education	10 Native Hawaiian	11 User Fees	12 Funding	13 Socio-Economic Impacts	14 Need	15 Designation	16 Federal Presence
104. McOmber, Ron			X			X	X	X								X
105. McSweeney, Dan	X		X	X	X	X		X	X	X		X	X	X		X
106. Medeiros, Frank				X							X	X		X		X
107. Meheula, Harold				X										X		X
108. Mehl, Helen	X			X				X	X		X					X
109. Mehl, William				X		X								X		X
110. Meints, Deborah														X		
111. Merrill, Robert	*C		X	X		X		X			X	X	X	X		X
112. Meyer, Pamela	X													X		
113. Miles, Glen												X	X			
114. Miratello, Ron			X								X	X				
115. Moore, Dale														X		
116. Moore, Gordon			X								X			X		
117. Morita, Naomi														X		
118. Morris, Kirstin	*D		*6											X		
119. Morris, Michelle				X				X						X		
120. Morris, Nina	*D		*6		X			X	X							
121. Mossman, William		X	X							X		X	X	X	X	X
122. Moura, Charles				X										X		
123. Moyers, Michael			X										X	X		X
124. Murray, R.J.			X								X	X		X		
125. Mustard, William				X												X
126. Myers, Preston																X
127. Nanbu, Jodi						X								X		
128. Nelson, Dennis	X		X	X								X	X	X	X	X
129. Ngo, Joseph														X		
130. Nguyen, Michelle														X		
131. Novembre, Tracy														X		
132. O'Hara, James			X	X								X	X	X	X	X
133. Oberste-Lehn, Deane	*D	X	*5			*6							X	X		
134. Oki, George	X		X									X		X	X	
135. Osorio, Elroy			X			X					X	X		X	X	X
136. Parks, Noreen	X			X										X		
137. Pfeffer, Roger			X	X				X						X		
138. Pinney, Jan			X					X	X	X		X		X		X
139. Pomroy, Sharon				X								X				X
140. Pon, Vivian										X				X		
141. Pooli, Pua		X		X	X									X		X
142. Price, Skip														X	X	X
143. Reed, (Mrs.)								X				X				X

Individuals (Continued)	1 Boundary	2 Kahoolawe	3 Regulations	4 Fishing	5 Enforcement	6 Management Scope	7 Advisory Council	8 Research	9 Education	10 Native Hawaiian	11 User Fees	12 Funding	13 Socio-Economic Impacts	14 Need	15 Designation	16 Federal Presence
144. Reed, Richard												X		X		X
145. Reich, Joe			X	X												
146. Ridington, Jillian										X				X		X
147. Robinson, Jennifer													X	X		
148. Rogers, Georgia														X		
149. Rohrer, Peter			X	X										X		
150. Rosehill, Bill						X		X	X					X		X
151. Rysdale, Tim	*B		*I					X	X							
152. Saito, Richard				X					X					X		X
153. Santos, Sal			X	X												X
154. Schinnerer, John	X													X		
155. Shaker, Reza														X		
156. Shepherd, Shirley														X		
157. Shioji, Carl			X	X										X		X
158. Smith, Thomas	*E		X										X	X	X	
159. Sobel, Stacey														X		
160. Spill, Rick	X					X	X	X	X	X		X		X		
161. Stehura, Sean	X												X	X		
162. Sumang, James														X		
163. Sumida, Larry														X		
164. Sutcliffe, Claude	X			X				X		X				X		
165. Smith, Linda														X		
166. Sydney, Susanne														X		
167. Tafoya, Nancy														X		
168. Tanaka, Leonard			X			X		X						X	X	X
169. Tang, Laura														X		
170. Tran, Anthony Alan														X		
171. Tran, John														X		
172. Trask, Michael			X	X						X	X	X		X	X	X
173. Trask, Mililani			X	X		X		X		X	X	X		X	X	X
174. Truong, David														X		
175. Tummons, Patricia	X		X	X				X	X							
176. Tyler, Curtis	X	X				X				X		X	X			X
177. Uldricks, Jeff												X	X	X		
178. Utley, Phillip														X		
179. Van, Wendy			X										X	X		
180. Vance, Phillip														X		
181. Vander Hoek, Gene	X		X									X	X	X		
182. Vanderbelt, DeGray			X	X												X
183. Ventura, Anthony	X		X	X										X		X
184. Ventura, Robin											X	X		X		

Individuals (Continued)	1 Boundary	2 Kahoolawe	3 Regulations	4 Fishing	5 Enforcement	6 Management/ Scope	7 Advisory Council	8 Research	9 Education	10 Native Hawaiian	11 User Fees	12 Funding	13 Socio-Economic Impacts	14 Need	15 Designation	16 Federal Presence
185. Villesvik, John	X			X				X	X	X		X	X			X
186. Waldau, Peter	X															
187. Wang, Sally			X	X				X	X		X			X		
188. Warren, Paul														X		
189. Watson, Kerry				X										X		X
190. White, Reg			X									X		X		X
191. Whitmire, Paul				X							X	X				
192. Williams, Vikki														X		
193. Wiltse, Wendy						X		X	X				X	X	X	X
194. Witten, James	X					X		X	X			X	X	X		X
195. Wong, Kathy														X		
196. Wong, Larry														X		
197. Yanagida, Jon			X		X							X		X		X

*Numbers correspond to regulatory alternatives and letter refer to boundary alternatives listed in the DEIS/MP

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Appendix B

THE NATIONAL MARINE SANCTUARIES ACT (NMSA), 16 U.S.C. 1431 ET SEQ.
As amended by Pub. L. 104-283

[NOTE: The Oceans Act of 1992, Pub. L. 102-587, and the National Marine Sanctuaries Preservation Act of 1996, Pub. L. 104-283, contain provisions pertaining to national marine sanctuaries.]

Sec. 301. FINDINGS, PURPOSES, AND POLICIES

(a) FINDINGS.—The Congress finds that—

(1) this Nation historically has recognized the importance of protecting special areas of its public domain, but these efforts have been directed almost exclusively to land areas above the high-water mark;

(2) certain areas of the marine environment possess conservation, recreational, ecological, historical, research, educational, or esthetic qualities which give them special national, and in some instances, international, significance;

(3) while the need to control the effects of particular activities has led to enactment of resource-specific legislation, these laws cannot in all cases provide a coordinated and comprehensive approach to the conservation and management of special areas of the marine environment;

(4) a Federal program which identifies special areas of the marine environment will contribute positively to marine resources conservation, research, and management;

(5) such a Federal program will also serve to enhance public awareness, understanding, appreciation, and wise use of the marine environment; and

(6) protection of these special areas can contribute to maintaining a natural assemblage of living resources for future generations.

(b) PURPOSES AND POLICIES.—The purposes and policies of this title are—

(1) to identify and designate as national marine sanctuaries areas of the marine environment which are of special national significance;

(2) to provide authority for comprehensive and coordinated conservation and management of these marine areas, and activities affecting them, in a manner which complements existing regulatory authorities;

(3) to support, promote, and coordinate scientific research on, and monitoring of, the resources of these marine areas, especially long-term monitoring and research of these areas;

(4) to enhance public awareness, understanding, appreciation, and wise use of the marine environment;

(5) to facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities;

(6) to develop and implement coordinated plans for the protection and management of these areas with appropriate Federal agencies, State and local governments, Native American tribes and organizations, international organizations, and other public and private interests concerned with the continuing health and resilience of these marine areas;

(7) to create models of, and incentives for, ways to conserve and manage these areas;

(8) to cooperate with global programs encouraging conservation of marine resources; and

(9) to maintain, restore, and enhance living resources by providing places for species that depend upon these marine areas to survive and propagate.

Sec. 302. DEFINITIONS

As used in this title, the term—

(1) "Draft management plan" means the plan described in section 304(a)(1)(C)(v);

(2) "Magnuson Act" means the Magnuson Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.);

(3) "marine environment" means those areas of coastal and ocean waters, the Great Lakes and their connecting waters, and submerged lands over which the United States exercises jurisdiction, including the exclusive economic zone, consistent with international law;

(4) "Secretary" means the Secretary of Commerce;

(5) "State" means each of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, American Samoa, the Virgin Islands, Guam, and any other commonwealth, territory, or possession of the United States;

(6) "damages" includes—

(A) compensation for—

(i)(I) the cost of replacing, restoring, or acquiring the equivalent of a sanctuary resource; and (II) the value of the lost use of a sanctuary resource pending its restoration or replacement or the acquisition of an equivalent sanctuary resource; or

(ii) the value of a sanctuary resource if the sanctuary resource cannot be restored or replaced or if the equivalent of such resource cannot be acquired;

(B) the cost of damage assessments under section 312(b)(2); and

(C) the reasonable cost of monitoring appropriate to the injured, restored, or replaced resources;

(7) "response costs" means the costs of actions taken or authorized by the Secretary to minimize destruction or loss of, or injury to, sanctuary resources, or to minimize the imminent risks of such destruction, loss, or injury;

(8) "sanctuary resource" means any living or nonliving resource of a national marine sanctuary that contributes to the conservation, recreational, ecological, historical, research, educational, or aesthetic value of the sanctuary; and

(9) "exclusive economic zone" means the exclusive economic zone as defined in the Magnuson Fishery and Conservation Act.

Sec. 303. SANCTUARY DESIGNATION STANDARDS

(a) STANDARDS.—The Secretary may designate any discrete area of the marine environment as a national marine sanctuary and promulgate regulations implementing the designation if the Secretary—

(1) determines that the designation will fulfill the purposes and policies of this title; and

(2) finds that—

(A) the area is of special national significance due to its resource or human-use values;

(B) existing State and Federal authorities are inadequate or should be supplemented to ensure coordinated and comprehensive conservation and management of the area, including resource protection, scientific research, and public education;

(C) designation of the area as a national marine sanctuary will facilitate the objectives in subparagraph (B); and

(D) the area is of a size and nature that will permit comprehensive and coordinated conservation and management.

(b) FACTORS AND CONSULTATIONS REQUIRED IN MAKING DETERMINATIONS AND FINDINGS.—

(1) Factors.—For purposes of determining if an area of the marine environment meets the standards set forth in subsection (a), the Secretary shall consider—

(A) the area's natural resource and ecological qualities, including its contribution to biological productivity, maintenance of ecosystem structure, maintenance of ecologically or commercially important or threatened species or species assemblages, maintenance of critical habitat of endangered species, and the biogeographic representation of the site;

(B) the area's historical, cultural, archaeological, or paleontological significance;

(C) the present and potential uses of the area that depend on maintenance of the area's resources, including commercial and recreational fishing, subsistence uses other commercial and recreational activities, and research and education;

(D) the present and potential activities that may adversely affect the factors identified in subparagraphs (A), (B), (C);

(E) the existing State and Federal regulatory and management authorities applicable to the area and the adequacy of those authorities to fulfill the purposes and policies of this title;

(F) the manageability of the area, including such factors as its size, its ability to be identified as a discrete ecological unit with definable boundaries, its accessibility, and its suitability for monitoring and enforcement activities;

(G) the public benefits to be derived from sanctuary status, with emphasis on the benefits of long-term protection of nationally significant resources, vital habitats, and resources which generate tourism;
(H) the negative impacts produced by management restrictions on income-generating activities such as living and nonliving resources development; and
(I) the socioeconomic effects of sanctuary designation.

(2) Consultation.—In making determinations and findings, the Secretary shall consult with—
(A) the Committee on Merchant Marine and Fisheries of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate;
(B) the Secretaries of State, Defense, Transportation, and the Interior, the Administrator, and the heads of other interested Federal agencies;
(C) the responsible officials or relevant agency heads of the appropriate State and local government entities, including coastal zone management agencies, that will or are likely to be affected by the establishment of the area as a national marine sanctuary;
(D) the appropriate officials of any Regional Fishery Management Council established by section 302 of the Magnuson Act (16 U.S.C. 1852) that may be affected by the proposed designation; and
(E) other interested persons.

(3) Resource Assessment Report.—In making determinations and findings, the Secretary shall draft, as part of the environmental impact statement referred to in section 304(a)(2), a resource assessment report documenting present and potential uses of the area, including commercial and recreational fishing, research and education, minerals and energy development, subsistence uses, and other commercial governmental, or recreational uses. The Secretary, in consultation with the Secretary of the Interior, shall draft a resource assessment section for the report regarding any commercial, governmental, or recreational resource uses in the area under consideration that are subject to the primary jurisdiction of the Department of the Interior. The Secretary, in consultation with the Secretary of Defense, the Secretary of Energy, and the Administrator, shall draft a resource assessment section for the report including information on any past, present or proposed future disposal or discharge of materials in the vicinity of the proposed sanctuary. Public disclosure by the Secretary of such information shall be consistent with national security regulations.

Sec. 304. PROCEDURES FOR DESIGNATION AND IMPLEMENTATION
(a) SANCTUARY PROPOSAL.—
(1) Notice.—In proposing to designate a national marine sanctuary, the Secretary shall—
(A) issue, in the Federal Register, a notice of the proposal, proposed regulations that may be necessary and reasonable to implement the proposal, and a summary of the draft management plan;
(B) provide notice of the proposal in newspapers of general circulation or electronic media in the communities that may be affected by the proposal; and
(C) on the same day the notice required by subparagraph (A) is issued, the Secretary shall submit to the Committee on Merchant Marine and Fisheries of the House of Representatives and the Committee on Commerce, Science. and Transportation of the Senate documents, including an executive summary, consisting of—
(i) the terms of the proposed designation;
(ii) the basis of the findings made under section 303(a) with respect to the area;
(iii) an assessment of the considerations under section 303(b)(1);
(iv) proposed mechanisms to coordinate existing regulatory and management authorities within the area;
(v) the draft management plan detailing the proposed goals and objectives, management responsibilities, resource studies, interpretive and educational programs, and enforcement, including surveillance activities for the area;
(vi) an estimate of the annual cost of the proposed designation, including costs of personnel. equipment and facilities, enforcement, research, and public education;
(vii) the draft environmental impact statement;

(viii) an evaluation of the advantages of cooperative State and Federal management if all or part of a proposed marine sanctuary is within the territorial limits of any State or is superjacent to the subsoil and seabed within the seaward boundary of a State, as that boundary is established under the Submerged Lands Act (43 U.S.C. 1301 et seq.); and

(ix) the proposed regulations referred to in subparagraph (A).

(2) Environmental Impact Statement.—The Secretary shall—

(A) prepare a draft environmental impact statement, as provided by the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), on the proposal that includes the resource assessment report required under section 303(b)(3), maps depicting the boundaries of the proposed designated area, and the existing and potential uses and resources of the area; and

(B) make copies of the draft environmental impact statement available to the public.

(3) Public Hearing.—No sooner than thirty days after issuing a notice under this subsection, the Secretary shall hold at least one public hearing in the coastal area or areas that will be most affected by the proposed designation of the area as a national marine sanctuary for the purpose of receiving the views of interested parties.

(4) Terms of Designation.—The terms of designation of a sanctuary shall include the geographic area proposed to be included within the sanctuary, the characteristics of the area that give it conservation, recreational, ecological, historical, research, educational, or esthetic value, and the types of activities that will be subject to regulation by the Secretary to protect those characteristics. The terms of designation may be modified only by the same procedures by which the original designation is made.

(5) Fishing Regulations.—The Secretary shall provide the appropriate Regional Fishery Management Council with the opportunity to prepare draft regulations for fishing within the Exclusive Economic Zone as the Council may deem necessary to implement the proposed designation. Draft regulations prepared by the Council, or a Council determination that regulations are not necessary pursuant to this paragraph, shall be accepted and issued as proposed regulations by the Secretary unless the Secretary finds that the Council's action fails to fulfill the purposes and policies of this title and the goals and objectives of the proposed designation. In preparing the draft regulations, a Regional Fishery Management Council shall use as guidance the national standards of section 301(a) of the Magnuson Act (16 U.S.C. 1851) to the extent that the standards are consistent and compatible with the goals and objectives of the proposed designation. The Secretary shall prepare the fishing regulations, if the Council declines to make a determination with respect to the need for regulations, makes a determination which is rejected by the Secretary, or fails to prepare the draft regulations in a timely manner. Any amendments to the fishing regulations shall be drafted, approved, and issued in the same manner as the original regulations. The Secretary shall also cooperate with other appropriate fishery management authorities with rights or responsibilities within a proposed sanctuary at the earliest practicable stage in drafting any sanctuary fishing regulations.

(6) Committee Action.—After receiving the documents under subsection (a)(1)(C), the Committee on Merchant Marine and Fisheries of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate may each hold hearings on the proposed designation and on the matters set forth in the documents. If within the forty-five day period of continuous session of Congress beginning on the date of submission of the documents, either Committee issues a report concerning matters addressed in the documents, the Secretary shall consider this report before publishing a notice to designate the national marine sanctuary.

(b) TAKING EFFECT OF DESIGNATIONS.—

(1) Notice.—In designating a national marine sanctuary, the Secretary shall publish in the Federal Register notice of the designation together with final regulations to implement the designation and any other matters required by law, and submit such notice to the Congress. The Secretary shall advise the public of the availability of the final management plan and the final environmental impact statement with respect to such sanctuary. The Secretary shall issue a notice of designation with respect to a proposed national marine sanctuary site not later than 30 months after the date a notice declaring the site to be an active candidate for sanctuary designation is published in the Federal Register under regulations issued under this Act, or shall publish not later than such date in the Federal Register findings regarding why such notice has not been published. No notice of designation may occur until the expiration of the period for Committee action under subsection (a)(6). The designation (and any of its terms not disapproved under this subsection) and

regulations shall take effect and become final after the close of a review period of forty-five days of continuous session of Congress beginning on the day on which such notice is published unless in the case of a natural [sic] marine sanctuary that is located partially or entirely within the seaward boundary of any State, the Governor affected certifies to the Secretary that the designation or any of its terms is unacceptable, in which case the designation or the unacceptable term shall not take effect in the area of the sanctuary lying within the seaward boundary of the State.

(2) Withdrawal of Designation.— If the Secretary considers that actions taken under paragraph (1) will affect the designation of a national marine sanctuary in a manner that the goals and objectives of the sanctuary cannot be fulfilled, the Secretary may withdraw the entire designation. If the Secretary does not withdraw the designation, only those terms of the designation or not certified under paragraph (1) shall take effect.

(3) Procedures.— In computing the forty-five-day periods of continuous session of Congress pursuant to subsection (a)(6) and paragraph (1) of this subsection—

(A) continuity of session is broken only by an adjournment of Congress sine die; and

(B) the days on which either House of Congress is not in session because of an adjournment of more than three days to a day certain are excluded.

(c) ACCESS AND VALID RIGHTS.—

(1) Nothing in this title shall be construed as terminating or granting to the Secretary the right to terminate any valid lease, permit, license, or right of subsistence use or of access that is in existence on the date of designation of any national marine sanctuary.

(2) The exercise of a lease, permit, license, or right is subject to regulation by the Secretary consistent with the purposes for which the sanctuary is designated.

(d) INTERAGENCY COOPERATION.—

(1) Review of Agency Actions.—

(A) In General.—Federal agency actions internal or external to a national marine sanctuary, including private activities authorized by licenses, leases, or permits, that are likely to destroy, cause the loss of, or injure any sanctuary resource are subject to consultation with the Secretary.

(B) Agency Statements Required.— Subject to any regulations the Secretary may establish each Federal agency proposing an action described in subparagraph (A) shall provide the Secretary with a written statement describing the action and its potential effects on sanctuary resources at the earliest practicable time, but in no case later than 45 days before the final approval of the action unless such Federal agency and the Secretary agree to a different schedule.

(2) Secretary's Recommended Alternatives.—If the Secretary finds that a Federal agency action is likely to destroy, cause the loss of, or injure a sanctuary resource, the Secretary shall (within 45 days of receipt of complete information on the proposed agency action) recommend reasonable and prudent alternatives, which may include conduct of the action elsewhere, which can be taken by the Federal agency in implementing the agency action that will protect sanctuary resources.

(3) Response to Recommendations.—The agency head who receives the Secretary's recommended alternatives under paragraph (2) shall promptly consult with the Secretary on the alternatives. If the agency head decides not to follow the alternatives, the agency head shall provide the Secretary with a written statement explaining the reasons for that decision.

(e) REVIEW OF MANAGEMENT PLANS.—Not more than 5 years after the date of designation of any national marine sanctuary, and thereafter at intervals not exceeding 5 years, the Secretary shall evaluate the substantive progress toward implementing the management plan and goals for the sanctuary, especially the effectiveness of site-specific management techniques, and shall revise the management plan and regulations as necessary to fulfill the purposes and policies of this title.

Sec. 305. APPLICATION OF REGULATIONS AND INTERNATIONAL NEGOTIATIONS

(a) REGULATIONS.—This title and the regulations issued under section 304 shall be applied in accordance with generally recognized principles of international law, and in accordance with the treaties, conventions, and other agreements to which the United States is a party. No regulation shall apply to or be enforced against a person who is not a citizen, national, or resident alien of the United States, unless in accordance with—

(1) generally recognized principles of international law;
(2) an agreement between the United States and the foreign state of which the person is a citizen; or
(3) an agreement between the United States and the flag state of a foreign vessel, if the person is a crewmember of the vessel.

(b) NEGOTIATIONS.—The Secretary of State, in consultation with the Secretary, shall take appropriate action to enter into negotiations with other governments to make necessary arrangements for the protection of any national marine sanctuary and to promote the purposes for which the sanctuary is established.

(c) INTERNATIONAL COOPERATION.—The Secretary, in consultation with the Secretary of State and other appropriate Federal agencies, shall cooperate with other governments and international organizations in the furtherance of the purposes and policies of this title and consistent with applicable regional and multilateral arrangements for the protection and management of special marine areas.

Sec. 306. PROHIBITED ACTIVITIES

It is unlawful to—

(1) destroy, cause the loss of, or injure any sanctuary resource managed under law or regulations for that sanctuary;
(2) possess, sell, deliver, carry, transport, or ship by any means any sanctuary resource taken in violation of this section;
(3) interfere with the enforcement of this title; or
(4) violate any provision of this title or any regulation or permit issued pursuant to this title.

Sec. 307. ENFORCEMENT

(a) IN GENERAL.—The Secretary shall conduct such enforcement activities as are necessary and reasonable to carry out this title.

(b) POWERS OF AUTHORIZED OFFICERS.—Any person who is authorized to enforce this title may—

(1) board. search, inspect, and seize any vessel suspected of being used to violate this title or any regulation or permit issued under this title and any equipment, stores, and cargo of such vessel;

(2) seize wherever found any sanctuary resource taken or retained in violation of this title or any regulation or permit issued under this title;

(3) seize any evidence of a violation of this title or of any regulation or permit issued under this title;
(4) execute any warrant or other process issued by any court of competent jurisdiction; and
(5) exercise any other lawful authority.

(c) CIVIL PENALTIES.—

(1) Civil penalty.—Any person subject to the jurisdiction of the United States who violates this title or any regulation or permit issued under this title shall be liable to the United States for a civil penalty of not more than $100,000 for each such violation, to be assessed by the Secretary. Each day of a continuing violation shall constitute a separate violation.
(2) Notice.—No penalty shall be assessed under this subsection until after the person charged has been given notice and an opportunity for a hearing.
(3) In Rem Jurisdiction.—A vessel used in violating this title or any regulation or permit issued under this title shall be liable in rem for any civil penalty assessed for such violation. Such penalty shall constitute a maritime lien on the vessel and may be recovered in an action in rem in the district court of the United States having jurisdiction over the vessel.
(4) Review of Civil Penalty.—Any person against whom a civil penalty is assessed under this subsection may obtain review in the United States district court for the appropriate district by filing a complaint in such court not later than 30 days after the date of such order.
(5) Collection of Penalties.—If any person fails to pay an assessment of a civil penalty under this section after it has become a final and unappealable order, or after the appropriate court has entered final judgment in favor of the Secretary, the Secretary shall refer the matter to the Attorney General, who shall recover the

amount assessed in any appropriate district court of the United States. In such action, the validity and appropriateness of the final order imposing the civil penalty shall not be subject to review.
(6) Compromise or Other Action by Secretary.—The Secretary may compromise, modify, or remit, with or without conditions, any civil penalty which is or may be imposed under this section.

(d) FORFEITURE.—
(1) In General.—Any vessel (including the vessel's equipment, stores, and cargo) and other item used, and any sanctuary resource taken or retained, in any manner, in connection with or as a result of any violation of this title or of any regulation or permit issued under this title shall be subject to forfeiture to the United States pursuant to a civil proceeding under this subsection. The proceeds from forfeiture actions under this subsection shall constitute a separate recovery in addition to any amounts recovered as civil penalties under this section or as civil damages under section 312. None of those proceeds shall be subject to set-off.
(2) Application of the Customs Laws.—The Secretary may exercise the authority of any United States official granted by any relevant customs law relating to the seizure, forfeiture, condemnation, disposition, remission, and mitigation of property in enforcing this title.
(3) Disposal of Sanctuary Resources.—Any sanctuary resource seized pursuant to this title may be disposed of pursuant to an order of the appropriate court or, if perishable, in a manner prescribed by regulations promulgated by the Secretary. Any proceeds from the sale of such sanctuary resource shall for all purposes represent the sanctuary resource so disposed of in any subsequent legal proceedings.
(4) Presumption.—For the purposes of this section there is a rebuttable presumption that all sanctuary resources found on board a vessel that is used or seized in connection with a violation of this title or of any regulation or permit issued under this title were taken or retained in violation of this title or of a regulation or permit issued under this title.

(e) PAYMENT OF STORAGE, CARE, AND OTHER COSTS.—
(1) Expenditures.—
(A) Notwithstanding any other law, amounts received by the United States as civil penalties, forfeitures of property, and costs imposed under paragraph (2) shall be retained by the Secretary in the manner provided for in section 107(f)(1) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980.
(B) Amounts received under this section for forfeitures and costs imposed under paragraph (2) shall be used to pay the reasonable and necessary costs incurred by the Secretary to provide temporary storage, care, maintenance, and disposal of any sanctuary resource or other property seized in connection with a violation of this title or any regulation or permit issued under this title.
(C) Amounts received under this section as civil penalties and any amounts remaining after the operation of subparagraph (B) shall be used, in order of priority, to—
(i) manage and improve the national marine sanctuary with respect to which the violation occurred that resulted in the penalty or forfeiture;
(ii) pay a reward to any person who furnishes information leading to an assessment of a civil penalty, or to a forfeiture of property, for a violation of this title or any regulation or permit issued under this title; and
(iii) manage and improve any other national marine sanctuary.
(2) Liability for Costs.—Any person assessed a civil penalty for a violation of this title or of any regulation or permit issued under this title, and any claimant in a forfeiture action brought for such a violation, shall be liable for the reasonable costs incurred by the Secretary in storage, care, and maintenance of any sanctuary resource or other property seized in connection with the violation.

(f) SUBPOENAS.—In the case of any hearing under this section which is determined on the record in accordance with the procedures provided for under section 554 of title 5, United States Code, the Secretary may issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books, and documents, and may administer oaths.

(g) USE OF RESOURCES OF STATE AND OTHER FEDERAL AGENCIES.—The Secretary shall, whenever appropriate, use by agreement the personnel, services, and facilities of State and other Federal departments, agencies,

and instrumentalities, on a reimbursable or nonreimbursable basis, to carry out the Secretary's responsibilities under this section.

(h) COAST GUARD AUTHORITY NOT LIMITED.—Nothing in this section shall be considered to limit the authority of the Coast Guard to enforce this or any other Federal law under section 89 of title 14, United States Code.

(i) INJUNCTIVE RELIEF.—If the Secretary determines that there is an imminent risk of destruction or loss of or injury to a sanctuary resource, or that there has been actual destruction or loss of, or injury to, a sanctuary resource which may give rise to liability under section 312, the Attorney General, upon request of the Secretary, shall seek to obtain such relief as may be necessary to abate such risk or actual destruction, loss, or injury, or to restore or replace the sanctuary resource, or both. The district courts of the United States shall have jurisdiction in such a case to order such relief as the public interest and the equities of the case may require.

(j) AREA OF APPLICATION AND ENFORCEABILITY.—The area of application and enforceability of this title includes the territorial sea of the United States, as described in Presidential Proclamation 5928 of December 27, 1988, which is subject to the sovereignty of the United States, and the United States exclusive economic zone, consistent with international law.

Sec. 308. SEVERABILITY

If any provision of this Act or the application thereof to any person or circumstances is held invalid, the validity of the remainder of this Act and of the application of such provision to other persons and circumstances shall not be affected thereby.

Sec. 309. RESEARCH, MONITORING, AND EDUCATION

(a) IN GENERAL.—The Secretary shall conduct research, monitoring, evaluation, and education programs as are necessary and reasonable to carry out the purposes and policies of this title.

(b) PROMOTION AND COORDINATION OF SANCTUARY USE.—The Secretary shall take such action as is necessary and reasonable to promote and coordinate the use of national marine sanctuaries for research, monitoring, and education purposes. Such action may include consulting with Federal agencies, States, local governments, regional agencies, interstate agencies, or other persons to promote use of one or more sanctuaries for research, monitoring, and education, including coordination with the National Estuarine Research Reserve System.

Sec. 310. SPECIAL USE PERMITS

(a) ISSUANCE OF PERMITS.—The Secretary may issue special use permits which authorize the conduct of specific activities in a national marine sanctuary if the Secretary determines such authorization is necessary—

(1) to establish conditions of access to and use of any sanctuary resource; or

(2) to promote public use and understanding of a sanctuary resource.

(b) PERMIT TERMS.—A permit issued under this section—

(1) shall authorize the conduct of an activity only if that activity is compatible with the purposes for which the sanctuary is designated and with protection of sanctuary resources;

(2) shall not authorize the conduct of any activity for a period of more than 5 years unless renewed by the Secretary;

(3) shall require that activities carried out under the permit be conducted in a manner that does not destroy, cause the loss of, or injure sanctuary resources; and

(4) shall require the permittee to purchase and maintain comprehensive general liability insurance against claims arising out of activities conducted under the permit and to agree to hold the United States harmless against such claims.

(c) FEES.—

(1) Assessment and Collection.—The Secretary may assess and collect fees for the conduct of any activity under a permit issued under this section.

(2) Amount.—The amount of a fee under this subsection shall be equal to the sum of—

(A) costs incurred, or expected to be incurred, by the Secretary in issuing the permit;

(B) costs incurred, or expected to be incurred, by the Secretary as a direct result of the conduct of the activity for which the permit is issued, including costs of monitoring the conduct of the activity; and

(C) an amount which represents the fair market value of the use of the sanctuary resource and a reasonable, return to the United States Government.

(3) Use of Fees.—Amounts collected by the Secretary in the form of fees under this section may be used by the Secretary—

(A) for issuing and administering permits under this section; and

(B) for expenses of designating and managing national marine sanctuaries.

(d) VIOLATIONS.—Upon violation of a term or condition of a permit issued under this section, the Secretary may—

(1) suspend or revoke the permit without compensation to the permittee and without liability to the United States;

(2) assess a civil penalty in accordance with section 307; or

(3) both.

(e) REPORTS.—Each person issued a permit under this section shall submit an annual report to the Secretary not later than December 31 of each year which describes activities conducted under that permit and revenues derived from such activities during the year.

(f) FISHING.—Nothing in this section shall be considered to require a person to obtain a permit under this section for the conduct of any fishing activities in a national marine sanctuary.

Sec. 311. COOPERATIVE AGREEMENTS, DONATIONS, AND ACQUISITIONS

(a) COOPERATIVE AGREEMENTS, GRANTS AND OTHER AGREEMENTS.—The Secretary may enter into cooperative agreements, financial agreements, grants, contracts, or other agreements with States, local governments, regional agencies, interstate agencies, or other persons to carry out the purposes and policies of this title.

(b) AUTHORIZATION TO SOLICIT DONATIONS.—The Secretary may enter into such agreements with any nonprofit organization authorizing the organization to solicit private donations to carry out the purposes and policies of this title.

(c) DONATIONS.—The Secretary may accept donations of funds, property, and services for use in designating and administering national marine sanctuaries under this title. Donations accepted under this section shall be considered as a gift or bequest to or for the use of the United States.

(d) ACQUISITIONS.—The Secretary may acquire by purchase, lease, or exchange, any land, facilities, or other property necessary and appropriate to carry out the purposes and policies of this title

Sec. 312. DESTRUCTION OR LOSS OF, OR INJURY TO, SANCTUARY RESOURCES

(a) LIABILITY FOR INTEREST.—

(1) Liability to United States.—Any person who destroys, causes the loss of, or injures any sanctuary resource is liable to the United States for an amount equal to the sum of—

(A) the amount of response costs and damages resulting from the destruction, loss, or injury; and

(B) interests on that amount calculated in the manner described under section 1005 of the Oil Pollution Act of 1990.

(2) Liability In Rem.—Any vessel used to destroy, cause the loss of, or injure any sanctuary resource shall be liable in rem to the United States for response costs and damages resulting from such destruction, loss, or injury. The amount of that liability shall constitute a maritime lien on the vessel and may be recovered in an action in rem in the district court of the United States having jurisdiction over the vessel.

(3) Defenses.—A person is not liable under this subsection if that person establishes that—

(A) the destruction or loss of, or injury to, the sanctuary resource was caused solely by an act of God, an act of war, or an act or omission of a third party, and the person acted with due care;
(B) the destruction, loss, or injury was caused by an activity authorized by Federal or State law; or
(C) the destruction, loss, or injury was negligible.

(4) Limits to Liability.— Nothing in sections 4281–4289 of the Revised Statutes of the United States or section 3 of the Act of February 13, 1893, shall limit the liability of any person under this title.

(b) RESPONSE ACTIONS AND DAMAGE ASSESSMENT.—

(1) Response Actions.—The Secretary may undertake or authorize all necessary actions to prevent or minimize the destruction or loss of, or injury to, sanctuary resources, or to minimize the imminent risk of such destruction, loss, or injury.

(2) Damage Assessment.—The Secretary shall assess damages to sanctuary resources in accordance with section 302(6).

(c) CIVIL ACTIONS FOR RESPONSE COSTS AND DAMAGES.—The Attorney General, upon request of the Secretary, may commence a civil action in the United States district court for the appropriate district against any person or vessel who may be liable under subsection (a) for response costs and damages. The Secretary, acting as trustee for sanctuary resources for the United States, shall submit a request for such an action to the Attorney General whenever a person may be liable for such costs or damages.

(d) USE OF RECOVERED AMOUNTS.—Response costs and damages recovered by the Secretary under this section shall be retained by the Secretary in the manner provided for in section 107(f)(1) of the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C. 9607(f)(1)), and used as follows:

(1) Response Costs And Damage Assessments.— Twenty percent of amounts recovered under this section, up to a maximum balance of $750,000, shall be used to finance response actions and damage assessments by the Secretary.

(2) Restoration, Replacement, Management, And Improvement.—Amounts remaining after the operation of paragraph (1) shall be used, in order of priority—

(A) to restore, replace, or acquire the equivalent of the sanctuary resources which were the subject of the action;
(B) to manage and improve the national marine sanctuary within which are located the sanctuary resources which were the subject of the action; and
(C) to manage and improve any other national marine sanctuary.

(3) Federal-State Coordination.—Amounts recovered under this section with respect to sanctuary resources lying within the jurisdiction of a State shall be used under paragraphs (2)(A) and (B) in accordance with the court decree or settlement agreement and an agreement entered into by the Secretary and the Governor of that State.

Sec. 313. AUTHORIZATION OF APPROPRIATIONS

There are authorized to be appropriated to the Secretary to carry out this title the following: (1) $12,000,000 for fiscal year 1997; (2) $15,000,000 for fiscal year 1998; and (3) $18,000,000 for fiscal year 1999.

Sec. 314. U.S.S. MONITOR ARTIFACTS AND MATERIALS

(a) CONGRESSIONAL POLICY. — In recognition of the historical significance of the wreck of the United States ship Monitor to coastal North Carolina and to the area off the coast of North Carolina known as the Graveyard of the Atlantic, the Congress directs that a suitable display of artifacts and materials from the United States ship Monitor be maintained permanently at an appropriate site in coastal North Carolina. [P.L. 102–587 authorized a grant for the acquisition of space in Hatteras Village, NC, for display of artifacts and administration and operations of the Monitor National Marine Sanctuary.]

(b) INTERPRETATION AND DISPLAY OF ARTIFACTS.—

(1) Submission Of Plan. — The Secretary shall, within six months after the date of the enactment of this section, submit to the Committee on Merchant Marine and Fisheries of the House of Representatives a plan for a suitable display in coastal North Carolina of artifacts and materials of the United States ship Monitor.

(2) Contents Of Plan.—The plan submitted under subsection (a) shall, at a minimum, contain—

(A) an identification of appropriate sites in coastal North Carolina, either existing or proposed, for display of artifacts and materials of the United States ship Monitor;

(B) an identification of suitable artifacts and materials, including artifacts recovered or proposed for recovery, for display in coastal North Carolina;

(C) an interpretive plan for the artifacts and materials which focuses on the sinking, discovery, and subsequent management of the wreck of the United States ship Monitor; and

(D) a draft cooperative agreement with the State of North Carolina to implement the plan.

(c) DISCLAIMER. —This section shall not affect the following:

(1) Responsibilities Of Secretary.—The responsibilities of the Secretary to provide for the protection, conservation, and display of artifacts and materials from the United States ship Monitor.

(2) Authority Of Secretary.—The authority of the Secretary to designate the Mariner's Museum, located at Newport News, Virginia, as the principal museum for coordination of activities referred to in paragraph (1).

[**NOTE:** Section 4 of the National Marine Sanctuaries Preservation Act, Pub. L. 104-283, requires the Secretary to prepare a plan for the management, stabilization, preservation, and recovery of artifacts and materials of the U.S.S. Monitor.]

Sec. 315. ADVISORY COUNCILS

(a) ESTABLISHMENT.—The Secretary may establish one or more advisory councils (in this section referred to as an 'Advisory Council') to provide assistance to the Secretary regarding the designation and management of national marine sanctuaries. The Advisory Councils shall be exempt from the Federal Advisory Committee Act.

(b) MEMBERSHIP.—Members of the Advisory Councils may be appointed from among—

(1) persons employed by Federal or State agencies with expertise in management of natural resources;

(2) members of relevant Regional Fishery Management Councils established under section 302 of the Magnuson Fishery Conservation and Management Act; and

(3) representatives of local user groups, conservation and other public interest organizations, scientific organizations, educational organizations, or others interested in the protection and multiple use management of sanctuary resources.

(c) LIMITS ON MEMBERSHIP.—For sanctuaries designated after the date of enactment of the National Marine Sanctuaries Program Amendments Act of 1992, the membership of Advisory Councils shall be limited to no more than 15 members.

(d) STAFFING AND ASSISTANCE.—The Secretary may make available to an Advisory Council any staff, information, administrative services, or assistance the Secretary determines are reasonably required to enable the Advisory Council to carry out its functions.

(e) PUBLIC PARTICIPATION AND PROCEDURAL MATTERS.—The following guidelines apply with respect to the conduct of business meetings of an Advisory Council:

(1) Each meeting shall be open to the public, and interested persons shall be permitted to present oral or written statements on items on the agenda.

(2) Emergency meetings may be held at the call of the chairman or presiding officer.

(3) Timely notice of each meeting, including the time, place, and agenda of the meeting, shall be published locally and in the Federal Register, except that in the case of a meeting of an Advisory Council established to provide assistance regarding any individual national marine sanctuary the notice is not required to be published in the Federal Register.

(4) Minutes of each meeting shall be kept and contain a summary of the attendees and matters discussed.

Sec. 316. ENHANCING SUPPORT FOR NATIONAL MARINE SANCTUARIES

(a) AUTHORITY.- The Secretary may establish a program consisting of--

(1) the creation, adoption, and publication in the Federal Register by the Secretary of a symbol for the national marine sanctuary program, or for individual national marine sanctuaries;
(2) the solicitation of persons to be designated as official sponsors of the national marine sanctuary program or of individual national marine sanctuaries;
(3) the designation of persons by the Secretary as official sponsors of the national marine sanctuary program or of individual sanctuaries;
(4) the authorization by the Secretary of the use of any symbol published under paragraph (1) by official sponsors of the national marine sanctuary program or of individual national marine sanctuaries;
(5) the creation, marketing, and selling of products to promote the national marine sanctuary program, and entering into exclusive or nonexclusive agreements authorizing entities to create, market or sell on the Secretary's behalf;
(6) the solicitation and collection by the Secretary of monetary or in-kind contributions from official sponsors for the manufacture, reproduction or use of the symbols published under paragraph (1);
(7) the retention of any monetary or in-kind contributions collected under paragraphs (5) and (6) by the Secretary; and
(8) the expenditure and use of any monetary and in-kind contributions, without appropriation, by the Secretary to designate and manage national marine sanctuaries.

Monetary and in-kind contributions raised through the sale, marketing, or use of symbols and products related to an individual national marine sanctuary shall be used to support that sanctuary.

(b) CONTRACT AUTHORITY.— The Secretary may contract with any person for the creation of symbols or the solicitation of official sponsors under subsection (a).

(c) RESTRICTIONS.— The Secretary may restrict the use of the symbols published under subsection (a), and the designation of official sponsors of the national marine sanctuary program or of individual national marine sanctuaries to ensure compatibility with the goals of the national marine sanctuary program.

(d) PROPERTY OF UNITED STATES.— Any symbol which is adopted by the Secretary and published in the Federal Register under subsection (a) is deemed to be the property of the United States.

(e) PROHIBITED ACTIVITIES.— It is unlawful for any person—
(1) designated as an official sponsor to influence or seek to influence any decision by the Secretary or any other Federal official related to the designation or management of a national marine sanctuary, except to the extent that a person who is not so designated may do so;
(2) to represent himself or herself to be an official sponsor absent a designation by the Secretary;
(3) to manufacture, reproduce, or use any symbol adopted by the Secretary absent designation as an official sponsor and without payment of a monetary or in-kind contribution to the Secretary; and
(4) to violate any regulation promulgated by the Secretary under this section.

Oceans Act of 1992

Sections 2202 - 2307 of the Oceans Act of 1992, as amended by Pub. L. 104-283, contain provisions pertaining to National Marine Sanctuaries.

Sec. 2202. STELLWAGEN BANK NATIONAL MARINE SANCTUARY

(a) DESIGNATION.—The area described in subsection (b) is designated as the Stellwagen Bank National Marine Sanctuary (hereafter in this section referred to as the "Sanctuary").

(b) AREA.—The Sanctuary shall consist of all submerged lands and waters, including living and nonliving marine resources within those waters, bounded by the area described as Boundary Alternative 3 in the Draft Environmental Impact Statement and Management Plan for the Proposed Stellwagen Bank National Marine Sanctuary, published by the Department of Commerce in January 1991, except that the western boundary shall be modified as follows:

(1) The southwestern corner of the Sanctuary shall be located at a point off Provincetown, Massachusetts, at the following coordinates: 42 degrees, 7 minutes, 44.89 seconds (latitude), 70 degrees, 28 minutes, 15.44 seconds (longitude).

(2) The northwestern corner of the Sanctuary shall be located at a point off Cape Ann, Massachusetts, at the following coordinates: 42 degrees, 37 minutes, 53.52 seconds (latitude), 70 degrees, 35 minutes, 52.38 seconds (longitude).

(c) MANAGEMENT.—The Secretary of Commerce shall issue a management plan for the Sanctuary in accordance with section 304 of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1434), as amended by this title.

(d) SAND AND GRAVEL MINING ACTIVITIES PROHIBITED.—Notwithstanding any other provision of law, exploration for, and mining of, sand and gravel and other minerals in the Sanctuary is prohibited.

(e) CONSULTATION.—In accordance with the procedures established in section 304(d) of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended by this title, the appropriate Federal agencies shall consult with the Secretary on proposed agency actions in the vicinity of the Sanctuary that may affect sanctuary resources.

(f) AUTHORIZATION.—There are authorized to be appropriated to the Secretary of Commerce for carrying out the purposes of this section $570,000 for fiscal year 1993 and $250,000 for fiscal year 1994.

(g) OFFICE.—The Secretary of Commerce shall consider establishing a satellite office for the Stellwagen Bank National Marine Sanctuary in Provincetown, Gloucester, or Hull, Massachusetts.

[NOTE: Section 11 of the National Marine Sanctuaries Preservation Act, Pub. L. 104-283, changed the name of this sanctuary to the Gerry E. Studds Stellwagen Bank National Marine Sanctuary.]

Sec. 2203. MONTEREY BAY NATIONAL MARINE SANCTUARY

(a) ISSUANCE OF DESIGNATION NOTICE.—Notwithstanding section 304(b) of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1434(b)), the designation of the Monterey Bay National Marine 20 Sanctuary (hereafter in this section the "Sanctuary"), as described in the notice of designation submitted to the Congress on September 15, 1992, shall take effect on September 18, 1992.

(b) OIL AND GAS ACTIVITIES PROHIBITED.—Notwithstanding any other provision of law, no leasing, exploration, development, or production of oil or gas shall be permitted within the Sanctuary as provided by section 944.5 of the National Environmental Impact Statement and Management Plan for the Monterey Bay National Marine Sanctuary, published by the Department of Commerce in June 1992.

(c) CONSULTATION.—Section 304(e) of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended by this title, shall apply to the Sanctuary as designated by the Secretary of Commerce.

(d) VESSEL TRAFFIC.—Within 18 months after the date of enactment of this title, the Secretary of Commerce and the Secretary of Transportation, in consultation with the State of California and with adequate opportunity for public comment, shall report to Congress on measures for regulating vessel traffic in the Sanctuary if it is determined that such measures are necessary to protect sanctuary resources.

Sec. 2209. FLORIDA KEYS NATIONAL MARINE SANCTUARY

(a) IMPLEMENTATION.—Section 8 of the Florida Keys National Marine Sanctuary and Protection Act (16 U.S.C. 1433 note) is amended by adding at the end the following new subsection:

(d) IMPLEMENTATION.—

(1) The Administrator of the Environmental Protection Agency and the Governor of the State of Florida shall implement the program required by this section, in cooperation with the Secretary of Commerce.

(2)(A) The Regional Administrator of the Environmental Protection Agency shall with the Governor of the State of Florida establish a Steering Committee to set guidance and policy for the development and implementation of such program. Membership shall include representatives of the Environmental Protection Agency, the National Park Service, the United States Fish and Wildlife Service, the Army Corps of Engineers, the National Oceanic and Atmospheric Administration, the Florida Department of Community Affairs, the Florida Department of Environmental Regulation, the South Florida Water Management District, and the Florida Keys Aqueduct Authority; three individuals in local government in the Florida Keys; and three citizens knowledgeable about such program.

(B) The Steering Committee shall, on a biennial basis, issue a report to Congress that—

(i) summarizes the progress of the program;

(ii) summarizes any modifications to the program and its recommended actions and plans; and

(iii) incorporates specific recommendations concerning the implementation of the program.

(C) The Administrator of the Environmental Protection Agency and the Administrator of the National Oceanic and Atmospheric Administration shall cooperate with the Florida Department of Environmental Regulation to establish a Technical Advisory Committee to advise the Steering Committee and to assist in the design and prioritization of programs for scientific research and monitoring. The Technical Advisory Committee shall be composed of scientists from Federal agencies, State agencies, academic institutions, private non-profit organizations, and knowledgeable citizens.

(3)(A) The Regional Administrator of the Environmental Protection Agency shall appoint a Florida Keys Liaison Officer. The Liaison Officer, who shall be located within the State of Florida, shall have the authority and staff to—

(i) assist and support the implementation of the program required by this section, including administrative and technical support for the Steering Committee and Technical Advisory Committee;

(ii) assist and support local, State, and Federal agencies in developing and implementing specific action plans designed to carry out such program;

(iii) coordinate the actions of the Environmental Protection Agency with other Federal agencies, including the National Oceanic and Atmospheric Administration and the National Park Service, and State and local authorities, in developing strategies to maintain, protect, and improve water quality in the Florida Keys;

(iv) collect and make available to the public publications, and other forms of information that the Steering Committee determines to be appropriate, related to the water quality in the vicinity of the Florida Keys; and

(v) provide for public review and comment on the program and implementing actions.

(4)(A) There are authorized to be appropriated to the Administrator of the Environmental Protection Agency $2,000,000 for fiscal year 1993, $3,000,000 for fiscal year 1994, and $4,000,000 for fiscal year 1995, for the purpose of carrying out this section.

(B) There are authorized to be appropriated to the Secretary of Commerce $300,000 for fiscal year 1993, $400,000 for fiscal year 1994, and $500,000 for fiscal year 1995, for the purpose of enabling the National Oceanic and Atmospheric Administration to carry out this section.
(C) Amounts appropriated under this paragraph shall remain available until expended.
(D) No more than 15 percent of the amount authorized to be appropriated under subparagraph (A) for any fiscal year may be expended in that fiscal year on administrative expenses.

(b) TECHNICAL AMENDMENT.— Section 8(c) of the Florida Keys National Marine Sanctuary and Protection Act (16 U.S.C. 1433 note) is amended by striking "paragraph (10" and inserting in lieu thereof "subsection(a)."

Subtitle C Hawaiian Islands Humpback Whale Sanctuary

Sec. 2301. SHORT TITLE

This subtitle may be cited as the "Hawaiian Islands National Marine Sanctuary Act".

[**NOTE:** This subtitle was amended by section 7 of the National Marine Sanctuaries Preservation Act, Pub. L. 104-283. The full text of this Act can be found in Appendix C]

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Appendix C

HAWAIIAN ISLANDS HUMPBACK WHALE NATIONAL MARINE SANCTUARY ACT, SUBTITLE C OF PUBLIC LAW 102-587, AS AMENDED BY P.L. 104-283.

Sec. 2301. Short Title.
This subtitle may be cited as the "Hawaiian Islands National Marine Sanctuary Act".

Sec. 2302. Findings.
The Congress finds the following:

(1) Many of the diverse marine resources and ecosystems within the Western Pacific region are of national significance and importance.
(2) There are at present no ocean areas in the Hawaiian Islands designated as national marine sanctuaries or identified on the Department of Commerce's Site Evaluation List of sites to be investigated as potential candidates for designation as a national marine sanctuary under title III of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1431 et seq.).
(3) The Hawaiian Islands consist of 8 major islands and 124 minor islands, with a total land area of 6,423 square miles and a general coastline of 750 miles.
(4) The marine environment adjacent to and between the Hawaiian Islands is a diverse and unique subtropical marine ecosystem.
(5) The Department of Commerce recently concluded in its Kahoolawe Island National Marine Sanctuary Feasibility Study that there is preliminary evidence of biological, cultural, and historical resources adjacent to Kahoolawe Island to merit further investigation for national marine sanctuary status.
(6) The Department of Commerce also concluded in its Kahoolawe Island National Marine Sanctuary Feasibility Study that there are additional marine areas within the Hawaiian archipelago which merit further consideration for national marine sanctuary status and that the national marine sanctuary program could enhance marine resource protection in Hawaii.
(7) The Hawaiian stock of the endangered humpback whale, the largest of the three North Pacific stocks, breed and calve within the waters of the main Hawaiian Islands.
(8) The marine areas surrounding the main Hawaiian Islands, which are essential breeding, calving, and nursing areas for the endangered humpback whale, are subject to damage and loss of their ecological integrity from a variety of disturbances.
(9) The Department of Commerce recently promulgated a humpback whale recovery plan which sets out a series of recommended goals and actions in order to increase the abundance of the endangered humpback whale.
(10) An announcement of certain Hawaiian waters frequented by humpback whales as an active candidate for marine sanctuary designation was published in the Federal Register on March 17, 1982 (47 FR 11544).
(11) The existing State and Federal regulatory and management programs applicable to the waters of the main Hawaiian Islands are inadequate to provide the kind of comprehensive and coordinated conservation and management of humpback whales and their habitat that is available under title III of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1431 et seq.).
(12) Authority is needed for comprehensive and coordinated conservation and management of humpback whales and their habitat that will complement existing Federal and State regulatory authorities.
(13) There is a need to support, promote, and coordinate scientific research on, and monitoring of, that portion of the marine environment essential to the survival of the humpback whale.
(14) Public education, awareness, understanding, appreciation, and wise use of the marine environment are fundamental to the protection and conservation of the humpback whale.
(15) The designation, as a national marine sanctuary, of the areas of the marine environment adjacent to the main Hawaiian Islands which are essential to the continued recovery of the humpback whale is necessary for the preservation and protection of this important national marine resource.
(16) The marine sanctuary designated for the conservation and management of humpback whales could be expanded to include other marine resources of national significance which are determined to exist within the

sanctuary.

Sec. 2303. Definitions.
In this subtitle, the following definitions apply:

(1) The term "adverse impact" means an impact that independently or cumulatively damages, diminishes, degrades, impairs, destroys, or otherwise harms.
(2) The term "Sanctuary" means the Hawaiian Islands Humpback Whale National Marine Sanctuary designated under section 2305.
(3) The term "Secretary" means the Secretary of Commerce.

Sec. 2304. Policy And Purposes.
(a) POLICY.—It is the policy of the United States to protect and preserve humpback whales and their habitat within the Hawaiian Islands marine environment.

(b) PURPOSES.—The purposes of this subtitle are

(1) to protect humpback whales and their habitat in the area described in section 2305(b);
(2) to educate and interpret for the public the relationship of humpback whales to the Hawaiian Islands marine environment;
(3) to manage such human uses of the Sanctuary consistent with this subtitle and title III of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended by this Act; and
(4) to provide for the identification of marine resources and ecosystems of national significance for possible inclusion in the sanctuary designated in section 2305(a).

Sec. 2305. Designation Of Sanctuary.
(a) DESIGNATION.—Subject to subsection (c), the area described in subsection (b)(1) and any area included under subsection (b)(2) are designated as the Hawaiian Islands Humpback Whale National Marine Sanctuary under title III of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1451 et seq.), as amended by this title.

(b) AREA INCLUDED.—

(1) Subject to subsections (c) and (d), the area referred to in subsection (a) consists of the submerged lands and waters off the coast of the Hawaiian Islands seaward of the upper reaches of the wash of the waves on shore—

(A) to the 100-fathom (183-meter) isobath adjoining the islands of Lanai, Maui, and Molokai, including Penguin Bank but excluding the area within 3 nautical miles of the upper reaches of the waves on the shore of Kahoolawe Island;
(B) to the deep water area of Pailolo Channel from Cape Halawa, Molokai, to Nakalele Point, Maui, and southward; and
(C) to the 100-fathom (183-meter) isobath adjoining the Kilauea National Wildlife Refuge on the island of Kauai.

(2) (A) Within 6 months after the date of receipt of a request in writing from the Kahoolawe Island Reserve Commission for inclusion within the Sanctuary of the area of the marine environment within 3 nautical miles of the mean high tide line of Kahoolawe Island (in this section referred to as the 'Kahoolawe Island waters'), the Secretary shall determine whether those waters may be suitable for inclusion in the Sanctuary.

(B) If the Secretary determines under subparagraph (A) that the Kahoolawe Island waters may be suitable for inclusion within the Sanctuary --

(i) the Secretary shall provide notice of that determination to the Governor of Hawaii; and
(ii) the Secretary shall prepare a supplemental environmental impact statement, management plan, and implementing regulations for that inclusion in accordance with this Act, the National Marine Sanctuaries Act, and the National Environmental Policy Act of 1969.

(3) The Secretary shall generally identify and depict the Sanctuary on National Oceanic and Atmospheric Administration charts. Those charts shall be maintained on file and kept available for public examination during regular business hours at the Office of Ocean and Coastal Resource Management of the National Oceanic and Atmospheric Administration. The Secretary shall update the charts to reflect any boundary

modification under subsection (d), and any additional designation under paragraph (2) of this subsection.

(c) EFFECT OF OBJECTION BY GOVERNOR.—

(1)(A) If, within 45 days after the date of issuance of the comprehensive management plan and implementing regulations under section 2306, the Governor of Hawaii certifies to the Secretary that the management plan, the implementing regulations, or any term of the plan or regulations is unacceptable, the management plan, regulation, or term, respectively, shall not take effect in the area of the Sanctuary lying within the seaward boundary of the State of Hawaii.

(B) If the Secretary considers that an action under subparagraph (A) will affect the Sanctuary in such a manner that the policy or purposes of this title cannot be fulfilled, the Secretary may terminate the designation under subsection (a). At least 30 days before that termination, the Secretary shall submit written notice of the termination to the Committee on Resources of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

(2)(A) If, within 45 days after the Secretary issues the documents required under subsection (b)(2)(B)(ii), the Governor of Hawaii certifies to the Secretary that the inclusion of the Kahoolawe Island waters in the Sanctuary or any term of that inclusion is unacceptable--

(i) the inclusion or the term shall not take effect; and

(ii) subsection (b)(2) shall not apply during the 3-year period beginning on the date of that certification.

(B) If the Secretary considers that an action under subparagraph (A) regarding a term of the inclusion of the Kahoolawe Island waters will affect the inclusion or the administration of the Kahoolawe Island waters as part of the Sanctuary in such a manner that the policy or purposes of this title cannot be fulfilled, the Secretary may terminate that inclusion.

(d) BOUNDARY MODIFICATIONS.—No later than the date of issuance of the draft environmental impact statement for the Sanctuary under section 304(a)(1)(C)(vii) of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1434(a)(1)(C)(vii)), the Secretary, in consultation with the Governor of Hawaii, if appropriate, may make modifications to the boundaries of the Sanctuary as necessary to fulfill the purposes of this subtitle. The Secretary shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Merchant Marine and Fisheries of the House of Representatives a written notification of such modifications.

Sec. 2306. Comprehensive Management Plan.

(a) PREPARATION OF PLAN.—The Secretary, in consultation with interested persons and appropriate federal, State, and local government authorities, shall develop and issue not later than 18 months after the date of enactment of this title a comprehensive management plan and implementing regulations to achieve the policy and purposes of this subtitle. In developing the plan and regulations, the Secretary shall follow the procedures specified in sections 303 and 304 of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1433 and 1434), as amended by this title. Such comprehensive management plan shall—

(1) facilitate all public and private uses of the Sanctuary (including uses of Hawaiian natives customarily and traditionally exercised for subsistence, cultural, and religious purposes) consistent with the primary objective of the protection of humpback whales and their habitat;

(2) set forth the allocation of Federal and State enforcement responsibilities, as jointly agreed by the Secretary and the State of Hawaii;

(3) identify research needs and establish a long-term ecological monitoring program with respect to humpback whales and their habitat;

(4) identify alternative sources of funding needed to fully implement the plan's provisions and supplement appropriations under section 2307 of this subtitle and section 313 of the Marine Protection, Research, and Sanctuaries Act of 1972 (16 U.S.C. 1444);

(5) ensure coordination and cooperation between Sanctuary managers and other Federal, State, and local authorities with jurisdiction within or adjacent to the Sanctuary; and

(6) promote education among users of the Sanctuary and the general public about conservation of humpback whales, their habitat, and other marine resources.

(b) PUBLIC PARTICIPATION.—The Secretary shall provide for participation by the general public in development of the comprehensive management plan or any amendment thereto.

Sec. 2307. Limitation on User Fees.

(a) Limitation: The Secretary shall not institute any user fee under this Act or the National Marine Sanctuaries Act for any activity within the Hawaiian Islands National Marine Sanctuary or any use of the Sanctuary or its resources.

(b) User Fee Defined: In this section, the term 'user fee' does not include--

(1) any fee authorized by section 310 of the National Marine Sanctuaries Act;
(2) any gift or donation received under section 311 of that Act; and
(3) any monetary or in-kind contributions under section 316 of that Act.

Sec. 2308. Authorization of Appropriations.

For carrying out this subtitle, there are authorized to be appropriated to the Secretary $500,000 for fiscal year 1993 and $300,000 for fiscal year 1994. Of the amounts appropriated under this section for fiscal year 1993—

(1) not less than $50,000 shall be used by the Western Pacific Regional Team to evaluate potential national marine sanctuary sites for inclusion on the Department of Commerce's Site Evaluation List; and
(2) not less than $50,000 shall be used to continue the investigation of biological, cultural, and historical resources adjacent to Kahoolawe Island.

Appendix D

HAWAIIAN ISLANDS HUMPBACK WHALE NATIONAL MARINE SANCTUARY ADVISORY COUNCIL CHARTER

INTRODUCTION

The mission of the National Marine Sanctuary Program (NMSP) is to manage ocean, coastal and Great Lakes areas of special national, and sometimes international, significance to protect their ecological and cultural integrity for the benefit of current and future generations. As the principal steward of coastal and ocean resources, the National Oceanic and Atmospheric Administration's (NOAA) Sanctuaries and Reserves Division (SRD) manages national marine sanctuaries using ecologically sound principles of resource conservation; develops and implements stewardship, education and research programs that foster public understanding, support, and participation; and promotes the ecologically sustainable use of the Nation's natural and cultural marine resources. The NMSP provides leadership and acts as a catalyst to link the assets and resources of governmental and non-governmental organizations to focus people's attention on the need to effectively and efficiently manage and protect marine resources.

The Hawaiian Islands Humpback Whale National Marine Sanctuary (the Sanctuary) was designated by an Act of Congress (Title II, Subtitle C, Public Law 102-587, Hawaiian Islands National Marine Sanctuary Act or Act) to recognize the importance of Hawaii's nearshore waters which serve as the winter breeding, calving and nursing habitat essential to the long-term survival and recovery of the North Pacific stock of the endangered humpback whale (*Megaptera novaeangeliae*). The Sanctuary, working in partnership with the State of Hawaii, its governments and citizens, will function to provide the protection needed to ensure that the whales and their habitat are safe from harm and harassment while continuing to meet the needs of marine users of an insular state. The Sanctuary is of national and international significance and the NOAA will exercise its stewardship role with all affected interests in a manner which ensures the continuing needs of the humpback whale and coastal and marine resource users. To this end, it is incumbent on NOAA to solicit the valuable input of these many diverse interests through the establishment of the Hawaiian Islands Humpback Whale National Marine Sanctuary Advisory Council, pursuant to Section 315 of the National Marine Sanctuaries Act (NMSA), 16 U.S.C. §1445a.

The Act established the Sanctuary for the following purposes:

(1) to protect the North Pacific population of Humpback Whales and their habitat within the Sanctuary;
(2) to educate and interpret for the public the relationship of Humpback Whales to the Hawaiian Islands marine environment;
(3) to manage human uses of the Sanctuary consistent with the Act and the NMSA, as amended; and
(4) to provide for the identification of marine resources and ecosystems of national significance for possible inclusion in the Sanctuary.

As identified by the Act, the comprehensive management plan for the Sanctuary shall:

(1) facilitate all public and private uses of the Sanctuary (including uses of Hawaiian natives customarily and traditionally exercised for subsistence, cultural, and religious purposes) consistent with the primary objective of the protection of humpback whales and their habitat;
(2) set forth the allocation of Federal and State enforcement responsibilities, as jointly agreed by the Secretary and the State of Hawaii;

(3) identify research needs and establish a long-term ecological monitoring program with respect to humpback whales and their habitat;
(4) identify alternative sources of funding needed to fully implement the plan's provisions and supplement appropriations under section 2307 of this subtitle and section 313 of the NMSA (16 U.S.C. §1444);
(5) ensure coordination and cooperation between Sanctuary managers and other Federal, State, and local authorities with jurisdiction within or adjacent to the Sanctuary; and
(6) promote education among users of the Sanctuary and the general public about conservation of humpback whales, their habitat, and other marine resources.

ESTABLISHMENT

Under Section 315 of the NMSA, 16 U.S.C.§ 1445a, the Secretary of Commerce is authorized to establish Sanctuary advisory councils to provide assistance to the Secretary regarding the designation and management of national marine sanctuaries. The Director of the Office of Ocean and Coastal Resource Management, National Ocean Service, NOAA, hereby establishes the Hawaiian Islands Humpback Whale National Marine Sanctuary Advisory Council ("Council").

OBJECTIVES AND DUTIES

1. The Council, in accordance with the Act, shall provide advice and recommendations to SRD, through the Sanctuary Manager[1] regarding the management of the Hawaiian Islands Humpback Whale National Marine Sanctuary ("Sanctuary").
2. The Council shall act solely as an advisory body. Nothing in this Charter constitutes authority to perform operational or management functions, or to represent or make decisions on behalf of the Sanctuary or NOAA.
3. The Council shall draw on the expertise of its members and other sources in order to provide advice and recommendations.
4. The Council may serve as a forum for consultation and deliberation among its members and as a source of advice to the Sanctuary Manager. Such advice shall fairly represent the collective and individual views of the Council members.

MEMBERS AND CHAIRS

The Council shall consist of no more than twenty-five (25) voting members who shall be appointed by the Director, after consultation with the Office of the Governor, from among persons employed by Federal, State or Local government agencies with expertise in management of natural resources, members of the Western Pacific Fishery Management Council, representatives of native Hawaiian groups, local user groups, representatives from adjacent counties, conservation and other public interest organizations, scientific and educational organizations, and members of the public interested in the protection and multiple use management of Sanctuary resources. The membership is designed to be balanced in terms of interests represented, geographic representation, and advisory functions the Council will perform.

There are two categories of seats for which voting members are appointed:

[1] The NOAA on-site liaison will serve in place of the Sanctuary Manager until such a position is created and filled.

1. Government (10 members):

By virtue of the shared functional responsibilities of Federal and State jurisdictions in the implementation of Sanctuary-related management, each of the following government entities shall be requested to designate one individual to serve on the Council. (Of the numerous responsibilities encompassed within each entity, the specific functional area of expertise needing representation is identified in parenthesis):

State of Hawaii (6): State Planning (marine and coastal coordination and planning); Department of Health (water quality management & monitoring); Department of Land and Natural Resources (aquatic resources, marine conservation areas, boating, enforcement); Department of Business, Economic Development and Tourism (marine recreation, development & tourism); Kahoolawe Island Reserve Commission (resource management on and around Kahoolawe); Department of Education (marine education).

Federal (4): U.S. Army Corps of Engineers (water quality, dredge disposal & alteration of seabed); U.S. Coast Guard (oil spills, enforcement); National Marine Fisheries Service (protected species, enforcement); Western Pacific Regional Fisheries Management Council (fisheries management).

2. Non-government (15 members):

A representative of each of the following interest groups or activities, which are integrally affected by the management goals of the Sanctuary, will be selected: County-specific representatives[2] (4); native Hawaiian (1); research (1); education (1); conservation (1); whale watching (1); business/commerce (1); ocean recreation (1); fishing (1); tourism (1); citizen-at-large (2).

NOTE: NOAA recognizes that all of the non-government user/interest groups are comprised of many different individuals and organizations, each representing specific interests. The selected representative of each group will be encouraged to make concerted efforts to identify, contact and coordinate with all the diverse organizations and individuals comprising the respective group.

SELECTION PROCEDURES

The following procedures shall govern the application, nomination and appointment of Council voting members.

(1) Initial Selection:

(a) Applications: To be considered for one of the 15 non-governmental seats on the Council, interested individuals must submit a completed application to the Sanctuary Manager indicating their particular interest, qualifications, and experience.

(b) Panel Selection: In seeking to ensure that the aforementioned user groups and activities have a voice on the Council and that a balance in interests and geographic representation is realized, a candidate Selection Panel (Panel) will be formed using the recommendations from members of the State-administered Sanctuary Working Group (SWG). To assure balanced representation, two

[2] County-specific representatives: Each of the four counties (Kauai, Honolulu, Maui, and Hawaii) will have a non-governmental individual to represent the concerns of that county. This individual will establish a county-specific working group and coordinate and consolidate the various views and concerns of the citizens of that particular county and present them to the Council. The county groups shall include the County governments and involve the expertise of the individual county Coastal Zone Managers.

panel members will be SWG government representatives and two will be SWG private-sector representatives. The fifth panel member will be the SWG member who receives the next highest number of total votes. In the event that an elected member chooses not to serve on the selection panel, the person with the next highest number of votes in that category (government or non-government) will be asked to serve. Once selected, panel members may not substitute other persons in their place.

All applications sent to the Sanctuary Manager will be forwarded to the Selection Panel, which will evaluate the applicants and submit to the Sanctuary Manager a list identifying three candidates for each of the 13 non-government special interest and county-specific seats (39 total). All remaining candidates will be considered for the two citizen-at-large seats. SWG members who serve on the Panel are eligible to be considered as one of the three candidates for selection on the new Council if they submit an application and are selected by the Panel. However, that Panel member may not vote on his or her own application.

(c) Final Candidate Selection: Final selection of the 13 non-government special interest and county-specific Council members will be made from the candidate Selection Panel list (3 names for each seat) by the Sanctuary Manager and the Office of State Planning (OSP) with the concurrence of SRD. The Sanctuary Manager and OSP, with the concurrence with SRD, will also choose the two citizen-at-large seats from among those two out of three candidates that were not selected for the special interest and county-specific seats, as well as those candidates that applied for citizen-at-large seats. Final approval of all Council members is by the Director of the Office of Ocean and Coastal Resource Management.

The non-governmental members will be appointed for a term of two years and may be reappointed. During the initial term, however, SAC membership may change based upon the final Sanctuary boundary as reflected in the approved Final Environmental Impact Statement/Management Plan (FEIS/MP) for the Sanctuary. If necessary, terms of appointment may be changed to provide for balanced (staggered) expiration dates or to better reflect the final boundary as detailed in the FEIS/MP. Vacancy appointments are for the remainder of the unexpired term of the vacancy. Governmental members serve at the discretion of their agency or entity and do not have a term limit.

(2) Subsequent Appointments:

The candidate Selection Panel will be terminated after the initial round of selections. For subsequent appointments, public notice shall be provided as to the vacancy of non-governmental Council seat(s). Interested candidates will be required to submit written applications stating their particular interest, qualifications, and experience. Guidelines for applying will be supplied at the appropriate time. Applications for all vacant Council seats will be submitted directly to the Sanctuary Manager.

Copies of all applications for each seat will be submitted by the Sanctuary Manager to the Council, which will act as the preliminary reviewing body for screening applications for evaluation. The Council will recommend three candidates for each seat (if three are available) and submit the names to the Sanctuary Manager. Any Council member that has a conflict of interest (financial, personal, self nomination, etc.) shall excuse him/herself from making a selection for the vacant seat. Selection from among those recommended by the Council, or from among other applicants, will be made by the Sanctuary Manager, in close consultation with the Governor's Office, with the concurrence of the Sanctuaries and Reserves Division, and final approval by the Director of the Office of Ocean and Coastal Resource Management.

(3) Council Officers:

The Council shall elect one member to serve as Chair, one member to serve as Vice-Chair, and one member to serve as Secretary. Election for all positions is by majority vote of all Council members. Members who will not be present at the time of the election may submit their vote in writing to the Sanctuary Manager prior to the meeting.

The term of all officers (Chair, Vice-Chair, and Secretary) is one year. The Chair and Vice-Chair may not serve consecutive terms.

The Chair shall preside over meetings of the Council and shall, along with the Sanctuary Manager, approve the location, times, and agendas of the meetings. The Vice Chair shall act as the Chair in the absence of the Chair. The Secretary shall be responsible for taking the official attendance at each SAC meeting; working with Sanctuary staff in taking and distributing minutes of each SAC meeting; recording official votes, as necessary; and working with Sanctuary staff to prepare a yearly report of the Council's activities to be submitted to the Sanctuary Manager.

(4) Removal from Council:

The Director may remove a non-governmental member of the Council if it is found that the member has violated one or more terms of this Charter. The Director may consult with the Council prior to taking such an action. If a Council member fails to attend three consecutive meetings, he or she will be removed from the Council and the seat opened for nominations for a new representative.

If a government agency willingly decides to no longer participate as a member of the Council, has violated one or more terms of this Charter, fails to attend three consecutive meetings and/or is removed by the Director, the Sanctuary Manager will invite another appropriate agency to replace that agency on the Council.

SCOPE OF RESPONSIBILITIES

1. Resource protection: The Council may advise the Sanctuary Manager on the effectiveness of interagency agreements, permit review and coordination, and on the effectiveness of the Sanctuary regulations in providing adequate resource protection.

2. Research: The Council may advise the Sanctuary Manager on priority research and monitoring needs, proposals, and reports.

3. Education: The Council may advise the Sanctuary Manager on enhancing public awareness, understanding, and wise use of the marine environment and on the development of an informed constituency.

4. General Administration: The Council may advise, at the request of the Sanctuary Manager, on proposal(s) for activities within the Sanctuary, and on proposals for activities outside of, but affecting, the Sanctuary. It may also include advice on planning for the use, development, and maintenance of Sanctuary lands and buildings and equipment.

5. Program Modifications: The Council's advice will be sought in the process to identify other resources of national significance which may be considered for future inclusion in the Sanctuary; the review of any new regulations or modification of existing regulations developed pursuant thereto or for any other purpose based on new findings or future needs; the review of issues relating to boundary changes including the waters off the Island of Kahoolawe; and for necessary modifications to the management plan.

ADMINISTRATION

1. Members of the Council shall serve without pay except that each member receives travel expenses including per diem in lieu of subsistence, in accordance with sections 5702 and 5703 of Title 5, U.S.C., for travel to and from official Council meetings. Travel expenses for government members of the Council may be provided by their own agencies.

2. The Sanctuary Manager may make available such staff, information, administrative services, or assistance as the Sanctuary Manager determines are reasonably required to enable the Council and its subcommittees and working groups to carry out their functions.

OPERATION

1. Conduct of Individual Members:

(a) No Council member may use or allow the use of, for other than official purposes, information obtained through or in connection with his or her Council affiliation that has not been made available to the general public.

(b) No Council member may represent himself or herself as a Council member to make recommendations, express opinions, or otherwise speak on a matter of the HIHWNMS without Council and Sanctuary Manager approval.

(c) Any Council member that has a conflict of interest (financial, personal, professional, etc.) in any matter before the Council or its subcommittees or working groups shall recuse himself or herself from any action on that matter including discussion and voting actions.

(d) If any Council member's participation in any matter before the Council or its subcommittees or working groups creates the appearance of impropriety, that Council member shall recuse himself or herself from any action on that matter including discussion and voting actions.

2. Conduct of the Council as a Body:

All communications that are intended to speak for the Council as a body must be coordinated with, and approved by, the Chair. All communications must pertain to Sanctuary business.

3. Council Letterhead:

The Council shall, with the assistance and approval of the Sanctuary Manager, design and use its own letterhead that contains the following disclaimer: "The Council is solely an advisory body. These opinions and findings do not necessarily reflect the position of the Hawaiian Islands Humpback Whale National Marine Sanctuary and the National Oceanic and Atmospheric Administration." All correspondence from the Chair or other members of the Council, or the Council as a body, shall be upon this letterhead.

4. Subcommittees and Working Groups:

(a) Subcommittees: The Council may establish such subcommittees as necessary to fulfill its duties. Subcommittees will be composed solely of members of the Council and will be recognized as official subunits of the Council. Subcommittees are subject to the requirements of this Charter.

(b) Working Groups: Working groups may be established by the Council with the approval of the

Sanctuary Manager for general purposes such as research and education, or for specific purposes or topics that need more focused attention that cannot be accomplished by a subcommittee (e.g., County-specific representation). Working groups are composed of members of the Council and persons outside the Council. Individuals with an interest or expertise in the subject area or issue to be focused on by a working group may be a member of the working group. Working groups shall be chaired by a member of the Council and will function under the purview of the Council. Working groups established by the Council to address short-term specific issues shall disband once the final recommendation on the particular matter is submitted to the Council. Working groups shall provide a general report to the Chair of the status of requested recommendations at each meeting of the Council. Working groups will provide their recommendations to the Sanctuary Manager and staff and the Council only. Any working group member that has a conflict of interest (financial, personal, professional, etc.) in any matter before the working group shall recuse himself or herself from any action on that matter including discussion and voting actions.

5. Alternates: An alternate (from the same government entity) of a government Council member may attend a Council meeting on occasion if the Chair of the Council is notified in advance of any meeting at which an alternate will represent the Council member, including the name, address, and position of the individual designated. An alternate may not name another alternate. Alternates may not be appointed for non-governmental seats.

6. Role of the Sanctuary Manager: The Sanctuary Manager sits as a non-voting member of the Council, approves each meeting, and approves the agenda as well as potential presentations for each meeting. No meetings may be conducted in the absence of the Manager or his/her designee.

7. Meetings:

(a) Meetings are held at the call of the Chair, with the approval of the Sanctuary Manager.

(b) Decisions and recommendations made by the Council are advisory only, and shall be made by majority vote of those present. A vote may only occur if a quorum of members are present. For the purposes of this Council the quorum is considered to be two-thirds, or seventeen, of its members. A recorded vote may be requested by the Chair or the Sanctuary Manager.

(c) Each meeting shall be open to the public.

(d) Members of the public shall be permitted the opportunity to present oral or written statements pertaining to agenda items.

(e) Emergency meetings may be held at the call of the Chair, with the approval of the Sanctuary Manager.

(f) Timely notice of each meeting, including the time, place, and agenda of each meeting, shall be published in at least one local newspaper of general circulation within the vicinity of the Sanctuary and in the *Federal Register*, and additional notice may be given by such other means as will result in appropriate public notice to interested groups.

(g) The Council shall meet as frequently as necessary, not to exceed once per month, but at least once every six months. The Council meeting place shall be chosen to accommodate anticipated public attendance and to be reasonably accessible to those interested in attending.

(h) Minutes of each meeting shall be prepared by Sanctuary staff and retained by the Council Secretary and contain a summary of attendees and matters discussed; such minutes shall be available to the public.

(i) A yearly report shall be prepared by Sanctuary staff in cooperation with the Council Secretary,

summarizing issues addressed and actions taken during the previous year.

8. Procedures for Providing Advice: The following procedures shall be used to provide advice:

(a) Requests for information, assistance, or advice from the Sanctuaries and Reserves Division, other NOAA offices, or other agencies shall be made in writing and will be coordinated through, and approved by, the Sanctuary Manager.

(b) The Council acts under the auspices of the Director of the Office of Ocean and Coastal Resource Management. Any matters that the Council would like to raise independently must be approved by the Sanctuary Manager prior to doing so.

(c) The Council shall provide advice directly to the Sanctuary Manager via a formal written recommendation. Draft recommendations and verbal discussions will not be considered official advice from the Council, but may be considered as background information.

(d) The Council may base their recommendations on a vote of the Council with negative votes and abstentions noted, or on a general consensus reached during discussions, with minority opinions and views noted.

(e) Any information or recommendations resulting from discussions in subcommittees or working groups must be presented to and approved by the full Council prior to being submitted to the Sanctuary Manager.

TERMS OF THE CHARTER

1. The Council shall operate pursuant to the terms of this Charter.

2. This Charter shall remain in effect for a period of five years from the date of the Director's signature.

3. Six months prior to the expiration of this Charter, the need for the Council will be evaluated by the Sanctuaries and Reserves Division to determine whether to renew the Charter.

4. Revisions to the Charter may be made as determined necessary by the Sanctuaries and Reserves Division.

Original signed by J. Benoit on 2/5/96

Jeffrey R. Benoit
Director
Office of Ocean and Coastal Resource Management

Date

HAWAIIAN ISLANDS HUMPBACK WHALE NATIONAL MARINE SANCTUARY ADVISORY COUNCIL CHARTER

AMENDMENT #1

The following revisions are made to the Charter as signed on February 5, 1996:

MEMBERS AND CHAIRS (page 3) is revised to read as follows:

> The Council shall consist of no more than twenty-four (24) voting members and one (1) non-voting member (the National Marine Fisheries Service) who shall be appointed by the Director, after consultation with the Office of the Governor, from among persons employed by Federal, State, or county government agencies with expertise in management of natural resources, members of the Western Pacific Fishery Management Council, representatives of Native Hawaiian groups, local user groups, representatives from adjacent counties, conservation and other public interest organizations, scientific and educational organizations, and members of the general public interested in the protection and multiple use management of Sanctuary resources. The membership is designed to be balanced in terms of interests represented, geographic representation, and advisory functions the Council will perform.

SELECTION PROCEDURES, (4) Removal from Council (page 6): the first paragraph is revised to read as follows:

> The Director may remove a non-governmental member of the Council if it is found that the member has violated one or more terms of this Charter. The Director may consult with the Council prior to taking such an action. If a Council member fails to attend three consecutive meetings, he or she will be removed from the Council and the seat opened for nominations for a new representative. Until such time that the Final Environmental Impact Statement and Management Plan (FEIS/MP) is approved by the Governor of Hawaii and the Secretary of Commerce, the requirement to attend three consecutive meetings will be waived. However, persons should contact the SAC Chair or the Sanctuary Manager at least 24 hours prior to the scheduled meeting for which they are unable to attend.

OPERATION, 7. Meetings (page 10): paragraph (g) is revised to read as follows:

> (g) Until such time that the FEIS/MP is approved by the Governor of Hawaii and the Secretary of Commerce, the Council shall meet as frequently as deemed necessary by the Sanctuary Manager and the Chair. After the approval of the FEIS/MP the Council shall meet as frequently as necessary, not to exceed once per month, but at least once every six months. The Council meeting place shall be chosen to accommodate anticipated public attendance and to be reasonably accessible to those interested in attending.

Except as herein amended, modified, or changed, all other terms of the Charter will remain in full force and effect.

Original signed by J. Benoit on 4/11/96

Jeffrey R. Benoit
Director
Office of Ocean and Coastal Resource Management

Date

Hawaiian Islands Humpback Whale National Marine Sanctuary Advisory Council Membership

Mr. Allen Tom
NOAA-SRD Hawaii Liaison
(non-voting)

Mr. Jim McCallum
National Marine Fisheries Service
(non-voting)

State and Federal Representatives:

Mr. Rick Egged
Director, Office of Planning

Mr. Francis Oishi
Department of Land and Natural Resources

Dr. Craig McDonald
Department of Business,
Economic Development and Tourism

Ms. June Harrigan
Department of Health,
Environmental Planning Office

Mr. Marc Hodges
Kahoolawe Island Reserve Commission

Mr. Glenn Soma
Department of Transportation

Mr. William Lennan
U.S. Army Corps of Engineers

Lt. Michael Neininger
14th Coast Guard District

Mr. Robert Schroeder
Western Pacific Regional Fisheries
Management Council

County/Interest Representatives:

Ms. Beth Goodoni
Hawaii County

Ms. Maile Bay
Honolulu County

Mr. Claud Sutcliffe
Maui County

Dr. Walter Haas
Kauai County

Mr. James Coon
Business / Commerce :

Ms. Hannah Bernard
Conservation

Ms. Donna Liddicoat
Education

Mr. Herman Chong, Jr.
Fishing

Ms. Thelma Kia-Shimaoka
Native Hawaiian

Mr. Skip Weinstein
Ocean Recreation

Dr. Paul Nachtigall
Research

Ms. Jan Pinney
Tourism

Mr. Stan Butler
Whale Watch

Dr. Louis Herman
Citizen-at-large

Mr. Greg Kaufman
Citizen-at-large

Appendix E

Agreements for Coordinated Management of the Hawaiian Islands Humpback Whale National Marine Sanctuary

Memorandum of Understanding Between the Sanctuaries and Reserves Division and the National Marine Fisheries Service Regarding Permit Review and Consultation 363

Draft Memorandum of Understanding Between the Sanctuaries and Reserves Division and the State Departments of Health and Land and Natural Resources Regarding Permit Review (under development) 367

Memorandum of Understanding between NOAA, U.S. Coast Guard, and DLNR-DOCARE Regarding the Deputization for Enforcement 373

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MEMORANDUM OF UNDERSTANDING BETWEEN THE NATIONAL MARINE FISHERIES SERVICE AND THE NATIONAL OCEAN SERVICE CONCERNING PERMITS AND CONSULTATION FOR ACTIVITIES THAT AFFECT THE HAWAIIAN ISLANDS HUMPBACK WHALE NATIONAL MARINE SANCTUARY

I. INTRODUCTION

The National Marine Fisheries Service (NMFS) and the National Ocean Service (NOS) have significant roles in the protection and management of humpback whales and their habitat in Hawaii. The roles of NMFS and NOS in the processes of designation, implementation, and operation of National Marine Sanctuaries are provided for in the 1992 and 1993 Memoranda of Understanding concerning the National Marine Sanctuary Program (1992 and 1993 MOUs) entered into by the Assistant Administrators for NMFS and NOS. Inasmuch as NMFS has responsibility for protection and management of the humpback whale under the Marine Mammal Protection Act of 1972 (MMPA), as amended, and the Endangered Species Act of 1973 (ESA), as amended, and the Sanctuaries and Reserves Division (SRD), within the Office of Ocean and Coastal Resource Management (OCRM), administers the Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS or Sanctuary) under the Hawaiian Islands National Marine Sanctuary Act (HINMSA) and the National Marine Sanctuaries Act (NMSA), close cooperation and coordination are essential in carrying out the respective functions and responsibilities of these two agencies.

Primary responsibility under these laws with respect to permits and consultations have been delegated to or are carried out by the Office of Protected Resources (OPR) within NMFS and by SRD within NOS.

In furtherance of the 1992 MOU, this Agreement sets forth specific procedures by which OPR and SRD will cooperate and coordinate on the issuance of permits and other authorization, and with respect to consultations under the ESA, MMPA, HINMSA, and NMSA, for activities in Hawaii that may affect humpback whales or their Sanctuary habitat.

Pursuant to section II of this MOU, OPR will cooperate and coordinate with SRD concerning the issuance of permits and other authorizations under the ESA and MMPA for activities in Hawaii that may affect humpback whales or their Sanctuary habitat. OPR issues permits and authorizations under the ESA and MMPA for activities affecting the humpback whale (e.g., research). The Sanctuary regulations do not contain provisions for the issuance of Sanctuary permits or other authorizations at this time. SRD will cooperate and coordinate with OPR if permit regulations or procedures for other authorizations are developed in the future.

Pursuant to section III of this MOU, OPR and SRD also will cooperate and coordinate with respect to consultations required under section 304(d) of the NMSA and section 7 of the ESA for Federal activities that may affect humpback whales or their Sanctuary habitat.

II. PERMITS

A. "Application for permit" as used in this agreement includes an application for a permit or request for an authorization under the ESA or MMPA, including an application or request for an initial permit or authorization, application or request for a permit or authorization renewal, and an application or request for a significant permit or

authorization modification. A significant permit or authorization modification would alter the number, the species, or the type of takings that would be authorized and/or for which publication of notice in the Federal Register would be required.

B. Consistent with Section A. 4) of the 1992 MOU, SRD will do the following:

1. SRD will review applications for permits under the MMPA and ESA and provide comments to OPR during the public comment period, including comments concerning proposed permit conditions and other recommendations;

2. In instances where issuance of an MMPA or ESA permit may be in conflict with NMSA or HIHWNMS requirements, regulations or policies issued or established under those Acts, SRD will provide early, informal notification to OPR so that recommendations, including recommendations for alternative methods, areas, or other options and for mitigation measures may be considered. If appropriate, OPR will communicate those recommendations to the permit applicant.

C. Consistent with Sections B. 4) of the 1992 MOU, OPR will do the following:

1. OPR will notify SRD when an application for a permit has been received for proposed activities that may affect humpback whales or their Sanctuary habitat in Hawaii;

2. OPR will provide SRD with a copy of each completed application for a permit for activities that may affect humpback whales or their Sanctuary habitat; OPR will provide this copy to SRD at the same time or before any notice is filed with the Office of the Federal Register concerning the application for a permit;

3. OPR will issue, condition, or deny issuance of, as appropriate, permits or authorizations under the ESA or MMPA for activities that may affect humpback whales or their Sanctuary habitat in Hawaii in coordination with SRD comments, including comments concerning proposed conditions and other recommendations;

4. OPR will provide to SRD, as appropriate, written responses to comments, proposed conditions and other recommendations which were not incorporated or addressed in permits or authorizations issued under the ESA or MMPA for activities that may affect humpback whales or their Sanctuary habitat in Hawaii.

D. Should HIHWNMS regulations or procedures for the issuance of Sanctuary permits or other authorizations be developed in the future, this MOU may be modified to include procedures by which SRD will cooperate and coordinate with OPR in the review and issuance of such permits and authorizations.

III. CONSULTATION

A. Federal agencies are subject to the consultation requirements of section 7 of the ESA, and implementing regulations at 50 C.F.R. Part 402, for Federal actions that may affect humpback whales, and section 304(d) of the NMSA, HIHWNMS regulations at 15 C.F.R. § 945.8, for Federal agency actions internal or external to the Sanctuary (including private activities authorized by licenses, leases, or permits) that are likely to destroy, cause the loss of, or injure any Sanctuary resource. Humpback whales and their Sanctuary habitat are Sanctuary resources.

B. While recognizing that the consultation requirements of the two statutes differ, OPR and SRD agree to cooperate and coordinate, to the maximum extent possible, with respect to the ESA and NMSA consultation procedures for activities pertaining to the humpback whales and their Sanctuary habitat in Hawaii.

1. If an agency attempts to initiate consultation under section 304(d) of the NMSA with respect to proposed activities that are likely to destroy, cause the loss of, or injure a humpback whale or its Sanctuary habitat in Hawaii, SRD will notify OPR and encourage the agency to initiate section 7 consultation on the proposed activity. SRD will also inform the agency that the NOAA point of contact for such consultations is the NMFS Southwest Region, Pacific Area Office.

2. When consultation under section 7 of the ESA is initiated for activities that may affect humpback whales or their Sanctuary habitat in Hawaii, OPR will notify SRD so that SRD may be kept apprised of proposed relevant Federal agency actions. OPR will coordinate with SRD to ensure any Sanctuary concerns are addressed during the section 7 consultation.

3. If OPR or the relevant Federal agency determines that the proposed action may adversely affect humpback whales (directly or indirectly), OPR will forward copies of all information on the proposed action to SRD for review and consultation under section 304(d) of the NMSA. OPR and SRD will coordinate and cooperate throughout the consultation process.

4. Upon completion of coordinated consultation, NOAA will provide the action agency with a coordinated response which satisfies both ESA and NMSA requirements which will include any appropriate recommendation(s), mitigation measure(s) and a biological opinion.

5. The NMFS Southwest Region, Pacific Area Office, will serve as the NOAA contact point for agencies undergoing section 304(d) consultation for activities that are likely to destroy, cause the loss of, or injure a humpback whale or its Sanctuary habitat in Hawaii.

IV. POINTS OF CONTACT

Within thirty (30) days from the effective date of this MOU, the Director of OPR and Chief of SRD shall identify in writing the points of contact within their respective offices for coordinated permit reviews and consultations consistent with this agreement.

V. PERIOD

This agreement will become effective on the date of the last signature of the approving official of either party and will continue in force for ten years.

VI. MODIFICATION/CANCELLATION PROVISION

This MOU may be amended at any time by mutual written consent of the parties. This MOU will be reviewed periodically, but not less than annually. It may be canceled by either party with 60 days written notice.

VII. OTHER PROVISIONS

Nothing herein is intended to conflict with current SRD or OPR directives or with any Federal or state laws, regulations, policies or directives. If the terms of this agreement are inconsistent with existing SRD or OPR directives, then these portions of this agreement which are determined to be inconsistent shall be invalid; but the remaining terms and conditions not affected by the inconsistency shall remain in full force and effect.

At the first opportunity for review of the agreement, all necessary changes will be accomplished by either an amendment to this agreement or by entering into a new agreement, whichever is deemed expedient to the interest of both parties.

Should disagreement arise on the interpretation or implementation of the provisions of this agreement, or amendments and/or revisions thereto, that cannot be resolved at the operating level, the matter shall be forwarded to respective higher officials for appropriate resolution.

VIII. APPROVED

Original signed by R. Schmitten on 8/28/95

Rolland A. Schmitten
Assistant Administrator for Fisheries

Date

Original signed by W.S. Wilson on 7/28/95

W. Stanley Wilson
Assistant Administrator for
Ocean Services and Coastal
Zone Management

Date

Appendix E

DRAFT
MEMORANDUM OF UNDERSTANDING
BETWEEN THE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT
SANCTUARIES AND RESERVES DIVISION
AND THE
STATE OF HAWAII
DEPARTMENT OF HEALTH AND
DEPARTMENT OF LAND AND NATURAL RESOURCES

Note to reviewers: This MOU is a working draft and is subject to further revision based on review by DLNR, DOH, and SRD.

This Memorandum of Understanding (MOU) is between the Sanctuaries and Reserves Division (SRD), within the Office of Ocean and Coastal Resource Management (OCRM), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce (DOC), and the Department of Health (DOH) and the Department of Land and Natural Resources (DLNR) both within the State of Hawaii (the State), jointly referred to as "the parties".

I. PURPOSE:

The purpose of this MOU is to coordinate the efforts of SRD and the State to meet their common commitment to protecting and managing the endangered humpback whale (*Megaptera novaengliae*) and its habitat within the Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS or Sanctuary). The MOU specifically establishes mutually agreeable procedures for coordinated review of activities requiring permits from the State for proposed activities that may impact humpback whales, or their Sanctuary habitat.

II. BACKGROUND:

The Hawaiian Islands Humpback Whale National Marine Sanctuary was designated on November 4, 1992, by the Hawaiian Islands National Marine Sanctuary Act. The Sanctuary covers an area of approximately XXX square nautical miles from the highwater mark seaward to the 100-fathom depth contour around portions of the main Hawaiian Islands.

The National Marine Sanctuary Program, administered by the Office of Ocean and Coastal and Resource Management's Sanctuaries and Reserves Division of the National Oceanic and Atmospheric Administration, seeks to protect, manage, and conserve the ecological, recreational, research, educational, historical, and aesthetic resources and qualities of coastal and marine areas designated as national marine sanctuaries.

The Hawaii State Department of Health (DOH) administers Federal and State pollution control laws in Hawaii in partnership with the U.S. Environmental Protection Agency (EPA) and through the authority of State pollution control laws as compiled in the Hawaii Revised Statutes, Chapters 339-344, 128D and 128E, and as implemented through current Hawaii Administrative Rules. Water pollution control permit programs authorized by the Federal Clean Water Act (CWA)

include the National Pollutant Discharge Elimination System (NPDES) Permit Program, fully delegated to the State by the U.S. EPA, and the CWA Section 401 Water Quality Certification Program, conducted jointly with the EPA and the U.S. Army Corps of Engineers' CWA Section 404 Permit Program for dredging and filling operations and the Rivers and Harbors Act, Section 10 program. DOH's environmental management programs contain both regulatory and non-regulatory components designed to limit discharge of pollutants to State waters from facilities (regulated entities), and from diffuse land-based sources (polluted runoff control, regulatory and non-regulatory components).

The Hawaii Department of Land and Natural Resources (DLNR) administers State conservation district lands, including submerged lands and overlying waters, surface and groundwaters, forestry, wildlife, and aquatic resources, park, historical, and recreational resources and activities (boating, hiking, etc.). Conservation district lands include all lands seaward of the shoreline to the limits of the State's jurisdiction and are governed by Hawaii Revised Statutes (HRS) and Hawaii Administrative Rules (HAR) Chapter 13-5. Pursuant to HAR Chapter 13-5, there are "Identified Land Uses" (which includes alteration of seabed activities) that may require either no permit, a site plan approval, department permit, or a Board permit with/without a management plan.

An application for either a Board or Department permit for use of Conservation District Lands (Conservation District Use Application, or CDUA) would be required if there is a potential "land use" as defined by HAR Chapter 13-5. These include such identified land uses such as data collection, fishpond restoration, public purposes (e.g. outfalls, telecommunication cables), sanctuaries, existing or accessory structures, erosion control, seawalls and shoreline protection, artificial reefs, marine construction, mining, and extraction. DLNR also administers and enforces HRS and HAR governing boating and ocean recreation in State waters.

III. REFERENCES AND AUTHORITIES:

NOAA/OCRM: The National Marine Sanctuaries Act (NMSA), 16 U.S.C. 1431 *et. seq.*, and the Hawaiian Islands National Marine Sanctuary Act, Subtitle C, Title II of the Oceans Act of 1992 (P.L. 102-587). The final regulations implementing the HIHWNMS are found at 15 CFR Part 945. These regulations, *inter alia*, describe prohibited or otherwise regulated activities within the Sanctuary.

DOH: State laws pertaining to discharges to State waters and seabed alterations include: Hawaii Revised Statutes Chapter 342 D, Water Pollution, and Chapter 342E, Nonpoint Source Pollution Management and Control; Hawaii Administrative Rules, Chapter 11-54, Water Quality Standards, and Chapter 11-55, Water Pollution Control.

DLNR: State regulations pertaining to alteration of the seabed activities include: Hawaii Revised Statutes, Chapter171 Management and Disposition of Public Lands, Chapter 183C State Conservation District, Chapter 190 Marine Life Conservation Program, Chapter 190D Ocean and Submerged Lands Leasing, and various Hawaii Administrative Rules under Title 13, Department of Land and Natural Resources.

IV. GENERAL CONSIDERATIONS AND RESPONSIBILITIES OF THE PARTIES:

a. The Parties recognize that NOAA and the State will cooperatively manage and protect the North Pacific humpback whale stock and its habitat within State waters of the Sanctuary.

b. The Parties agree that a higher degree of resource management and protection may be necessary than currently exists for the humpback whale and its habitat.

c. The Parties agree to cooperatively work together to review proposed permits, plans, and projects in a manner that avoids delays in the issuance of permits or implementation of plans and projects.

d. The Parties agree to work cooperatively to conduct, coordinate, and integrate any joint research and monitoring projects, and permit application review oversight.

e. The Parties agree to work together to build non-duplicative databases and to allow the other access to specific databases, as they pertain to humpback whales and their habitat, for the purposes of resource management, research, and education.

f. The Parties agree to defer emergency spill response and coordination to existing arrangements between the State and the Federal government, such as the Oceania Regional Response Team.

g. The Parties agree to work together to monitor permittee compliance with the terms and conditions of State permits for activities also subject to Sanctuary regulations, and to coordinate the enforcement of violations of Sanctuary regulations and corresponding State regulations or permits, consistent with a separate enforcement agreement that will be developed by NOAA and the State.

V. SPECIFIC RESPONSIBILITIES OF THE PARTIES:

a. SRD and the Hawaii Department of Health:

1. SRD shall:

(i) provide comments to the Department of Health (DOH) within 30 days of reeeipt of the application for any DOH discharge permit [individual National Pollutant Discharge Elimination System (NPDES) or other, including general permits and Water Quality Certifications] based upon potential impacts to Sanctuary resources and qualities, or impacts on compatible uses of the Sanctuary, and impacts on NOAA's management of the Sanctuary; and

(ii) provide notice to DOH of, and allow for DOH's comments and participation on, Sanctuary water quality plans, coastal or marine resource management programs, or other similar Sanctuary documents or projects affecting State waters within the Sanctuary.

2. DOH shall:

(i) provide SRD with access to copies of current DOH discharge (NPDES or other) permits for all existing discharges into the Sanctuary;

(ii) provide SRD with timely notifications of DOH discharge (NPDES or other) permit applications, and upon request by SRD, a copy for comment within 15 business days from the date

applications are made for new permits or to renew, amend, or extend an existing permit for the following types of discharges -- *(to be filled in after Sanctuary boundaries have been selected)*

(iii) consider all reasonable recommendations regarding applications for DOH discharge permits provided by the Sanctuary on a timely basis, and notify SRD with reasons for any recommendation rejected by DOH; and

(iv) provide notice to SRD and allow for SRD's comments and participation regarding State water quality plans, coastal or marine resource management programs, or other similar State documents or projects affecting the Sanctuary.

b. SRD and Hawaii Department of Land and Natural Resources

1. SRD shall:

(i) provide comments to the Department of Land and Natural Resources (DLNR) within a timeframe that reflects various application processing periods for any permit authorizing alteration of seabed activities in the Sanctuary, based upon potential impacts to the humpback whale and its habitat, impacts on compatible uses of the Sanctuary, or impacts on NOAA's management of the Sanctuary; and

(ii) provide notice to DLNR and allow for DLNR's comments and participation on Sanctuary coastal or marine resource management programs, or other similar Sanctuary documents or projects affecting the Sanctuary.

2. DLNR shall:

(i) provide SRD with the various State criteria for requiring permit applications as they pertain to alteration of the seabed activities;

(ii) allow SRD access to permits on existing alteration of seabed activities in the Sanctuary, such as current DLNR Conservation District Use Permits;

(iii) notify SRD of applications made to DLNR for either new permits or proposed amendments, renewals, or extensions to existing permits that propose alteration of seabed activity;

(iv) consider all reasonable recommendations regarding applications for DLNR alteration of the seabed permits provided by the Sanctuary on a timely basis, and notify SRD with reasons for any recommendation rejected by DLNR; and

(v) provide notice to SRD of, and allow for SRD's comments on changes to the State of Hawaii's Administrative Rules as they pertain to humpback whales and their habitat, or other similar State documents or projects affecting the Sanctuary.

VI. SUBSIDIARY AGREEMENTS:

Additional working agreements regarding specific cooperative efforts, if needed, shall be effected in writing by both agencies as the need arises.

VII. AMENDMENTS AND REVIEW:

This agreement may be amended at any time by the written mutual consent of all the parties. It may be subject to reconsideration at such other times as may be required and as agreed to by the parties entering into this agreement.

VIII. OTHER PROVISIONS:

Nothing herein is intended to conflict with current NOAA or State directives or applicable law. If the terms of this agreement are inconsistent with existing directives or with applicable law of either of the parties entering into this agreement, then those portions of this agreement which are determined to be inconsistent shall be invalid; but the remaining terms and conditions of this agreement not affected by any inconsistency shall remain in full force and effect. At the first opportunity for review of the agreement, such changes deemed necessary will be accomplished by either an amendment to this agreement, or by entering into a new agreement, whichever is deemed expedient to the interest of both parties.

IX. TERM OF THE AGREEMENT:

This agreement will become effective upon the signatures of the approving officials of the respective parties entering into this agreement, and will remain in effect for five years unless terminated by (1) mutual agreement, or (2) 120 days advance written notice by either party.

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE
OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT

BY: _____

TITLE: _____

DATE: _____

STATE OF HAWAII
DEPARTMENT OF HEALTH

BY: _____

TITLE: _____

DATE: _____

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

BY: _____

TITLE: _____

DATE: _____

Appendix E

COOPERATIVE ENFORCEMENT AGREEMENT

between the

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

and

UNITED STATES DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

and

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF CONSERVATION AND RESOURCES ENFORCEMENT

for

LAW ENFORCEMENT SERVICES UNDER THE

MAGNUSON FISHERY CONSERVATION AND MANAGEMENT ACT
(16 U.S.C. 1801 *et seq.*)

and

ENDANGERED SPECIES ACT OF 1973
(16 U.S.C. 1531 *et seq.*)

and

MARINE MAMMAL PROTECTION ACT OF 1972
(16 U.S.C. 1361 *et seq.*)

This Agreement is entered into by and between the Secretary of Commerce, the Commander, Fourteenth Coast Guard District for the United States of America, and the State of Hawaii, Department of Land and Natural Resources, Division of Conservation and Resources Enforcement (hereinafter referred to as the State).

WITNESSETH:

Whereas, the Magnuson Fishery Conservation and Management Act (MFCMA), as amended, 16 U.S.C. 1801 et seq., establishes a regime for managing certain fisheries in the exclusive economic zone (as established by Presidential Proclamation 5030, dated March 10, 1983) contiguous to the seaward boundary of each coastal state; and

Whereas, the Endangered Species Act of 1973 (ESA), as amended, 16 U.S.C. 1531 et seq., and the Marine Mammal Protection Act of 1972 (MMPA), as amended, 16 U.S.C. 1361 et seq., provide for the protection and conservation of endangered and threatened species and marine mammals; and

1

Whereas, under 16 U.S.C. 1861(a) of the MFCMA, under 16 U.S.C. 1540(e) of the ESA, under 16 U.S.C. 1377(b) of the MMPA, the Secretary of Commerce and Commander, Fourteenth Coast Guard District are specifically authorized to enter into, among other things, agreements with State agencies to utilize such personnel, services, equipment and other facilities of such State agencies as may be necessary to carry out the enforcement responsibilities of the MFCMA, ESA, MMPA, and

Whereas, the State possesses law enforcement personnel, vessels, aircraft, vehicles, and other equipment and capabilities presently engaged in enforcing State conservation laws that could be utilized in assisting the Secretaries in carrying out the law enforcement responsibilities mandated by the Acts listed in this Agreement;

NOW THEREFORE, it is mutually agreed:

I. DEPUTIZATION OF STATE OFFICERS AS FEDERAL ENFORCEMENT AGENTS

2

A. Those law enforcement officers of the State of Hawaii, Department of Land and Natural Resources, Division of Conservation and Resources Enforcement (hereinafter referred to as Officers) are hereby are deputized as Federal law enforcement agents and authorized to enforce the MFCMA, ESA, MMPA and regulations promulgated thereunder. Enforcement shall be compliance with directives established by the Secretary of Commerce and Commander, Fourteenth Coast Guard District, and their designees.

B. All Officers, while acting as federal law enforcement agents under this Agreement, shall possess the powers and authorities set forth in the MFCMA, ESA and MMPA but shall not be held or considered as employees of the United States for the purposes of any laws administered by the United States Office of Personnel Management. Such Officers, while acting as federal law enforcement agents, shall not be compensated, salaried or otherwise reimbursed by the United States for any services performed or expenses incurred in the performance of such duties except as provided by this Agreement.

3

C. Such Officers may be covered under 5 U.S.C. 8191-8193, Law Enforcement Officers not Employed by the United States, for injuries sustained while enforcing Federal laws, provided the injuries occurred under one of the circumstances enumerated in Section 8191. The Secretary of Labor will provide compensation for covered injuries as enumerated in Section 8192. This coverage is intended to supplement rather than replace any state or local benefits otherwise payable.

D. All Officers, while acting as Federal law enforcement agents, shall be considered to be (1) investigative or law enforcement officers of the United States for purposes of the tort claims provisions of Chapter 171 of Title 28 of the United States Code, and (2) officers or employees of the Department of Commerce within the meaning of Sections 111 and 1114 of Title 18 of the United States Code.

E. Officers shall not have the authority to carry out any functions or responsibilities of the United States Government except as provided in this Agreement.

F. Those Officers who for any reason leave or are removed from service as members of the Division of Conservation and Resources Enforcement will be simultaneously divested of authority conferred herein.

G. All Officers exercising authority under this Agreement shall submit written documentation of any action taken pursuant to this Agreement to the National Marine Fisheries Service Special Agent in Charge (SAC) for the Southwest Area, or the SAC's designee. Such documents shall include, but not be limited to, case investigation reports, a copy of any written warning or documentation of violation, and any supporting exhibits, affidavits, photographs or other evidence gathered. In addition, the State shall immediately notify the Special Agent in Charge or his/her designated representative of any arrest made as a result of any action brought under the Acts listed in this Agreement, and shall prepare and submit individual case investigation reports to the Special Agent in Charge on a timely basis. The National Marine Fisheries Service will be responsible for providing information

to the U.S. Coast Guard on the status of cases made under this Agreement.

H. Any property, including cargo, fishing gear, vessels, fish or the fair market value thereof, seized under the authorities of the Acts listed in this Agreement shall be delivered to the United States Government official designated by the SAC or other appropriate federal authority. If such official, however, cannot be contacted, employees of the State will be expected to make reasonable arrangements for the temporary care, handling, and preservation of seized property. Costs to third parties with whom arrangements are made under this paragraph shall be considered as separate items for payment by the Secretary of Commerce and will not be the responsibility of the State.

I. Officers will be made available, upon request by the appropriate Federal authority, to appear as witnesses in connection with any action brought with which they have an involvement. It is the responsibility of the National Marine Fisheries Service to reimburse

the Officers who appear in cases related to this Agreement for travel expenses and per diem (at the federal standard rate) for travel incurred when appearing as a witness.

J. The State shall provide access to its law enforcement telecommunications network to the National Marine Fisheries Service and the U.S. Coast Guard. Costs incurred in acquiring access to and using the State communications system shall be borne by the National Marine Fisheries Service.

II. POWERS OF AUTHORIZED OFFICERS UNDER 16 U.S.C. 1861(b)

A. In accordance with 16 U.S.C. 1861(b), Officers are hereby delegated the authority described in that section while performing duties in accordance with this Agreement.

B. No unilateral law enforcement action by the State with respect to foreign or stateless vessels is authorized by this Agreement.

If, however, foreign vessels are encountered, the State will immediately contact the Fourteenth Coast Guard District and await instructions before boarding, seizing any vessel, or making an arrest.

C. Any arrest or seizure of domestic vessels contemplated by the State shall be reported as soon as possible to the Special Agent in Charge or his/her designee, who, subject to the availability of appropriate personnel, will dispatch NMFS Special Agents to assist the Officers, or assist via radio or telephone communications when units are not available. National Marine Fisheries Service Agents and Coast Guard Boarding Officers have the authority to make arrests and seizures aboard a domestic vessel, and this authority is hereby delegated to Officers. The National Marine Fisheries Service and the United States Coast Guard will advise each other concerning arrests and seizures made under this Agreement.

III. UNITED STATES COAST GUARD ASSISTANCE TO THE STATE

A. Pursuant to 14 U.S.C. 141, the United States Coast Guard may, operational considerations permitting, provide assistance to the parties for the purpose of this agreement.

B. Officers may, operations and space permitting, accompany any United States Coast Guard vessel or aircraft on law enforcement patrols to aid in enforcement of the Acts listed in this Agreement.

C. If violations of State fisheries laws and regulations by fishing vessels registered under the laws of the State are detected by United States Coast Guard law enforcement patrols, the United States Coast Guard will notify the State and may provide back-up assistance consistent with the terms of this Agreement.

D. Subject to approval by the United States Coast Guard, personnel will be made available to appear as witnesses in connection with any criminal or in rem court proceedings resulting from any fishery enforcement action brought under State laws and regulations with which they have involvement.

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IV. NATIONAL MARINE FISHERIES SERVICE ASSISTANCE TO THE STATE

A. TRAINING

The National Marine Fisheries Service will provide training for the Officers in the enforcement of the Acts listed in this Agreement with the length of training and location to be agreed upon by the State. Training expenses, except travel, will be borne by the National Marine Fisheries Service.

B. PROPERTY LOAN

The National Marine Fisheries Service will loan the State purchased or excess (including seized) vehicles, vessels, and other operational equipment based upon the availability of said equipment. All property transferred hereunder will be on the basis of an executed Property Loan Agreement and Receipt form. Costs incurred for the transportation, care, handling and preservation of said property transferred under this paragraph shall be considered as separate items for payment and will be the responsibility of the State. If for any

reason the property on loan is lost, destroyed, or stolen by circumstances beyond the control of the State, the State will not be held responsible for reimbursement of the cost of said property.

V. COMMITMENT BY THE STATE

The State and the Secretary of Commerce, in managing the fisheries in their respective jurisdictions, agree to adopt conservation, management and enforcement measures and regulations which are complementary, in accordance with, and to the extent authorized by the Act and Hawaii statutes.

VI. CONDITIONS AND TERMS OF AGREEMENT

A. This Agreement shall be effective as of the date it is signed by all Parties and shall remain in effect until terminated by any Party, giving the other Parties written notice, in which event it shall terminate on the day immediately following the thirtieth day of such

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notice. This Agreement may be amended with the mutual consent of the Parties in writing.

B. In no event shall this Agreement be interpreted to conflict with specific operating policies and procedures promulgated by any of the Parties without the express oral or written consent of an appropriate official of all of the Parties.

C. This Agreement shall be construed to be consistent with the MFCMA, ESA, MMPA and regulations promulgated thereunder.

D. Nothing herein is intended to conflict with current National Oceanic and Atmospheric Administration, United States Coast Guard, or State directives. If the terms of this Agreement are inconsistent with existing directives of the agencies entering into this Agreement, those portions of this Agreement that are determined to be inconsistent shall be invalid, but the remaining terms and conditions shall remain in full force and effect.

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL MARINE FISHERIES SERVICE
OFFICE OF ENFORCEMENT

BY: Marion M. Pallanzi

TITLE: Director, Office of Enforcement

DATE: August 27, 1992

UNITED STATES DEPARTMENT OF TRANSPORTATION
COMMANDANT
UNITED STATES COAST GUARD

BY: James H. Forshee

TITLE: Acting District Commander

DATE: September 18, 1992

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF CONSERVATION AND RESOURCES ENFORCEMENT

BY: [signature]

TITLE: Chairperson, Department of Land and Natural Resources

DATE: August 11, 1992

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Appendix F

LIST OF MILITARY ACTIVITIES IN HAWAII

This compilation of classes of military activities conducted in Hawaiian waters has been divided into "near-shore" and "open ocean" categories. Near-shore operations are those which are conducted within the 100-fathom isobath proposed for inclusion in the sanctuary. Open ocean operations are those additional types of operations which are normally (but not always) conducted outside the 100-fathom isobath. These operations have been included because they are at times conducted near or inside the 100-fathom isobath. Theses classes of military activities near Hawaii are conducted by all the military services of the United States and, during combined operations, by military units from cooperating foreign nations or the State of Hawaii Department of Defense/National Guard.

I. SURFACE OPERATIONS

A. Near shore operations include, but are not limited to:

1. Pierside training and maintenance.
2. Dry-docking operations at Pearl Harbor.
3. Harbor movements by ships, submarines, boats and auxiliary craft.
4. Anchoring
5. Transit operations between harbors and operating areas (OPAREAS).
6. Salvage and towing operations.
7. Anti-submarine warfare (ASW) operations involving the use of sonar and expendable bathythermographs. Recoverable torpedoes are sometime used.
8. Amphibious warfare operations including the blasting of amphibious ships and the movement to the beach of landing craft, landing craft air cushion (LCAC), amphibious assault vehicles (AAV), ship's boats, special United States Marine Corps (USMC) "Boston Whaler" or "Zodiac" type special operations craft, and helicopters. Can involve the landings and take off of Harrier jets from a variety of amphibious ships.
9. Anti-surface warfare operations against ships and small boats
10. Special operations training involving swimmers and small boats
11. Explosive Ordnance Disposal (EOD) operations and training involving the use of explosives for demolition.
12. Mine warfare and mine counter-measure (MCM) operations involving the use of sonar, towed mine sweeping devices, the implantation of drill moored and bottom mines, and the firing of machine guns and small arms at floating targets.
13. Equipment and personnel drops from fixed wing and helicopter aircraft associated with re-supply, insertion, search and rescue and training.

B. Open ocean operations include, but are not limited to:

1. Transit operations between OPAREAs
2. Engineering, navigation, seamanship, and general warfare-related training exercises.
3. Towing operations.
4. Anti-submarine warfare operations involving the use of sonar, expendable bathythermographs, towed arrays and training torpedoes.
5. Amphibious warfare operations involving the blasting of ships over the horizon launch, recovery, and movements of LCAC and USMC/Seal special operations craft and low-flying helicopter and Harrier jet operations.
6. Anti-surface warfare operations involving high-speed maneuvering, the actual firing of guns and missiles at targets, calibration firing of guns and the launching of self-protective chaff.

7. Anti-air warfare operations involving the actual firing of guns and missiles at target craft and the launching of self -protective chaff and flares.
8. Replenishment operations to vessels underway involving the transfer of both supplies and fuel via wire and transfer of supplies by low-flying helicopters.
9. Supersonic flight above 5,000 feet and outside 25 miles from land.

II. SUBSURFACE OPERATIONS

A. Near-shore operations including, but are not limited to:

1. Transit operations to and from ports and OPAREAs.
2. Post maintenance shallow water divers.
3. Shallow water ASW and anti-ship operations, which include the expenditure of non-recoverable sonobuoys and smoke markers.
4. Torpedo exercises using retrievable non-explosive torpedoes.
5. Mine warfare training during which submarines traverse through a field of bottom-moored practice mines, using active sonar to detect and avoid mines.
6. ASW target services for ships and aircraft, which include the expenditure of non-recoverable sonobuoys and smoke markers and use of sonar and towed arrays.
7. Special operations involving swimmers operating from submerged submarines and supported by small boats.
8. Mine warfare training which includes the launching of recoverable exercise (inert) mines.

B. Open ocean operations including, but not limited to:

1. Transit operations at a variety of depths
2. Deep water dives and surfacing
3. Deep water ASW and anti-submarine/ship warfare operations involving the use of sonar, expendable bathythermographs, towed arrays, and training torpedoes.

III. AIR OPERATIONS

A. Near-shore operations including, but not limited to:

1. Landing and takeoffs by helicopters, fixed-wing aircraft and target drones from shore bases
2. Landings, takeoff and training flights at altitudes above 50 feet by helicopters from ships.
3. Training flights and transfers of personnel and equipment by helicopters and fixed-wing aircraft at altitudes above 50 feet. Low flying tactical helicopter and fixed-wing aircraft training flights (single and multi-ship, day, night unaided and Night Vision Goggle (NVG) training) often involve terrain-following and Nap Of the Earth (NOE) flight over or near the island and shorelines, as well as, flight in published FAA transitions below controlled airspace and flight traffic patters over water.
4. Air assaults by helicopters from amphibious ships at altitudes above 50 feet.
5. ASW operations from patrol (P-3) aircraft and helicopters, against actual submarines or mobile target at altitudes from 50 to 16,000 feet. Inert mines and missiles, non-retrievable sonobuoys and smoke markers and retrievable torpedoes are discharged into the water, Helicopters may use dipping sonar.
6. Bombing and missile firing exercises by fixed-wing aircraft of attack helicopters using surface target or Kaula rock.
7. Insertion/extraction of special forces/USMC Force Reconnaissance (RECON) troops from helicopters and fixed-wing aircraft into the water.

B. Open ocean operations including:

1. Aircraft carrier air operations.

2. Air combat maneuvering.
3. Live missile firings by aircraft versus target drones.
4. Live bombing, gunnery, and missile firings versus surface targets.
5. Low flying tactical helicopter and fixed-wing aircraft flights (single and multi-ship day, night unaided and NVG) transiting between island training areas at altitudes between 200 and 500 feet.
6. Emergency fuel dumping above 5,000 feet.
7. Air to air warfare operations involving the actual firing of guns and missiles at target craft and the launching of self-protective chaff and flares:
8. Supersonic flight above 5,000 feet and outside 25 miles of land.

OPERATIONS BY LOCATION

I. AREAS WITHIN ORIGINAL SANCTUARY BOUNDARIES:

A. PENGUIN BANK. Located southeast of Oahu, and southwest of Molokai, in the Kaiwi Channel. This is the areas of primary concern within the original sanctuary boundaries. Submarines conduct post-overhaul shallow- water dives in the vicinity of Penguin Bank. The area is also used for shallow-water ASW operations.

1. All Submarines completing any major repair work are required to conduct initial submerged testing in shallow water. The loss of USS THRESHER on sea trials generated the requirement to conduct initial submerged testing in shallow water to ensure that if the submarine has a casualty during the testing, and sinks to the ocean floor, the crew can be rescued. It is necessary to conduct initial testing close to shipyards facilities in case an unscheduled return to port is required for repairs. Penguin Bank is the only shallow water areas in Hawaiian water suitable for these required test.

2. Shallow-water ASW exercises involving surface ships and submarine, using low power active sonar transmissions, are conducted in the area to take advantage of the unique characteristics of shallow water. These exercise last from two to five days and result in the use of sonobuoys, smoke floats, expendable bathythermographs, and submarine-launched exercise (inert) torpedoes. This training cannot be conducted in deep water.

3. Submarines conduct mine warfare training at Penguin Bank. These exercises involve the submarines and small craft. The submarines practice implanting inert mine shapes, which are later recovered by small craft. This training cannot be conducted in deep water.

B. KAHOOLAWE. Operational training no longer conducted on Kaho'olawe. Helicopter operations occur regularly to and from the Navy bases camp for logistic purposes in support of the impending unexplored ordnance clean up. In addition helicopter flights will occur throughout the island for required aeromedical evacuation purposes. Landing craft are occasionally used to introduce or remove supplies and heavy equipment. Construction a pier is planned. The waters surrounding the island are not suitable for use by the public due to the presence of undetermined amounts of unexplored ordnance.

C. MAUI, MOLOKAI AND LANAI. With increased emphasis on littoral warfare, and the need to conduct training in shallow water, the waters adjacent to Maui, Molokai, and Lanai are important training areas for Navy ship home ported in Pearl Harbor. The channel between, Maui, Lanai and Molokai is extensively used for the biennial RIM PAC exercise as an EOD/MCM exercise area as well as for shallow-water ASW. Port visits are frequently conducted in Lahaina, Maui. Salvage ship and diving operations are frequently conducted.

1. The areas inside the 100 fathom isobath surrounding Maui, Molokai, and Lanai, and specifically the channel between this island, is used for shallow water ASW operations. These operations include

using low-power active sonar transmissions, sonobuoys, smoke floats, expendable bathythermographs, and exercise (inert) torpedoes.

2. This channel is also used for MCM training, including the use of bottom-moored practice (inert) mines, sonar, towed mine sweeping device and MCM surface ships.

3. The recent installation of the Hawaiian Area Tracking System (HATS) southeast of Lanai provides an excellent passive acoustic range for shallow water exercise torpedo firings. Exercise torpedo firings(non-explosive) are conducted with HATS range control utilizing a helicopter for range safety.

4. The waters surrounding Molokai are used by the Marines and the U.S. Army: USMC day/night helicopter operations focus predominantly in the area around Molokai, which is their only effective local night vision goggle (NVG) training area. These flights take place at altitudes above 50 feet. The U.S. Army also uses the Molokai training area (day, night unaided and NVG), and conducts flights in and around the shorelines of Maui and Molokai for low level training and for transit routes between Oahu and the major Army tactical training area on the island of Hawaii, Pohakuloa Training Area.

D. KAUAI. Few operations occur in the small area north of Kauai originally included in the sanctuary. Air operations sometime occur over this area, and transit operations sometime occur through it.

II. ADDITIONAL AREAS PROPOSED FOR INCLUSION:

A. KAUAI. A significant concern over the proposed inclusion of the remaining waters inside the 100- fathom isobaoth surrounding Kauai is the potential impact upon operations at the PMRF, located on Kauai. Operations below are subdivided by those occurring inside the 100-fathom isobath area proposed for inclusion, and those normally occurring outside it.

1. Operations inside the proposed sanctuary boundaries.

a. Airspace. The airspace above the 100-fathom isobath is frequently used by P-3 aircraft operating against actual submarines or mobile targets. Operations take place from 50 to 16,000 feet. Inert mines and missiles are discharged into the water. Other exercise material discharged includes non-retrievable smoke markers and sonbuoys, and retrievable torpedoes. Occasionally, due to equipment malfunction, retrievable torpedoes are lost at sea. Target drones are launched from PMRF through coastal airspace, Helicopter operations are conducted frequently in the near-shore area.

b. Surface. Amphibious exercises, involving landing craft, LCAC, and AMTRACs, are regularly conducted on the beaches at PMRF. Target recovery boasts pass through proposed sanctuary waters enroute to and from pick-ups. Missile and gun life firing exercises using air, subsurface and surface targets occur in area R-3101, a fully instrumented range which extends three nautical miles seaward from the western cost of Kauai, a portion of which is inside the 100-fathom isoboath. Area R-3101 also serves as an aerial target recovery area.

c. Subsurface. In addition to operations with P-3 aircraft, submarines conduct torpedo exercises using retrievable torpedoes, and mine warfare training. Submarine traverse through a field of bottom-moored mines, using active sonar to detect and avoid mines. During the course of these exercises, submarines discharge non-retrievable bathythermographs.

2. Operations adjacent to proposed sanctuary boundaries.

a. Airspace:

(1) Warning Area W-186 Special use airspace over open ocean located westward to northeastward of Kauai, and commencing at the border of R-3101, three nautical miles west of Barking Sands. Airspace extends from the surface to 9000 feet. W-186 is used for live missile, bomb, rocket, gunnery and torpedo exercises.

(2) Warning Area W-188. Special use airspace over open ocean located westward to northeastward of Kauai, and commencing at the border of R-3101, three nautical miles west of Barking Sands. The airspace extends from the surface to unlimited altitude and encompasses an operating area of approximately 42,000 square miles. W-188 is used for missile, rocket, gunnery, and torpedo exercises in support of fleet training and PMRF activities. The M-2, M-3, and M-4 portions of W-188 are a fully instrumented missile firing range with command and control, surveillance, tracking and telemetry services and data reduction services provided by and located at PMRF.

b. Surface: The surface of areas W-186 and W-188 encompass 41,000 square nautical miles, and are subdivided into eight operating areas for surface ships. Air, surface and underwater exercises using conventional ordnance of all types are conducted.

c. Subsurface:

(1) Barking Sands Tactical Underwater Range (BARSTUR): This range provides 80 square nautical miles of underwater tracking coverage in M2 of W-188, commencing seven nautical miles west of Kauai. The rage extends from the ocean floor to the surface. BARSTUR is used to evaluate ASW and anti-surface (ASU) warfare exercises and tactics and to track torpedo firings and submarines. The underwater and shore-based instrumentation at BARSTUR provides the capability to conduct ASW and ASU warfare training in an instrumented environment, which permits evaluation of the effectiveness of the tactics employed and the performance of weapons systems.

(2) Barking Sands Underwater Ranges Expansion (BSURE): This range is adjacent to BARSTUR and underlies M-4 in W-188. The range expands the underwater tracking area to approximately 800 square nautical miles, and extends from the ocean floor to the surface, BSURE is used to evaluate ASW and ASU exercises and to track torpedo firing and submarines.

B. OAHU

1. Operations inside proposed sanctuary boundaries.

a. Airfields generally. Low level day/night helicopter operations are conducted in accordance with published Federal Aviation Administration (FAA) routes/procedures and Honolulu approach control instructions for the various controlled and uncontrolled military and civilian airfields an the island of Oahu and the outer islands. FAA transition routing and/or training requires flight in and around the shorelines of Oahu at or below 500 feet.

b. Pearl Harbor. Operations within and near Pearl Harbor are primarily limited to transit operations, anchorages, ammunition on/off loads, maintenance, dry-docking, and pierside training.

c. Bellows Air Force Station. USMC and Navy special forces frequently use beaches at Bellow and adjacent water for amphibious operations. These exercises involve landing craft, LCAC, AAV, submarines with associated swimmer delivery vehicles and support craft, and small boat landings, as well as low level overflights by helicopters. The AMTRACs transit Kailua and Waimanalo Bays enroute to Bellows.

d. NAS Barbers Point. P-3 and other aircraft frequently overfly coastal water at low level on approach and takeoff. Helicopters and fixed wing aircraft overfly coastal waters at low level on approach and takeoff and during helicopter closed traffic operations south of the main runway.

e. Kaneohe Bay. Helicopters and fixed wing aircraft overfly coastal waters at low level on approach and take off. Small boats operate in the harbor.

f. Camp Smith Training Facility. Located in Ewa, just east of NAS Barbers point. Company-sized small boat raid exercises are conducted semiannually. These operations involve over the horizon launchings of small boats, which transit to and land on the beach.

g. Waianae Coast

(1) FORACS Range. Submarines conduct Fleet Operational Readiness Accuracy Check and Site (FORACS) operations off the Waianae coast to calibrate their sensors. These operations consist of slowly proceeding in a specified course and measuring sensor bearings to a sound source of known positions. The sound source is located within the 100-fathom isobath, as is a portion of the FORACS range.

(2) Dry-Deck Shelter (DDS) Operations. Submarines conduct dry-deck shelter operations in the leeward waters west of Oahu involving launching/retrieving of swimmers, swimmer delivery vehicles, and support craft from surfaced and submerged submarines.

(3) Pokai Bay. USMC parachute operations involving water landings are conducted on a quarterly basis at Pokai Bay, off Makua. These operations include personnel and small boat insertions, and include the dropping of non-recoverable smoke flares.

(4) Makua Valley Military Reservation. Army helicopter conduct frequent low level flights (200-500 feet) along the coast enroute from Wheeler AAF (from the north via Dillingham and Kaena Point or from the east via Kolekole Pass and NAVMAG Lualualei) and from NAS Barbers Point supporting air assault training and fire buckets operations. Makua Valley is inaccessible by air from the north, east and south due to the proximity of the Waianae mountains. It affords the only company level live fire training area on Oahu

h. Dillingham Airfield. Dillingham, the adjacent uncontrolled airspace on/off shore, and the published military helicopter training route are used extensively for night unaided and NVG training. Helicopters routinely overfly coastal water at low level during approach, takeoff, closed traffic operations, and air assault training at the Army training area abutting Dillingham.

i. A-311. Army helicopters frequently conduct day/night low level training flights between Wheeler AAF and the primary tactical training area on Oahu, alert area A-311. Adverse weather (low ceilings over the western edge of the Kahuku mountain range) often requires aircraft to divert, low level (200 to 500 feet) seaward of the North Shore enroute to A-311.

2. Operations adjacent to proposed sanctuary boundaries: The ocean areas and airspace north and south of the island of Oahu are divided onto a number of special operating areas in which live conventional ordnance firings are routinely conducted by surface ships and aircraft. Air tactics training is also routinely conducted at altitudes above 200 feet.

C. KAULA ROCK. An unattended/non instrumented target approximately 52 nautical miles southwest of Kauai. Kaula Rock is an island with an area of .7 by .5 nautical miles upon which inert ordnance may be expended on the first 1000 feet of the southeast tip. Air to ground training exercises expend inert conventional ordnance and night illumination devices. Oahu-based Army helicopters occasionally conduct

aerial gunnery training at Kaula Rock (W-187/R-3107). Operations entail open ocean and near-shore, low level, tactical flight (200-500 feet) enroute, and the expenditure of inert air-to-ground missiles and rockets on site.

D. HAWAII (ISLAND). Few operations occur inside the 100-fathom isobath surrounding Hawaii. Army and USMC helicopter operations regularly occur over the island, primarily in support of military exercises at the Pohkuloa Training Area (PTA) in the center of the island between the volcanoes, and enroute to/from home bases on Oahu. Navy and Army landing craft frequently on/off load supplies and equipment at Kawaihae Bay (Kawaihae docks) in support of military training at PTA. Navy ships conduct periodic port visits at Hilo and Kona.

GLOSSARY

AAF ..... Army airfield
AAV ..... Amphibious assault vehicles
AMTRACs ..... Amphibious-tracked landing vehicles
ASU ..... Anti-surface
ASW ..... Anti-submarine warfare
BARSTUR ..... Barking Sands Tactical Underwater Range
BSURE ..... Barking Sands Underwater Range Expansion
DDS ..... Dry deck shelter
EOD ..... Explosive ordnance disposal
FORACS ..... Fleet Operational Readiness Accuracy Check and Site
LCAC ..... Landing craft, air cushion
HATS ..... Hawaiian area tracking system
MCM ..... Mine counter-measure
NAS ..... Naval air station
NAVMAG ..... Naval Magazine
NVG ..... Night vision goggles
P-3 ..... Patrol aircraft
RECON ..... Reconnaissance
RIMPAC ..... Rim of the Pacific (Specific multi-national exercise)
OPAREAs ..... Operating areas
PMRF ..... Pacific Missile Range Facility, Barking Sands, Kauai
USMC ..... United States Marine Corps

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Appendix G

ENVIRONMENTAL IMPACT
RESEARCH PROGRAM

TECHNICAL REPORT EL-89-10

SPECIES PROFILES: LIFE HISTORIES AND ENVIRONMENTAL REQUIREMENTS OF COASTAL VERTEBRATES AND INVERTEBRATES PACIFIC OCEAN REGION

Report 2

HUMPBACK WHALE, *MEGAPTERA NOVAEANGLIAE*

by

Eugene T. Nitta, John J. Naughton

Southwest Region
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
Honolulu, Hawaii 96822-2396

November 1989
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Commercial overexploitation resulted in the depletion of the North Pacific population of humpback whales. A major component of this population winters in Hawaiian waters, where reproductive activities occur. There are no apparent identifiable trends in the status of this population. This may be due to inconsistent survey effort, the imprecision of survey techniques that are unable to detect small changes, no measurable trend, or one or any combination of these factors. During the winter breeding season, humpback whales are found within the 100-fathom isobath and shallower waters around the main Hawaiian Islands. Cow-calf pairs, in particular, demonstrate an affinity for waters of less than 50 fathoms. It appears that size, depth, and substrate of shallow bank areas are important elements in the distribution of humpback whales on their wintering grounds. The sea-surface temperature in Hawaiian waters ranges from 23.2° to 24.2° C during the winter breeding season and is at the low range of water temperatures in comparison with breeding areas in other parts of the

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National Marine Fisheries Service, NOAA
Southwest Region
Honolulu, HI 96822-2396

19. ABSTRACT (Continued).

world. The major environmental impact facing humpback whales in Hawaiian waters is the loss and modification of shallow nearshore habitat to harbor, resort, and other coastal development, and the subsequent increase in human activity including vessel traffic, which may result in disturbance and displacement of humpback whales from preferred habitat.

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PREFACE

This report was published as part of the Environmental Impact Research Program (EIRP), sponsored by Headquarters, US Army Corps of Engineers (HQUSACE). Partial funding was provided by the US Army Engineer District, Honolulu. Technical Monitors were Dr. John Bushman, Mr. David P. Buelow, and Mr. Dave Mathis of HQUSACE. Dr. Roger T. Saucier, Environmental Laboratory (EL), US Army Engineer Waterways Experiment Station (WES), was EIRP Program Manager.

This report is designed to provide coastal managers, engineers, and biologists with a brief comprehensive sketch of the biological characteristics and environmental requirements of the humpback whale, *Megaptera novaeangliae*, and to describe how populations of the species in the Hawaiian waters may be expected to react to environmental changes caused by coastal development. The report has sections on taxonomy, life history, ecological role, environmental requirements, growth, exploitation, and management. The report was prepared by Messrs. Eugene T. Nitta and John J. Naughton of the Southwest Region, National Marine Fisheries Service (NMFS), under support agreement WESCW88-241.

Dr. C. Scott Baker, National Cancer Institute, Department of Health and Human Services; Dr. James D. Darling and Ms. Elizabeth Mathews, West Coast Whale Research Foundation, Vancouver, B.C.; Dr. Dale Rice and Ms. Sally Mizroch, National Marine Mammal Laboratory, NMFS; Dr. Gerald Scott, Miami Laboratory, Southwest Fisheries Center, NMFS; and Mr. Michael T. Lee, US Army Engineer District, Honolulu, provided reviews of the manuscript. Mr. Allan Wolman, National Marine Mammal Laboratory, NMFS, and Dr. Darling provided additional unpublished data.

Mr. Edward J. Pullen, Coastal Ecology Group, EL, served as Contract Monitor for this study under the general supervision of Dr. Conrad J. Kirby, Chief, Environmental Resources Division, EL, and Dr. John Harrison, Chief, EL, WES.

COL Larry B. Fulton, EN, was Commander and Director of WES. Dr. Robert W. Whalin was Technical Director.

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CONVERSION TABLE

Metric to U.S. Customary

Multiply	By	To Obtain
millimeters (mm)	0.03937	inches
centimeters (cm)	0.3937	inches
meters (m)	3.281	feet
meters (m)	0.5468	fathoms
kilometers (km)	0.6214	statute miles
kilometers (km)	0.5396	nautical miles
square meters (m^2)	10.76	square feet
square kilometers (km^2)	0.3861	square miles
hectares (ha)	2.471	acres
liters (l)	0.2642	gallons
cubic meters (m^3)	35.31	cubic feet
cubic meters (m^3)	0.0008110	acre-feet
milligrams (mg)	0.00003527	ounces
grams (g)	0.03527	ounces
kilograms (kg)	2.205	pounds
metric tons (t)	2205.0	pounds
metric tons (t)	1.102	short tons
kilocalories (kcal)	3.968	British thermal units
Celsius degrees (°C)	1.8(°C) + 32	Fahrenheit degrees

U.S. Customary to Metric

inches	25.40	millimeters
inches	2.54	centimeters
feet (ft)	0.3048	meters
fathoms	1.829	meters
statute miles (mi)	1.609	kilometers
nautical miles (nmi)	1.852	kilometers
square feet (ft^2)	0.0929	square meters
square miles (mi^2)	2.590	square kilometers
acres	0.4047	hectares
gallons (gal)	3.785	liters
cubic feet (ft^3)	0.02831	cubic meters
acre-feet	1233.0	cubic meters
ounces (oz)	28350.0	milligrams
ounces (oz)	28.35	grams
pounds (lb)	0.4536	kilograms
pounds (lb)	0.00045	metric tons
short tons (ton)	0.9072	metric tons
British thermal units (Btu)	0.2520	kilocalories
Fahrenheit degrees (°F)	0.5556 (°F - 32)	Celsius degrees

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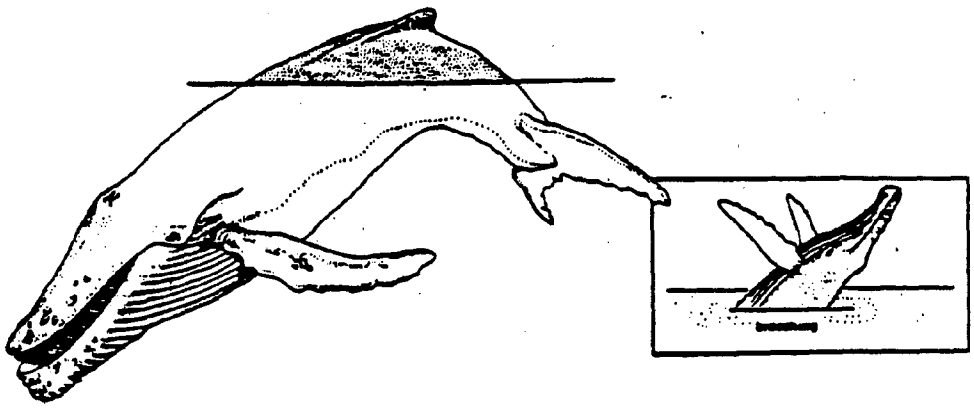

Figure 1. Humpback whale
(Northwest Fisheries Center, National Marine Fisheries Service)

THE NORTH PACIFIC HUMPBACK WHALE IN HAWAIIAN WATERS

NOMENCLATURE, TAXONOMY, AND RANGE

Scientific name.....Megaptera novaeangliae (Borowoski, 1781)
Preferred common name ..... Humpback whale (Figure 1)
Other common names .. Humpbacked whale
Class ..... Mammalia
Order .....Cetacea
Suborder ..... Mysticeti
Family ..... Balaenopteridae

Geographic range: Worldwide. In the North Pacific, winters in shallow nearshore waters of usually 100 fathoms or less around the Ryukyu and Bonin Islands of Japan and Taiwan in the western North Pacific; main Hawaiian Islands in the central North Pacific; the coast and offshore islands of central Baja California to Cabo San Lucas and the southern Gulf of California; and off mainland Mexico from Sonora to Jalisco, and the Revillagigedo Islands (Socorro, San Benedicto, and Clarión). Distribution over the summer feeding grounds ranges from the coasts of Honshu, Japan, and southern California north to the Chukchi Sea (for distribution in the Hawaiian Archipelago, see Figure 2).

MORPHOLOGY AND IDENTIFICATION

Humpback whales are medium-sized rorquals, with adult females larger (average = 14 m) than males (average = 13 m). In comparison with other balaenopterids such as fin whales

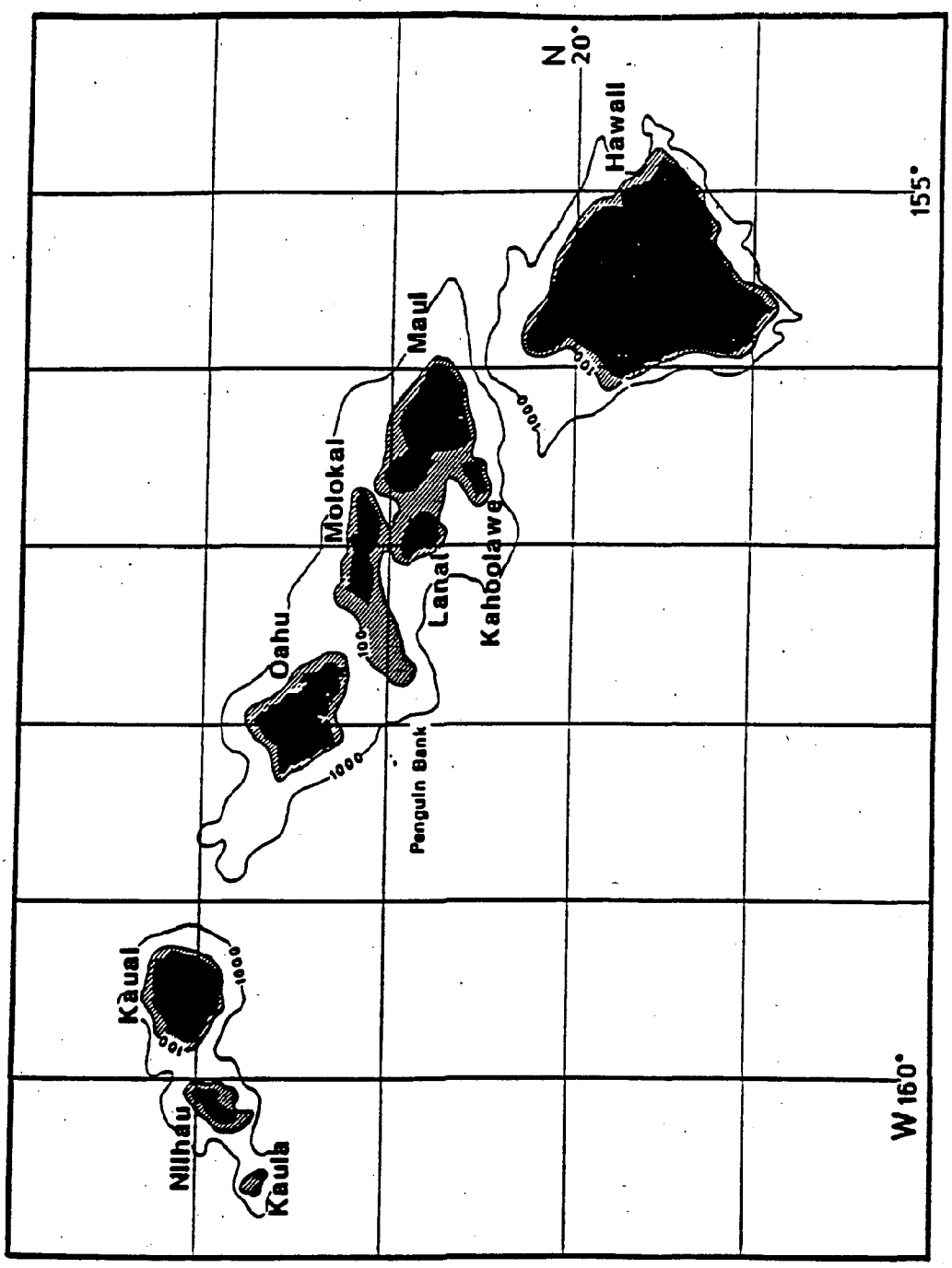

Figure 2. Distribution of humpback whales in Hawaiian waters (depths in fathoms).

2

(Balaenoptera physalus) or sei whales (B. borealis), humpback whales are more full-bodied (Leatherwood and Reeves 1983). When viewed from above, the head is broad, much like that of a blue whale (B. musculus). The dorsal aspect of the head is distinctive with a number of fleshy knobs or tubercules distributed from the tip of the snout to the blowhole and along the sides of the lower jaws. Each one of these fleshy knobs supports at least one tactile hair. In lateral view, the head is surprisingly slim and can resemble an alligator in profile. Paired blowholes are characteristic of baleen whales, and the humpback whale's pear-shaped blow reaches heights of 2 m or higher.

The long flippers are characteristic of humpback whales, measuring nearly one-third the length of the body; the front edge bears a series of knobs and is irregularly scalloped. Ventral grooves, which number from 14 to about 22, extend from the chin to the navel (Leatherwood et al.. 1982). The dorsal fin is located less than one-third of the body length from the fluke notch and slightly behind the intersection of the anus (Nishiwaki 1972). It is relatively small and ranges from a distinct falcate fin to a small triangular nubbin. The dorsal fin is often associated with a step or hump which is accentuated when the animal dives, from which the animal derives its common name (Leatherwood and Reeves 1983). The width of the flukes are one-third the total body length and are serrated or scalloped along the trailing edge. Coloration of the dorsal aspect of the flukes is usually dark. The flukes' ventral surface ranges from completely black to almost totally white, with numerous scar patterns and other natural markings allowing identification of individual animals over time.

Humpback whales are basically dark gray to black. The ventral surface is variably white, with a white patch along the ventral midline to the anus. The undersides of the flippers are always white; the upper surface varies from mostly black to white (Leatherwood and Reeves 1983).

The relatively short baleen plates number from 270 to 400 and are generally blackish with gray fringes.

The vertebral formula is C7 + T14 + L10 + Ca21-22 = 52-53. The flippers have four fingers of I: 2, II:7, IV: 6, V: 3 (Nishiwaki 1965, 1972).

REASON FOR INCLUSION IN SERIES

The coastal habitat of the humpback whale made it one of the most vulnerable species to modern whaling. Overexploitation resulted in the worldwide depletion of most stocks of humpback whales. The International Whaling Commission (IWC) banned the commercial harvest of humpback whales in the North Atlantic in 1955, the North Pacific in 1965, and the Southern Hemisphere in 1966. In 1970 humpback whales were listed as an endangered species under the Endangered Species Conservation Act of 1969. All stocks of humpback whales remain listed as endangered under the Endangered Species Act of 1973, as amended.

The wintering grounds of some stocks lie within the territorial waters of non-IWC member countries, and a few animals are taken annually in aboriginal hunts. Humpback whales are also increasingly subject to seabed mining and oil and gas recovery activities, nearshore pollution, ocean dumping, entanglement in fishing gear, coastal and tourist-related development such as marinas, harbors, and resorts, and vessel traffic. These factors affect competition for and the availability of prey resources, and habitat availability. Each activity has the potential for direct disturbance (i.e., harassment) of individual whales or an indirect impact through damage to habitat or both.

Although humpback whales are protected from direct exploitation on a large scale, population estimates remain uncertain and low, and recovery rates are unknown. Furthermore, the species' dependence on coastal habitats for calving, rearing, courtship, and feeding suggest that recovery may be negatively affected by the continuing degradation of these habitats. Habitat loss and modification can have a particularly acute impact in coastal wintering grounds associated with islands or island groups such as Hawaii, where preferred humpback whale habitat is limited and displacement into suboptimal areas may occur due to extensive human activities.

LIFE HISTORY AND ECOLOGY

Reproduction and Recruitment

Age at sexual maturity for both male and female humpback whales has been estimated from 5 years (Nishiwaki 1959; Chittleborough 1965) up to 9 years (Johnson and Wolman 1984). Glockner-Ferrari and Ferrari (1987) report a known-age male of 7 years actively participating in apparent courtship behavior in Hawaii. More recently Clapham and Mayo (1987) report known-age females with calves at 4 and 6 years, respectively, observed in Massachusetts Bay (Gulf of Maine), inferring age at sexual maturity at 3 and 5 years for these individuals. Nishiwaki (1965) reported length at sexual maturity for females at 11.4 - 12.0 m, and 11.1 - 11.4 m for males.

As seasonal breeders, humpback whales have reproductive cycles that are closely tied to their seasonal migrations. Mature females are believed to conceive on the breeding grounds one winter and give birth the following winter. Gestation lasts about 12 months. A few known females have produced a calf in successive years on the Hawaiian wintering grounds (Glockner-Ferrari and Ferrari 1987), but the usual reproductive cycle appears to be 2 or more years. Chittleborough (1958) examined Norwegian Antarctic whaling records for females selectively taken in commercial whaling operations from 1950 to 1955. He noted that 8.5% of the sexually mature females were both pregnant and lactating and, thus, must have mated shortly after giving birth. The survival rate of calves from annual breeders is not known.

In the Northern Hemisphere births usually occur between January and April. Calves are about 4 m to 5 m long at birth and colored light gray (Chittleborough 1958; Nishiwaki 1959; Leatherwood and Reeves 1983). The single calf is nursed for 10 to 11 months and is about 8 to 9 m long at weaning after completing one migration to the summer feeding grounds with its mother.

Estimates of calving rates for Hawaii range from 0.29 to 0.58 (calves per mature female per year) on the basis of resighting data and aerial survey data (Herman and Antinoja 1977; Baker, Perry, and Herman, in press). Baker, Perry, and Herman in press) suggest that an overall calving rate of 0.37 for the Hawaiian population is most accurate, with mature females averaging every 2.7 years the birth of a calf that survives its first 6 months of life and its first migration. Forestell (in prep.) found that of 347 whales sighted between January and April 1985, 35 (10%) were calves.

Mating Behavior

Humpback whale behavior on the Hawaiian wintering grounds strongly suggests that both calving and mating occur in or near these waters. Analysis of ovaries and testes from humpback whales taken in commercial whaling operations (Chittleborough 1958) and estimates of the length of gestation indicate that the months of assembly in Hawaii include the peak of the mating period. Though neither

calving nor mating has actually been observed, cows with very young calves are commonly sighted in shallow, near-shore, protected waters less than 10 fathoms in depth and often very close to shore or the outer reef. Aggressive and apparent agonistic behavior among males presumably for access to potentially receptive females, and pairing and consort behavior between males and females have been detailed by Baker, Herman, and Stifel (1981); Darling (1983); Tyack and Whitehead (1983); Baker and Herman (1984); and Glockner-Ferrari and Ferrari (1985). Females probably come into estrus within a 3- to 4- month period while wintering in Hawaiian waters (Darling 1983). Cuts and abrasions are inflicted by males on each other, with head butts, flipper slaps, peduncle slaps, breaches, and other aggressive behaviors during competition for access to females (Baker and Herman 1984; Johnson and Wolman 1984).

Commonly observed group or unit compositions on the winter grounds include: cow with calf, often escorted by a male; lone singers (males); lone adults; pairs of adults (male-male, male-female); and larger groups (multiple males and a female). There is a regular interchange of individuals between and among these groups that occurs over hours or days, except for cow-calf pairs (Mobley and Herman 1981; Baker and Herman 1984; Mobley and Herman 1985; J.D. Darling, 1988, West Coast Whale Research Foundation, Vancouver, B.C., pers. commun.)

Vocalizations

On the winter breeding grounds, humpback whales produce "songs" which have been described as a series of repeating, complex sequence of sounds including whistles, chirps, squeals, and grunts organized into phrases or syllables within a phrase (Payne, Tyack, and Payne 1983). The frequency range of these songs is generally less than 4 kHz (Payne and McVay 1971; Thompson, Winn, and Perkins 1979; Payne and Guinee 1983). A number of singers have been identified as males, and it has been hypothesized that, among other uses, these humpback whale songs function as acoustic displays demonstrating dominance (Darling 1983; Darling and Morowitz 1986) and/or availability (Tyack 1981; Baker and Herman 1984). Some males also remain longer on the breeding grounds than other males and females, suggesting that they may be dominant males staying as long as females come into estrus (Darling 1983).

"Social sounds" are nonsong vocalizations produced on the winter breeding grounds and are thought to be associated with agonistic behavior within large, surface active pods of humpbacks. These social sounds do not possess the complex structure of songs with their peak energy between 1- to 3-kHz and the frequency range usually below 4.7 kHz (Tyack 1983; Mobley, Herman, and Frankel 1986; Silber, in press; A. Frankel, 1988, Kewalo Basin Marine Mammal Laboratory, University of Hawaii, pers. commun.).

A third type of stereotyped vocalization, the "feeding call," has been recorded during the summer months in the vicinity of feeding whales in southeastern Alaskan waters (Baker 1985). It is described as a "highly stereotyped series of trumpeting calls, each of approximately 2 sec in length, with a frequency range of 440 to 550 kHz" (Baker 1985; Mobley, Herman, and Frankel 1986).

Natural Mortality

Mizroch (1985) notes natural mortality estimates for North Pacific humpback whales of 0.05 - 0.08 as reported by Ohsumi (1979) from Doi, Nemoto, and Ohsumi (1967). Neither the method of estimation nor sample size was reported.

Large sharks, such as great whites (*Carcharodon carcharias*) and tigers (*Galeocerdo cuvieri*), and kill-

er whales (Orcinus orca) are probably responsible for a large proportion of the natural mortality of calves and old or ailing adults. Large tiger sharks were observed consuming a humpback whale calf near Molokini Island. Whether the sharks killed the calf first or were just feeding on the carcass was not determined (Shallenberger 1981). During the Cooperative Shark Research and Control Program conducted by the University of Hawaii around the Hawaiian Islands in 1967-69, 6% of the tiger sharks caught had large whale and small odontocete remains in their stomachs (Tester 1969).

In higher latitudes, humpback whales that frequent the edge of ice fields are sometimes trapped in the ice. (Lien at al. 1983).

In late 1987 and early 1988, a large number of mysticete whales died and came ashore in the Cape Cod area. A total of 15 humpback whales, 4 minke whales (Balaeanoptera acutorostrata), and 2 fin whales (B. physalus) were included in this episode. Testing of mackerel found in the stomachs of the animals sampled showed the presence of a toxin with effects similar to that of paralytic shellfish poison biotoxins. This is the first instance in which a biotoxin has been implicated in large whale mortality (D.W. Beach, 1988, Northeast Region, National Marine Fisheries Service, pers. commun.).

Ectoparasites and Commensals

Although humpback whales are infested with various ectoparasites and commensals, they rarely manifest a debilitating reaction. Barnacles are large and conspicuous over certain parts of the body. They tend to concentrate along areas of high turbulence, such as the flukes, the leading edge of the dorsal fin and flipper, or along the midline of the ventral pleats. Smaller whale lice (cyamid crustaceans) are distributed around barnacles and in depressions and folds in the skin. Cookiecutter sharks (Isistius spp.) and lampreys cause some skin and blubber damage which probably result in some scarring.

Accidental Mortality

Humpback whales can become entangled in various types of fixed fishing gear, including fish weirs and traps, lobster trap lines, buoy lines, and gill and trammel nets. These incidents have occurred mainly off the northeastern United States and eastern Canada, and most injuries and mortalities are reported from these areas (Perkins and Beamish 1979; Lien and Aldrich 1982; Lien et al. 1982; Lien et al. 1983; Lien, Walter, and Harvey-Clark 1985; T. MacKenzie, 1989, Northeast Region, National Marine Fisheries Service, pers. commun.)

Another source of injuries and accidental mortalities are collisions with vessels. Since 1986, a near miss and two collisions have been documented in Hawaiian waters (Siler 1987; Stevens 1988; Tanji 1988). Collisions are likely to occur with greater frequency where high speed vessel traffic is increasing in areas of high whale concentrations, such as off the leeward coast of Maui and to a lesser extent off Kailua-Kona on the Island of Hawaii and the south shore of Oahu.

Feeding

Summer feeding areas occur across the Pacific, from the Aleutian Islands to the Farallon Islands off central California. In the Northern Hemisphere the diet of humpback whales consists of pelagic organisms of the coastal zone. These include mainly krill (euphausiids) along with schooling fishes such as herring, Clupeidae; sand lance, Ammodytes sp.; capelin, Mallotus villous; juvenile salmonids, Onchorhynchus spp.; Arctic cod, Boreogdus saida; walleye pollock, Pollachius virens; and anchovies, Engraulis mordax; rarely cope-

pods, pteropods and cephalopod mollusks (Wing and Krieger 1983, unpub. manuscr., Auke Bay Laboratory, National Marine Fisheries Service, NMFS, Auke Bay, AK; Johnson and Wolman 1984; Krieger and Wing 1984). Humpback whales are found to be heavily clumped in their distributions relative to prey abundance (Johnson and Wolman 1984).

Isolated incidents of apparent feeding and observations of defecation by humpback whales have been noted in Hawaii. Schooling carangids (opelu, Decapterus macarellus and akule, Selar crumenopthalmus) occur in large aggregations within Hawaiian waters frequented by humpback whales; however, there have been no confirmed sightings of humpback whales feeding on these potential prey species. Humpback whales are not known to regularly feed in Hawaiian waters (Glockner-Ferrari and Ferrari 1985).

Humpback whales feed at the surface down to about 150 m (Dolphin 1987). Feeding techniques have been described as skimming, lunge feeding, and circular swimming (Jurasz and Jurasz 1979). Bubble net feeding is an interesting behavior in which a submerged whale releases a stream of bubbles in patterns ranging from lines and partial circles to complete circles with "tails." The animal then rises through the concentration of prey with its mouth open. Various levels of apparent cooperation during bouts of feeding have also been observed, including herding of prey (Baker and Herman 1985).

EXPLOITATION AND POPULATION SIZE

History of Exploitation

An unknown number of humpback whales were taken by aboriginal hunters and commercial whalers prior to 1900 in the North Pacific. During the course of modern whaling from 1905 to 1960 in the eastern Pacific and 1889 to 1960 in the western Pacific, approximately 23,000 humpbacks were taken. Between 1960 and 1965, more than 5,000 were killed in commercial whaling operations reducing the North Pacific population to about 1,000 (Rice 1978).

Current and Initial Stock Sizes

The preexploitation size of the North Pacific population of humpback whales prior to 1905 was estimated to be about 15,000 animals (Rice 1978). A recent estimate of the North Pacific population of 2,100 is based on a mark and recapture estimate derived from individual sightings of animals over a 4-year period (Darling and Morowitz 1986). Estimates for the Hawaiian stock range from 550-790 to 2,100 (Rice and Wolman 1979, unpub. manuscr. submitted to IWC Scientific Committee; Baker et al. 1986; Darling and Morowitz 1986). The wide range of estimates is likely due to differences in analysis of mark and recapture data and survey techniques. Until more data are available, these estimates should be used with considerable caution (Table 1).

Minimum counts based on the total number of unique individuals identified over a specified period of time have also been developed. These range from 521 individuals for one year in 1981, to 922 over 4 years from 1977 to 1981 (Darling and Morowitz 1986). Perry et al. (1988) identified 1,140 unique individual humpback whales over a 9-year period (1977-1985) for the Central and eastern North Pacific. These counts do not account for mortality or recruitment and should not be considered abundance estimates.

Estimates for the wintering stocks in Mexico and the western Pacific are as yet unavailable, though numbers have been speculated to be in the hundreds or less. During the winter and spring of 1986, more than 100 individual humpbacks were photographically identified in waters

Table 1. Humpback whale abundance estimates — Hawaii and the North Pacific.

Method	Count or Estimate	Time Frame	Area	Source
Photo-I.D. Minimum Count	1140	1977-1985	E.N. Pacific	Perry et al. 1988
	635	1977-1985	Hawaii	
	521	1981	Hawaii	Darling and Morowitz 1986
	922	1977-1981	Hawaii	
Modified Bernoulli Estimate	1000	1981	Hawaii	Darling and Morowitz 1986
	2100	1977-1981	Hawaii and E.N. Pacific	
Petersen Estimate	1627 (±307)	1977-1983	Hawaii	Baker et al. 1986
Weighted Petersen Estimate	1407 (±294)	1980-1983	Hawaii	Baker and Herman 1987
Vessel Survey	550-790	1976-1979	Hawaii	Rice and Wolman 1979 (unpub.)
Aerial Survey	900 (±150)	1985	Hawaii	Forestell (in press)

around Isla Socorro and Isla Isabel off Mexico, indicating a larger population than previously believed (Urban and Aguayo 1987). In the late winter of 1988, 15 humpback whales were identified, including at least 3 with new calves, in the Bonin Islands south of Japan. Five humpback whales were photographed in 1987, but not seen in 1988, resulting in a total of 20 identified individuals. A rough estimate of abundance based on available information indicates a population "at least in the low hundreds" for this area (Darling and Ford 1988). There is no current information regarding abundance of humpback whales from the other western North Pacific wintering areas off the Mariana Islands, Ryukyu Islands, and Taiwan.

DISTRIBUTION

Migration

In Australia, Dawbin (1966) found that humpback whales do not require coastal conditions for migration. Migration routes could not be related consistently to the direction of ocean currents, the nature of water masses, or bottom topography.

Humpback whales begin arriving in Hawaiian waters as early as October, though the season is more commonly thought of as beginning in December. Baker et al. (1985) reported a minimum known migration time of 79 days between Alaska and Hawaii based on resighting data. A peak in relative numbers of whales occurs in February (Herman, Forestell, and Antinoja 1980; Forestell, in press). Baker and Herman (1981) found that from 1977 to 1979 the Island of Hawaii showed the earliest peak influx of whales, with islands to the northwest showing progressively later dates of peak residency. Most whales depart by the end of April, though a few may stay through early June (Herman, Forestell, and Antinoja 1980).

The average duration of wintering in Hawaii for either sex of any age class is unknown. Glockner-Ferrari and Ferrari (1985) reported a maximum known cow-calf residency interval in Hawaii of 56 days. Dawbin (1966) found a succession in the migration to colder waters by different segments of the population, with an early departure of females without calves. In Hawaii, females with calves tend to be the last to leave the wintering grounds (Herman, Forestell, and Antinoja 1980).

Seasonal Habitats and Stock Structure

Individual whales wintering in Hawaii have been identified in the Gulf of Alaska (Kodiak Island, Prince William Sound, and Yakutat Bay), southeastern Alaska (Darling and McSweeney 1985; Baker et al. 1986), and the Farallon Islands off California (Baker et al. 1986) during the summer. While humpback whales have been observed in southeastern Alaska in all months of the year, no one individual has yet been documented to overwinter or stay year-round (Straley, in press). Two individuals have also been identified wintering in Hawaii during one year and in Mexico in another year (Darling and McSweeney 1985; Baker et al. 1986). Darling and McSweeney (1985) suggest that, because of these migratory connections, all humpback whales in the eastern North Pacific are of the same stock. Baker et al. (1986) also propose that humpback whales in the eastern and central North Pacific are of one stock and form several geographically isolated feeding herds. These authors define the term "structured stock" as several feeding herds that intermingle to breed on one or more wintering grounds.

HABITAT USE

In general, humpback whale distribution in Hawaii appears to be limited to the 100-fathom (183 m) isobath and shallower waters. (Figure 2).

Surveys in the late 1970's (Wolman and Jurasz 1977; Rice and Wolman 1979, unpubl. manuscr. submitted to IWC Scientific Committee; Herman, Forestell, and Antinoja 1980) showed that humpback whales prefer certain areas over others in Hawaii. The area of greatest use was found to be the four-island area (Maui, Molokai, Lanai, Kahoolawe) and Penguin Bank. Also heavily utilized were the Island of Niihau and the Island of Hawaii, Keahole Point north to Upolu Point (Figure 3). Kauai, Oahu, and the eastern and southwestern waters of the Island of Hawaii received substantially less usage. Kaula Island, just southwest of Niihau appears to mark the western limit of humpback whale distribution in Hawaii, as few animals have been reported around the atolls,

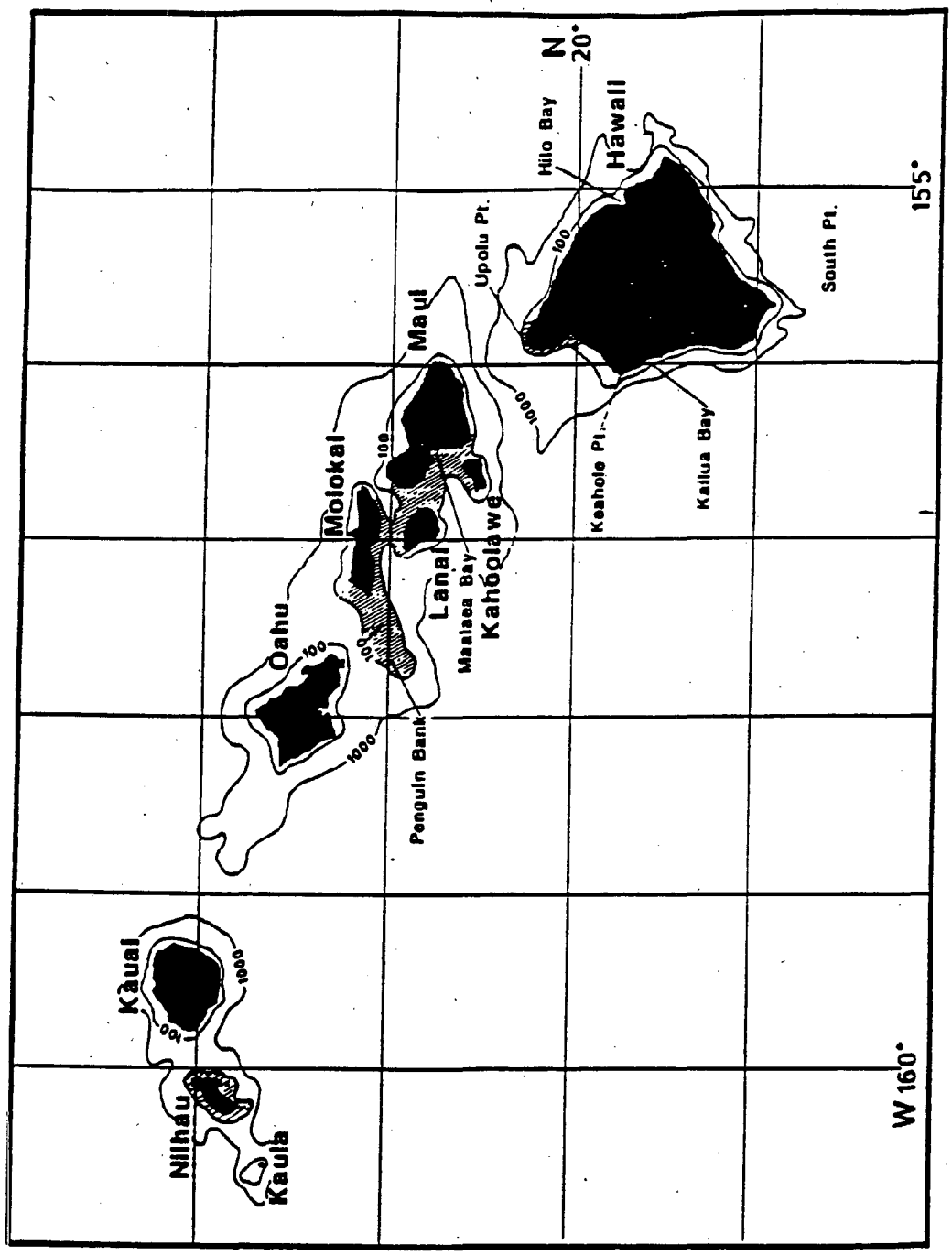

Figure 3. Areas of reported high density of humpback whales (depths in fathoms).

islands, banks, and reefs of the northwestern Hawaiian Islands. Although all-island surveys have not been undertaken since 1979, indications are that this general usage pattern has remained fairly consistent. Fluctuations in relative abundance within and between islands occasionally occur.

Humpback whales are known to use the waters of Hawaii to nurse their young. In addition, calving, courtship, and mating are thought to occur in or near Hawaii, though confirmed sightings of these behaviors have not been observed to date. Aggressive male-male competition for sexually mature females, including cows with calves, is evident throughout the season in Hawaii (Baker and Herman 1984). Cows with newborn calves are commonly found throughout the winter, and general areas of high usage by these pairs have been observed. Herman, Forestell, and Antinoja (1980) defined the north coast of Lanai as an area of high cow-calf density. Hudnall (1978) suggested Maalaea Bay, Maui, as a major nursery area. Glockner-Ferrari and Ferrari (1985) characterized the southwest coast of Maui from MacGregor Point to Kaanapali as an area of high-calf use. Forestell (in press) found roughly three times as many total calves in the four island area as over Penguin Bank during aerial surveys.

ENVIRONMENTAL REQUIREMENTS

Humpback whales are strongly migratory, though routes between winter calving areas and summer feeding grounds are not well known. Humpback whales occur very close to shore and appear to be relatively sedentary once they arrive at their northern or southern seasonal destination (Leatherwood et al. 1982). Because of this behavior, they appear to have specific environmental requirements more closely associated with land masses than do any other species of large whales with the exception of the gray whale (Eschrictius robustus). Humpback whales also are affected by human activity to a greater degree than other balaenopterids.

Water Depth

The distribution of humpback whales during winter is almost exclusively over relatively shallow banks. Winn, Edel, and Taruski (1975) found that 99% of the sightings of humpback whales in the West Indies are found on banks between the 10- and 100-fathom (18 and 183 m) line. Whitehead and Moore (1982) narrow this down further by stating that humpback whales in the West Indies principally winter in waters between 15 and 60 m deep.

The same affinity for banks occurs in humpback whales wintering in Hawaiian waters (Figure 3). Wolman and Jurasz (1977) found that of 373 whales sighted in Hawaiian waters, only 7 were in deep interisland channels or in water deeper than 92 m. In a subsequent vessel survey, Rice and Wolman (1979, unpub. manuscr. submitted to the IWC Scientific Committee) sighted only 2 out of 411 humpback whales in waters deeper than 180 m. Tinney (1988) states that whales in Hawaii tend to favor water about 25 fathoms (46 m) in depth.

Off windward Oahu, adult humpback whales have been observed on several occasions swimming slowly parallel to but just seaward of the 10-fathom (18 m) isobath where a sharp sea bottom escarpment drops from 10 to approximately 15 fathoms (18 to 27 m) (J. Naughton, Southwest Region, National Marine Fisheries Service, Honolulu, pers. obs.). The whales appear to follow the depth contour as they migrate along the coastline.

Glockner-Ferrari and Ferrari (1985) report that of the mothers and calves they recorded off Maui in 1977 and 1979, 80.3% were within the 10-fathom (18 m) curve. Glockner and Venus (1983) found mothers and calves

resting in shallow waters often just beyond the surf line. In a study in Maalaea Bay, Maui, by Muller, Carini, and Hudnall (1980 unpub. manuscr., Maui Whale Research Institute), most whales were observed in water 25 to 73 m deep. The only calves seen were in water estimated to be less than 18 m deep. High cow-calf densities relative to other age classes of whales at specific sites off the west coast of the Island of Hawaii have also been noted. These areas include waters shallower than 50 fathoms (91 m) between Keahole Point and Kiholo Bay, and from Keahuolu Point to Kailua Bay (M. Smultea 1988, Moss Landing Marine Laboratory, pers. commun.; E. Mathews and D. McSweeney 1988, West Coast Whale Research Foundation, pers. commun.). Compared with other age/sex classes of the population, the data indicate that mothers and calves prefer shallower waters. Cows with newborn calves tend to segregate themselves from other whales as well as from other cows and calves. This suggests that females with calves need substantial areas of shallow water in which to swim, rest, and presumably nurse (Tinney 1988).

Bank Characteristics

A. Size

In addition to water depth, the size of the bank appears to be of importance to humpback whales on their wintering grounds. Winn, Edel, and Taruski (1975) found that in West Indies waters, coasts with narrow shelves, generally less than 2 miles wide, do not harbor humpback whales. In contrast, the broad bank area of Silver and Navidad Banks contains the greatest concentration of humpback whales in the West Indies.

Similarly, in Hawaii Rice and Wolman (1979, unpubl. manuscr. submitted to IWC Scientific Committee) found by far the greatest number of whales on the Molokai-Lanai-Maui-Kahoolawe bank, a large shallow bank area generally surrounded by these four islands but also including Penguin Bank. They found the greatest concentration of whales, with 0.78 whale per square mile, on Penguin Bank, the largest single bank area in the main Hawaiian Islands. The second most important area was the Island of Hawaii, particularly the northwest coast where an expanded bank occurs between Upolu Point and Keahole Point. Other coastal areas surrounding the Island of Hawaii are bordered by a narrow shelf, with the exception of an expanded bank in Hilo Bay and at Ka Lae (South Point). Both these areas have yielded consistently high humpback whale counts (Figure 3).

In American Samoa a small number of humpback whales, including cows with calves, are sighted each year from July through October in the waters surrounding Tutuila Island. The bank surrounding Tutuila is especially broad off Cape Taputapu and Leone Bay. These areas yield the most sightings each year (J. Naughton, Southwest Region, National Marine Fisheries Service, Honolulu, pers. obs).

B. Leeward versus Windward

From December through March in Hawaiian waters, northeast trade winds are present about 55% to 65% of the time. These northeast trades result in generally consistent wind and wave action on windward coasts. Winds from the south and occasionally from the north account for the remainder of the wind and swell patterns (Herman 1979).

Rice and Wolman (1979, unpubl. manuscr. submitted to IWC Scientific Committee) found far more whales on the leeward side of the Hawaiian Islands than on the windward side. However, when calculated on the basis of whales per unit area, there was little difference between the two sides. They concluded that the greater abundance of whales on the leeward side appears to be due mainly to its larger areas of shallow water rather

than due to any marked preference by the whales for calmer waters. In fact, the single greatest density of whales was found on Penguin Bank (0.78 whale per square mile), an exposed bank area noted for its rough water.

Herman, Forestell, and Antinoja (1980) also noted that Penguin Bank is regularly exposed to strong, gusty trade winds, but is highly preferred humpback whale habitat. They found that windward areas of some Hawaiian Islands are not used much by whales, but this may reflect the limited extent of shallow water available and not the prevailing wind conditions. Herman (1979) concluded that there seemed to be no consistent relationship between wind or swell patterns and habitation by humpback whales.

In Australia, sheltered waters of the Great Barrier Reef between lat. 16°-21°S appear to be important breeding grounds for the East Australian humpback whale stock. However, there is evidence of humpback whales giving birth prior to reaching Great Barrier Reef waters (Paterson and Paterson 1984).

In the Bonin Islands, humpback whales including cows with new calves were found in the usually rough waters surrounding the islands. The islands are not high enough to create any significant lee, which is essentially nonexistent (Darling and Ford 1988).

C. Substrate

Very little work has been done on substrate characteristics of the banks where humpback whales are consistently found during the winter months. It is believed that humpback whales feed little, if at all, during winter (Matthews 1937; Chittleborough 1965; Dawbin 1966; Whitehead and Moore 1982). Therefore, the importance of substrate in attracting or supporting prey species does not appear to be a consideration.

Whitehead and Moore (1982) found the highest humpback whale song densities on Silver Bank in areas with virtually flat bottoms. Lowest song densities occurred where the bottom profile was rough, indicating coral growth. They concluded that there is evidence that singers select areas with smooth bottoms in the West Indies, thereby enhancing sound transmission.

No comparative analysis has been done for substrate preference in the Hawaiian Islands. However, bank areas with the highest concentration of whales (Penguin Bank, four-island area) are known for broad expanses of flat, sandy bottom as can be seen from bathymetric charts.

Surface Temperature

Whitehead and Moore (1982) found that humpback whales winter in the West Indies in waters of 24° to 28° C. They suspect that the warm waters are favorable for calving since the calves are born with a thin blubber layer. In the Southern Hemisphere Dawbin (1966) found that humpback whales winter in water temperatures of about 25° C.

In the Hawaiian Archipelago, sea-surface temperatures show relatively small seasonal and year-to-year changes, having a long-term average yearly range of 23.2° to 26.4° C (Seckel and Yong 1970). Surface temperatures during the winter in Hawaiian waters range between 23.2° and 24.2° C. These temperatures are slightly cooler than those found in other known humpback whale winter habitats.

The lack of sightings of humpback whales in the Northwestern Hawaiian Islands may be due to low sea-surface temperatures in the area. Huge bank areas occur there (i.e. Necker Island, Maro Reef, Gardner Pinnacles, Neva Shoal around Lisianski Island, French Frigate Shoals) and would seem to have

the desired characteristics; yet humpback whales are rarely sighted in these areas. Confirmed sightings have been made at Nihoa Island (A. Everson, Southwest Fisheries Center, National Marine Fisheries Service. Honolulu, pers. commun. and photos), and mothers and calves have been sighted at French Frigate Shoals (K. Kenyon, Seattle, WA., and J. Naughton, Southwest Region, National Marine Fisheries Service, Honolulu, pers. obs). However, aerial surveys specifically conducted to locate humpback whales in the northwestern Hawaiian Islands have found none (Herman, Forestell, and Antinoja 1980). The slightly cooler water in this more northerly segment of the Hawaiian Archipelago may preclude the use of these large banks as significant wintering areas by humpback whales.

Surface Salinity

In the Hawaiian Archipelago, maximum salinity occurs in November-February when the 35°/oo salinity isopleth has moved south to lat. 17°-19°N (Uchida and Uchiyama 1986). Therefore, the surface salinity in the humpback whale wintering environment in Hawaiian waters is between 35°/oo and 35.2°/oo. Considering the low salinity found in much of the humpback whales' summer feeding grounds, it is improbable that salinity plays a major role in selection of wintering areas.

Surface Currents

Most areas of the Hawaiian Archipelago have a net surface current flow to the west. However, flows are modified by the shapes of the islands causing large eddies to form downstream. Close to shore, tides have a major influence on currents. In many coastal areas of Hawaii, a rotary semidiurnal tidal current is present, usually varying in direction and speed. The bank areas of importance to humpback whales are influenced mainly by tidal currents. The strength of these currents can vary from 3.0 to 32.5 cm/sec (Uchida and Uchiyama 1986).

Early studies in Hawaii suggested a general movement of humpback whales south to north through the main Hawaiian Islands in the winter (Baker and Herman 1981). Whales were thought to enter winter habitat at the Island of Hawaii and work through the main islands, departing later in the season at Oahu. The net current flow would support this hypothesis. However, Darling and Morowitz (1986) recently have shown that a few animals travel from Maui to Hawaii (north to south) in one season and suggest that the majority of the humpback whale population was present at least through the peak season (January - April). This would indicate some exceptions to the general trend and that surface currents may not play a major role in movement of humpback whales, at least within the Hawaiian Archipelago.

Turbidity

In considering the turbidity levels of glacial runoff waters and the generally nutrient rich conditions which comprise the humpback whales' summer feeding habitat, turbidity would not appear to have a negative environmental impact on whales in the wintering grounds. However, a number of observations have been made of humpback whales avoiding turbid coastal waters in Hawaii (Glockner-Ferrari and Ferrari 1985). During 1980, they reported that agricultural runoff from heavy winter storms created a dense mudline in nearshore waters, which the whales seemed to avoid. It was believed this may be a potentially important impact to the humpback whale population in Hawaii (Glockner-Ferrari and Ferrari 1985). Adult humpback whales have been observed swimming in clear water parallel to a meandering band of turbid, sediment-laden water from land runoff in the area of La'au Point, Molokai. They appeared to avoid swimming into the turbid water by changing direction

(J. Naughton, Southwest Region, National Marine Fisheries Service, Honolulu, pers. obs.). However, it is not known whether whales avoid these waters due to turbidity or to chemical pollutants from upland sources.

IMPACTS

Coastal Development

Known humpback whale habitat may be affected by harbor and boat ramp construction, nearshore resort development, alternative energy development, wastewater discharge and outfall construction, permanent vessel moorings, agricultural runoff, and recreational water sports. Water-dependent construction activities by themselves result in highly visible primary impacts such as blasting, dredging, and filling which may result in displacement, injury, and mortality. However, these adverse impacts can be reduced or eliminated through seasonal timing or construction design modifications, and the actual physical loss of habitat is small in comparison to the total available. It is the secondary and tertiary impacts associated with the initial habitat modification, such as increased vessel traffic associated with harbors, ramps, moorings and hotels, that may likely have irreversible consequences on the distribution and reproductive success of humpback whales.

Water quality degradation resulting from increased sewage effluent, surface runoff (agricultural, industrial, and residential), and the leaching of vessel hull anti-fouling compounds (e.g. tributyltin) may also adversely affect the distribution and physical well-being of humpback whales using nearshore waters. Untreated sewage dumped from vessel holding tanks and pumped from municipal outfalls during periods of overflow, such as storms and plant malfunctions, are sources of many infectious agents, viral, bacterial, and mycotic, to which cetaceans have shown a definite susceptibility (Dailey 1985; J.P. Schroeder 1988, Naval Oceans Systems Center, Kaneohe, HI, pers. commun.). The long-term effects of low concentrations of compounds such as tributyltin on larger vertebrates such as whales is not known.

Vessel Traffic

In Hawaii, humpback whales are subject to physical and acoustic disturbance by large numbers of recreational boaters as well as an increasing number of whale-watching vessels as they engage in water skiing, parasailing, jet skiing, high speed pleasure cruising, and whale watching. At present, commercial shipping and commercial fishing vessel traffic do not appear to pose a significant problem in Hawaiian waters because of the location of their activities, and/or their routes and behavior.

The Navy occasionally conducts vessel firing exercises off Kahoolawe Island. During a test to determine in-water source levels of naval gunfire and humpback whale vocalizations, it was found that ambient noise was dominated by humpback whale phonations (Friedl and Thompson 1981).

Normal whale behavior (the energetic and often acrobatic behavior associated with pod formation and disassociation and competitive activities, such as breaching and peduncle or fluke slapping), in some instances, is indistinguishable from reactions to vessels and makes the effects of vessel traffic in Hawaii difficult to evaluate. Recent studies, however, have provided some insight into this problem. Bauer and Herman (1986) found humpback whales off Maui to significantly alter behaviors in response to vessels within 1,000 m. Increases in dive times and some threat behaviors were observed. Short-term impacts of reduced fitness resulting from excessive energy expenditure

during the nonfeeding season were suggested. They postulated that these probable short-term impacts are linked to the potential for long-term negative effects such as displacement, reduced reproductive success, and reduced recruitment.

Glockner-Ferrari and Ferrari (1985, 1987) note a continuing decline in the percentage of cow-calf pairs sighted in nearshore waters off west Maui. In their early studies, they found 80.3% of the mothers and calves observed were within the 10-fathom (18 m) isobath. However, this percentage has steadily decreased, with a low in 1983 of 17.2% within the 10-fathom (18 m) isobath. In 1984 and 1985, the percentages again declined to 14.1 and 5.7%, respectively (Glockner-Ferrari and Ferrari 1987, Table 2). They attribute fewer whales being observed in nearshore waters to human activities, such as direct interactions between whales and vessels, and displacement by high-speed vessel operations. They also believe that habitat is being lost through the effects of pollution and report a decrease in water quality resulting from agricultural runoff from coastal development and sewage output.

Other recent studies also strongly indicate that humpback whales may be abandoning coastal habitat because of human activities. Herman, Forestell, and Antinoja (1980) noted a preference of humpback whales for subregions removed from areas of dense human habitation or activity. On the basis of aerial surveys, they observed an absence of whales within 5- to 6-km of Lahaina, Maui, and suggested that whales avoided the area because of human activities, primarily recreational boat traffic. Forestell (in press) also noted a lack of sightings in the Lahaina area relative to other areas off Maui. In addition, he found virtually no whales during aerial surveys within a 5- to 6-km radius around the new small boat ramp and protective breakwater at Keawakapu, Maui. He hypothesizes that whales, in fact, may be in these areas, but because of increased vessel traffic, they engage in behaviors that make them less obvious, such as remaining submerged for longer periods, or that more noticeable large pods of whales or cow-calf pairs may selectively avoid the area. Single animals, which typically remain underwater for longer periods, may be present in these areas yet be missed by aerial surveys.

Table 2. Percentage of mothers and calves sighted in nearshore waters off West Maui (from Glockner-Ferrari and Ferrari 1987).

Year	Ocean Hours of Observation (No.)	Mother-Calf Sightings (No.)	Mother-Calf Sets Within 0.4 km of Shore (No.)	Mother-Calf Sightings (%)
1977	174	39	25	64.1
1978	150	48	42	87.5
1979	134	47	37	78.7
1980	291	53	15	28.3
1981	228	52	17	32.7
1982	251	69	18	26.1
1983	233	63	11	17.5
1984	283	78	11	14.1
1985	282	88	5	5.7

Tinney (1988) lists and describes activities potentially affecting humpback whales in coastal waters of Hawaii. He states that these activities, occurring often enough, densely enough, or long enough in or near areas traditionally used by humpback whales may cause them to abandon or avoid the areas and possibly result in increased mortality and/or decreased reproduction.

Specific activities (from Tinney 1988), not in any particular order of importance, which potentially affect humpback whales include the following:

1. Swimming, snorkeling, and diving
2. Surfing
3. Wind and motorized surfing
4. Waterskiing
5. Kayaking
6. Recreational fishing
7. Commercial fishing
8. Sailing
9. Jetskiing
10. Addictor boating (rental mini-hydroplanes)
11. Parasailing
12. Whale watching
13. Scientific research
14. Marine transport
15. Water taxis
16. Surface warship operations
17. Submarine operations
18. Aircraft overflights
19. Marine construction

The effect of acoustic interference on "singing" and other related behaviors and its eventual impact on reproductive activities are not well known. "Singers," however, have been observed to stop singing when high speed or very loud vessels transited nearby (Bauer and Herman 1986).

At present, with the exception of the potential loss of summer foraging habitat, the continued loss and degradation of known preferred winter habitat in Hawaiian waters, particularly that of mothers and calves, probably constitutes one of the major threats to the recovery of the Hawaiian population of humpback whales. In order to better gage the prospects for and encourage recovery of this endangered species in Hawaii, habitat requirements and reproductive parameters for humpback whales in Hawaiian waters need to be more precisely defined. Further, a cost-effective and accurate means of determining population trends and a method of assessing the status of humpback whales in Hawaiian waters must be developed and initiated so that additional protective measures and recovery actions can be implemented should they be required.

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Appendix H

BACKGROUND TO THE PROPOSED HAWAII HUMPBACK WHALE NATIONAL MARINE SANCTUARY OF 1984

In the late 1970s some members of the scientific community began to wonder whether increasing human activities might be having adverse effects on humpback whales that inhabit Hawaiian waters. The Marine Mammal Commission, concerned about possible harassment of the whales owing to the frequent interaction of whales with human activities, sponsored a workshop to deal with this issue in 1977. In December of that year, James Hudnall, an independent whale researcher from California, submitted a formal proposal to the National Marine Sanctuary Program to establish a Hawaiian Humpback Whale National Marine Sanctuary. This action initiated the NOAA National Marine Sanctuary Program (NMSP) process in investigating and nominating the site.

At the same time in a local effort, the then Maui Mayor, Elmer Cravalho, designated December to May as "Whale Protection Months" and established a Maui County Whale Reserve in the waters lying landward of the 10-fathom isobath off Maui. Although National Marine Fisheries Service (NMFS) sent two national agents to monitor the situation and enforce existing regulations, no regulations accompanied the designation of the reserve and no administration or authority was established to administer or support the reserve.

In June 1978, NOAA's National Marine Fisheries Service (NMFS) held two public hearings in Hawaii to discuss the need to restrict human activities in principal humpback calving and assembly areas. A first step in exercising control of proposed detrimental activities was taken in January 1979, when NMFS published "Notice of Interpretation for Taking by Harassment" (FR 44[33]: 1114). This notice, the first, "Interpretation" of harassment under the MMPA and the ESA, listed guidelines that defined harassment, designated calving and breeding grounds where special guidelines were applicable, and gave NMFS springboard for enforcement and habitat protection. At the same time, efforts were made to educate the public through the publication and distribution of a pamphlet describing the humpback's behavior and endangered status, together with guidelines for approaching whales.

By May 1979, Federal marine sanctuary officials from NOAA's office of Ocean and Coastal Zone Management (OCZM) were reviewing Hawaiian whale protection proposals vis a vis comments solicited from various agency spokesmen, special interest groups, and private citizens. On October 31, a nomination for establishing a humpback whale national marine sanctuary in Hawaiian waters was included on the List of Recommended Areas (LAR) [44 FR 62552]. In December, NOAA convened a panel of experts, resource managers, local, State, and Federal officials in Hawaii to discuss the endangered Hawaiian humpback whale population, the need for additional research, education, possible regulatory measures, and management for assuring the long-term protection of the these whales in their wintering waters.

The "Hawaiian Humpback Whale Sanctuary Workshop Committee Report" described three management alternatives including: (1) status quo; (2) critical habitat designation as provided by the ESA; or (3) marine sanctuary designation under Title III of the Marine Protection, Research and Sanctuaries Act of 1972. Of the three alternatives, the committee concluded that designation of a marine sanctuary was the "most certain route to continuing protection of the humpback whale in Hawaiian waters." In October 1980, the National Marine Sanctuary Program held public information meetings on the islands of Maui and Oahu to present the findings and recommendations of the workshop and discuss the feasibility and desirability of proceeding forward with the sanctuary nomination.

In May 1981, NOAA held discussions with the Hawaii State Department of Planning and Economic Development (DPED), Department of Land and Natural Resources (DLNR), Department of Transportation (DOT), the Marine Affairs Coordinator's Office, and the Office of the Governor in order to discuss the outcome of the public meetings and draft an issue paper on the Hawaii marine sanctuary. On March 17, 1982, NOAA declared the proposed Hawaiian Humpback Whale National Marine Sanctuary an Active Candidate [47 FR 11544]. The "Proposed Hawai'i Humpback Whale National Marine Sanctuary Issue Paper" was released in April followed by a series of Hawaii public scoping meetings.

Governor George Ariyoshi appointed a neutral 15-member advisory group to assist the State in its evaluation of the proposal and to provide direct input into the development of the Environmental Impact Statement and Management Plan. In January, 1984, NOAA released the Draft Environmental Impact Statement and Draft Management Plan (OCRM 1983) and held public hearings during February. Although the proposed sanctuary met with strong opposition at the public hearings, NOAA apparently received enough written support to continue with the designation process.

In response to NOAA's continuation of the project, special interest groups rallied the Governor to withdraw State waters from sanctuary designation. In July 1984, in response to NOAA's request of the State's position regarding development of the Final Environmental Impact Statement and Management Plan, Governor Ariyoshi wrote to NOAA that "the state does intend to withdraw its waters" from the proposed sanctuary area should the proposal be passed by the U.S. Department of Commerce with Presidential approval. The Final Environmental Impact Statement and Management Plan were never sent to the Governor, and the Federal Office of Coastal Zone Management (OCZM) retained the option to renew the proposal at a later date or the possibility of establishing a sanctuary outside state waters.

Appendix I

WHALE EDUCATION PROGRAMS IN HAWAII

Bishop Museum Education Program
1525 Bernice Street
P.O. Box 19000A
Honolulu, HI 96817
Activities: *Thar She Blows* -- Short tour through the Bishop Museum's whaling exhibits and introduction to sperm whale skeleton (K-3).

Earthtrust
25 Kaneohe Bay Drive
Kailua, HI 96734
Activities: Earthtrust provides information on the status of pirate whaling. Efforts include: market analysis of whale products using DNA techniques, newsletter, adopt-a-whale and dolphin programs.

Department of Education
189 Lunalilio Home Road, 2nd Floor
Honolulu, HI. 96825-2099
Activities: Whale education is featured via science curriculum (K-6)

Department of Land and Natural Resources, Division of Aquatic Resources
1151 Punchbowl St.
Room 330
Honolulu, HI. 96813
Activities: Fishing education classes, in-school aquatic education and public outreach including community presentations, booklets, pamphlets, posters, videos and television commercials.

Hawaiian Islands Humpback Whale National Marine Sanctuary

726 S. Kihei Road	or	300 Ala Moana Blvd. #5350
Kihei, HI 96753		Honolulu, HI 96850

Activities: Public outreach including community presentations, classroom lectures, and participation in whale-related community events.
Information available: Whale-watch brochure and other information materials.

Hawaii Whale Research Foundation
P.O. Box 1269
Lahaina, HI 96767
Activities: Research, education, and outreach programs and humpback whales and other marine mammals inhabiting the Hawaiian Islands.

Hawaii Wildlife Fund
P.O. Box 5361
Lahaina, HI 96761
Activities: Whale watch and coral reef naturalist programs. Conduct education programs for schools and the general community.

Kilauea Point National Wildlife Refuge
P.O. Box 87
Kilauea, Kauai, HI 96754
Activities: The Kilauea Point National Wildlife Refuge staff, in cooperation with Kilauea Point National History Association, operates a public information center at the refuge and develops publications on conservation issues which is available to schools and the general public. Publications: Kilauea Point Natural History Association. *Whale — What is a Whale?* (Hawaii Nature Focus — Nature Studies for Children — No 1.)

Lahaina Whaling Museum
865 Front Street
Lahaina, Hawaii 96761
Activities: Offers an array of memorabilia and whaling artifacts such as models of whaling ships, scrimshaws, ships' logs and harpoons.

National Marine Fisheries Service, Pacific Area Office
2570 Dole St.
Honolulu, HI 96822-2396
Information available: brochures, posters, scientific papers.

Ocean Mammal Institute
P.O. Box 14422
Reading, PA 19612
Activities: Volunteer research internship program affiliated with Albright College, PA.

Pacific Whale Foundation
101 N. Kihei Rd.
Kihei, Maui, HI 96753
Activities: The Pacific Whale Foundation is a non-profit research, education, and conservation organization whose purpose is to educate the public about marine animals and the ocean environment from a scientific perspective. Public Programs include, whales and Friends lecture series, whale day/earth day celebration, whalewatching, adopt-a-whale programs, outreach efforts in a Ocean van and at schools.

Sea Life Park Hawaii/ SLP Marine Research and Education
Makapuu Point
Waimanalo, HI 96795
Activities: Humpback Whale Awareness Month. Annual conservation program celebrating the humpback whale's annual return to Hawaii with lectures, marine artist youth competition and exhibit, and daily mini-lectures. Information available: whale brochures, whaling history museum, marine mammal exhibits, and presentations. Educational Department has special classroom activities on humpback whales.

Source: Hawaii Environmental Education Association. 1993. *Environmental Education Resource Guide*. Honolulu, Hawaii Environmental Education Association.

University of Hawaii
School of Ocean Earth Sciences Technology
Hawaii Institute of Marine Biology
P.O. Box 1346
Kaneohe, HI 96744
Activities: The Hawaii Institute of Marine Biology (HIMB) is a research institute of the University of Hawaii that fosters research and education in marine biological sciences. HIMB maintains a collection of books, scientific reports and dissertations.

Marine Options Program
University of Hawaii at Manoa
1000 Pope Road, Marine Sciences Bldg., Rm. 229

Honolulu, HI 96822
Activities: Student internship opportunities for graduate and undergraduate students.

Sea Grant Extension Service
University of Hawaii at Manoa
1000 Pope Road, MSB 226
Honolulu, HI 96822
Activities: The University of Hawaii Sea Grant Extension Service is a public outreach and information/technology program that supports research, education, and extension efforts that encourage sound management of the ocean's resources.

Kewalo Basin Marine Mammal Laboratory
University of Hawaii at Manoa
Kewalo Basin Marine Mammal Laboratory
1129 Ala Moana Blvd.
Honolulu, HI 96814
Activities: Earthwatch Program provides hands-on experience for persons interested in research on captive dolphins. Student internship programs and undergraduate directed studies program.

Waikiki Aquarium
Education Department
2777 Kalakaua Avenue
Honolulu, HI 96815
Information available: Educational department handles curriculum activities (K-6), incorporating the entire Hawaiian marine ecosystem. Brochures, handout materials, exhibits, and outreach programs are also available.

Whale Center of the Pacific
2435 Kaanapali Parkway, #H-16
Kaanapali, Lahaina, HI 96761
Activities: Educational outreach, museum exhibits, handouts and environmental workshop, including Whale Discovery Day.

Whales Alive
P.O. Box 2058
Kihei, HI. 96753
Activities: Research, educational outreach, handout materials, and slide images. Sponsors annual research conference: In Celebration of Whales.

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Appendix J

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Appendix K

DESIGNATION DOCUMENT AND IMPLEMENTING REGULATIONS

Section 304(a)(4) of the National Marine Sanctuaries Act (NMSA) requires that the terms of designation include the geographic area included within the Sanctuary; the characteristics of the area that give it conservation, recreational, ecological, historical, research, educational, or aesthetic value; and the types of activities that will be subject to regulation by the Secretary of Commerce to protect these characteristics. The terms of designation may be modified only by the procedures provided in section 304(a) of the NMSA. Thus, the terms of designation serve as a constitution for the Sanctuary. In the case of this Congressionally designated Sanctuary, some terms of designation (e.g., boundary) were contained in the Hawaiian Islands National Marine Sanctuary Act, subject to modification by the Secretary.

A. Designation Document for the Hawaiian Islands Humpback Whale National Marine Sanctuary

On November 4, 1992, President Bush signed into law the Hawaiian Islands National Marine Sanctuary Act (HINMSA or Act; Subtitle C of the Oceans Act of 1992, Pub. L. No. 102-587) which designated the Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS or Sanctuary).

The purposes of the Sanctuary are to:

(1) protect humpback whales and their Sanctuary habitat;

(2) educate and interpret for the public the relationship of humpback whales to the Hawaiian Islands marine environment;

(3) manage human uses of the Sanctuary consistent with the designation and Title III of the Marine Protection, Research and Sanctuaries Act, as amended ("MPRSA"; also cited as the "National Marine Sanctuaries Act" or "NMSA"), 16 U.S.C. §1431 et seq.; and

(4) provide for the identification of marine resources and ecosystems of national significance for possible inclusion in the Sanctuary.

Article I. Effect of Designation

Section 2306 of the HINMSA requires the Secretary to develop and issue a comprehensive management plan and implementing regulations to achieve the policy and purposes of the Act, consistent with the procedures of sections 303 and 304 of the NMSA. Section 304 of the NMSA authorizes the issuance of such regulations as are necessary and reasonable to implement the designation, including managing and protecting the conservation, recreational, ecological, historical, research, educational and aesthetic resources and qualities of the Hawaiian Islands Humpback Whale National Marine Sanctuary. Section 1 of Article IV of this Designation Document lists activities subject to regulation which are those activities that may be regulated on the effective date of the regulations, or at some later date in order to implement the Sanctuary designation.

Article II. Description of the Area

The HINMSA identified a Sanctuary boundary but authorized the Secretary to modify the boundary as necessary to fulfill the purposes of the designation. The Sanctuary boundary was modified by the Secretary to encompass the submerged lands and waters off the coast of the Hawaiian Islands extending seaward from the shoreline, cutting across the mouths of rivers and streams, --

(1) to the 100-fathom (183 meter) isobath adjoining the islands of Maui, Molokai and Lanai, including Penguin Bank, but excluding the area within three nautical miles of the upper reaches of the wash of the waves on the shore of Kahoolawe Island;
(2) to the deep water area of Pailolo Channel from Cape Halawa, Molokai, to Nakalele Point, Maui, and southward;
(3) to the 100-fathom (183 meter) isobath around the island of Hawaii;
(4) to the 100-fathom (183 meter) isobath from Kailiu Point eastward to Makahuena Point, Kauai; and
(5) to the 100-fathom (183 meter) isobath from Puaena Point eastward to Mahie Point, and from the Ala Wai Canal eastward to Makapuu Point, Oahu.

Excluded from the Sanctuary boundary are the following commercial ports and small boat harbors:

Hawaii (Big Island)
Hilo Harbor
Honokohau Boat Harbor
Kawaihae Boat Harbor and
Small Boat Basin
Keauhou Bay

Maui
Kahului Harbor
Lahaina Boat Harbor
Maalaea Boat Harbor

Lanai
Kaumalapau Harbor
Manele Harbor

Kauai
Hanamaulu Bay
Nawiliwili Harbor

Oahu
Ala Wai Small Boat Basin

Molokai
Hale o Lono Harbor
Kaunakakai Harbor

As specified at sections 2305(b) of the HINMSA, on January 1, 1996, the area of the marine environment within 3 nautical miles of the upper reaches of the wash of the waves on the shore of Kahoolawe Island was to become part of the Sanctuary, unless during the 3 month period immediately preceding January 1, 1996, the Secretary certified in writing to Congress that the area was not suitable for inclusion in the Sanctuary. The Secretary made such a certification in December 1995. As such, the waters surrounding Kahoolawe are not included in the Sanctuary. The HINMSA was amended in 1996 to allow the Kahoolawe Island Reserve Commission (KIRC) to request inclusion of the marine waters three miles from Kahoolawe in the Sanctuary. Upon receiving a request from the KIRC, should NOAA determine that Kahoolawe waters may be suitable for inclusion in the Sanctuary, NOAA will prepare a supplemental environmental impact statement, management plan, and implementing regulations for that inclusion. This process will include the opportunity for public comment. Further, the Governor would have the opportunity to certify his or her objection to the inclusion, or any term of that inclusion, and if this occurs, the inclusion or term will not take effect.

Article III. Characteristics of the Area That Give It Particular Value

The Hawaiian Islands comprise an archipelago which consist of eight major islands and 124 minor islands, with a total land area of 6,423 square miles, and a general coastline of 750 miles. The central North Pacific stock of endangered humpback whales, the largest of the three North Pacific stocks, estimated to be at approximately 10% of its pre-whaling abundance, uses the waters around the main Hawaiian Islands for reproductive activities including breeding, calving and nursing. The warm, calm waters around the main Hawaiian Islands provide protective

environments required for such activities. Of the known wintering and summering areas in the North Pacific used by humpback whales, the waters around the main Hawaiian Islands maintain the largest seasonally-resident population; approximately 2,000 to 3,000 humpback whales use these waters. The proximity to shore helps support an active commercial whalewatch industry, which is supported annually by millions of visitors who either directly or indirectly enjoy the Sanctuary waters.

In sections 2302(1) and (4) of the HINMSA, Congressional findings state that "many of the diverse marine resources and ecosystems within the Western Pacific region are of national significance," and "the marine environment adjacent to and between the Hawaiian Islands is a diverse and unique subtropical marine ecosystem." In addition, Congress found that the Sanctuary could be expanded to include other marine resources of national significance. The waters around the Hawaiian Islands contain 24 other species of cetaceans, the highly endangered Hawaiian monk seal, three species of sea turtles and many other marine species endemic to this environment. Coastal Hawaiian waters also support spectacular coral reef ecosystems which provide local people with an abundant source of fish and are a popular dive destination for visitors worldwide. These waters also contain a number of cultural/historical resources, including those reflecting native Hawaiian traditions and uses.

Article IV. Scope of Regulations

Section 1. Activities Subject to Regulation. In order to implement the Sanctuary designation, the following activities are subject to regulation to the extent necessary and reasonable to ensure the protection and management of the characteristics and values of the Sanctuary described above; primarily the protection and management of humpback whales and their Sanctuary habitat. Regulation may include governing the method, location, and times of conducting the activity, and prohibition of the activity, after public notice and an opportunity to comment. If a type of activity is not listed it may not be regulated, except on an emergency basis, unless Section 1 of Article IV is amended by the procedures provided in section 304(a) of the NMSA. Such activities are:

a. Approaching, or causing another vessel or object to approach, by any means a humpback whale in the Sanctuary;
b. Flying over a humpback whale in the Sanctuary in any type of aircraft except when in any designated flight corridor for takeoff or landing from an airport or runway;
c. Discharging or depositing, from within or from beyond the boundary of the Sanctuary, any material or other matter into, or that enters or could enter the Sanctuary, without, or not in compliance with, the terms or conditions of a required, valid Federal or State permit, license, lease or other authorization;
d. Drilling into, dredging or otherwise altering the seabed of the Sanctuary; or constructing, placing or abandoning any structure, material or other matter on the seabed of the Sanctuary without, or not in compliance with, the terms or conditions of a required, valid Federal or State permit, license, lease or other authorization;
e. Taking, removing, moving, catching, collecting, harvesting, feeding, injuring, destroying or causing the loss of, or attempting to take, remove, move, catch, collect, harvest, feed, injure, destroy or cause the loss of any humpback whale or humpback whale habitat;
f. Possessing within the Sanctuary a humpback whale or part thereof regardless of where taken, removed, moved, caught, collected or harvested; and
g. Interfering with, obstructing, delaying or preventing an investigation, search, seizure or disposition of seized property in connection with enforcement of the HINMSA or NMSA or any regulation or permit issued under the HINMSA or NMSA.

Section 2. Emergencies. Where necessary to prevent or minimize the destruction of, loss of, or injury to a Sanctuary resource or quality; or minimize the imminent risk of such destruction, loss or injury, any activity, including those not listed in Section 1 of this Article, is subject to immediate temporary regulation, including prohibition. If such a situation arises, the Director of NOAA's Office of Ocean and Coastal Resource Management or his or her designee shall seek to notify and consult to the extent practicable with any relevant Federal agency and the Governor of the State of Hawaii.

Article V. Effect on Leases, Permits, Licenses, and Rights

Pursuant to section 304(c)(1) of the NMSA, 16 U.S.C. §1434(c)(1), no valid lease, permit, license, approval or other authorization issued by any Federal, State, or local authority of competent jurisdiction, or any right of subsistence use or access, may be terminated by the Secretary of Commerce, or his or her designee, as a result of this designation, or as a result of any Sanctuary regulation, if such authorization or right was in existence on the effective date of Sanctuary designation (November 4, 1992).

Article VI. Alteration of This Designation

The terms of designation, as defined under section 304(a) of the NMSA, may be modified only by the procedures outlined in section 304(a) of the NMSA, including public hearings, consultation with interested Federal, State, and county agencies, review by the appropriate Congressional committees, and review and non-objection by the Governor of the State of Hawaii, and approval by the Secretary of Commerce, or his or her designee.

Hawaiian Islands Humpback Whale National Marine Sanctuary Boundary Coordinates

Appendix A to subpart Q, part 922, 15 CFR sets forth the precise boundary coordinates for the Sanctuary.

B. Implementing Regulations for the Hawaiian Islands Humpback Whale National Marine Sanctuary

[Organizationally, these regulations are revised from the proposed regulations (proposed Part 945 of 15 CFR) in furtherance of the President's Regulatory Reinvention Initiative to, among other things, consolidate duplicative regulatory provisions. Consequently, the new regulations for the most part will appear in a new subpart Q to 15 CFR Part 922 (15 CFR 922.180 - 922.187) and in Appendix A to subpart Q, and are applicable only to the HIHWNMS. Existing §§ 922.3, 922.4 and 922.46, subparts A and E of 15 CFR Part 922 are also applicable to the HIHWNMS (provisions of section 922.3 not applicable to the HIHWNMS regulations have been omitted). When the final regulations are published in the Federal Register they will be revised to include amendatory language to the Code of Federal Regulations and to eliminate sections reprinted here that presently appear in the Code of Federal Regulations.]

Subpart Q, Part 922 (Proposed Part 945)- Hawaiian Islands Humpback Whale National Marine Sanctuary

Section

922.180	(Proposed 945.1)	Purpose.
922.181	(Proposed 945.2)	Boundary.
922.3	(Proposed 945.3)	Definitions applicable to all national marine sanctuaries.
922.182	(Proposed 945.3)	Definitions applicable to the Hawaiian Islands Humpback Whale National Marine Sanctuary only.
922.183	(Proposed 945.4)	Allowed activities.
922.184	(Proposed 945.5)	Prohibited activities.
922.4	(Proposed 945.5(b))	Effect of National Marine Sanctuary Designation
922.185	(Proposed 945.6)	Emergency regulations.
922.186	(Proposed 945.7)	Penalties; appeals.
922.187	(Proposed 945.8)	Interagency cooperation.
922.46	(Proposed 945.9)	Response costs and damages.

Appendix A to subpart Q, part 922 - Hawaiian Islands Humpback Whale National Marine Sanctuary Boundary Coordinates

Authority: Sections 302, 303, 304, 305, 306, 307, 310, and 312 of the National Marine Sanctuaries Act (NMSA) (16 U.S.C. 1431 et seq.), and sections 2304, 2305, and 2306 of the Hawaiian Islands National Marine Sanctuary Act (HINMSA), Pub. L. 102-587.

§ 922.180 Purpose.

(a) The purpose of the regulations in this subpart is to implement the designation of the Hawaiian Islands Humpback Whale National Marine Sanctuary by regulating activities affecting the resources of the Sanctuary or any of the qualities, values, or purposes for which the Sanctuary was designated, in order to protect, preserve, and manage the conservation, ecological, recreational, research, educational, historical, cultural, and aesthetic resources and qualities of the area. The regulations are intended to supplement and complement existing regulatory authorities; to facilitate to the extent compatible with the primary objective of protecting the humpback whale and its habitat, all public and private uses of the Sanctuary, including uses of Hawaiian natives customarily and traditionally exercised for subsistence, cultural, and religious purposes, as well as education, research, recreation, commercial and military activities; to reduce conflicts between compatible uses; to maintain, restore, and enhance the humpback whale and its habitat; to contribute to the maintenance of natural assemblages of humpback whales for future generations; to provide a place for humpback whales that are dependent on their Hawaiian Islands wintering

habitat for reproductive activities, including breeding, calving, and nursing, and for the long-term survival of their species; and to achieve the other purposes and policies of the HINMSA and NMSA.

(b) These regulations may be modified to fulfill the Secretary's responsibilities for the Sanctuary, including the provision of additional protections for humpback whales and their habitat, if reasonably necessary, and the conservation and management of other marine resources, qualities and ecosystems of the Sanctuary determined to be of national significance. The Secretary shall consult with the Governor of the State of Hawaii on any modification to the regulations contained in this part. For any modification of the regulations contained in this part that would constitute a change in a term of the designation, as contained in the Designation Document for the Sanctuary, the Secretary shall follow the applicable requirements of section 304(a) of the National Marine Sanctuaries Act.

§ 922.181 Boundary.

(a) Except for excluded areas described in paragraph (b) of this section, the Hawaiian Islands Humpback Whale National Marine Sanctuary consists of:

The submerged lands and waters off the coast of the Hawaiian Islands seaward from the shoreline, cutting across the mouths of rivers and streams, --

(1) to the 100-fathom (183 meter) isobath adjoining the islands of Maui, Molokai and Lanai, including Penguin Bank, but excluding the area within three nautical miles of the upper reaches of the wash of the waves on the shore of Kahoolawe Island;
(2) to the deep water area of Pailolo Channel from Cape Halawa, Molokai, to Nakalele Point, Maui, and southward;
(3) to the 100-fathom (183 meter) isobath around the Island of Hawaii;
(4) to the 100-fathom (183 meter) isobath from Kailiu Point eastward to Makahuena Point, Kauai; and
(5) to the 100-fathom (183 meter) isobath from Puaena Point eastward to Mahie Point and from the Ala Wai Canal eastward to Makapuu Point, Oahu.

(b) Excluded from the Sanctuary boundary are the following commercial ports and small boat harbors:

Hawaii (Big Island)
Hilo Harbor
Honokohau Boat Harbor
Kawaihae Boat Harbor and Small Boat Basin
Keauhou Bay

Maui
Kahului Harbor
Lahaina Boat Harbor
Maalaea Boat Harbor

Lanai
Kaumalapau Harbor
Manele Harbor

Kauai
Hanamaulu Bay
Nawiliwili Harbor

Oahu
Ala Wai Small Boat Basin

Molokai
Hale o Lono Harbor
Kaunakakai Harbor

The precise boundary of the Sanctuary appears in Appendix A of this subpart.

§ 922.3 Definitions applicable to all national marine sanctuaries.

* * *

Director means, except where otherwise specified, the Director of the Office of Ocean and Coastal Resource Management, NOAA, or designee.

* * *

Injure means to change adversely, either in the long or short term, a chemical, biological, or physical attribute of, or the viability of. This includes, but is not limited to, to cause the loss of or destroy.

* * *

Person means any private individual, partnership, corporation, or other entity; or any officer, employee, agent, department, agency, or instrumentality of the Federal Government or of any State, regional, or local unit of government, or of any foreign government.

* * *

Vessel means a watercraft of any description capable of being used as a means of transportation in/on the waters of a sanctuary.

§ 922.182 Definitions to the Hawaiian Islands Humpback Whale National Marine Sanctuary only.

(a) Acts means the Hawaiian Islands National Marine Sanctuary Act (HINMSA; sections 2301-2307 of Pub. L. 102-587), and the National Marine Sanctuaries Act (NMSA; also known as Title III of the Marine Protection, Research, and Sanctuaries Act (MPRSA), as amended, 16 U.S.C. 1431 et seq.).

Adverse impact means an impact that independently or cumulatively damages, diminishes, degrades, impairs, destroys, or otherwise harms.

Alteration of the seabed means drilling into, dredging, or otherwise altering a natural physical characteristic of the seabed of the Sanctuary; or constructing, placing, or abandoning any structure, material, or other matter on the seabed of the Sanctuary.

Habitat means those areas that provide space for individual and population growth and normal behavior of humpback whales, and include sites used for reproductive activities, including breeding, calving and nursing.

Military Activities means those military activities conducted by or under the auspices of the Department of Defense and any combined military activities carried out by the Department of Defense and the military forces of a foreign nation.

Sanctuary means the Hawaiian Islands Humpback Whale National Marine Sanctuary.

Sanctuary resource means any humpback whale, or the humpback whale's habitat within the Sanctuary.

Shoreline means the upper reaches of the wash of the waves, other than storm or seismic waves, at high tide during the season of the year in which the highest wash of the waves occurs, usually evidenced by the edge of vegetation growth, or the upper limit of debris left by the wash of the waves.

Take or taking a humpback whale means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect or injure, or to attempt to engage in any such conduct. The term includes, but is not limited to, any of the following activities: collecting any dead or injured humpback whale, or any part thereof; restraining or detaining any humpback whale, or any part thereof, no matter how temporarily; tagging any humpback whale; operating a vessel or aircraft or doing any other act that results in the disturbing or molesting of any humpback whale.

(b) Other terms appearing in the regulations in this subpart are defined at 15 CFR 922.3, and/or in the Marine Protection, Research, and Sanctuaries Act, as amended, 33 U.S.C. 1401 et seq., and 16 U.S.C. 1431 et seq.

§ 922.183 Allowed Activities.

(a) All activities except those prohibited by § 922.184 may be undertaken in the Sanctuary subject to any emergency regulations promulgated pursuant to § 922.185, subject to the interagency cooperation provisions of section 304(d) of the NMSA [16 U.S.C. §1434(d)] and § 922.187 of this subpart, and subject to the liability established by section 312 of the NMSA and § 922.46 of this Part. All activities are also subject to all prohibitions, restrictions, and conditions validly imposed by any other Federal, State, or county authority of competent jurisdiction.

(b) Included as activities allowed under the first sentence of paragraph (a) of this section are all classes of military activities, internal or external to the Sanctuary, that are being or have been conducted before the effective date of these regulations, as identified in the Final Environmental Impact Statement/Management Plan. Paragraphs (a)(1)-(5) of § 922.184 do not apply to these classes of activities, nor are these activities subject to further consultation under section 304(d) of the NMSA.

(c) Military activities proposed after the effective date of these regulations are also included as allowed activities under the first sentence of paragraph (a). Paragraphs (a)(1)-(5) of § 922.184 apply to these classes of activities unless--

(1) they are not subject to consultation under section 304(d) of the NMSA and § 922.187 of this subpart, or
(2) upon consultation under section 304(d) of the NMSA and § 922.187 of this subpart, NOAA's findings and recommendations include a statement that paragraphs (a)(1)-(5) of § 922.184 do not apply to the military activity.

(d) If a military activity described in paragraphs (b) or (c)(2) of this section is modified such that it is likely to destroy, cause the loss of, or injure a Sanctuary resource in a manner significantly greater than was considered in a previous consultation under section 304(d) of the NMSA and § 922.187 of this subpart, or if the modified activity is likely to destroy, cause the loss of, or injure any Sanctuary resource not considered in a previous consultation under section 304(d) of the NMSA and § 922.187 of this subpart, the modified activity will be treated as a new military activity under paragraph (c) of this section.

(e) If a proposed military activity subject to section 304(d) of the NMSA and § 922.187 of this subpart is necessary to respond to an emergency situation and the Secretary of Defense determines in writing that failure to undertake the proposed activity during the period of consultation would impair the national defense, the Secretary of the military department concerned may request the Director that the activity proceed during consultation. If the Director denies such a request, the Secretary of the military department concerned may decide to proceed with the activity. In such case, the Secretary of the military department concerned shall provide the Director with a written statement describing the effects of the activity on Sanctuary resources once the activity is completed.

§ 922.184 Prohibited activities.

(a) The following activities are prohibited and thus unlawful for any person to conduct or cause to be conducted.

(1) Approaching, or causing a vessel or other object to approach, within the Sanctuary, by any means, within 100 yards of any humpback whale except as authorized under the Marine Mammal Protection Act, as amended (MMPA), 16 U.S.C. 1361 et seq., and the Endangered Species Act, as amended (ESA), 16 U.S.C. 1531 et seq.;

(2) Operating any aircraft above the Sanctuary within 1,000 feet of any humpback whale except when in any designated flight corridor for takeoff or landing from an airport or runway, or as authorized under the MMPA and the ESA;

(3) Taking any humpback whale in the Sanctuary except as authorized under the MMPA and the ESA;

(4) Possessing within the Sanctuary (regardless of where taken) any living or dead humpback whale or part thereof taken in violation of the MMPA or the ESA;

(5) Discharging or depositing any material or other matter in the Sanctuary; altering the seabed of the Sanctuary; or discharging or depositing any material or other matter outside the Sanctuary if the discharge or deposit subsequently enters and injures a humpback whale or humpback whale habitat, provided that:

such activity requires a Federal or State permit, license, lease, or other authorization, and is conducted:

- without such permit, license, lease, or other authorization; OR
- not in compliance with the terms or conditions of such permit, license, lease, or other authorization.

(6) Interfering with, obstructing, delaying or preventing an investigation, search, seizure or disposition of seized property in connection with enforcement of either of the Acts or any regulations issued under either of the Acts.

(b) The prohibitions in paragraphs (a)(1)-(5) of this § 922.184 do not apply to activities necessary to respond to emergencies threatening life, property or the environment; or to activities necessary for valid law enforcement purposes. However, while such activities are not subject to paragraphs (a)(1)-(5) of this § 922.184, this paragraph (b) does not exempt the activity from the underlying prohibition or restriction under other applicable laws and regulations (e.g., MMPA, ESA, and CWA).

§ 922.4 Effect of National Marine Sanctuary Designation

The designation of a National Marine Sanctuary, and the regulations implementing it, are binding on any person subject to the jurisdiction of the United States. Designation does not constitute any claim to territorial jurisdiction on the part of the United States for designated sites beyond the U.S. territorial sea, and the regulations implementing the designation shall be applied in accordance with generally recognized principles of international law, and in accordance with treaties, conventions, and other agreements to which the United States is a party. No regulation shall apply to a person who is not a citizen, national, or resident alien of the United States, unless in accordance with:

(a) Generally recognized principles of international law;

(b) An agreement between the United States and the foreign state of which the person is a citizen; or

(c) An agreement between the United States and the flag state of the foreign vessel, if the person is a crew member of the vessel.

§ 922.185 Emergency regulations.

Where necessary to prevent or minimize the destruction of, loss of, or injury to a Sanctuary resource, or to minimize the imminent risk of such destruction, loss, or injury, any and all

activities are subject to immediate temporary regulation, including prohibition. Before issuance of such regulations the Director shall consult to the extent practicable with any relevant Federal agency and the Governor of the State of Hawaii.

§ 922.186 Penalties; appeals.

(a) Pursuant to section 307 of the NMSA, each violation of either of the Acts, or any regulation in this subpart is subject to a civil penalty of not more than $100,000. Each such violation is subject to forfeiture of property or Sanctuary resources seized in accordance with section 307 of the NMSA. Each day of a continuing violation constitutes a separate violation.

(b) Regulations setting forth the procedures governing the administrative proceedings for assessment of civil penalties for enforcement reasons, issuance and use of written warnings, and release or forfeiture of seized property appear at 15 CFR Part 904.

(c) A person subject to an action taken for enforcement reasons for violation of these regulations or either of the Acts may appeal pursuant to the applicable procedures in 15 CFR Part 904.

§ 922.187 Interagency Cooperation.

Under section 304(d) of the NMSA, federal agency actions internal or external to a national marine sanctuary, including private activities authorized by licenses, leases, or permits, that are likely to destroy, cause the loss of, or injure any sanctuary resource are subject to consultation with the Director. The federal agency proposing an action shall determine whether the activity is likely to destroy, cause the loss of, or injure a Sanctuary resource. To the extent practicable, consultation procedures under section 304(d) of the NMSA may be consolidated with interagency cooperation procedures required by other statutes, such as the ESA. The Director will attempt to provide coordinated review and analysis of all environmental requirements.

§ 922.46 Response costs and damages.

Under section 312 of the NMSA, 16 U.S.C. 1443, any person who destroys, causes the loss of, or injures any Sanctuary resource is liable to the United States for response costs and damages (plus interest) resulting from such destruction, loss, or injury, and any vessel used to destroy, cause the loss of, or injure any Sanctuary resource is liable *in rem* to the United States for response costs and damages resulting from such destruction, loss, or injury.

Appendix A to subpart Q -- Hawaiian Islands Humpback Whale National Marine Sanctuary Boundary Coordinates

Appendix 1: Hawaiian Islands Humpback Whale National Marine Sanctuary Boundary Coordinates

Kauai

Points	Latitude (deg,min,sec)	Longitude (deg,min,sec)
1.	22,13,37	159,34,57
2.	22,16,42	159,36,4
3.	22,17,13	159,35,16
4.	22,17,25	159,34,34
5.	22,17,15	159,33,2
6.	22,16,59	159,32,3
7.	22,16,34	159,31,31
8.	22,15,47	159,31,19
9.	22,15,41	159,31,5
10.	22,16,14	159,30,37
11.	22,16,6	159,29,46
12.	22,15,50	159,29,20
13.	22,15,52	159,28,32
14.	22,15,31	159,27,54
15.	22,15,25	159,27,17
16.	21,52,0	159,22,56
17.	21,59,17	159,18,25
18.	21,58,42	159,18,51
19.	21,58,28	159,18,56
20.	21,58,10	159,18,54
21.	21,58,4	159,18,32
22.	21,57,5	159,18,41
23.	21,56,43	159,19,4
24.	21,56,13	159,19,39
25.	21,55,29	159,20,36
26.	21,54,48	159,21,12
27.	21,54,1	159,21,27
28.	21,53,45	159,21,46
29.	21,53,27	159,22,14
30.	21,53,1	159,22,32
31.	21,52,44	159,22,37
32.	21,52,13	159,22,49
33.	21,51,45	159,23,18
34.	21,51,43	159,23,50
35.	21,51,49	159,24,26
36.	21,51,53	159,24,48
37.	21,51,51	159,25,12
38.	21,51,42	159,25,41
39.	21,51,15	159,25,58
40.	21,50,57	159,26,15
41.	21,52,17	159,26,48
42.	22,12,53	159,18,4
43.	22,15,26	159,26,20
44.	22,15,11	159,25,52
45.	22,15,18	159,24,50
46.	22,15,22	159,24,10
47.	22,15,21	159,22,53
48.	22,15,6	159,22,34
49.	22,15,6	159,21,54
50.	22,15,7	159,21,23
51.	22,14,30	159,20,55
52.	22,14,18	159,20,31
53.	22,14,22	159,19,54
54.	22,13,21	159,18,43
55.	22,12,31	159,17,46
56.	22,12,18	159,17,17
57.	22,11,14	159,17,5
58.	22,10,29	159,16,42
59.	22,9,57	159,16,25
60.	22,9,25	159,15,42
61.	22,8,34	159,15,39
62.	22,0,15	159,18,48
63.	22,7,4	159,16,37
64.	22,6,17	159,16,31
65.	22,5,51	159,16,13
66.	22,5,4	159,16,47
67.	22,4,18	159,17,32
68.	22,3,32	159,17,28
69.	22,3,15	159,17,23
70.	22,2,56	159,17,33
71.	22,2,48	159,17,48
72.	22,2,33	159,18,4
73.	22,2,16	159,18,24
74.	22,1,57	159,18,46
75.	22,1,51	159,19,11
76.	22,1,26	159,19,24
77.	22,0,59	159,19,8
78.	22,0,49	159,18,54
79.	22,0,0	159,18,47
80.	21,59,40	159,18,27

Oahu (North)

Points	Latitude (deg,min,sec)	Longitude (deg,min,sec)
1.	21,36,22	158,6,37
2.	21,38,41	158,8,39
3.	21,39,1	158,8,7
4.	21,39,24	158,7,44
5.	21,39,43	158,7,44
6.	21,40,12	158,7,27
7.	21,40,27	158,7,38
8.	21,40,45	158,7,21
9.	21,40,46	158,6,56
10.	21,41,7	158,6,41
11.	21,41,29	158,6,16
12.	21,41,44	158,6,13
13.	21,42,55	158,5,13

14.	21,43,54	158,3,58
15.	21,44,22	158,3,22
16.	21,45,3	158,2,0
17.	21,45,15	158,1,19
18.	21,45,34	158,0,20
19.	21,37,14	157,51,34
20.	21,45,34	157,59,17
21.	21,45,34	157,58,37
22.	21,45,29	157,57,34
23.	21,44,55	157,56,18
24.	21,44,33	157,55,30
25.	21,44,13	157,54,40
26.	21,43,33	157,53,45
27.	21,41,34	157,53,12
28.	21,38,36	157,52,38
29.	21,37,54	157,53,3
30.	21,37,48	157,52,38
31.	21,35,47	157,50,11
32.	21,33,48	157,51,58
33.	21,37,50	157,52,10
34.	21,36,43	157,50,54

Oahu (South)

Points	Latitude (deg,min,sec)	Longitude (deg,min,sec)
1.	21,15,38	157,51,1
2.	21,14,18	157,42,17
3.	21,14,9	157,42,46
4.	21,13,27	157,43,13
5.	21,13,31	157,43,47
6.	21,14,44	157,43,59
7.	21,14,47	157,44,24
8.	21,14,35	157,44,54
9.	21,14,34	157,45,32
10.	21,14,11	157,46,52
11.	21,14,14	157,47,35
12.	21,13,55	157,47,58
13.	21,14,0	157,48,28
14.	21,14,29	157,48,53
15.	21,14,40	157,49,34
16.	21,15,0	157,50,16
17.	21,15,25	157,50,51
18.	21,15,50	157,51,14
19.	21,17,8	157,50,54
20.	21,18,50	157,39,6
21.	21,19,53	157,36,4
22.	21,19,34	157,35,6
23.	21,18,55	157,34,21
24.	21,18,47	157,33,53
25.	21,17,52	157,33,21
26.	21,17,36	157,33,32
27.	21,17,3	157,33,32
28.	21,16,34	157,34,3
29.	21,15,52	157,34,46
30.	21,15,56	157,35,19
31.	21,15,20	157,35,44
32.	21,15,13	157,36,0
33.	21,15,22	157,36,57
34.	21,15,33	157,38,20
35.	21,15,21	157,38,51
36.	21,15,20	157,40,5
37.	21,15,23	157,40,53
38.	21,14,56	157,42,6

Maui

Points	Latitude (deg,min,sec)	Longitude (deg,min,sec)
1.	20,51,18	157,44,40
2.	20,52,9	157,44,16
3.	20,52,37	157,44,38
4.	20,52,47	157,45,24
5.	20,53,38	157,46,3
6.	20,55,27	157,45,21
7.	20,56,22	157,45,43
8.	20,57,2	157,45,17
9.	20,57,36	157,44,31
10.	20,59,2	157,44,19
11.	20,59,54	157,43,33
12.	21,1,19	157,43,14
13.	21,1,45	157,42,11
14.	21,2,56	157,42,2
15.	21,3,7	157,41,32
16.	21,3,3	157,40,43
17.	21,4,2	157,39,39
18.	21,4,49	157,39,57
19.	21,5,16	157,39,30
20.	21,5,9	157,38,21
21.	21,5,20	157,37,59
22.	21,5,52	157,37,54
23.	21,6,48	157,36,30
24.	21,7,34	157,35,24
25.	21,8,11	157,33,41
26.	21,8,56	157,33,1
27.	20,57,10	157,33,16
28.	20,56,33	157,33,42
29.	20,55,10	157,33,45
30.	20,53,29	157,37,14
31.	20,51,57	157,40,53
32.	20,51,40	157,42,12
33.	20,50,56	157,42,54
34.	20,58,18	157,22,27
35.	21,0,19	157,19,45
36.	21,1,25	157,18,43

37.	21,1,7	157,19,36	91.	20,53,46	157,5,35
38.	21,0,44	157,20,30	92.	20,54,59	157,5,28
39.	21,0,0	157,19,0	93.	20,55,29	157,5,31
40.	20,59,29	157,19,28	94.	20,56,31	157,4,8
41.	20,59,29	157,20,57	95.	20,56,58	157,3,32
42.	20,59,55	157,21,29	96.	20,57,37	157,2,45
43.	21,0,38	157,21,26	97.	20,58,22	157,2,7
44.	21,0,23	157,21,57	98.	20,58,40	157,1,28
45.	21,0,16	157,22,41	99.	20,59,26	157,1,14
46.	21,0,28	157,23,29	100.	21,0,24	157,1,25
47.	21,0,26	157,24,32	101.	21,1,15	157,1,30
48.	21,0,3	157,25,23	102.	21,1,50	157,1,59
49.	20,59,24	157,25,20	103.	21,2,20	157,2,19
50.	20,58,53	157,25,47	104.	21,3,0	157,3,4
51.	20,58,50	157,26,21	105.	21,3,6	157,4,51
52.	20,58,22	157,25,22	106.	21,3,41	157,6,17
53.	20,58,49	157,23,17	107.	21,3,9	157,8,46
54.	20,58,43	157,21,50	108.	21,3,29	157,10,22
55.	20,58,11	157,23,46	109.	21,15,48	157,11,4
56.	20,57,56	157,26,49	110.	21,15,27	157,9,24
57.	20,57,59	157,28,30	111.	21,15,2	157,8,29
58.	20,57,51	157,29,44	112.	21,14,23	157,6,12
59.	20,57,25	157,31,42	113.	21,13,56	157,5,10
60.	20,56,32	157,29,51	114.	21,13,55	157,4,25
61.	20,56,1	157,29,56	115.	21,13,47	157,4,1
62.	20,55,54	157,31,46	116.	21,13,7	157,3,25
63.	21,17,9	157,17,24	117.	21,13,38	157,2,54
64.	21,9,41	157,31,30	118.	21,13,35	157,1,42
65.	21,9,58	157,30,9	119.	21,13,1	157,1,2
66.	21,9,58	157,29,39	120.	21,13,10	157,0,15
67.	21,9,29	157,28,36	121.	21,12,43	156,59,54
68.	21,9,33	157,27,5	122.	21,13,22	156,59,8
69.	21,10,2	157,23,53	123.	21,13,46	156,58,25
70.	21,10,51	157,21,43	124.	21,13,14	156,57,40
71.	21,12,41	157,19,17	125.	20,49,18	157,1,5
72.	21,14,54	157,18,44	126.	20,44,4	156,48,49
73.	21,16,42	157,18,25	127.	20,43,18	156,45,48
74.	21,17,13	157,16,13	128.	20,43,44	156,46,17
75.	21,16,35	157,14,39	129.	20,43,41	156,47,27
76.	21,16,2	157,13,14	130.	20,44,42	156,48,49
77.	21,3,36	157,10,57	131.	20,44,23	156,49,38
78.	21,3,41	157,11,50	132.	20,44,23	156,51,9
79.	21,3,13	157,12,22	133.	20,43,37	156,51,54
80.	21,2,25	157,12,51	134.	20,44,19	156,47,48
81.	21,2,7	157,13,43	135.	20,43,6	156,52,31
82.	21,1,51	157,14,11	136.	20,42,16	156,53,12
83.	21,1,59	157,14,37	137.	20,42,39	156,54,43
84.	21,1,56	157,15,12	138.	20,42,47	156,56,25
85.	21,1,36	157,16,5	139.	20,42,54	156,57,39
86.	21,1,42	157,17,0	140.	20,43,56	156,59,6
87.	21,1,16	157,17,27	141.	20,45,16	157,0,3
88.	21,0,51	157,18,8	142.	20,46,37	157,0,48
89.	21,0,59	157,18,35	143.	20,47,38	157,0,40
90.	21,3,21	157,3,59	144.	20,50,43	157,2,39

145.	20,51,53	157,4,27	199.	21,0,44	156,21,34
146.	20,52,31	157,4,58	200.	21,1,0	156,18,8
147.	21,12,49	156,43,45	201.	20,33,7	156,23,38
148.	21,11,36	156,53,20	202.	20,36,3	156,10,43
149.	21,12,38	156,56,44	203.	20,35,46	156,13,13
150.	21,12,1	156,56,8	204.	20,35,11	156,14,55
151.	21,12,7	156,55,3	205.	20,34,4	156,16,39
152.	21,12,5	156,54,17	206.	20,33,28	156,17,29
153.	21,11,36	156,54,2	207.	20,33,49	156,19,24
154.	21,12,3	156,52,56	208.	20,33,36	156,20,59
155.	21,11,48	156,52,6	209.	20,33,18	156,22,7
156.	21,12,7	156,51,38	210.	20,35,8	156,27,59
157.	21,11,40	156,51,34	211.	20,33,46	156,26,9
158.	21,11,59	156,50,44	212.	20,36,27	156,28,24
159.	21,12,30	156,49,55	213.	20,36,31	156,28,57
160.	21,12,26	156,49,26	214.	20,35,53	156,28,41
161.	21,12,15	156,48,37	215.	20,59,43	156,16,25
162.	21,12,22	156,47,56	216.	20,58,42	156,13,53
163.	21,11,52	156,47,27	217.	20,54,32	156,9,10
164.	21,12,34	156,46,42	218.	20,54,21	156,8,16
165.	21,13,16	156,45,40	219.	20,53,8	156,6,17
166.	21,13,32	156,45,3	220.	20,51,25	156,5,7
167.	21,13,1	156,44,26	221.	20,51,5	156,4,18
168.	21,12,30	156,43,4	222.	20,50,35	156,3,57
169.	21,11,56	156,42,56	223.	20,49,56	156,1,50
170.	21,12,11	156,41,58	224.	20,48,43	156,0,52
171.	21,11,59	156,41,5	225.	20,48,40	155,59,55
172.	21,11,13	156,39,51	226.	20,48,1	155,58,53
173.	21,10,31	156,39,30	227.	20,37,34	156,4,45
174.	21,8,6	156,40,32	228.	20,47,11	155,58,0
175.	21,7,8	156,40,11	229.	20,46,22	155,57,35
176.	20,36,4	156,29,59	230.	20,45,24	155,57,23
177.	20,38,57	156,34,30	231.	20,44,30	155,57,15
178.	20,39,50	156,35,32	232.	20,42,58	155,57,6
179.	20,40,33	156,36,5	233.	20,41,38	155,58,20
180.	20,41,22	156,36,34	234.	20,40,50	155,59,12
181.	20,42,5	156,36,54	235.	20,40,5	155,59,51
182.	20,42,12	156,38,0	236.	20,39,35	156,0,54
183.	20,42,51	156,39,38	237.	20,38,46	156,1,46
184.	20,43,14	156,41,1	238.	20,38,0	156,2,24
185.	20,43,33	156,42,11	239.	20,37,37	156,3,23
186.	20,44,11	156,42,31	240.	20,37,29	156,5,49
187.	20,43,52	156,43,25	241.	20,36,39	156,6,50
188.	20,41,22	156,42,31	242.	20,36,21	156,7,54
189.	20,41,3	156,43,0	243.	20,35,59	156,8,55
190.	20,42,12	156,44,22	244.	20,53,1	157,38,48
191.	20,43,2	156,44,43	245.	20,54,7	157,35,43
192.	21,0,44	156,18,53	246.	20,56,28	157,32,7
193.	21,4,31	156,37,39	247.	20,58,27	157,24,17
194.	21,4,31	156,35,32	248.	20,58,3	157,25,19
195.	21,3,41	156,33,57	249.	21,3,24	157,7,44
196.	21,2,5	156,31,13	250.	20,55,55	157,30,55
197.	21,1,4	156,27,27	251.	20,50,44	157,2,9
198.	21,1,15	156,22,39	252.	21,1,8	156,24,34

253.	20,34,31	156,26,58
254.	20,58,12	156,12,43
255.	20,52,7	157,40,28
256.	20,54,59	157,34,4

Big Island (Hawaii)

Points	Latitude (deg,min,sec)	Longitude (deg,min,sec)
1.	19,33,54	156,0,19
2.	19,34,42	156,0,33
3.	19,35,21	156,0,35
4.	19,39,49	156,2,29
5.	19,43,34	156,4,26
6.	19,46,7	156,5,57
7.	19,47,17	156,6,34
8.	19,48,3	156,6,19
9.	19,48,42	156,6,28
10.	19,51,28	156,4,33
11.	19,53,15	156,2,25
12.	19,55,43	155,58,13
13.	19,53,47	156,1,26
14.	19,54,6	156,1,1
15.	19,54,8	156,0,3
16.	19,55,8	155,59,14
17.	19,56,11	155,57,41
18.	19,56,36	155,57,19
19.	19,57,19	155,56,44
20.	19,57,56	155,56,18
21.	19,58,22	155,55,56
22.	19,58,39	155,55,2
23.	19,58,45	155,54,36
24.	19,58,57	155,54,9
25.	19,59,15	155,53,37
26.	19,59,31	155,52,58
27.	20,0,20	155,52,25
28.	20,1,4	155,52,25
29.	20,1,36	155,52,4
30.	20,2,24	155,52,17
31.	20,3,14	155,52,25
32.	20,5,50	155,54,44
33.	19,20,32	155,53,38
34.	19,7,28	155,55,34
35.	19,9,6	155,55,49
36.	19,9,52	155,55,42
37.	19,10,57	155,55,16
38.	19,12,49	155,54,28
39.	19,13,29	155,54,32
40.	19,14,22	155,54,24
41.	19,15,2	155,54,24
42.	19,16,17	155,54,1
43.	19,18,0	155,53,47
44.	19,19,22	155,53,49
45.	19,22,49	155,54,43
46.	19,25,22	155,55,33
47.	19,26,21	155,55,39
48.	19,27,14	155,56,9
49.	19,28,41	155,56,42
50.	19,29,1	155,57,14
51.	19,29,25	155,58,9
52.	19,30,23	155,59,3
53.	20,15,49	155,43,33
54.	20,13,22	155,56,15
55.	20,7,10	155,55,14
56.	20,9,21	155,55,44
57.	20,12,43	155,56,28
58.	20,14,41	155,56,12
59.	20,15,34	155,55,53
60.	20,16,21	155,55,28
61.	20,16,47	155,54,54
62.	20,17,42	155,53,56
63.	20,18,11	155,52,3
64.	20,18,9	155,51,28
65.	20,17,41	155,49,45
66.	20,16,39	155,45,47
67.	20,16,23	155,44,18
68.	20,14,44	155,43,7
69.	20,14,5	155,42,57
70.	20,13,54	155,41,55
71.	20,12,57	155,41,28
72.	20,12,8	155,40,58
73.	20,11,32	155,39,37
74.	18,51,25	155,41,26
75.	18,52,3	155,41,45
76.	18,52,36	155,41,44
77.	18,53,23	155,41,35
78.	18,54,14	155,41,39
79.	18,54,42	155,41,28
80.	18,55,42	155,41,27
81.	18,56,26	155,41,51
82.	18,56,41	155,42,16
83.	18,57,0	155,42,41
84.	18,57,33	155,43,15
85.	18,58,7	155,44,2
86.	18,58,14	155,44,49
87.	18,58,36	155,45,43
88.	18,58,56	155,46,16
89.	18,59,32	155,47,7
90.	19,0,38	155,48,26
91.	19,0,49	155,49,37
92.	19,1,9	155,50,36
93.	19,1,22	155,51,43
94.	19,2,4	155,52,58
95.	19,2,39	155,53,14
96.	19,3,40	155,53,45

97.	19,4,52	155,54,50	151.	19,15,55	155,16,18
98.	19,5,51	155,55,4	152.	19,15,29	155,17,1
99.	18,52,27	155,40,26	153.	19,15,42	155,17,30
100.	18,53,12	155,39,32	154.	19,14,37	155,18,51
101.	19,3,35	155,32,20	155.	19,13,55	155,20,10
102.	19,12,28	155,21,5	156.	20,3,22	155,18,51
103.	19,11,47	155,22,47	157.	20,1,48	155,15,39
104.	19,10,38	155,25,12	158.	19,59,17	155,11,13
105.	19,9,34	155,26,18	159.	19,58,42	155,10,31
106.	19,9,4	155,26,31	160.	19,57,40	155,0,0
107.	19,8,29	155,27,44	161.	19,56,17	155,7,57
108.	19,8,3	155,29,20	162.	19,55,18	155,6,35
109.	19,7,5	155,30,35	163.	19,54,1	155,5,14
110.	19,6,29	155,31,20	164.	19,52,12	155,3,54
111.	19,5,36	155,32,6	165.	19,51,0	155,3,25
112.	19,4,35	155,32,19	166.	19,49,52	155,3,25
113.	19,2,52	155,32,48	167.	19,48,56	155,3,5
114.	19,1,15	155,34,29	168.	19,45,25	154,58,59
115.	19,0,24	155,34,57	169.	19,48,15	155,2,14
116.	18,59,29	155,35,28	170.	19,47,49	155,2,33
117.	18,58,17	155,35,37	171.	19,47,21	155,2,7
118.	19,1,53	155,33,29	172.	19,47,6	155,1,27
119.	18,57,6	155,36,16	173.	19,46,37	155,1,0
120.	18,56,15	155,36,46	174.	19,46,20	155,0,39
121.	18,55,15	155,37,19	175.	19,46,0	154,59,28
122.	18,54,31	155,38,32	176.	19,44,37	154,58,34
123.	20,4,41	155,21,53	177.	19,44,14	154,58,33
124.	20,10,40	155,38,43	178.	19,43,15	154,58,30
125.	20,10,23	155,38,3	179.	19,42,40	154,58,9
126.	20,9,50	155,37,34	180.	19,41,52	154,58,12
127.	20,9,53	155,37,15	181.	19,41,34	154,57,43
128.	20,9,23	155,36,14	182.	19,41,13	154,57,17
129.	20,8,46	155,34,38	183.	19,40,39	154,57,24
130.	20,8,49	155,34,0	184.	19,39,54	154,57,24
131.	20,8,13	155,32,46	185.	19,39,27	154,56,58
132.	20,8,13	155,31,23	186.	19,39,15	154,56,49
133.	20,7,40	155,29,41	187.	19,38,38	154,56,55
134.	20,7,6	155,27,29	188.	19,38,17	154,56,58
135.	20,6,45	155,26,3	189.	19,37,13	154,56,10
136.	20,6,9	155,24,40	190.	19,33,26	154,52,7
137.	20,5,29	155,23,10	191.	19,35,24	154,55,6
138.	20,3,59	155,20,4	192.	19,34,18	154,53,24
139.	19,17,53	155,5,13	193.	19,33,2	154,50,56
140.	19,15,52	155,8,36	194.	19,32,35	154,49,4
141.	19,14,52	155,10,31	195.	19,31,49	154,48,13
142.	19,14,57	155,11,7	196.	19,30,49	154,48,4
143.	19,15,4	155,11,39	197.	19,29,42	154,48,23
144.	19,14,58	155,11,50	198.	19,28,51	154,48,58
145.	19,15,1	155,12,18	199.	19,28,14	154,49,31
146.	19,15,15	155,12,55	200.	19,27,52	154,49,57
147.	19,15,9	155,13,28	201.	19,27,15	154,50,25
148.	19,15,32	155,14,10	202.	19,26,37	154,51,21
149.	19,15,31	155,14,55	203.	19,23,48	154,55,11
150.	19,15,50	155,15,42	204.	19,22,57	154,56,10

205.	19,21,23	154,57,50
206.	19,19,34	155,1,22

Ports and Harbor Exclusions
(points mark outer boundary of harbor)

Points	Latitude (deg,min,sec)	Longitude (deg,min,sec)
Ala Wai Harbor (Oahu)		
1	21,17,5	157,50,55
2	21,17,2	157,50,34
Hilo Bay (Big Island)		
1	19,44,37	155,5,35
2	19,44,44	155,4,40
Honokohau Harbor (Big Island)		
1	19,40,23	156,1,50
2	19,40,11	156,1,56
Kawaihae Harbor (Big Island)		
1	20,2,25	155,50,12
2	20,2,36	155,50,7
Keauhou Bay (Big Island)		
1	19,33,43	155,58,8
2	19,34,2	155,58,9
Kahului Harbor (Maui)		
1	20,54,12	156,28,36
2	20,54,13	156,28,28
Lahaina Harbor (Maui)		
1	20,52,29	156,40,54
2	20,52,29	156,40,53
Maalea Harbor (Maui)		
1	20,47,36	156,30,49
2	20,47,42	156,30,44
Hale o Lono Harbor (Molokai)		
1	21,5,15	157,15,8
2	21,5,15	157,15,5
Kaunakakai Harbor (Molokai)		
1	21,5,25	157,1,46
2	21,5,0	157,2,8
3	21,4,49	157,1,51
4	21,5,18	157,1,25
Kaumalapau Harbor (Lanai)		
1	20,47,12	156,59,41
2	20,47,19	156,59,42
Manele Harbor (Lanai)		
1	20,44,46	156,53,24
2	20,44,44	156,53,22
Hanamaula Bay (Kauai)		
1	21,59,49	159,20,6
2	22,0,3	159,20,8
Nawiliwili Harbor (Kauai)		
1	21,57,3	159,21,3
2	21,57,29	159,20,20

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