DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

15 CFR Part 922

[Docket No. 000510129–0129–01]

RIN 0648–A018

Florida Keys National Marine Sanctuary Regulations

AGENCY: National Marine Sanctuary Program (NMSP), National Ocean Service (NOS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce (DOC).

ACTION: Proposed rule; proposed boundary expansion; summary of draft supplemental management plan for expansion area; public availability of draft supplemental management plan of expansion area; public hearings.

SUMMARY: By this document, NOAA is proposing to expand the boundary of the Florida Keys National Marine Sanctuary (FKNMS or Sanctuary) in the remote westernmost portion of the Sanctuary by 96 square nautical miles (nm^2) and to establish a 151 nm^2 no-take ecological reserve in the expanded area and in 55 nm^2 of the existing Sanctuary, to protect important coral reef resources.

This action is necessary to comprehensively protect some of the healthiest and most diverse coral reefs in the Florida Keys. The intended effect of this proposed rule is to protect the deepwater coral reef community in this area from being degraded by human activities.

DATES: Comments will be considered if received by July 31, 2000. For dates of hearings, see **SUPPLEMENTARY INFORMATION.**

ADDRESSES: Written comments must be submitted to Sanctuary Superintendent, Florida Keys National Marine Sanctuary, P.O. Box 500368, Marathon, Florida, 33050. Comments may also be sent by facsimile to: (305) 743–2357. Comments will not be considered if submitted by e-mail or internet. For addresses of hearings, see **SUPPLEMENTARY INFORMATION.**

FOR FURTHER INFORMATION CONTACT: Billy Causey, Sanctuary Superintendent, (305) 743–2437.

SUPPLEMENTARY INFORMATION: NOAA proposes to establish a no-take ecological reserve in the Tortugas region of the Florida Keys to protect nationally significant coral reef resources and to protect an area that serves as a source of biodiversity for the Sanctuary as well as for the southwest shelf of Florida. Establishment of the proposed reserve would include expansion of the Sanctuary boundary to ensure that the reserve protects sensitive coral habitats lying outside the existing boundary of the Sanctuary.

This document publishes the coordinates for the proposed expansion area and for the proposed ecological reserve, summarizes the draft supplemental management plan for the proposed ecological reserve and publishes the text of the Proposed Revised Designation Document for the Sanctuary. The draft supplemental management plan details the proposed goals and objectives, management responsibilities, research activities, interpretive and educational programs, and enforcement, including surveillance activities, for the proposed ecological reserve. By this document, NOAA also proposes regulations to implement the proposed boundary expansion and establishment of an ecological reserve and to regulative activities in the reserve consistent with the purposes of its establishment and to make minor revisions to the existing Sanctuary boundary and to the boundaries of various zoned areas within that boundary to correct errors, provide clarification, and reflect more accurate data. NOAA will announce shortly the public availability of the Draft Supplement Environmental Impact Statement/Draft Supplemental Management Plan (DSEIS/SMP) prepared for the proposed expansion and proposed establishment of the ecological reserve.

Public hearings on the proposed actions and on the DSEIS/SMP will be held on the following locations on the dates and times indicated:

June 12, 2000: Homestead Senior High School, SE 12th Avenue, Homestead, FL, Main Cafeteria; 3:00–8:00 p.m.

June 13, 2000: Comfort Inn Executive Suites, 3860 Toll Gate Blvd., Naples, FL, 2nd Floor Conference Room; 3:00–8:00 p.m.

June 14, 2000: University of South Florida, Campus Activities Center, 2nd Street and 6th Avenue South, St. Petersburg, FL, CAC Central Room; 3:00–8;00 p.m.

June 21, 2000: The Sombrero Country Club, 4000 Sombrero Blvd., Marathon, FL Nautilus Room, 3:00–8:00 p.m.

June 22, 2000: Holiday Inn Beachside, 3841 N. Roosevelt Blvd., Key West, FL, Main Ballroom; 3:00–8:00 p.m.

July 11, 2000: U.S. Department of Commerce, Herbert C. Hoover Building, First Floor, HCHB Auditorium, Washington, D.C., 2:00–5:00 p.m.

The FKNMS, which was designated by the Florida Keys National Marine Sanctuary and Protection Act (FKNMSPA, Pub. L. 101–605) on November 16, 1990, consists of aproximately 2800 nm^2 (9500 square kilometers) of coastal and oceanic waters, and the submerged lands thereunder, surrounding the Florida Keys and the Dry Tortugas. These waters contain the marine equivalent of tropical rain forests in that they support high levels of biological diversity, are fragile and easily susceptible to damage from human activities, and possess high value to human beings if properly conserved. These environments support a vibrant tourist-based economy worth more than $1.2 billion per year. The management plan (MP) for the Sanctuary was implemented by regulations that became effective on July 1, 1997.

The FKNMS currently contains a network of 23 no-take zones, one of which is an ecological reserve (Western Sambo Ecological Reserve). This proposal would establish a second ecological reserve to protect the nationally significant coral reef resources of the Tortugas area. This proposal is being made to further the objectives of the National Marine Sanctuaries Act (NMSA, 16 U.S.C. § 1431 *et seq.*) and the FKNMSPA and to meet the objectives of Executive Order 13089, Coral Reef Protection.

The Torugas is located in the westernmost portion of the FKNMS approximately 70 miles west of Key West, a very strategic position oceanographically that makes it an ideal location for an ecological reserve. It contains the healthiest coral reefs found in the Sanctuary. Coral pinnacles as high as forty feet with the highest coral cover (>30%) found in the Keys jut up from the ocean floor. These coral formations are bathed by some of the clearest and cleanest waters found in the Florida Keys. This occurs where the tropical waters of the Caribbean mingle with the more temperate waters of the Gulf of Mexico.

Recent studies reveal that the Tortugas region is unique in its location and the extent to which oceanographic processes impact the area. The Tortugas plays a dynamic role in supporting marine ecosystems throughout south Florida and the Florida Keys. Larvae that are spawned from adult populations in the Tortugas are spread throughout the Keys and south and southwest Florida by a persistent system of currents and eddies that provide the retention and current pathways necessary for successful recruitment of both local and foreign spawned

juveniles with larval stages remaining from hours for some coral species up to one year for spiny lobster. In addition, the upwellings and convergences of the current systems provide the necessary food supplies in concentrated frontal regions to support larval growth stages.

The Tortugas is located at the transition between the Gulf of Mexico and the Atlantic and is strongly impacted by two major current systems, the Loop Current in the eastern Gulf of Mexico and the Florida Current in the Straits of Florida, as well as by the system of eddies that form and travel along the boundary of these currents. Of particular importance to the marine communities of the Tortugas and Florida Keys is the formation of a large counterclockwise rotating gyre (large eddy) that forms just south of the Tortugas where the Loop Current turns abruptly into the Straits of Florida. This gyre can persist for several months before it is forced downstream along the Keys decreasing in size and increasing in forward speed until its demise in the middle Keys. This gyre serves as a retention mechanism for local recruits and as a pathway to inshore habitats for foreign recruits. It may also serve as a potential food provider through plankton production and concentration.

The Tortugas is also located adjacent to two coastal current systems, including the wind-driven currents of both the Florida Keys coastal zone and the west Florida Shelf. Persistent westward winds over the Keys create a downwelling system that drives a westward coastal countercurrent along the lower Keys to the Tortugas. The countercurrent provides a return route to the Tortugas and its gyre-dominated circulation, and onshore surface Ekman transport (a process whereby wind-driven upwelling bottom water is transported 45 degrees to the left of the actual wind direction in the northern hemisphere) provide a mechanism for larval entry into coastal habitats. Circulation on the west Florida shelf is strongly influenced by wind forcing, but there also appears to be a significant southward mean flow, possibly due to the Loop Current. The effect of these currents on the Tortugas is to provide a larval return mechanism to the Florida Bay nursery grounds during periods of southeast winds, as well as the transport mechanism for low-salinity shelf waters from the north when the mean southward flow is strong.

The combination of downstream transport in the Florida Current, onshore Ekman transport along the downwelling coast, upstream flow in the coastal countercurrent and recirculation in the Tortugas gyre forms a recirculating recruitment pathway stretching from the Dry Tortugas to the middle Keys that enhances larval retention and recruitment into the Keys coastal waters of larvae spawned locally or foreign larvae from remote upstream areas of the Gulf of Mexico and Caribbean Sea. Convergences between the Florida Current front and coastal gyres provide a mechanism to concentrate foreign and local larvae, as well as their planktonic food supply. Onshore Ekman transport and horizontal mixing from frontal instabilities enhance export from the oceanic waters into the coastal zone. A wind- and gyre-driven countercurrent provides a return leg to aid larval retention in local waters. Seasonal cycles of the winds, countercurrent and Florida Current favor recruitment to the coastal waters during the fall when the countercurrent can extend the length of the Keys from the Dry Tortugas to Key Largo, onshore Ekman transport is maximum and downstream flow in the Florida Current is minimum. The mix and variability of the different processes forming the recruitment conveyor provide ample opportunity for local recruitment of species with larval stages ranging from days to several months. For species with longer larval stages, such as the spiny lobster, which has a six to 12-month larval period, a local recruitment pathway exists that utilizes retention in the Tortugas gyre and southwest Florida shelf and return via the Loop Current and the Keys conveyor system. Return from the southwest Florida shelf could also occur through western Florida Bay and the Keys coastal countercurrent, due to a net southeastward flow recently observed connecting the Gulf of Mexico to the Atlantic through the Keys.

Two coral reef areas of unusual biological diversity and abundance would be included in the proposed ecological reserve: Sherwood Forest and Riley's Hump. Sherwood Forest is an area of low relief but high coral cover on the northwest flank of Tortugas Bank, lying just outside the existing Sanctuary boundary. The area's name was inspired by the bizarre mushroom-shaped coral heads that are an adaptation to the low light conditions. There seem to be indications that the mushroom shape is the result of a composite of two coral species. The coral reef is so well developed, that it forms a veneer over the true bottom approximately three feet (ft) below the reef. This veneer is riddled with holes and caves, providing ideal habitats for a high diversity of fish. Soft corals, gorgonian forests, sponges, and black corals are also present. Coral abundance exceeds 30% cover in many areas, compared to 10% for the rest of the Florida Keys.

Riley's Hump is a deep reef terrace (22–27 meters (m) deep) dominated by algae interspersed with coral, located approximately 10 nm southwest of the dry Tortugas National Park (DRTO). It is not known for spectacular coral formations but for its richness of fish and other marine life. A small population of sargassum, or red-tailed triggerfish, is among the unique species found in the area. Large pelagic fish (tunas, jacks, and sharks) are common in the area as well as dolphins. Evidence suggests that this low profile reef is an aggregation or spawning site for snapper-grouper species, including gray, cubera, mutton, dog, red and yellowtail snapper, black grouper and ocean triggerfish. The deeper water habitats to the south of Riley's Hump contain important habitat for red and goldeye snapper, tilefish, golden crab and snowy grouper.

Despite its beauty and productivity, the Tortugas has been exploited for decades, greatly diminishing its potential as a source of larval recruits to the downstream portion of the Florida Keys and to itself. Fish and lobster populations have been significantly depleted thus threatening the integrity and natural dynamics of the ecosystem. Currently large freighters use Riley's Hump as a secure place to anchor between port visits. The several-ton anchors and chains of these ships are devastating large areas of fragile coral reef habitat that provide the foundation for economically important fisheries.

Visitation to the Tortugas region has increased dramatically over the past 10 years. Visitation in the DRTO increased 400% from 1984 through 1998. The population of South Florida is projected to increase from the current 6.3 million people to more than 12 million by 2050. With continued technological innovations such as global positioning systems (GPS), electronic fish finders, better and faster vessels, this increase in population will translate to more pressure on the resources in the Tortugas. By designating this area an ecological reserve, NOAA hopes to create a seascape of promise—a place where the ecosystem's full potential can be realized and a place that humans can experience, learn from and respect. This goal is consistent with E.O. 13089, Coral Reef Protection, and the U.S. Coral Reef Task Force's recommendations.

This DSEIS/SMP supplements the FEIS/MP for the Sanctuary. Further, because this proposed reserve includes a Sanctuary boundary expansion, this

DSEIS/SMP is developed pursuant to section 304(a)(2) of the NMSA, 16 U.S.C. § 1434(a)(2), consistent with, and in fulfillment of, the requirements of the National Environmental Policy Act of 1969.

Four other actions under various jurisdictions are underway to ensure comprehensive protection of the unique resources of the Tortugas region (Fig. 1):

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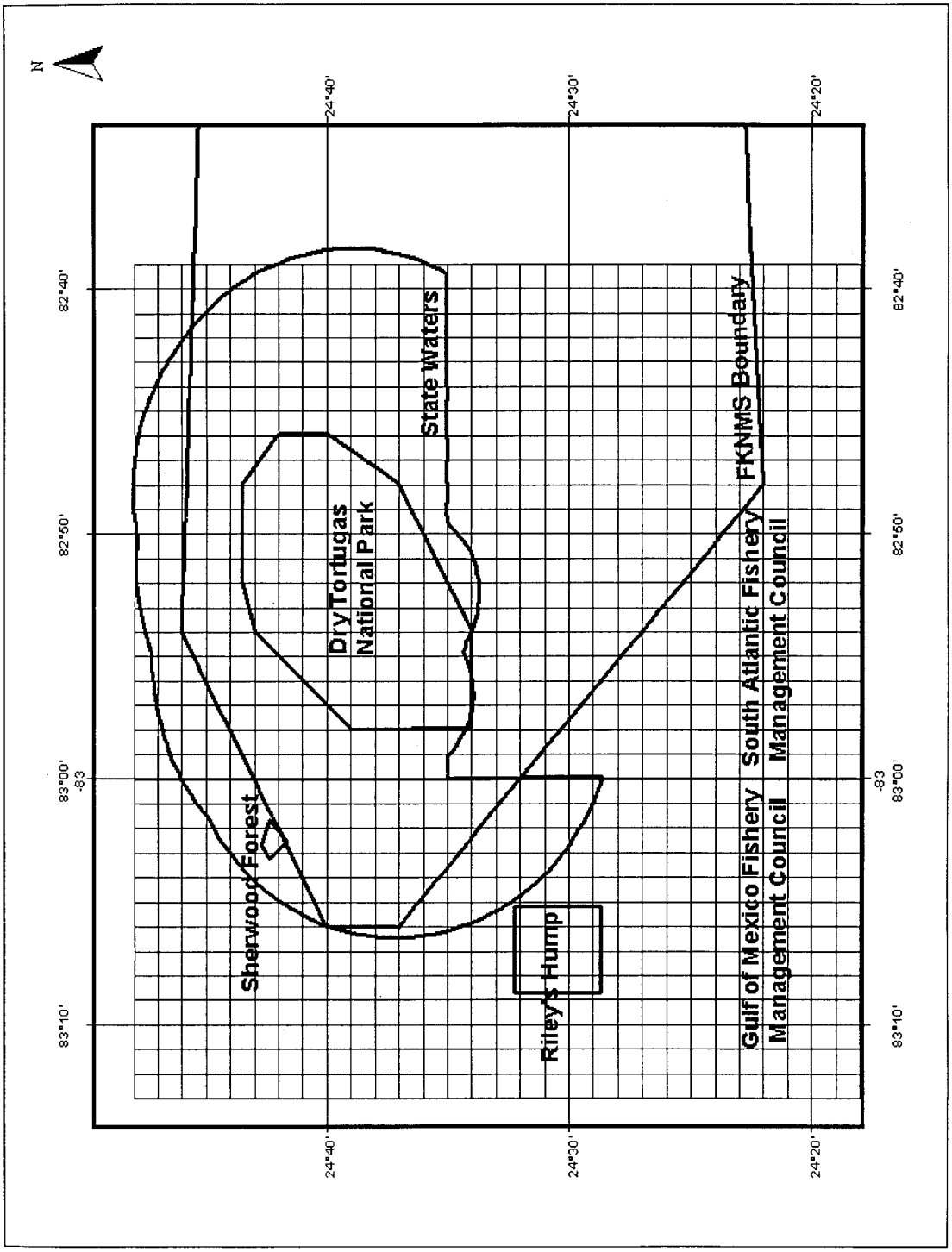

Figure 1. Tortugas Ecological Reserve Study Area (TERSA) showing resource agency jurisdictions and two coral banks: Sherwood Forest and Riley's Hump. The grid represents the study area for the proposed reserve and was used as a framework for collecting and organizing data and designing the proposed reserve (each grid cell represents one minute by one minute of latitude or approximately one square nautical mile.

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• The National Park Service (NPS) is revising the General Management Plan for the DRTO that will include as the preferred alternative a proposal to create a Research/Natural Area (RNA) within the Park. The proposed boundary and regulations for the RNA will be compatible with NOAA's proposed ecological reserve.

• Under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), the Gulf of Mexico Fishery Management Council (GMFMC) has primary federal responsibility and expertise for the development of fishery management plans (FMPs) throughout the Gulf of Mexico and has developed an Essential Fish Habitat Amendment to the Gulf of Mexico Fishery Management Plan (GMFMP) which includes the area of the proposed ecological reserve. The GMFMP is implemented by regulations promulgated by the National Marine Fisheries Service (NMFS) (50 CFR part 622). At the GMFMC's meeting on November 9, 1999, the FKNMS and NMFS requested that the GMFMC take steps to prohibit fishing, consistent with the purpose of the proposed ecological reserve. The GMFMC accepted this request and is now working toward amending the GMFMP to prohibit fishing in the proposed area. At its meeting on March 21, 2000, the GMFMC considered an options paper on the proposed Tortugas Ecological Reserve and voted to proceed with a preferred alternative that would be consistent with the no-take status of the reserve. Based on the GMFMC's action, the regulations for the ecological reserve proposed by the FKNMS would also prohibit fishing. Because the GMFMC's action is not yet final and NMFS has not issued final regulations to implement that action, the proposed ecological reserve regulations would state that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that the GMFMC's action and NMFS implementation would prohibit fishing in the location of the proposed Tortugas Ecological Reserve). The FKNMS regulations prohibiting fishing would be consistent with the GMFMC's preferred alternative.

• NMFS is amending the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks to be consistent with the no-take status of the proposed reserve.

• The State of Florida is drafting fishing regulations to prohibit fishing in those portions of Tortugas North that lie within State waters. Sanctuary regulations implementing the reserve would not become effective in State waters until approved by the State of Florida.

Combined with the establishment of the proposed ecological reserve, these actions would result in comprehensive protection for the nationally significant coral reef habitats from shallow to deep water extending from the Park into Sanctuary and GMFMC waters.

Process To Define a Proposed Ecological Reserve Boundary

Since 1991, NOAA has been concerned about the need to better protect the Tortugas area. This need is documented in the Draft and Final Environmental Impact Statement (EIS)/ Management Plans for the Sanctuary (DOC 1995 and 1996). In the Draft Environmental Impact Statement and Draft Management Plan (DEIS/MP), NOAA proposed a boundary for a 110 nm^2 Replenishment Reserve (Ecological Reserve) in the Tortugas area to protect significant coral resources while minimizing or avoiding adverse impacts to users. Public comment indicated that the then-proposed boundary would not protect the most significant coral reef resources and identified serious adverse economic impacts on commercial fishers from the then-proposed boundary and then-proposed no-take regulations. Accepting these comments, NOAA postponed establishing a reserve and went back to the drawing board by convening an *ad hoc* 25-member Working Group (WG) of the Sanctuary Advisory Council (SAC), composed of key stakeholder representatives, eight SAC members, and government agency representatives with resource management authority in the Tortugas area to recommend a ''preferred boundary alternative'' for the reserve.

One of the key stakeholders in the WG process was the NPS because of its stewardship of the DRTO which is surrounded by but jurisdictionally separate from the FKNMS. The NPS's involvement in the design of the reserve was critical because of the important shallow water coral reef resources found within the Park and the connectivity of those resources with surrounding Sanctuary waters. Coordination with the NPS was further motivated by the fact that the Park is revising its general management plan concurrent with the design of the ecological reserve and is considering making part of the Park a no-take area.

The process to develop the proposed ecological reserve can be described in three phases. The design phase (Phase I) took place from April 1998 to June 1999 and culminated with the SAC's recommendation and NOAA's acceptance of a preferred boundary. Phase II is the development of this DSEIS/SMP and solicitation of public comments on them. Phase III will be the development of a Final Supplemental Environmental Impact Statement/Final Supplemental Management Plan (FSEIS/MP), responding to public comment and establishing the reserve.

The WG collaborated and reached agreement on a recommendation to the State of Florida and the SAC regarding a preferred alternative for an ecological reserve in the Tortugas area. The WG developed criteria for evaluating a broad range of location, size and regulatory alternatives.

Over a 13-month period, the WG met five times and built up a knowledge base on the Tortugas region using scientific information provided by Sanctuary staff, personal knowledge, information received from constituents, and anecdotal information. To inform the WG of the resources and human uses of the area, two forums were held: one on ecological aspects of the region and one on socioeconomic uses. Scientists and knowledgeable locals were invited to present their information to the WG. The Tortugas 2000 website (http://www.fknms.nos.noaa.gov/tortugas) was a critical tool for disseminating information and was constantly updated as the process evolved and products were produced.

The Sanctuary and the NPS commissioned an ecological site characterization document composed of three chapters covering: physical oceanography and recruitment; fish and fisheries; and benthic communities. The information contained in these analyses was used to inform the WG of the resources and uniqueness of the Tortugas region and the data was used to create geographic information system (GIS) maps of the resources.

In addition to the ecological information, socioeconomic data was gathered from the commercial and recreational users of the area. It was first determined that approximately 105–110 commercial fishermen used the area. Information was collected on catch, costs, and trips from 90 of the fishermen. These 90 fishermen caught more than 90% of the total harvest from the Tortugas. The entire population of recreational charter users was interviewed and data on trips and costs were obtained. The commercial and recreational data were input into a GIS format and maps were produced showing use intensity.

A critical aspect of this GIS data was the creation of maps with a consistent scale and a consistent grid cell

framework so comparisons could be made between the maps. The study area was partitioned into one minute by one minute (approximately one nm^2) grid cells which facilitated the collection and analysis of data and the creation of boundary alternatives.

In February, the WG developed criteria for the ecological reserve that addressed ecological and socioeconomic concerns. On April 7, 1999, a packet of GIS maps was sent to the WG to assist in formulating draft alternatives. At its April 22–23 meeting, the criteria were first prioritized by the entire WG and then, in order to develop a broad range of alternatives, the WG broke into two groups: those who were conservation-oriented and those who were use-oriented. The groups reprioritized the criteria according to their interests, resulting in a less protective profile and a more protective profile. This exercise produced a matrix of criteria profiles that were used to develop the draft alternatives. In order to develop alternatives, the WG was broken up into four groups of varied perspectives (this was done to facilitate the development of a consensus).

These groups convened around roundtables and were presented with large, blank grid maps with corresponding transparent overlays. They also had workbooks showing maps of resources and uses. Each group was instructed to develop one alternative for each criteria profile. Observers who were not WG members were allowed to provide input into the drawing of the maps. Twelve draft alternatives were produced representing a range of protection options.

At the May 22 meeting, the WG chose two of the 12 alternatives to focus on and from those two alternatives a compromise arose that was presented by members of the WG. After considerable deliberation, this compromise was ultimately endorsed by the WG through consensus as the recommended ''preferred alternative.''

The preferred alternative would expand the boundary of the Sanctuary by approximately 96 nm^2 to include two significant coral reef areas known as Sherwood Forest and Riley's Hump and establish a Tortugas Ecological Reserve of approximately 151 nm^2. This alternative would expand the boundary of the Sanctuary in its northwesternmost corner by approximately 36 nm^2 to include Sherwood Forest and would expand the boundary in its southwesternmost corner by adding a noncontiguous area of approximately 60 nm^2 to include Riley's Hump. The proposed ecological reserve would also incorporate approximately 55 nm^2 of the existing Sanctuary in its northwest corner. The area of the proposed Tortugas Ecological Reserve surrounding Sherwood Forest would encompass approximately 91 nm^2 and would be called Tortugas North; the area surrounding Riley's Hump would be called Tortugas South.

On June 15, 1999, a presentation on the WG's process and recommended preferred alternative was given to the SAC. Following a lengthy and thorough deliberation the SAC voted unanimously to adopt the recommendation of the WG and forward it to NOAA and the State of Florida.

In developing the boundary alternatives presented in this document, Sanctuary staff took into consideration the deliberations of the WG, the recommendation of the SAC, the requirements of the FKNMSPA, National Marine Sanctuaries Act and NEPA, and the NPS's proposed Research/Natural Area alternative. Sanctuary staff developed five boundary alternatives for analysis which represent a broad range of areas for protection. The basis for these alternatives was the SAC's recommended preferred boundary alternative as well as the two alternatives that the WG chose to focus on at their final meeting. The alternatives were modified in order to create a broad range of options for consideration.

Boundary Alternative I. This alternative would be taking no action, that is, not expanding the boundary of the Sanctuary and not establishing a Tortugas Ecological Reserve.

Boundary Alternative II (Fig. 2). This alternative would establish a Tortugas Ecological Reserve of approximately 55 nm^2 in the northwesternmost portion of the existing Sanctuary boundary.

Areas within the SAC's recommended reserve boundary that would be not protected by this alternative would have to be protected by the relevant management agency. This alternative includes a portion of Sherwood Forest and the coral pinnacles north of Tortugas Bank; it does not include Riley's Hump. It includes some coral and hardbottom habitat north of the DRTO.

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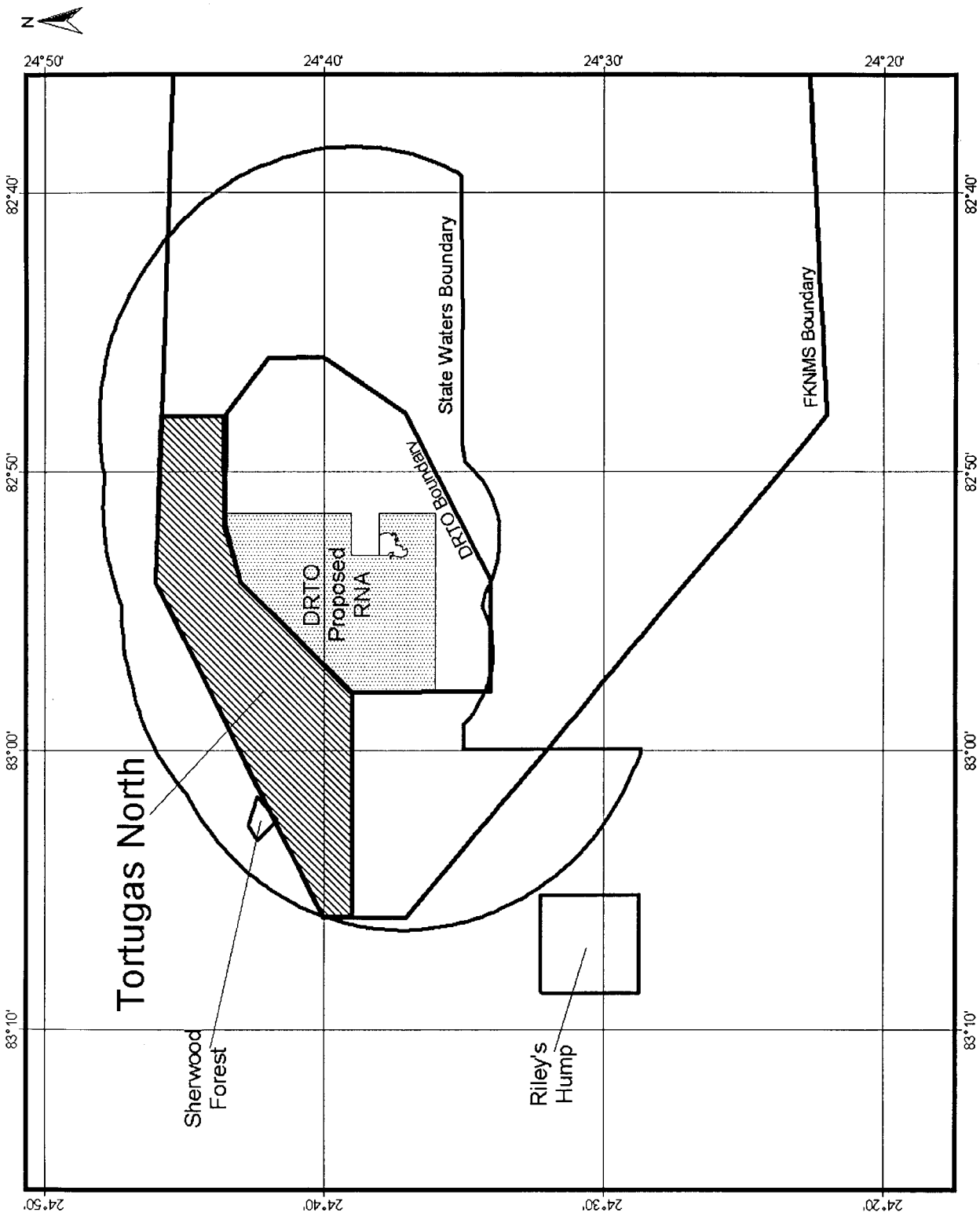

Figure 2. Boundary Alternative II

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Boundary Alternative III (Fig. 3—Preferred Boundary Alternative). This alternative would expand the boundary of the Sanctuary in its northwesternmost corner by approximately 36 nm^2 to include Sherwood Forest. In addition, this alternative would expand the boundary in its southwesternmost corner by adding a noncontiguous area of approximately 60 nm^2 to include Riley's Hump. The proposed ecological reserve would also incorporate approximately 55 nm^2 of the existing Sanctuary in its northwest corner, for a total Tortugas Ecological Reserve area of approximately 151 nm^2. The area of the proposed Tortugas Ecological Reserve surrounding Sherwood Forest would encompass approximately 91 nm^2 and would be called Tortugas North; the area surrounding Riley's Hump would be called Tortugas South. This alternative would involve four different management jurisdictions: FKNMS, State of Florida, GMFMC, and NMFS, all of which are in the process of taking steps to protect the areas within their respective jurisdictions. This alternative represents the WG's recommendation adopted by the SAC and recommended to NOAA and the State of Florida.

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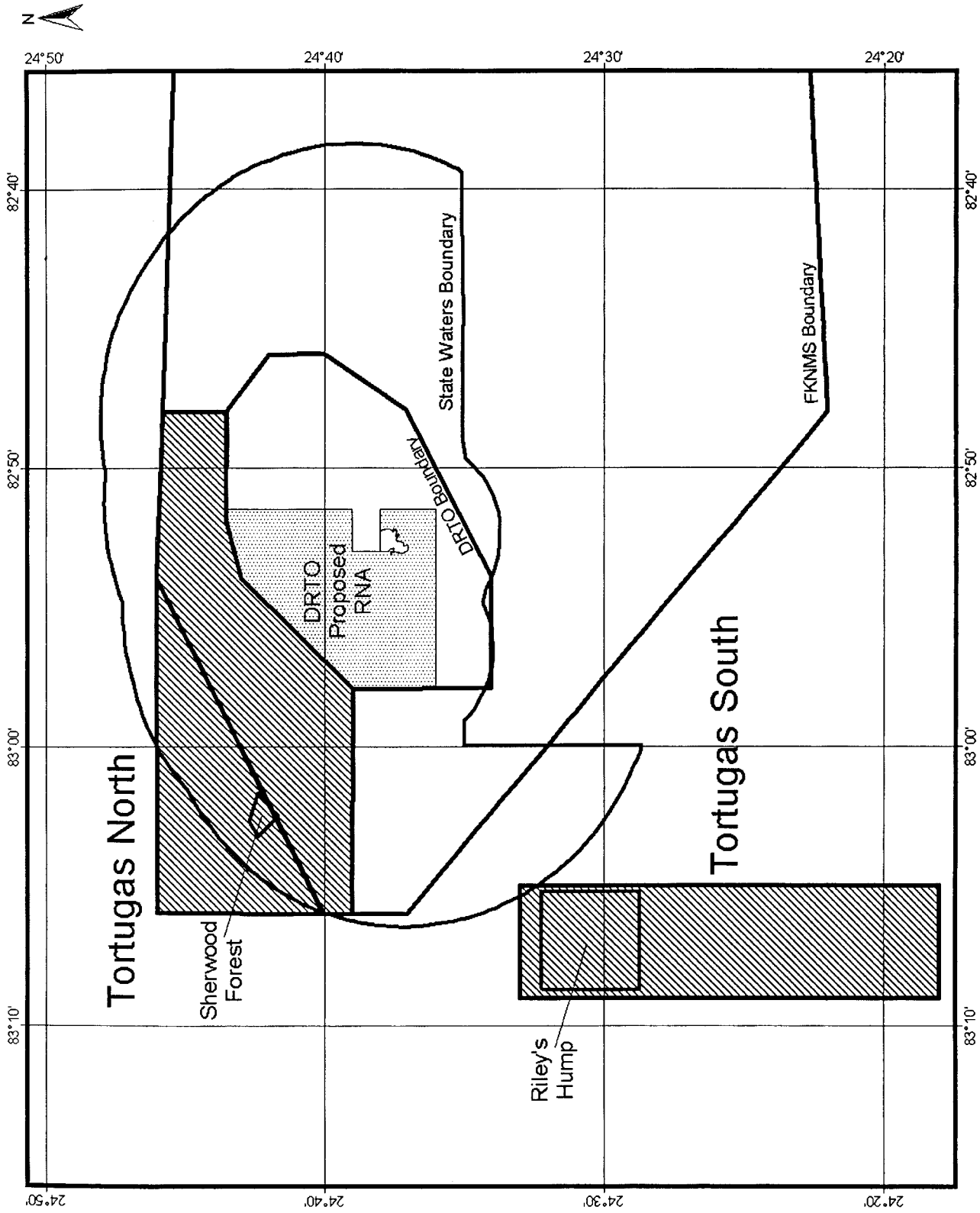

Figure 3. Boundary Alternative III (Preferred Boundary Alternative)

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Boundary Alternative IV (Fig. 4). This alternative would increase the area of Tortugas North over that in Alternative III by an additional 23 nm^2 to the south to make it conterminous with the NPS's proposed Research/Natural Area within the DRTO. The total area of the Tortugas North portion of the Tortugas Ecological Reserve would be approximately 115 nm^2. The Tortugas South area would be the same as in Alternative III. The total area for the Tortugas Ecological Reserve would be about 175 nm^2. This alternative would involve the same Sanctuary boundary expansion as in Alternative III.

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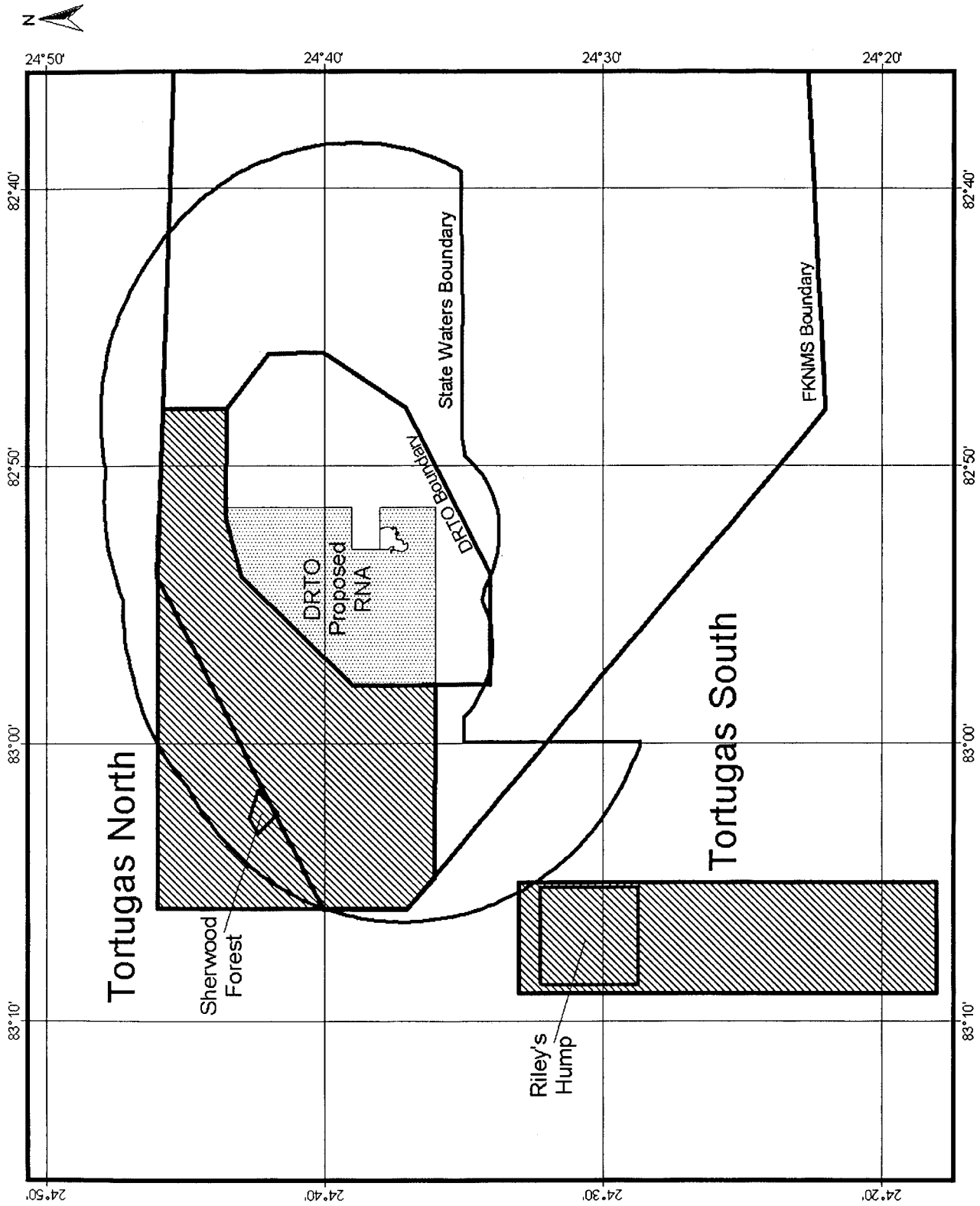

Figure 4. Boundary Alternative IV.

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Boundary Alternative V (Fig. 5). This alternative would expand the Sanctuary boundary over the expansions of Alternatives III and IV by three nm to the west in the northwesternmost corner of the Sanctuary. This would extend the western boundary of Tortugas North to the same longitude as the western boundary of Tortugas South. The area of Tortugas North would be increased by 31 nm^2 over Alternatives III and IV. The area of Tortugas North would be approximately 145 nm^2. Tortugas South would be reduced it in its southern extent over Alternatives III and IV by moving its southern boundary approximately 15 nm to the north. The area of Tortugas South would be approximately 45 nm^2 making the total area of the Tortugas Ecological Reserve approximately 190 nm^2.

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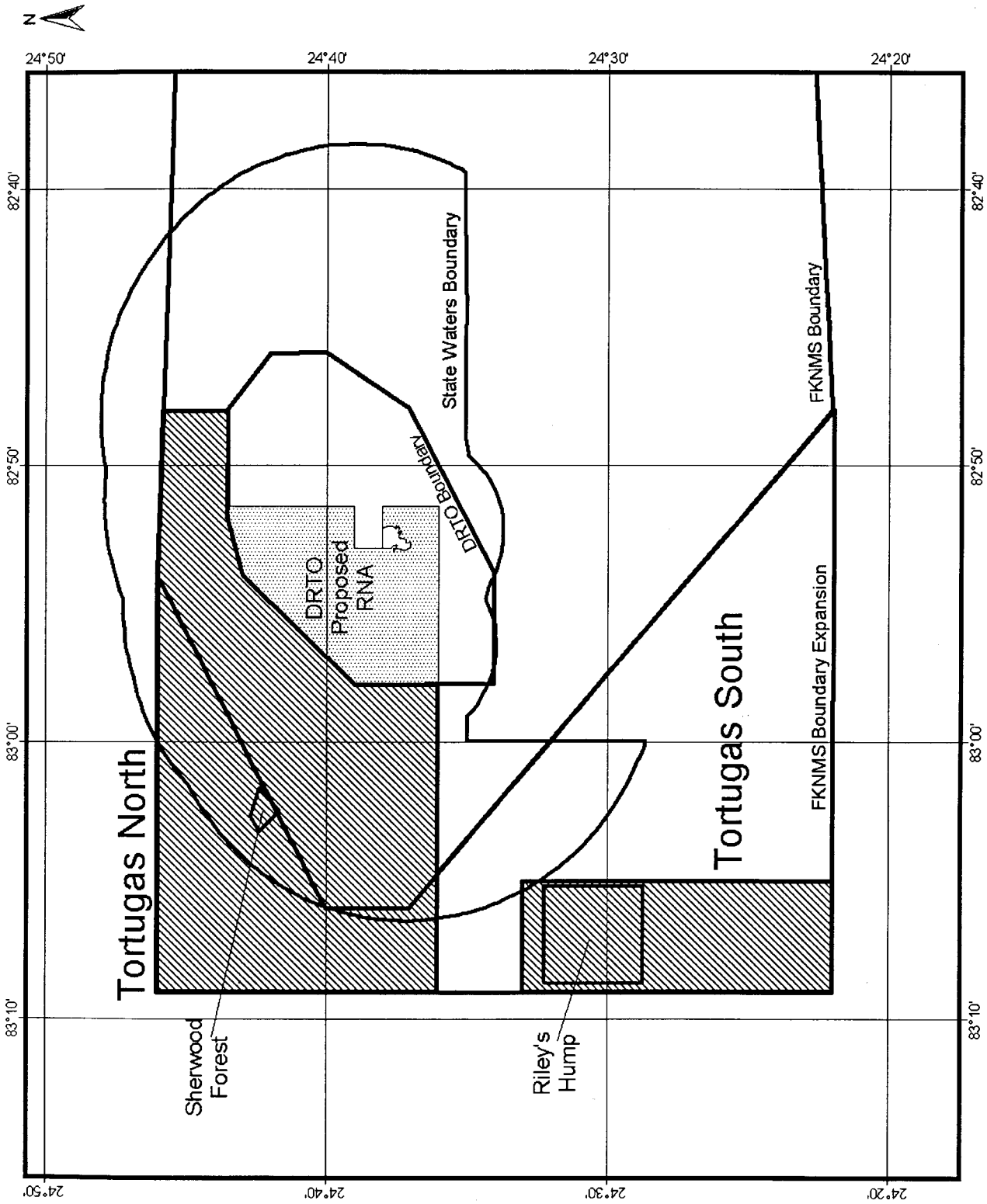

Figure 5. Boundary Alternative V

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Boundary Expansion (Fig. 6). Boundary Alternatives III, IV, and V would require expansion of the existing Sanctuary boundary. The original boundary in the western portion of the Sanctuary was drawn based on bathymetry as there was little information available at the time on significant ecological features. Consistent with E.O. 13089, Coral Reef Protection, and consistent with establishing an ecological reserve that comprehensively protects the resources, NOAA is now proposing to expand the boundary of the Sanctuary through the adoption of Boundary Alternative III to protect nationally significant coral reef resources that were unknown to the agency and to Congress at the time the Sanctuary was designated.

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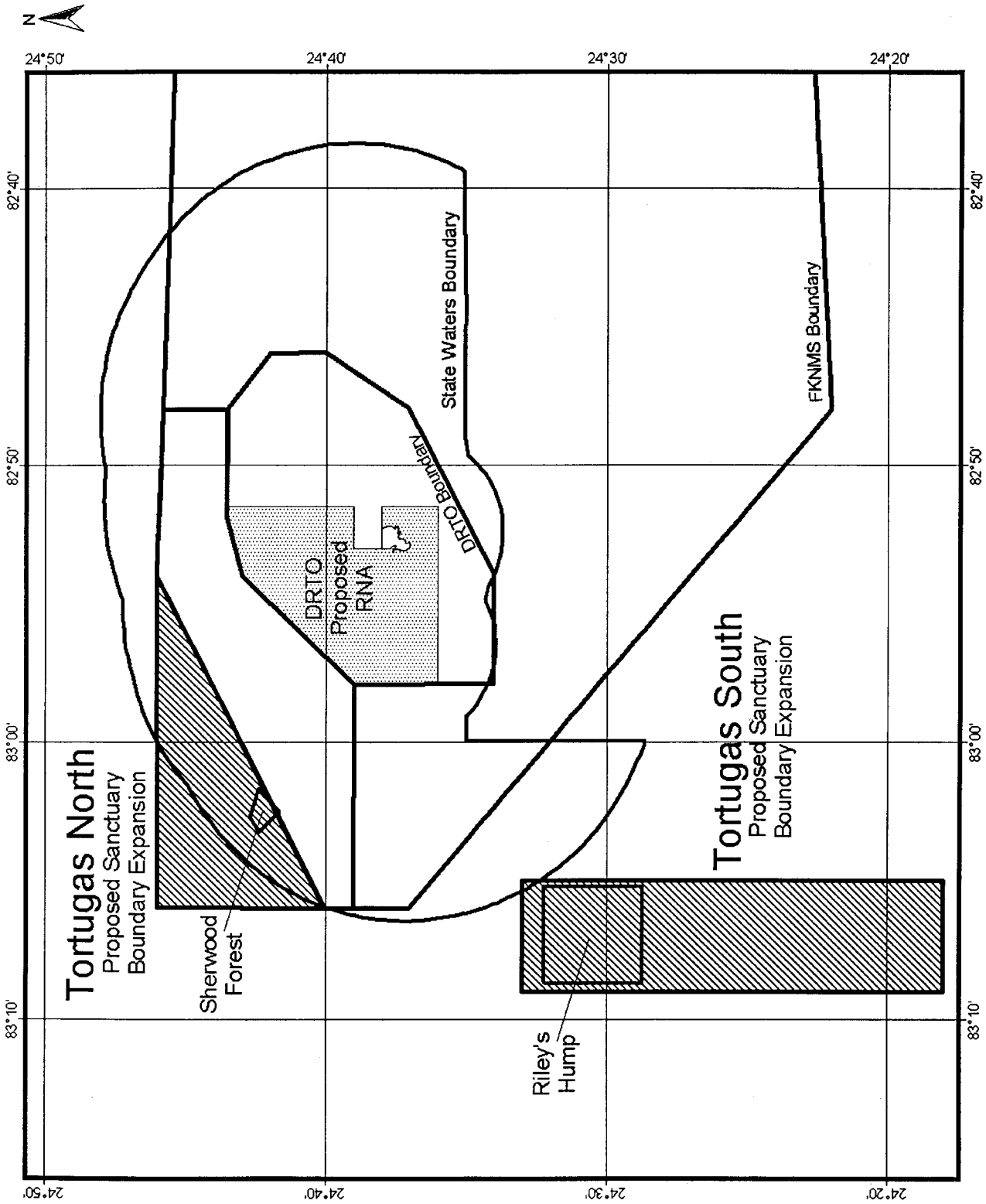

Figure 6. Proposed Sanctuary Boundary Expansion for Boundary Alternatives III and IV (shown in dark gray)

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Development and Description of Regulatory Alternatives

Four alternatives for regulating human activities within the reserve were developed. The regulatory alternatives are independent of the boundary alternatives (*i.e.,* regulatory alternatives can be paired with various boundary alternatives).

The foundation for these alternatives is the current FKNMS Sanctuary-wide regulations (15 CFR part 922, subpart P, in particular, § 922.163) and the additional regulations applicable to ecological reserves (15 CFR 922.164(d)). All of the alternatives begin with this foundation. In summary, the Sanctuary-wide regulations prohibit mineral and hydrocarbon exploration; removal of, injury to, or possession of coral or live rock; alteration of, or construction on, the seabed; discharge or deposit of materials or other matter; operation of vessels in a manner that endangers life, marine resources, or property; diving and snorkeling without flying a diver's down flag; releasing exotic species; damaging or removing markers; moving, removing, injuring, or possessing Sanctuary historical resources; taking or possessing protected wildlife; possessing or using explosives or electrical charges; harvesting or possessing marine life species not in accordance with the Florida Administrative Code; and interfering with law enforcement authorities.

In summary, the ecological reserve regulations prohibit the take or disturbance of any dead or living material; fishing; discharge or deposit of any material except cooling water or engine exhaust; anchoring when a mooring buoy is available or on living or dead coral; and touching living or dead coral. Transit by vessels is allowed provided that all fishing gear is stowed away. Currently, there is one ecological reserve in the Sanctuary (Western Sambo Ecological Reserve).

Other regulatory alternatives considered but rejected were taking no action, or making the entire proposed ecological reserve a no access, research/education-only area. The no-action alternative was rejected because it would not provide sufficient protection to coral reef resources from anchoring and other consumptive activities. Making the entire reserve a no access, research/education-only area appears to unnecessarily restrict non-consumptive activities.

Regulatory Alternative A

• Apply existing Sanctuary-wide and, with minor modifications described below, existing ecological reserve regulations, to Tortugas North and South.

Proposed regulations:

• *Tortugas North:* Apply existing Sanctuary-wide and, with minor modifications described below, existing ecological reserve regulations.

• *Tortugas South:* Apply existing Sanctuary-wide and, with minor modifications described below, existing ecological reserve regulations.

• The existing ecological reserve regulations would be revised at 15 CFR 922.164(d)(1) to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR Parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these Parts).

• *Objective:* To minimize human disturbance in order to restore and maintain ecological integrity including a full assemblage of fishes, coral, and other benthic invertebrates.

Regulatory Alternative B

• Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South (as described in Alternative A).

• Prohibit anchoring in, prohibit mooring by vessels more than 100 ft in length overall (LOA), and control access to Tortugas South via permit and require a call-in prior to entering or when leaving.

Proposed regulations:

• Tortugas North. Same as in Alternative A above.

• Tortugas South. Same as in Alternative A above. In addition, prohibit anchoring, prohibit mooring by vessels more than 100 ft LOA, require a permit to enter the reserve for other than continuous transit, and require permitted vessels to call-in prior to entering or when leaving.

Description of access permit: Permit would be free, no paperwork would be required, and Sanctuary staff would be available year-round to handle requests.

Application: Applicant must call the Key West or Marathon Sanctuary office to request a permit and would have to radio into the Sanctuary staff person at Fort Jefferson (DRTO) prior to entering and upon leaving the reserve.

Required Information:

1. Names, addresses, and telephone numbers of owner, captain, and applicant.
2. Vessel name and home port.
3. USCG documentation number, state license, or boat registration number.
4. Length of vessel and primary propulsion type (*i.e.,*s motor or sail).
5. Number of divers.
6. Requested effective date and duration of permit.

Permit duration: For the time the vessel is in the area, not to exceed two weeks.

Restrictions: Vessels longer than 100 ft LOA cannot use the mooring buoys. Advance reservations no more than one month in advance.

Special Conditions: Doubling-up on mooring buoys would be permissible, leave and return privileges (dive during day, stay at the park overnight) would be allowed within the time period covered by the permit.

Call-in requirement: Permit holders must notify FKNMS staff at Fort Jefferson by radio no less than 30 minutes and no more than six hours before entering the reserve and upon leaving.

Objective: To minimize human disturbance in order to restore and maintain ecological integrity including a full assemblage of fishes, coral, and other benthic invertebrates and to create a reference area for studying human impacts on the ecosystem. This alternative would better protect Tortugas South by prohibiting anchoring and by controlling access (except for continuous transit) by a new type of permit. Prohibiting anchoring would better protect the coral reef resources in Tortugas South because the high cover of coral and the deep water depths make it difficult to anchor without damaging coral. The prohibition on mooring by vessels more than 100 ft LOA would protect the buoys from being ripped off their moorings by vessels exceeding the buoy's mooring capacity. Making Tortugas South a controlled access area would enhance its utility as a reference site for research and would facilitate enforcement of the regulations by giving advance notice to enforcement officers of the presence of a user vessel in this remote area.

Regulatory Alternative C (Preferred Regulatory Alternative)

• Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South (as described in Alternative A).

• Prohibit anchoring in, prohibit mooring by vessels more than 100 ft LOA, and control access to Tortugas North and South via permit and require call-in prior to entering and upon leaving (as described in Alternative B).

Proposed regulations:

• *Tortugas North.* Same as for Tortugas South in Alternative B above.

• *Tortugas South.* Same as for Tortugas South in Alternative B above.

Objective: To minimize human disturbance in order to restore and maintain ecological integrity including a full assemblage of fishes, coral, and other benthic invertebrates and to create a reference area for studying human impacts on the ecosystem. Over Regulatory Alternative B, this alternative provides increased protection to Tortugas North by prohibiting anchoring and by controlling access (except for continuous transit) by access permit. Prohibiting anchoring would better protect the coral reef resources in Tortugas North because of the difficulty of anchoring without damaging coral due to the high cover of coral and the deep water depths. Anchoring by vessels 50 m or greater in length is already prohibited in approximately 19% of Tortugas North. The prohibition on mooring by vessels more than 100 ft LOA would protect the buoys from being ripped off their moorings by vessels exceeding the buoy's mooring capacity. Making Tortugas North a controlled access area would enhance its utility as a reference site for researching and would facilitate enforcement of the regulations by giving advance notice to enforcement officers of the presence of a user vessel in this remote area. The existing ATBA already prohibits vessels 50 m or greater from accessing approximately 23% of Tortugas North.

Regulatory Alternative D

• Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South (as described in Alternative A).

• Prohibit anchoring in, prohibit mooring by vessels more than 100 ft LOA, and control access to Tortugas North via permit and require call-in prior to entering and upon leaving (as described in Alternative B).

• Prohibit anchoring in, prohibit mooring by vessels more than 100 ft LOA, and restrict access to Tortugas South to research or educational activities only.

Proposed regulations:

• *Tortugas North.* Same as in Alternative C above.

• *Tortugas South.* Except for passage without interruption through the area with fishing gear stowed away or for law enforcement purposes, no person could enter Tortugas South except to conduct or cause to be conducted scientific research, or for educational use specifically authorized by and conducted in accordance with the scope, purpose, terms and conditions of a valid National Marine Sanctuary General permit (see 15 CFR 922.166(a)).

Objective: To minimize human disturbance in order to restore and maintain ecological integrity including a full assemblage of fishes, coral, and other benthic invertebrates and to create a reference area for studying human impacts on the ecosystem. Tortugas North would have the same protections as outlined in Regulatory Alternative C above. This alternative provides increased protection to Tortugas South over Alternative C by making it a research/education-only area. Making Tortugas South a research/education-only area would greatly enhance its utility as a reference site for researching and monitoring the effects of human activities on the functioning of a coral reef ecosystem. The prohibition on mooring by vessels more than 100 ft LOA would protect the buoys from being ripped off their moorings by vessels exceeding a buoy's mooring capacity.

The regulations proposed by this action would implement Regulatory Alternative C and would amend 15 CFR 922.161 to expand the boundary of the FKNMS to be consistent with Boundary Alternative III. The revised Sanctuary boundary coordinates would be set forth in Appendix I to part 922 which would also be revised to make minor revisions in the existing boundary to correct errors, provide clarification, and reflect more accurate data and, in the area of Biscayne National Park, to provide a fixed enforceable boundary. Appendix IV to part 922 would be revised to make the area within the coordinates for Boundary Alternative III an ecological reserve, to provide clarification, and to remove no longer needed introductory text. Appendices II, V, VI, and VII would be revised to correct errors, provide clarification, and reflect more accurate data.

The proposed regulations would revise the ecological reserve regulations at 15 CFR 922.164(d)(1) to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these parts); to prohibit anchoring in the Tortugas Ecological Reserve; entering the Tortugas Ecological Reserve without a valid access permit (except for continuous transit, law enforcement purposes, or monitoring); or tying a vessel greater than 100 ft (30.48 meters) LOA to a mooring buoy in the Tortugas Ecological Reserve or tying more than one vessel (other than vessels carried on board a vessel), if the combined lengths would exceed 100 ft (30.48 meters) LOA, to a mooring buoy or to a vessel tied to a mooring buoy in the ecological reserve. The reason for the length restriction is to prevent a buoy from being ripped off its mooring.

Because all anchoring would be prohibited in the northern portion of the Tortugas Bank no-anchoring zone established by 15 CFR 922.164(g), the proposed regulations would revise the zone to be consistent. The existing zone is an area within the Sanctuary boundary where vessels 50 m or greater in LOA are prohibited from anchoring. The northern portion of the zone overlaps the proposed ecological reserve.

The proposed regulations would add a new section to provide for permits for access to the ecological reserve. A person with a valid access permit would be allowed to enter the Tortugas Ecological Reserve. Access permits would not require written applications or the payment of any fee. Access permits would have to be requested at least 72 hours but no longer than one month before the date the permit would be effective. Permits could be requested via telephone or radio by contacting FKNMS at the Sanctuary offices at Key West or Marathon. A permit applicant would be required to provide, as applicable, the following information: vessel name; the names, addresses, and telephone number of the owner, operator and applicant; USCG documentation, state license, or registration number; home port; length of vessel and propulsion type (*i.e.,* motor or sail); number of divers; and the requested effective date and duration of permit (two weeks, maximum). The Sanctuary Superintendent would issue a permit to the owner or to the owner's representative for the vessel when all applicable information has been provided. FKNMS would provide a permit number to the applicant and confirm the effective date and duration period of the permit. Written confirmation of permit issuance would be provided upon request. Permit holders would be required to notify FKNMS staff at the Dry Tortugas National Park office, by telephone or radio, no less than 30 minutes and no more than six hours before entering and upon leaving the Tortugas Ecological Reserve. Permit holders could leave and return to the ecological reserve during the time their permit is effective.

Finally, the proposed regulations would add a new definition to 15 CFR

922.162, to define ''length overall (LOA) or length of a vessel.''

Proposed Revised Designation Document

Because NOAA is proposing to expand the boundary of the Sanctuary, the Designation Document for the Sanctuary needs to be revised to incorporate the new boundary coordinates, to authorize the regulation of entering or leaving specified areas of the Sanctuary, and to make necessary technical and editorial corrections of the Designation Document. The text of the Proposed Revised Designation Document follows:

Proposed Revised Designation Document for the Florida Keys National Marine Sanctuary

Article I. Designation and Effect

On November 16, 1990, the Florida Keys National Marine Sanctuary and Protection Act, Pub. L. 101–605 (16 U.S.C. 1433 note), became law. That Act designated an area of waters and submerged lands, including the living and nonliving resources within those waters future as described therein, as the Florida Keys National Marine Sanctuary (Sanctuary). By this revised Designation Document, the boundary of the Sanctuary is expanded to include important coral reef resources in two areas known as Sherwood Forest and Riley's Hump, just beyond the westernmost portion of the statutory Sanctuary boundary.

Section 304 of the National Marine Sanctuaries Act (NMSA), 16 U.S.C. 1431 *et seq.*, authorizes the Secretary of Commerce to issue such regulations as are necessary and reasonable to implement the designation, including managing and protecting the conservation, recreational, ecological, historical, research, educational and esthetic resources and qualities of a national marine sanctuary. Section 1 of Article IV of this Designation Document lists activities of the type that are presently being regulated or may have to be regulated in the future, in order to protect Sanctuary resources and qualities. Listing in section 1 does not mean that a type of activity will be regulated in the future; however, if a type of activity is not listed, it may not be regulated, except on an emergency basis, unless section 1 is amended following the procedures for designation of a sanctuary set forth in paragraphs (a) and (b) of section 304 of the NMSA, to include the type of activity.

Nothing in this Designation Document is intended to restrict activities that do not cause an adverse effect on the resources, or qualities of the Sanctuary or on Sanctuary property, or that do not pose a threat of harm to users of the Sanctuary.

Article II. Description of the Area

The Florida Keys National Marine Sanctuary boundary encompasses approximately 2900 nm² (9,800 square kilometers) of coastal and ocean waters, and the submerged lands thereunder, surrounding the Florida Keys in Florida. The easternmost point of the Sanctuary is the northeasternmost point of Biscayne National Park and the westernmost point is approximately 15 kilometers to the west of the western boundary of Dry Tortugas National Park, a linear distance of approximately 335 kilometers. The contiguous area boundary on the Atlantic Ocean side of the Florida Keys runs south from Biscayne National Park generally following the 300-foot isobath, curving in a southwesterly direction along the Florida Keys archipelago until south of the Dry Tortugas. The contiguous area boundary on the Gulf of Mexico side of the Florida Keys runs from this southern point in a straight line to the northwest and then when directly west of the Dry Tortugas in a straight line to the north. The boundary then turns to the east and slightly south and follows a straight line to just west of Key West and then turns to the northeast and follows a straight line parallel to the Florida Keys approximately five miles to the south, and then follows the Everglades National Park boundary until Division Point where the boundary then follows the western shore of Manatee Bay, Barnes Sound, and Card Sound. The boundary then follows the southern boundary of Biscayne National Park and up its eastern boundary until its northeasternmost point. Starting just to the east of the most western boundary line of the contiguous portion of the Sanctuary, there is a vertical rectangular shaped area of 60 nm² just to the south.

The shoreward boundary of the Sanctuary is the mean high-water mark except around the Dry Tortugas where it is the boundary of the Dry Tortugas National Park. The Sanctuary boundary encompasses the entire Florida coral reef tract, all of the mangrove islands of the Florida Keys, and some of the sea grass meadows of the Florida Keys. The precise boundary of the Sanctuary is set forth at the end of this Designation Document.

Article III. Characteristics of the Area That Give It Particular Value

The Florida Keys extend approximately 223 miles southwest from the southern tip of the Florida peninsula. Adjacent to the Florida Keys land mass are located spectacular unique, nationally significant marine environments, including sea grass meadows, mangrove islands, and extensive living coral reefs. These marine environments support rich biological communities possessing extensive conservation, recreational, commercial, ecological, historical, research, educational, and aesthetic values which give this area special national significance. These environments are the marine equivalent of tropical rain forests in that they support high levels of biodiversity, are fragile and easily susceptible to damage from human activities, and possess high value to humans if properly conserved. These marine environments are subject to damage and loss of their ecological integrity from a variety of sources of disturbance.

The Florida Keys are a limestone island archipelago. The Keys are located at the southern edge of the Florida Plateau, a large carbonate platform made of a depth of up to 7000 meters of marine sediments, which have been accumulating for 150 million years and which have been structurally modified by subsidence and sea level fluctuation. The Keys region is generally divided into five distinct areas: the Florida reef tract, one of the world's largest coral reef tracts and the only barrier reef in the United States; Florida Bay, described as an active lime-mud factory because of the high carbonate content of its silts and muds; the Southwest Continental Shelf; the Straits of Florida; and the Keys themselves.

The 2.5 million-acre Sanctuary contains one of north America's most diverse assemblages of terrestrial, estuarine, and marine fauna and flora, including, in addition to the Florida reef tract, thousands of patch reefs, one of the world's largest sea grass communities covering 1.4 million acres, mangrove fringed shorelines, mangrove islands, and various hardbottom habitats. These diverse habitats provide shelter and food for thousands of species of marine plants and animals, including more than 50 species of animals identified under Federal or State law, as endangered or threatened. The Keys were at one time a major sea faring center for European and American trade routes to the Caribbean, and the submerged cultural and historic resources (*i.e.,* shipwrecks) abound in the surrounding waters. In addition, the Sanctuary may contain substantial archaeological resources of pre-European cultures.

The uniqueness of the marine environment draws multitudes of

visitors to the Keys. The major industry in the Florida Keys is tourism, including activities related to the Keys' marine resources, such as dive shops, charter fishing and dive boats and marinas, as well as hotels and restaurants. The abundance of the resources also supports a large commercial fishing employment sector.

The number of visitors to the Keys grows each year, with a concomitant increase in the number of residents, homes, jobs, and businesses. As population grows and the Keys accommodate ever-increasing resource-use pressures, the quality and quantity of Sanctuary resources are increasingly threatened. These pressures require coordinated and comprehensive monitoring and researching of the Florida Keys' region.

Article IV. Scope of Regulations

Section 1. Activities Subject to Regulation

The following activities are subject to regulation under the NMSA, either throughout the entire Sanctuary or within identified portions of it or, as indicated, in areas beyond the boundary of the Sanctuary, to the extent necessary and reasonable. Such regulation may include prohibitions to ensure the protection and management of the conservation, recreational, ecological, historical, research, educational, or aesthetic resources and qualities of the area. Because an activity is listed here does not mean that such activity is being or will be regulated. All listing means is that the activity can be regulated, after compliance with all applicable regulatory laws, without going through the designation procedures required by paragraphs (a) and (b) of section 304 of the NMSA, 16 U.S.C. 1434(a) and (b). Further, no regulation issued under the authority of the NMSA except an emergency regulation issued with the approval of the Governor of the State of Florida may take effect in the area of the Sanctuary lying within the seaward boundary of the State of Florida if the Governor of the State of Florida certifies to the Secretary of Commerce that such regulation is unacceptable within the forty-five-day review period specified in NMSA. Detailed definitions and explanations of the following ''activities subject to regulation'' appear in the Sanctuary Management Plan:

1. Exploring for, developing, or producing oil, gas, and/or minerals (*e.g.,* clay, stone, sand, gravel, metalliferous ores, nonmetalliferous ores) in the Sanctuary;

2. Touching, climbing on, taking, removing, moving, collecting, harvesting, injuring, destroying or causing the loss of, or attempting to take, remove, move, collect, harvest, injure, destroy or cause the loss of, coral in the Sanctuary;

3. Drilling into, dredging or otherwise altering the seabed of the Sanctuary, except incidental to allowed fishing and boating practices or construction activities permitted by county, state or federal regulatory agencies; or constructing, placing or abandoning any structure, material or other matter on the seabed of the Sanctuary, except as authorized by appropriate permits or incidental to allowed fishing practices;

4. Discharging or depositing, within or beyond the boundary of the Sanctuary, any material that subsequently enters the Sanctuary and injures a Sanctuary resource or quality;

5. Operating water craft in the Sanctuary

(a) In a manner that could injure coral, hardbottoms, seagrass, mangroves, or any other immobile organism attached to the seabed,

(b) In a manner that could injure or endanger the life of divers, fishermen, boaters or other users of the Sanctuary,

(c) In a manner that could disturb marine mammals, marine reptiles, or bird rookeries;

6. Diving or boating activities in the Sanctuary including anchoring that could harm Sanctuary resources, Sanctuary property, or other users of the Sanctuary;

7. Stocking within the Sanctuary or releasing within the Sanctuary or from beyond the boundary of the Sanctuary, native or exotic species of plant, invertebrate, fish, amphibian or mammals;

8. Defacing, marking, or damaging in any way or displacing, removing, or tampering with any markers, signs, notices, placards, navigational aids, monuments, stakes, posts, mooring buoys, boundary buoys, trap buoys, or scientific equipment in the Sanctuary;

9. Removal, injury, preservation, curation, and management of historic resources within the Sanctuary without the appropriate state and/or federal permits;

10. 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 marine mammal, marine reptile, or bird within the Sanctuary, without the appropriate state and/or federal permits;

11. Possessing, moving, harvesting, removing, taking, damaging, disturbing, breaking, cutting, spearing, or otherwise injuring any marine invertebrate, fish, bottom formation, algae, seagrass or other living or dead organism, including shells, or attempting any of these activities in any area of the Sanctuary designated as an Existing Management Area, Wildlife Management Area, Ecological Reserve, Sanctuary Preservation Area, or Special-Use Area;

12. The carrying and possessing of specified fishing gear in any area of the Sanctuary designated as an Existing Management Area, Wildlife Management Area, Ecological Reserve, Sanctuary Preservation Area, or Special-Use Area except for passage without interruption through;

13. Entering or leaving any Wildlife Management Area, Ecological Reserve, Sanctuary Preservation Area, or Special-Use Area except for passage without interruption through or for law enforcement purposes;

14. Harvest of marine life as defined and regulated by the State of Florida under its marinelife rule;

15. Mariculture;

16. Possessing or using explosives or releasing electrical charges or substances poisonous or toxic to fish and other living marine resources within the Sanctuary or beyond the boundary of the Sanctuary (possession of ammunition shall not be considered possession of explosives);

17. Removal and disposal of lost, out-of-season, or illegal gear discovered within the Sanctuary; removal of vessels grounded, lodged, stuck or otherwise perched on coral reefs, hardbottom, or seagrasses within the Sanctuary; and removal and disposal of derelict or abandoned vessels or other vessels within the Sanctuary for which ownership cannot be determined or for which the owner takes no action for removal or disposal; and salvaging and towing of vessels abandoned or disabled within the Sanctuary vessels or of vessels within the Sanctuary otherwise needing salvaging or towing; and

18. Interfering with, obstructing, delaying or preventing an investigation, search, seizure or deposition of seized property in connection with enforcement of the NMSA or any regulation or permit issued under the NMSA.

Section 2. Emergency Regulation

Where necessary to prevent or minimize the destruction of, loss of, or injury to a Sanctuary resource or quality; or to minimize the imminent risk of such destruction, loss or injury, any activity, including any not listed in Section 1 of this article, is subject to immediate temporary regulation,

including prohibition. However, no such regulation may take effect in any area of the Sanctuary lying within the seaward boundary of the State of Florida without the approval of the Governor of the State of Florida.

Article V. Effect on Leases, Permits, Licenses, and Rights

Pursuant to paragraph (c)(1) of section 304 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 a designation, or as a result of any sanctuary regulation, if such authorization or right was in effect on the effective date of the designation (November 16, 1990 with respect to the statutory Sanctuary boundary; , 2000 with respect to the expansion area made by this revision to the designation document).

In no event may the Secretary of Commerce or his or her designee issue a permit authorizing, or otherwise approving: (1) The exploration for, development of, or production of oil, gas, or minerals within the Sanctuary; or (2) The disposal of dredged materials within the Sanctuary (except by certification in accordance with applicable National Marine Sanctuary Program regulations of valid authorizations in existence on the effective date of Sanctuary designation). Any purported authorizations issued by other authorities after the effective date of Sanctuary designation for any of these activities within the Sanctuary shall be invalid.

Article VI. Alteration of This Designation

The terms of designation, as defined in paragraph (a) of section 304 of the NMSA, 16 U.S.C. 1434(a), may be modified only by the procedures outlined in paragraphs (a) and (b) of section 304 of the NMSA, 16 U.S.C. 1434(a) and (b), including public hearings, consultation with interested federal, state, and local government agencies, review by the appropriate Congressional committees, review by the Governor of the State of Florida, and approval by the Secretary of Commerce, or his or her designee. No designation, term of designation, or implementing regulation may take effect in the area of the Sanctuary lying within the seaward boundary of the State of Florida if the Governor of the State of Florida certifies to the Secretary of Commerce that such designation or term of designation regulation is unacceptable within the forty-five-day review period specified in NMSA.

Florida Keys National Marine Sanctuary Boundary Coordinates (Based on North American Datum of 1983)

The boundary of the Florida Keys National Marine Sanctuary—

(a) Begins at the northeasternmost point of Biscayne National Park located at a point approximately 25 degrees 39 minutes north latitude, 80 degrees 05 minutes west longitude, then runs eastward to the point located at 25 degrees 39 minutes north latitude, 80 degrees 04 minutes west longitude; and

(b) Then runs southward and connects in succession the points at the following coordinates:

(i) 25 degrees 34 minutes north latitude, 80 degrees 04 minutes west longitude,

(ii) 25 degrees 28 minutes north latitude, 80 degrees 05 minutes west longitude,

(iii) 25 degrees 21 minutes north latitude, 80 degrees 07 minutes west longitude, and

(iv) 25 degrees 16 minutes north latitude, 80 degrees 08 minutes west longitude;

(c) Then runs southwesterly and connects in succession the points at the following coordinates:

(i) 25 degrees 07 minutes north latitude, 80 degrees 13 minutes west longitude,

(ii) 24 degrees 57 minutes north latitude, 80 degrees 21 minutes west longitude,

(iii) 24 degrees 39 minutes north latitude, 80 degrees 52 minutes west longitude,

(iv) 24 degrees 30 minutes north latitude, 81 degrees 23 minutes west longitude,

(v) 24 degrees 25 minutes north latitude, 81 degrees 50 minutes west longitude,

(vi) 24 degrees 22 minutes north latitude, 82 degrees 48 minutes west longitude,

(vii) 24 degrees 37 minutes north latitude, 83 degrees 06 minutes west longitude,

(viii) 24 degrees 46 minutes north latitude, 83 degrees 06 minutes west longitude,

(ix) 24 degrees 46 minutes north latitude, 82 degrees 54 minutes west longitude,

(x) 24 degrees 44 minutes north latitude, 81 degrees 55 minutes west longitude,

(xi) 24 degrees 51 minutes north latitude, 81 degrees 26 minutes west longitude, and

(xii) 24 degrees 55 minutes north latitude, 80 degrees 56 minutes west longitude;

(d) Then follows the boundary of Everglades National Park in a southerly then northeasterly direction through Florida Bay, Buttonwood Sound, Tarpon Basin, and Blackwater Sound;

(e) After Division Point, then departs from the boundary of Everglades National Park and follows the western shoreline of Manatee Bay, Barnes Sound, and Card Sound;

(f) Then follows the southern boundary of Biscayne National Park to the southeasternmost point of Biscayne National Park; and

(g) Then follows the eastern boundary of Biscayne National Park to the beginning point specified in paragraph (a).

The shoreward boundary of the Florida Keys National Marine Sanctuary is the mean high-water mark except around the Dry Tortugas where the boundary is conterminous with that of the Dry Tortugas National Park, formed by connecting in succession the points at the following coordinates:

(i) 24 degrees 34 minutes 0 seconds north latitude, 82 degrees 54 minutes 0 seconds west longitude;

(ii) 24 degrees 34 minutes 0 seconds north latitude, 82 degrees 58 minutes 0 seconds west longitude;

(iii) 24 degrees 39 minutes 0 seconds north latitude, 82 degrees 58 minutes 0 seconds west longitude;

(iv) 24 degrees 43 minutes 0 seconds north latitude, 82 degrees 54 minutes 0 seconds west longitude;

(v) 24 degrees 43 minutes 32 seconds north latitude, 82 degrees 52 minutes 0 seconds west longitude;

(vi) 24 degrees 43 minutes 32 seconds north latitude, 82 degrees 48 minutes 0 seconds west longitude;

(vii) 24 degrees 42 minutes 0 seconds north latitude, 82 degrees 46 minutes 0 seconds west longitude;

(viii) 24 degrees 40 minutes 0 seconds north latitude, 82 degrees 46 minutes 0 seconds west longitude;

(ix) 24 degrees 37 minutes 0 seconds north latitude, 82 degrees 48 minutes 0 seconds west longitude; and

(x) 24 degrees 34 minutes 0 seconds north latitude, 82 degrees 54 minutes 0 seconds west longitude.

The Florida Keys National Marine Sanctuary also includes the area located within the boundary formed by connecting in succession the points at the following coordinates;

(i) 24 degrees 33 minutes north latitude, 83 degrees 09 minutes west longitude,

(ii) 24 degrees 33 minutes north latitude, 83 degrees 05 minutes west longitude,

(iii) 24 degrees 18 minutes north latitude, 83 degrees 05 minutes west longitude,

(iv) 24 degrees 18 minutes north latitude, 83 degrees 09 minutes west longitude, and

(v) 24 degrees 33 minutes north latitude, 83 degrees 09 minute west longitude.

End of Proposed Revised Designation Document.

Summary of Draft Supplemental Management Plan

The draft supplemental management plan complements the existing Management Plan in several respects.

A supplement to the Administrative Action Plan targets the development of a memorandum of understanding to clearly define the roles and responsibilities if the various agencies responsible for resource management in the Tortugas region. The MOU would cover, at a minimum, the following activities: cooperative enforcement, research, and sharing of facilities. Management of the Tortugas Ecological Reserve would necessitate a high degree of coordination and cooperation between the affected agencies particularly the FKNMS and the NPS. Both agencies have similar missions and responsibilities. Consequently, cooperation would not only save money but would also improve resource protection. The NPS has a variety of assets, such as land, housing and dockage, that, under a workable agreement, could potentially be used to support management of the ecological reserve. An agreement on the use of these lands and facilities would be pursued by the FKNMS and NPS.

The State of Florida is the co-trustee for a significant portion of the waters and marine resources within the proposed reserve and would co-manage them with the FKNMS.

The NMFS has responsibility for regulating the fisheries in the federal waters of the reserve. NMFS has considerable expertise and some assets that could be utilized in managing the reserve, particularly in the areas of research and monitoring.

NOAA's Office of Law Enforcement also has responsibility for enforcing fishing and Sanctuary regulations and has assets and technology that could potentially be used for enforcement.

The U.S. Coast Guard has responsibility for enforcing federal laws within U.S. waters. It has several large offshore patrol vessels based in Key West that could be used in conjunction with Sanctuary patrol vessels for enforcement of the Sanctuary regulations within the reserve areas.

A supplement to the Education and Outreach Action Plan would facilitate the production of a documentary video or film on the development and environmental qualities and characteristics of the ecological reserve. In addition, the supplement to the Plan would develop a visitor's center in Key West to interpret the marine environment and resources of the reserve and the Tortugas region for the visiting public.

A supplement to the Enforcement Action Plan would be the hiring of additional enforcement officers to patrol the reserve; the installation, operation and maintenance of surveillance radar; the purchase and installation of housing for Sanctuary staff at Fort Jefferson; and the purchase, operation and maintenance of an offshore patrol vessel.

A supplement to the Mooring and Boundary Buoy Action Plan would be the installation and maintenance of mooring buoys in Tortugas North and South and boundary buoys in Tortugas North.

A supplement to the Regulatory Action Plan would be the issuance of final regulations to implement the boundary expansion and the establishment of the reserve. The supplement would call for extensive coordination with the State of Florida, the Gulf of Mexico Fishery Management Council, and NMFS to ensure that all approvals and required regulations are obtained and in place. A collateral aspect to the issuance of regulations would be publication on NOAA nautical charts of the new boundaries for the Sanctuary and the reserve.

A supplement to the Research and Monitoring Action Plan would be the hiring of additional support staff; the design and implementation of long-term ecological monitoring; the undertaking of a feasibility study in conjunction with the NPS on reestablishing the Dry Tortugas Marine Laboratory; establishment of a wireless data transfer capability using the existing two-way radio network; establishment of the Tortugas as a long-term ocean ecosystem observatory with continuous, automated collection of key physical and biological parameters; and the design and implementation of a non-use valuation study of the national significance of the coral reef resources in the Tortugas region.

Miscellaneous Rulemaking Requirements

Marine Protection, Research, and Sanctuaries Act

Paragraph (a)(4) of section 304 the NMSA, 16 U.S.C. 1434(a)(4), requires that the procedures specified in section 304 for designating a National Marine Sanctuary be followed for modifying any term of designation. Because this action would revise the Sanctuary boundary to include an additional 96 square nautical miles, it would revise the boundary terms of designation thus triggering the requirements of section 304. In particular, section 304 requires that the Secretary of Commerce to submit to the Committee on Resources of the United States House of Representatives and the Committee on Commerce, Science, and Transportation of the United States Senate, on the same day as this notice is published, a prospectus on the proposal, which must contain, among other things, the terms of the proposed designation, the proposed regulations, a draft management plan detailing the proposed goals and objectives, management responsibilities, research activities for the area, and a draft environmental impact statement. In accordance with section 304, the required prospectus is being submitted to the specified Congressional Committees.

Executive Order 12866

This action has been determined to be significant for purposes of E.O. 12866. That Order requires a draft text of the regulations to be proposed, a reasonably detailed description of the need for the action, an explanation of how the action will meet that need, and an assessment of the potential costs and benefits, including an explanation of the manner in which the action is consistent with statutory mandates, and, to the extent permitted by law, promotes the President's priorities and avoids undue interference with State, local, and tribal governments in the exercise of their governmental functions (referred to as a Regulatory Impact Review (RIR). In accordance with the requirements of the Executive Order, NOAA has prepared an RIR for this action. The RIR is contained in part V of the DSEIS/SMP. NOAA will announce shortly the public availability of the DSEIS/SMP.

Regulatory Flexibility Act

In accordance with the requirements of section 603(a) of the Regulatory Flexibility Act (5 U.S.C. 603(a)), NOAA has prepared an initial regulatory flexibility analysis (IRFA) describing the

impact of this proposed action on small entities. Section 603(b) (5 U.S.C. 603(b)) requires that each IRFA contain a description of the reasons why the action is being considered, a succinct statement of the objectives of, and legal basis for, the action, a description of and, where feasible, an estimate of the number of small entities to which the proposed action will apply, a description of the projected reporting, recordkeeping and other compliance requirements of the proposed action, including an estimate of the classes of small entities which would be subject to the requirement and the type of professional skills necessary for preparation of the report or record, and an identification, to the extent practicable, of all relevant Federal rules which may duplicate, overlap or conflict with the proposed action. In addition, section 603(c) (5 U.S.C. 603(c)) requires that each IRFA contain a description of any significant alternatives to the proposed action which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed action on small entities. The complete IRFA is contained in Parts I, IV, and V of the DSEIS/SMP.

The following is a summary of the IRFA:

Statement of Need and Why Regulatory Action is being Considered

As previously set forth in this regulatory preamble.

Goals, Objectives, and Legal Basis

As previously set forth in this regulatory preamble.

Description of the Projected Reporting, Recordkeeping and Other Compliance Requirements.

The only record keeping or reporting requirements are the permit and call-in, call-out requirements for the reserve previously described in the Preamble under proposed regulations. There are two classes of users that would be affected by these proposed requirements: commercial dive boat operators and private boaters. The type of skills necessary to request an access permit and to provide notification when entering or leaving the proposed ecological reserve would be use of marine radio equipment.

Relevant Federal Rules Which May Duplicate, Overlap or Conflict With the Proposed Action.

The GMFMC is amending the GMFMP to prohibit fishing in the areas of Tortugas North and South that are beyond State of Florida waters in the Exclusive Economic Zone. NMFS would implement these amendments by issuing a no-fishing rule for those areas. Also, NMFS is amending the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks and its implementing regulations to be consistent with the no-take status of the proposed reserve.

The State of Florida is drafting fishing regulations to prohibit fishing in those portions of Tortugas North that lie within State waters. Sanctuary regulations implementing the reserve would not become effective in State waters until approved by the State of Florida. These actions in conjunction with the Sanctuary rule on no-take would ensure comprehensive protection for the coral reef resources and to facilitate user awareness and compliance with the rules.

Description and Estimate of the Number of Small Entities to Which the Proposed Rule Would Apply.

It is estimated that there are up to 64 commercial fishers and 10 recreational charter vessel (fishing and/or diving) operators who could be affected by the proposed rule. All of these are considered small entities for purposes of the Regulatory Flexibility Act.

Description of Any Significant Alternatives to the Proposed Action Which Accomplish the Stated Objectives of Applicable Statutes and Which Minimize any Significant Economic Impact of the Proposed Action on Small Entities

Approach to the Analysis of Alternatives.

The analysis of the alternatives focuses on market economic impacts as measured by direct revenue, costs and profits of the business firms directly affected by the ''no-take'' regulations. These impacts are then translated into the secondary or multiplier impacts on the local economy. For the recreational industry, the impact area is defined as Monroe County, Florida and, for the commercial fisheries the impact areas are Monroe County and Lee/Collier counties. For the commercial fisheries, the results presented here are an aggregation of the impacts on both Monroe and Lee/Collier counties. The market economic impacts include estimates of output/sales, income and employment.

The approach begins by first analyzing the ''no-take'' regulation for each boundary alternative.

Analyses are presented for the recreation industry (broken down into consumptive and nonconsumptive), the commercial fisheries, commercial shipping, treasure salvors and then other benefits (nonusers, scientific and education values). The other regulations are then analyzed. These include the no anchoring regulation, access restrictions, and sanctuary-wide regulations (for boundary alternatives that include areas outside current Sanctuary boundary). For most of the sanctuary-wide regulations, there is no additional or incremental impact over the ''no-take'' regulation.

For the recreation industry and the commercial fishing industry, the impacts first are estimated by assuming a complete loss for any activity displaced. This is done by adding up all the activities within the geographic area defined by an ecological reserve boundary (*i.e.*, the no-take area) and applying the appropriate economic parameters. Next, a qualitative approach is used to assess whether the results from step 1 are likely to occur. Mitigating and offsetting factors are taken into account. With respect to the recreational industry sector, consumptive recreation is separated from non-consumptive recreation since consumptive recreation activities are displaced from the ''no-take'' areas and may potentially be negatively impacted, while non-consumptive activities would be beneficiaries of the ''no-take'' areas. With respect to the commercial fisheries, all would be displaced from the ''no-take'' areas and, potentially, would be negatively impacted in the short term. Over the long term, creation of the ecological reserve is expected to generate replenishment effects to the fisheries. Over the longer term, there would be long-term benefits even to commercial reef fishermen and related dependent businesses. The analysis assumes that all entities impacted are small entities within the meaning of the Regulatory Flexibility Act.

Definition of the Study Areas. For purposes of the analyses presented in this report, there are five basic study areas. The first is a 1,020 nm^2 area called the TERSA (see Fig.1). This was the area selected by the FKNMS for analyzing different alternatives for the proposed Tortugas Ecological Reserve. All socioeconomic information was collected and organized in the TERSA at geographical resolution of one nm^2. Detailed descriptions of the data are included for the recreation industry and for the commercial fisheries.

Boundary Alternatives

As described earlier in this Preamble.

No-take Regulations

Recreation Industry

Boundary Analysis

The interpretation of the estimates provided in this analysis is critical to understanding the ''true'' impact of the various alternatives proposed for the Tortugas Ecological Reserve. The estimates from the geographic information system (GIS) analysis for the different boundary alternatives are simply the sum of each measurement within the boundaries for a given alternative. The estimates therefore represent the maximum total potential loss from displacement of the consumptive recreational activities. This analysis ignores possible mitigating factors and the possibility of net benefits that might be derived if the proposed ecological reserve has replenishment effects. Although the extent of the mitigating factors or the potential benefits from replenishment are unknown, this analysis discusses these as well as other potential benefits of the proposed ecological reserve after the maximum potential losses from displacement of the current consumptive recreational uses are presented and discussed.

There are two types of potential losses identified and quantified in the analysis—non-market economic values and market economic values.

Non-Market Economic Values. There are two types of non-market economic values. The first is consumer's surplus, which is the amount of economic value a consumer receives by consuming a good or service over and above what he or she pays for the good or service. It is a net benefit to the consumer and in the context of recreation use of natural resources, where the natural resources go unpriced in markets, this value is often referred to as the net user value of the natural resource. The second type of non-market economic value is one received by producers or owners of the businesses providing goods or services to the users of the natural resources. This is commonly referred to as producer's surplus. The concept is similar to consumer's surplus in that the businesses do not pay a price for the use of natural resources when providing goods or services to users of the resources. However, this concept is a little more complicated because, in ''welfare economics,'' not all producers' surplus is considered a proper indicator in the improvement of welfare. Only that portion of producer's surplus called ''economic rent'' is appropriate for inclusion. Economic rent is the amount of profit a business receives over and above a normal return on investment (*i.e.*, the amount of return on investment that could be earned by switching to some alternative activity). Again, because businesses that depend on natural resources in the Tortugas do not have to pay for the use of them, there exists the possibility of earning above normal rates of return on investment or ''economic rent.'' This like consumer's surplus, would be additional economic value attributable to the natural resources (*i.e.*, another user value).

Economic rents are different from consumer's surplus in that supply and demand conditions are often likely to lead to dissipation of the economic rents. This is generally true for most open access situations. As new firms enter the industry because of the lure of higher than normal returns on investment, the net effect is to eliminate most if not all of the economic rent. However, given the remoteness of the TERSA, it is likely that all economic rents would not be eliminated. Accounting profits are used as a proxy for economic rents in the analysis. The absolute levels of accounting profits are not a good proxy for economic rents, however, they are used here as an index for assessing the relative impacts across the different boundary alternatives.

The estimates for consumer's surplus were derived by combining estimates of person-days from all the operators in the TERSA with estimates of consumer's surplus per person-day. The estimates were derived separately by season.

Market Economic Values. Revenues from the charter boat operations that provided service to the consumptive recreational users provide the basis for this portion of the analysis. Total output/sales, income and employment impacts on the Monroe County economy are then derived from these estimates. These impacts include the ripple or multiplier impacts. Total output/sales is equal to business revenue times the total-output multiplier of 1.12. Income was then derived by taking the total output/sales impact and dividing by the total output-to-income ratio (2.63). Total employment was derived by dividing the total income impact by the total income-to-employment ratio ($23,160).

Boundary Alternative I: No Action

The no-action alternative simply means that the proposed Tortugas Ecological Reserve would not be established and the corresponding no-take regulations would not be issued. The no-action alternative has a simple interpretation in that any costs of imposing the no-take regulations, for any given alternative with no-take regulations, would be the benefits of the no-action alternative. That is, by not adopting the no-take regulations, the costs are avoided. Similarly, any benefits from imposing the no-take regulations, for any given alternative with no-take regulations, would be the costs of the no action alternative. That is, by not adopting the no-take regulations, the costs are the benefits lost by not adopting the no-take regulations. Said another way, the opportunities lost. The impacts of the no-action alternative can only be understood by comparing them to the impacts of one of the alternatives.

Boundary Alternative II (See Fig. 2)

Non-Market Economic Values. This alternative would displace more than 26% of the total person-days of diving for lobsters, about 26% of the spearfishing, and just more than 2% of the fishing. Across all three consumptive recreational activities just less than 6% of the person-days would be displaced. This alternative is entirely within the existing Sanctuary boundary. Because of the way in which consumer's surpluses are calculated, they generally mirror the patterns in displaced use. Minor differences would be due to the distributions across activities by season. Only in the case of diving for lobsters are the impacts on person-days and profits equal. For spearfishing, the impacts on profits are lower than the affect on person-days (18.7% versus 25.9%), while for fishing the affect is greater on profits than on person-days (6.5% versus 1.2%). The GIS-generated maps show why diving for lobsters and spearfishing is relatively more affected than fishing. The reason is that diving for lobsters and spearfishing are concentrated on Tortugas Bank, while relatively little fishing currently takes place on the Tortugas Bank.

Market Economic Values. Presently, there are 12 charter boats operating within the TERSA, nine of which would be potentially affected by this alternative. Direct business revenue would include potential losses of 26.6% for diving for lobsters, 20% for spearfishing, and 3% for fishing. Across all three consumptive recreational activities, 9.5% of revenue would be potentially affected. Through the ripple or multiplier effects, 9.5% of output/sales, income and employment associated with all the consumptive recreational activities in the TERSA could potentially be lost. Although these costs could have an affect on the nine firms operating in the TERSA, the affect would not likely be noticed in the Monroe County economy because the affect would amount to only a fraction of a percent of the total economy

supported by recreating visitors to the Florida Keys.

Boundary Alternative III (Preferred Boundary Alternative—See Fig. 3)

Non-Market Economic Values. Because the portion of this alternative that is within the FKNMS boundary is exactly the same as Alternative II, the analysis for that portion of this alternative is exactly the same. The entire alternative would displace more than 26% of the total person-days of diving for lobsters, about 26% of the spearfishing, and just more than 3% of the fishing. Across all three consumptive recreational activities more than 7% of the person-days would be displaced. For fishing, 40% of the displaced activity would be from within the FKNMS boundary. Consumer's surpluses generally mirror patterns of displaced use. Again, minor differences would be due to the distributions across activities by season. Only in the case of diving for lobsters are the effects on person-days and profits equal. For spearfishing, the effect on profits is lower than the affect on person-days (18.7% versus 25.9%), while for fishing the effect is greater on profits than on person-days (10.2% versus 3.0%).

Market Economic Values. Nine of the twelve charter boats operating within the TERSA would be potentially affected by this alternative. Direct business revenue would include potential losses of 26.6% for diving for lobsters, 20.0% for spearfishing, and 6.3% for fishing. Across all three consumptive recreational activities, 11.7% of revenue would be potentially affected. Through the ripple or multiplier effects, 11.7% of output/sales, income and employment associated with all the consumptive recreational activities in the TERSA could potentially be lost. Although these costs could have an affect on the nine firms operating in the TERSA, the affect would not likely be noticed in the Monroe County economy because the affect would amount to only a fraction of a percent of the total economy supported by recreating visitors to the Florida Keys.

Boundary Alternative IV (See Fig. 4)

Non-Market Economic Values. This alternative would displace more than 73% of the total person-days of diving for lobsters, just less than 72% of the spearfishing, and more than 6% of the fishing. Across all three consumptive recreational activities more than 18% of the person-days would be displaced. All the diving for lobsters and spearfishing activity displaced would be from within the FKNMS boundary. For fishing, 71% of the displaced activity would be from within the FKNMS boundary. Similarly to the other alternatives, consumer's surpluses mirror the patterns in displaced use because of the way in which they are calculated. Minor differences would be due to the distributions across activities by season. Again, profits are only equal to the affect on person-days for diving for lobsters. For spearfishing, the effect on profits is lower than the affect on person-days (56.2% versus 71.7%), while for fishing the affect is greater on profits than on person-days (17.6% versus 6.3%).

Market Economic Values. Ten of the twelve charter boats operating within the TERSA would be potentially affected by this alternative. Direct business revenue would include potential losses of 73.4% for diving for lobsters, 59.0% for spearfishing, and 10.5% for fishing. Across all three consumptive recreational activities, 28.7% of revenue would be potentially affected. Through the ripple or multiplier effects, 28.7% of output/sales, income and employment associated with all the consumptive recreational activities in the TERSA could potentially be lost. Although these impacts could have significant affect on the ten firms operating in the TERSA, the affect would not likely be noticed in the Monroe County economy because the affect would amount to only a fraction of a percent of the total economy supported by recreating visitors to the Florida Keys.

Boundary Alternative V (See Fig. 5)

Non-Market Economic Values. This alternative would displace more than 86% of the total person-days of diving for lobsters, more than 84% of the spearfishing, and more than 7% of the fishing. Across all three consumptive recreational activities more than 21% of the person-days would be displaced. For diving for lobsters 85% of the displaced activity would be from within the FKNMS boundary, 59% of the fishing, and 85% of the spearfishing. Because of the way in which consumer's surpluses are calculated, they generally mirror the patterns in displaced use. Minor differences would be due to the distributions across activities by season. Profits are only equal to the affect on person-days for diving for lobsters. For spearfishing, the effects on profits are lower than the affect on person-days (65.5% versus 84.7%), while for fishing the affect is greater on profits than on person-days (21.9% versus 7.6%).

Market Economic Values. Eleven of the twelve charter boats operating within the TERSA would be potentially affected by this alternative. Direct business revenue would include potential losses of 86.7% for diving for lobsters, 69.0% for spearfishing, and 12.9% for fishing. Across all three consumptive recreational activities, 34.1% of revenue would be potentially affected. Through the ripple or multiplier effects, 34.1% of output/sales, income and employment associated with all the consumptive recreational activities in the TERSA could potentially be lost. Although these effects could have significant affect on the ten firms operating in the TERSA, the affect would not likely be noticed in the Monroe County economy because the affect would amount to only a fraction of a percent of the total economy supported by recreating visitors to the Florida Keys.

Mitigating Factors—Are the Potential Losses Likely? In the above GIS-based analysis, effects are referred to as ''potential losses.'' The reason is that there are several factors that could mitigate these potential losses and further there is a possibility that there might not be any losses at all. It is quite possible that there might be actual benefits to even the current displaced users. These factors are referred to only in qualitative terms because it is not possible to quantify them. Below two possible mitigating factors, how likely they might mitigate the potential losses from displacement, and further how this might differ for each of the three alternatives are discussed.

Substitution. If displaced users are simply able to relocate their activities, they may be able to fully or partially mitigate their losses. This of course depends on the availability of substitute sites and further depends on the substitute site qualities. Several scenarios are possible. Even when total activity remains constant (*i.e.,* person-days remain the same as they simply go to other sites), if the quality of the site is lower there could be some loss in consumer's surplus. If it costs more to get to the substitute sites, there could still be increases in costs and thus lower profits. If there is not a completely adequate supply of substitute sites, then there could be losses in total activity and in all the non-market and market economic measures referenced in our above analysis of displaced use. The possibilities for substitution vary by alternative.

Long-term benefits from Replenishment Effects. Ecological reserves or marine reserves may have beneficial effects beyond the direct ecological protection for the sites themselves. That is, both the size and

number of fish, lobster and other invertebrates both inside and outside the reserves may increase. Five spawning areas have been identified in the western portion of the TERSA. The long-term benefits from the reserve could offset any losses from displacement and may also result in long-term benefits and no costs to recreational users that would be displaced by the proposed Tortugas Ecological Reserve. Again, this conclusion may still vary by alternative.

Boundary Alternative II

Substitution. Complete mitigation by substituting to alternative sites has a high probability for this alternative because over half of the Tortugas Bank would still be available for all consumptive recreation activities. Given the equal distribution of use for diving for lobsters and spearfishing on the Tortugas Bank, it is not likely that increased costs of relocation would occur or that there would be losses from users forced to go to sites of lower quality. Crowding effects, by pushing all the use currently spread over the whole Tortugas Bank onto half the bank, would also be unlikely given the small absolute amounts of activity. For fishing, only 1% of the activity would be displaced, so for this activity we would also expect there would be no crowding effects and recreational fishermen would not likely suffer any losses.

Long-term Benefits from Replenishment Effects. One spawning area has been identified in the Alternative II boundary area. As previously described, Alternative II is the portion of the preferred alternative (Alternative III) that lies within the existing Sanctuary boundary. Therefore the long-term benefits to stocks derived from the portion of the preferred alternative that lies outside of the existing Sanctuary boundary would not be realized. This alternative is the smallest one analyzed and so the potential long-term benefits to stocks outside the protected area would be smaller than for the other alternatives. However, the displaced activity to be mitigated is also much smaller and thus on net there is a high likelihood that there would be long-term benefits to all the consumptive recreational users in the TERSA.

Boundary Alternative III (Preferred Boundary Alternative)

Substitution. As with Alternative II, complete mitigation by substituting to alternative sites has a high probability for this alternative because of the small proportion of the Tortugas Bank included in the alternative. Given the equal distribution of use for diving for lobsters and spearfishing on the Tortugas Bank, it is not likely that increased costs of relocation would occur or that there would be losses from users forced to go to sites of lower quality. Crowding effects, again, would be unlikely given the small absolute amounts of activity. For fishing, only 3% of the activity would be displaced, so recreational fishermen would not likely suffer any losses.

Long-term Benefits from Replenishment Effects. Three spawning areas have been identified in the Alternative III boundary area. Because this alternative includes areas outside the existing sanctuary boundary, the potential long-term benefits to stocks outside the protected area would be comparatively larger than it would be for Alternative II. The mitigating effort required on the part of operators in the boundary alternative also would be comparatively larger, but as mentioned above, because of the small percentage of the active recreational area included in the alternative, the effect is likely to be very small. Therefore, there is a high likelihood that there would be long-term benefits to all the consumptive recreational users in the TERSA.

Boundary Alternative IV

Substitution. Under this alternative, about 73% of the diving for lobsters and 72% of the spearfishing would be displaced. The potential for substituting to other sites is greatly reduced as compared with Alternatives II and III. The reason is that all of the Tortugas Bank lies within this boundary alternative. Some substitution is possible, but the probability of crowding effects rises considerably for diving for lobsters and spearfishing.

For fishing, substitution mitigating all the losses is still highly probable since only about 6% of the fishing activity would be displaced. This represents a relatively low amount of activity and given the wide distribution of this activity in the study area, crowding effects are still a low probability under this alternative.

Long-term Benefits from Replenishment Effects. Four spawning sites have been identified within the Alternative IV boundary area. For diving for lobsters and spearfishing, it is not clear whether there would be significant benefits offsite given that most of this activity currently takes place on the Tortugas Bank and none of the bank available for the activity. Not much is currently known about other areas which might benefit from the stock effect and where they could relocate to reap these benefits. Whether the activities displaced could find alternative sites where both the quantity and quality of activity could be maintained or enhanced seems less likely given the extent of displacement.

For fishing, however, the small amount of displacement relative to the entire area plus the wider distribution of fishing activity still makes it highly likely that the long-term benefits of replenishment would more than offset the potential losses from displacement resulting in net benefits to this group.

Boundary Alternative V

Substitution. This alternative displaces about 87% of the diving for lobsters and 85% of the spearfishing. Substitution possibilities for these activities are reduced even more, meaning that losses given are more likely to actually occur.

For fishing, mitigating all the losses through substitution is still highly probable since only about 8% of the fishing activity would be displaced. This again, represents a relatively low amount of activity and given the wide distribution of this activity in the study area, crowding effects are still a low probability under this alternative.

Long-term Benefits from Stock Effects. Four spawning sites have been identified in the Alternative V boundary area. However, because the entire Tortugas Bank would be closed to diving for lobsters and spearfishing and the additionally large area encompassed by the proposed reserve, it is highly unlikely that these two user groups would benefit from the enhanced stocks of lobster and fish. Therefore, under this alternative, the maximum potential losses are highly likely to occur.

For fishing, however, the stock effects for the reserve could be substantial. Whether the benefits would be large enough to offset the displacement cannot immediately be determined. But given the past experience with reserves, it is still somewhat likely that the long-term benefits would offset the displacement costs yielding net benefits.

Benefits of the Proposed Tortugas Ecological Reserve to Recreational Users on Entire Florida Keys Reef Tract. Above we discussed the possibility that consumptive recreational users could possibly benefit if there were long-term offsite impacts. But there is also the possibility that a protected area in the Tortugas could yield beneficial stock effects to a wide variety of species all along the entire Florida Keys reef tract and to species such as sailfish that are primarily offshore species. Even small increases in recreational tourist activities along the entire Florida Keys

reef tract could more than offset the total displacements from the most extreme alternative analyzed here. One-tenth of one percent increase in the total recreational visitor contribution along the entire Florida Keys reef tract would more than offset the maximum potential losses from Boundary Alternative V.

Non-consumptive Users (Divers) in Tortugas. Currently there is one operator who brings divers to the TERSA for non-consumptive diving. There were 1,048 person-days of non-consumptive diving which account for 4.98% of the total recreational activity in the TERSA (excluding the National Park). Of the total non-consumptive diving, 83.3% is currently done within the existing Sanctuary boundary. It is expected that this group would be benefitted by the ecological reserve. As the site improves in quality, we would expect that the demand for this site would increase and person-days, consumer's surplus, business revenues and profits would all increase. This would be expected to vary by alternative with the more protective alternatives having greater benefits.

Commercial Fishery

Boundary Analysis

Boundary Analysis Methodology. In performing the boundary analysis, the impact estimates for each alternative are broken out by ''within the FKNMS boundary'' and ''outside the FKNMS boundary.''

Commercial fishing is prohibited in the DRTO so these grid cells are ''true'' zeroes in the analysis. Before breaking out the impact, the status of each grid cell (*i.e.,* inside or outside of the boundary) had to be determined. Two methods were considered to carry out this task: The ''centroid method'' and the ''intersection method.'' The centroid method characterizes a grid cell as within a boundary if the centroid (*e.g.,* center point) of the cell is within the boundary. The intersection method characterizes a grid cell as within a boundary if any part of the cell is intersected by the boundary. The centroid method was selected because it was more consistent with how the data was collected (*i.e.,* 1 nm^2 grid cells was the finest resolution).

The interpretation of the estimates provided in this analysis is critical to understanding the ''true'' impact of the various alternatives proposed for the Tortugas Ecological Reserve. The estimates from the geographic information system (GIS) analyses for the different boundary alternatives are the sum of each measurement within the boundary for a given alternative. The estimates therefore represent the maximum total potential loss from displacement of the commercial fishing activities. This analysis ignores possible mitigating factors and the possibility of net benefits that might be derived if the proposed ecological reserve has replenishment effect. Although the extent of the mitigating factors or the potential benefits from replenishment cannot be quantified, these as well as other potential benefits of the proposed ecological reserve are discussed after presenting and discussing the maximum potential losses from displacement of the current commercial fisheries.

The boundary analysis is driven by the catch summed across grid cells within each boundary alternative. The set of relationships, measures and methods described in Leeworthy and Wiley (1999) are then used to translate catch into estimates of market and non-market economic values potentially affected. These estimates are broken-down by area both inside and outside FKNMS boundary and are done by species.

The boundary alternatives are ordered according to size and potential impact. Alternative I is the ''No Action'' alternative and is the least protective alternative. Alternative III is the ''Preferred Alternative.'' Alternatives IV and V are the largest and ''Most Protective'' alternatives. For catch, generally the higher the alternative number the greater the potential affect on catch, except for king mackerel and shrimp. Potential affect on king mackerel catch is the same for both Alternatives IV and V and, the potential affect on shrimp catch is the same for the preferred Alternative III and Alternative IV.

Both the market and non-market economic values potentially lost from displacement for each alternative, except the ''No-action'' Alternative (Boundary Alternative I), are summarized in Leeworthy and Wiley (1999), which includes greater detail by species/species groups, and for the market economic values, separate estimates for Monroe and Collier/Lee counties.

Boundary Alternative I: No Action

The no action alternative simply means that the proposed Tortugas Ecological Reserve would not be established and the corresponding no-take regulations would not be issued. The no action alternative has a simple interpretation in that any costs of imposing the no-take regulations, for any given alternative with no-take regulations, would be the benefits of the no action alternative. That is, by not adopting the no-take regulations, the costs are avoided. Similarly, any benefits from imposing the no-take regulations, for any given alternative with no-take regulations, would be the costs of the no action alternative. That is, by not adopting the no-take regulations, the costs are the benefits lost by not adopting the no-take regulations. Said another way, the opportunities lost. The effects of the no action alternative can only be understood by comparing it to one of the alternatives. Thus the effects of the no action alternative can be obtained by reading the effects from any of the alternatives in reverse.

Boundary Alternative II

Market Economic Values. This alternative could potentially affect 4.2% of the catch of king mackerel, 6% of the lobster catch, 12.96% of the reef fish catch, and 1% of the shrimp catch in the TERSA. This would lead to a reduction in about $411 thousand in harvest revenue or 6% of the TERSA harvest revenue. This reduction in revenue would result in a reduction of 5.8% of total output, income and employment generated by the TERSA fishery. Since this alternative was restricted to reside within FKNMS current boundary, the effects are all inside FKNMS boundary. Although these effects might seem significant to those firms that might potentially be affected, the overall affect on the local economies would be so small they would not be noticed. Harvest revenue potentially impacted was only 0.67% of all harvest revenue of catch landed in Monroe County. In addition, this lost revenue would translate (accounting for the multiplier effects) into only fractions of a percent of the total Monroe County economy; 0.035% of total output, 0.046% of total income and 0.045% of total employment.

Non-market Economic Values. For all species/species groups, this alternative could result in a potential loss of over $473 thousand in consumer's surplus. This was 6.28% of the consumer's surplus generated by the entire TERSA. Although producer's surplus or economic rents are estimated to be zero, about 5.54% of the return to labor and capital of the TERSA fishery is potentially affected by this alternative.

Boundary Alternative III (Preferred Boundary Alternative)

Market Economic Values. This alternative could potentially affect 14% of the catch of king mackerel, 11.58% of the lobster catch, 20.30% of the reef fish catch, and 8.16% of the shrimp catch in the TERSA. This would lead to a

reduction in about $844 thousand in harvest revenue or 12.26% of the TERSA harvest revenue. This reduction in revenue would result in a reduction of 12.16% of total output, income and employment generated by the TERSA fishery. The impacts are split almost evenly between the areas inside and outside the FKNMS boundary. Although these costs might seem significant to those firms that might potentially be affected, the overall affect on the local economies would be so small they would not be noticed. Harvest revenue potentially affected was only 1.16% of all harvest revenue of catch landed in Monroe County. In addition, this lost revenue would translate (accounting for the multiplier effects) into only fractions of a percent of the total Monroe County economy; 0.0596% of total output, 0.0779% of total income and 0.0785% of total employment.

Non-market Economic Values. For all species/species groups, this alternative could result in a potential loss of about $880 thousand in consumer's surplus. This was 11.7% of the consumer's surplus generated by the entire TERSA. Whereas the market economic values were almost evenly split inside and outside the FKNMS, 53.76% of the consumer's surplus potentially affected is from inside the FKNMS boundary. This is due to the distributions of lobster and reef fish catch where a higher proportion of the potentially affected catch come from inside the FKNMS boundary, whereas the distributions of shrimp and king mackerel come largely from outside the FKNMS boundary.

Although producer's surplus or economic rents are estimated to be zero, about 11.5% of the return to labor and capital of the TERSA fishery is potentially affected by this alternative. The distribution inside versus outside the FKNMS boundary follows that of the market economic values with 48% from catch inside the FKNMS boundary.

Boundary Alternative IV

Market Economic Values. This alternative could potentially affect 15.57% of the catch of king mackerel, 16.4% of the lobster catch, 28.19% of the reef fish catch, and 8.16% of the shrimp catch in the TERSA. This would lead to a reduction in about $1.126 million in harvest revenue or 16.45% of the TERSA harvest revenue. This reduction in revenue would result in a reduction of 16.05% of total output, income and employment generated by the TERSA fishery. About 61.65% of the harvest revenue and 60.34% of the output, income and employment impacts would come from catch displaced from within FKNMS boundary. Although the costs might seem significant to those firms that might potentially be affected, the overall impact on the local economies would be so small they would not be noticed. Harvest revenue potentially affected was only 1.82% of all harvest revenue of catch landed in Monroe County. In addition, this lost revenue would translate (accounting for the multiplier effects) into only fractions of a percent of the total Monroe County economy; 0.0968% of total output, 0.127% of total income and 0.1281% of total employment.

Non-market Economic Values. For all species/species groups, this alternative could result in a potential loss of about $1.1 million in consumer's surplus. This was 14.64% of the consumer's surplus generated by the entire TERSA and 63.14% of the consumer's surplus potentially affected is from catch from inside the FKNMS boundary. This is due to the distributions of lobster and reef fish catch where a higher proportion of the potentially affected catch come from inside the FKNMS boundary, whereas the distributions of shrimp and king mackerel come largely from outside the FKNMS boundary. Although producer's surplus or economic rents are estimated to be zero, about 15.6% of the return to labor and capital of the TERSA fishery is potentially affected by this alternative. The distribution inside versus outside the FKNMS boundary follows that of the market economic values with 61.68% from catch inside the FKNMS.

Boundary Alternative V

Market Economic Values. This alternative could potentially affect 15.57% of the catch of king mackerel, 17.58% of the lobster catch, 29.57% of the reef fish catch, and 10.26% of the shrimp catch in the TERSA. This would lead to a reduction in about $1.224 million in harvest revenue or 17.89% of the TERSA harvest revenue. This reduction in revenue would result in a reduction of 17.5% of total output, income and employment generated by the TERSA fishery. About 56.68% of the harvest revenue and 55.26% of the output, income and employment impacts would come from catch displaced from within the FKNMS boundary. Although the costs might seem significant to those firms that might potentially be affected, the overall impact on the local economies would be so small they would not be noticed. Harvest revenue potentially affected was only 1.98% of all harvest revenue of catch landed in Monroe County. In addition, this lost revenue would translate (accounting for the multiplier effects) into only fractions of a percent of the total Monroe County economy; 0.106% of total output, 0.138% of total income and 0.1399% of total employment.

Non-market Economic Values. For all species/species groups, this alternative could result in a potential loss of about $1.24 million in consumer's surplus. This was 16.4% of the consumer's surplus generated by the entire TERSA. 56.2% of the consumer's surplus potentially affected is from catch from inside the FKNMS boundary. This is due to the distributions of lobster and reef fish catch where a higher proportion of the potentially affected catch come from inside the FKNMS boundary, whereas the distributions of shrimp and king mackerel come largely from outside the FKNMS boundary. Although producer's surplus or economic rents are estimated to be zero, about 16.97% of the return to labor and capital of the TERSA fishery is potentially affected by this alternative. The distribution inside versus outside the FKNMS boundary follows that of the market economic values with 56.7% from catch inside the FKNMS boundary.

Profiles of Fishermen Potentially Affected

In the overview section, a profile of the approximately 110 TERSA fishermen based on a sample of 90 was given with a comparison with other commercial fishermen in Monroe County. The profiles of those potentially affected by each alternative are compared. Statistical tests were performed comparing the sample distributions for the groups that fished within each boundary alternative as compared with TERSA fishermen as a whole. Except for the number of fishing operations potentially affected, the only significant differences for all alternatives were in membership in organizations and in fish house usage.

In terms of memberships in organizations, the fishermen potentially affected by all alternatives had significantly lower participation rates in the Conch Coalition, the Organized Fishermen of Florida (OFF) and in the Monroe County Commercial Fishermen, Inc. (MCCF), but had a significantly higher participation rates in environmental organizations and the Chambers of Commerce. Fish house usage was significantly lower for those fishermen potentially affected by all alternatives.

Fishermen potentially affected by Boundary Alternative II were the only group that was significantly different. These fishermen had less experience

fishing in Monroe County than the general TERSA fishermen, however they were not significantly different with respect to years fishing in the TERSA. Fishermen potentially affected by Boundary Alternative II also earned a significantly lower proportion of their income from fishing than the general TERSA fishermen; however, they earned a significantly higher proportion of their income from fishing within the TERSA than the general TERSA fishermen.

Fishermen potentially affected by Boundary Alternative II were also significantly different from the general TERSA fishermen in the distribution of their primary hauling port. A significantly higher proportion of those potentially affected by this alternative used Key West/Stock Island and Tavenier than the general TERSA fishermen, and they used Big Pine Key, Marathon and Naples/Ft. Myers significantly less than the general TERSA fishermen.

Fifty-one (51) or 57% of the sampled fishing operations could be potentially affected by Boundary Alternative II followed by 64 operations or 71% for Alternative III, and 65 operations or 72% for both Boundary Alternatives IV and V. Twenty-four (24) of the 28 or 86% of all the lobster operations could be potentially affected by Boundary Alternative II, while 27 of the 28 lobster operations or 96% are potentially affected by Boundary Alternatives III, IV, and V. Six (6) of the 18 or 33.3% of the shrimp operations are potentially affected by Boundary Alternative II, while Boundary Alternative III could potentially affect 15 of 18 or 83% of the shrimp operations. Boundary Alternatives IV and V could potentially affect 14 of the 18 or 78% of the shrimp operations. Fifteen (15) of the 16 king mackerel operations could be potentially affected by Boundary Alternative II, while Boundary Alternatives III, IV and V could potentially affect all 16 of the king mackerel operations. Thirty-seven (37) of the 42 or 88% of the reef fish operations could be potentially affected by Boundary Alternative II, while 40 or 95% of the reef fish fishing operations could be potentially affected by Boundary Alternative III. Boundary Alternatives IV and V could potentially affect all 42 reef fish operations.

Other Potential Costs and Mitigating Factors—Are the Potential Losses Likely?

In the above GIS-based analysis, the effects are referred to as ''potential losses'' or ''maximum potential losses.'' There is the possibility that there could be an additional cost not discussed but which cannot be quantified, that is, crowding and the resulting conflicts among users forced to compete in a smaller area. There are also several factors that could mitigate all the potential losses and further there is a possibility that there might not be any losses at all. It is quite possible that there might be actual net benefits to even the current displaced users. Below the issue of crowding costs and the mitigating factors and potential for beneficial outcomes are discussed in qualitative terms because of the difficulty in quantifying them. Two mitigating factors, how likely they might mitigate the potential losses from displacement, and how this might differ for each of the alternatives, are discussed.

Crowding. As shown above, each of the alternatives would result in a certain amount of displacement. Displacement of commercial fishing activity is a certainty under all boundary alternatives, except Boundary Alternative I, the No-action Alternative. If this displacement results in the activity being transferred to other sites, there is a potential for crowding effects. Crowding effects could raise the costs of fishing, both private costs to each fishing operation and social costs in resolving conflicts.

Crowding conflicts were one of the issues mentioned when the State of Florida created the lobster trap certificate program which was designed to reduce the number of lobster traps. If fishing stocks outside the protected area are already fished to their limits (*i.e.,* limits of sustainable harvests), then displacement could also lead to adverse stock effects and a lower level of catch from all commercial fisheries. Crowding effects would represent a potential cost not accounted for in our above GIS-based analysis and the potential for the existence of crowding effects would vary by alternative. Whether crowding effects are experienced would depend on the status of the fisheries outside the proposed protected area, the extent of displacement, the current knowledge and fishing patterns of the displaced fishermen, and other potential regulations. The trap reduction program is an example where crowding effects could be mitigated by making room for the displaced traps.

Relocation. If displaced commercial fishermen are simply able to relocate their fishing effort and they are able to partially or completely replace their lost catch by fishing elsewhere, then there might be less or no affect. However, the possibility exists that displacement, even if it does not result in lower overall catch, may result in higher costs. This would result in lower profits to fishing operations. Whether fishermen are able to relocate to other fishing sites and replace lost catch or avoid cost increases would depend, like with the issue of crowding, on the status of the fisheries outside the proposed protected area, the extent of the displacement, the current knowledge and fishing patterns of the displaced fishermen, and other potential regulations.

Long-term benefits from Replenishment Effects. Ecological reserves or marine reserves may have beneficial effects beyond the direct ecological protection from the sites themselves. That is, both the size and number of fish, lobster, and other invertebrates both inside and outside the reserves may increase *i.e.,* the replenishment effect. It is clear that fishers all over the world believe no-take zones increase yields because they fish as close to the boundary as possible. The long-term benefits from the reserve could offset any losses from displacement and may also result in long-term benefits and no costs (net benefits) to commercial fishermen that would be displaced by a proposed reserve. Again, this conclusion may vary by alternative.

Boundary Alternative II

Crowding and Relocation. For the commercial lobster fishery, it appears that the lobster trap reduction program could fully mitigate the potential for crowding costs. This boundary alternative would displace 2,228 traps. A ten percent reduction in traps in the TERSA would provide space for 3,690 traps. Further, lobster fishermen in the TERSA only catch 68% of their lobsters from the TERSA. Thus, lobster fishermen are knowledgeable about fishing in other areas of the Keys where they might move their displaced traps. Thus, under this boundary alternative there would be no crowding costs for the commercial lobster fishery and the fishermen would be able to replace catch from other areas. Thus, for the commercial lobster fishery, the potential economic losses identified in Table 1 are not likely to occur under Boundary Alternative II.

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Table 1. Maximum Potential Losses to the Commercial Fisheries from Displacement

Area/Measure	Total TERSA	Alternatives: Alternative II	Preferred Alternative	Alternative IV	Alternative V
Total TERSA					
Market[1]					
Harvest Revenue	$ 6,884,992	$ 411,632	$ 843,583	$ 1,126,237	$ 1,224,849
Total Output	$ 14,957,717	$ 865,819	$ 1,817,843	$ 2,400,730	$ 2,621,627
Total Income	$ 9,273,785	$ 536,808	$ 1,127,063	$ 1,488,453	$ 1,625,409
Total Employment	404	23	49	65	71
Non-market					
Consumer's Surplus[2]	$ 7,537,781	$ 473,097	$ 879,973	$ 1,103,808	$ 1,239,587
Producer's Surplus[3]	$ -	$ -	$ -	$ -	$ -
Return to Labor & Capital[4]	$ 1,926,162	$ 106,789	$ 221,968	$ 300,599	$ 326,880
Inside FKNMS					
Market					
Harvest Revenue	$ 3,476,456	$ 411,632	$ 411,632	$ 694,284	$ 694,284
Total Output	$ 7,292,387	$ 865,819	$ 865,819	$ 1,448,700	$ 1,448,700
Total Income	$ 4,521,280	$ 536,808	$ 536,808	$ 898,194	$ 898,194
Total Employment	197	23	23	39	39
Non-market					
Consumer's Surplus	$ 3,890,933	$ 473,097	$ 473,097	$ 696,932	$ 696,932
Producer's Surplus	$ -	$ -	$ -	$ -	$ -
Return to Labor & Capital	$ 1,029,118	$ 106,789	$ 106,789	$ 185,420	$ 185,420
Outside FKNMS					
Market					
Harvest Revenue	$ 3,408,536	$ -	$ 431,951	$ 431,953	$ 530,565
Total Output	$ 7,665,330	$ -	$ 952,024	$ 952,030	$ 1,172,927
Total Income	$ 4,752,505	$ -	$ 590,255	$ 590,259	$ 727,215
Total Employment	207	-	26	26	32
Non-market					
Consumer's Surplus	$ 3,646,848	$ -	$ 406,876	$ 406,876	$ 542,655
Producer's Surplus	$ -	$ -	$ -	$ -	$ -
Return to Labor & Capital	$ 897,044	$ -	$ 115,179	$ 115,179	$ 141,460

1. Market economic measures include impacts on Monroe County and Collier/Lee counties. See Appendix A, Tables A.6 - A.11 in Leeworthy and Wiley (1999) for details by species and counties.
2. Maximum values from each species were used when range of estimates was generated from multiple demand equations. See Appendix B in Leeworthy and Wiley (1999) for detailed calculations by species and alternatives.
3. Producer's surplus or economic rents were assumed to be zero for two reasons. First, all fisheries, except spiny lobsters, are open access fisheries and therefore economic rents would be zero i.e., firms are earning only normal rates of return on investment. Second, even using total return to labor & capital, which overstates return on investment, does not yield rates of return on investment above normal rates of return.
4. Return to Labor & Capital is not a non-market value but would include rent if it existed.

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Crowding is not an issue for the king mackerel commercial fishery because king mackerel is a pelagic species and thus moves around and catching them elsewhere is highly likely without interfering with other fishermen. Shrimp fishermen currently only catch ten percent of their total shrimp catch from the TERSA. Displacement of shrimp catch under Boundary Alternative II would only be about one percent of their TERSA catch and less than one percent of their total shrimp catch. It would seem highly likely that there would be no crowding costs from displacement and given the small amounts of catch affected, it is highly likely that shrimp fishermen would be able to replace lost catch from other sites. Thus, for the king mackerel and shrimp commercial fisheries, the potential economic losses identified in Table 1 are not likely to occur under Boundary Alternative II.

Reef fish fishermen comprise the largest group of TERSA fishermen. Under Boundary Alternative II, 37 of the sampled 42 fishermen would be affected. Reef fish fishermen are knowledgeable of other fishing locations outside the TERSA. In 1997, they caught 52% of their reef fish from areas in the Keys outside the TERSA. However, stocks of reef fish in the TERSA and throughout the Keys appear to be overfished. Alternative II displaces about 13% of the reef fish catch in the TERSA. Given the status of reef fish stocks, the losses identified in Table 1 are likely to occur in the short-term until the benefits of replenishment could offset these losses in the longer-term.

Replenishment. No replenishment benefits to the king mackerel or shrimp commercial fisheries are expected. For the lobster and reef fish fisheries, replenishment benefits are expected. Invertebrates and reef fish at other marine reserves had shown estimated increases in yields of 46–50% within three kilometers of the protected areas. Also, five spawning areas were identified in the western portion of the TERSA. Only one of the five spawning areas is located within the Boundary Alternative II boundary. The reserve would protect this area, and this area would support the replenishment effect. For the commercial lobster fishery, we expect long-term net benefits under Boundary Alternative II. For the commercial reef fish fishery, it is not clear whether the full 13% lost catch from displacement would be replaced from replenishment, but the costs of displacement would be mitigated and the losses expected to be less than the 13% reductions that are the basis for the losses calculated and presented in Table 1.

Boundary Alternative III (Preferred Boundary Alternative)

Crowding and Relocation. For the lobster fishery, there is some potential for crowding costs. This boundary alternative would displace 4,346 traps. A ten percent reduction in traps in the TERSA would provide space for 3,690 traps. However, if the remaining 656 traps are relocated to zones 1–3 in the Keys, there would be more than adequate space given the 10% reduction in traps that took place in Monroe County between 1997–98 and 1998–99 (475,094 to 428,411). Lobster fishermen in the TERSA only catch 68% of their lobsters from the TERSA. Thus, lobster fishermen are knowledgeable about fishing in other areas of the Keys where they might move their displaced traps. Thus, under this alternative there would be no crowding costs for lobsters and we expect that the lobster fishermen would be able to replace catch from other areas. Thus, for the lobster fishery, the potential economic losses identified in Table 1 are not likely to occur under this alternative.

Crowding is not an issue for king mackerel commercial fishery because king mackerel is a pelagic species and thus moves around and catching them elsewhere is highly likely without interfering with other fishermen. Shrimp fishermen currently only catch ten percent of their total shrimp catch from the TERSA. Displacement of shrimp catch under Boundary Alternative III would only be about eight percent of their TERSA catch and less than one percent of their total shrimp catch. It would seem highly likely that there would be no crowding costs from displacement and given the small amounts of catch affected, it is highly likely that shrimp fishermen would be able to replace lost catch from other sites. Thus for the commercial king mackerel and shrimp fisheries, the potential economic losses identified in Table 1 are not likely to occur under this alternative.

Reef fish fishermen comprise the largest group of TERSA fishermen. Under Boundary Alternative III, 40 of the sampled 42 fishermen would be affected. Reef fish fishermen are knowledgeable of other fishing locations outside the TERSA. In 1997, they caught 52% of their reef fish from areas in the Keys outside the TERSA. However, stocks of reef fish in the TERSA and throughout the Keys appear to be overfished. Boundary Alternative III displaces 20% of the reef fish catch in the TERSA. Given the status of reef fish stocks, the losses identified in Table 1 are likely to occur in the short-term until the benefits of replenishment could offset these losses in the longer-term.

Replenishment. No replenishment benefits to the commercial king mackerel or shrimp fisheries are expected. For the commercial lobsters and reef fish fisheries, replenishment benefits are expected. Yields of invertebrates and reef fish of 46–50% have been reported within three kilometers of the protected areas at other marine reserves. Five spawning areas have been reported in the western portion of the TERSA. Three of the five spawning areas are located within the alternative III boundary and would be protected, thus bolstering the replenishment effect. For the commercial lobster fishery, long-term net benefits would be expected under Boundary Alternative III. For the commercial reef fish fishery, it is not clear whether the full 20% lost catch from displacement would be replaced from replenishment, but the costs of displacement would be mitigated and the losses expected to be less than the 20% reductions that are the basis for the losses calculated and presented in Table 1.

Boundary Alternative IV

Crowding and Relocation. For the commercial lobster fishery, there is some potential for crowding costs. This boundary alternative would displace an estimated 6,050 traps. A ten percent reduction in traps in the TERSA would provide space for 3,690 traps. However, if the remaining 2,360 traps are relocated to zones 1–3 in the Keys, there would be more than adequate space given the 10% reduction in traps that took place in Monroe County between 1997–98 and 1998–99 (475,094 to 428,411).

Lobster fishermen in the TERSA only catch 68% of their lobsters from the TERSA. Thus, lobster fishermen are knowledgeable about fishing in other areas of the Keys where they might move their displaced traps. Thus, under this alternative there would be no crowding costs for the commercial lobster fishery and fishermen would be able to replace catch from other areas. Thus, for the commercial lobster fishery, the potential economic losses identified in Table 1 are not likely to occur under Boundary Alternative IV.

Crowding is not an issue for the king mackerel fishery because king mackerel is a pelagic species and thus moves around and catching them elsewhere is highly likely without interfering with other fishermen. Shrimp fishermen

currently only catch ten percent of their total shrimp catch from the TERSA. Displacement of shrimp catch under Boundary Alternative IV would only be about eight percent of their TERSA catch and less than one percent of their total shrimp catch. It would seem highly likely that there would be no crowding costs from displacement and given the small amounts of catch affected, it is highly likely that shrimp fishermen would be able to replace lost catch from other sites. Thus, for the commercial king mackerel and shrimp fisheries, the potential economic losses identified in Table 1 are not likely to occur under Boundary Alternative IV.

Reef fish fishermen comprise the largest group of TERSA fishermen. Under Boundary Alternative IV, all 42 of the sampled fishermen would be affected. Reef fish fishermen are knowledgeable of other fishing locations outside the TERSA. In 1997, they caught 52% of their reef fish from areas in the Keys outside the TERSA. However, stocks of reef fish in the TERSA and throughout the Keys appear to be overfished. Boundary Alternative IV displaces 28% of the reef fish catch in the TERSA. Given the status of reef fish stocks, the losses identified in Table 1 are likely to occur in the short-term until the benefits of replenishment could offset these losses in the longer-term.

Replenishment. No replenishment benefits to the commercial king mackerel and shrimp fisheries are expected. For the commercial lobster and reef fish fisheries, replenishment benefits are expected. Increases in yields of invertebrates and reef fish of 46–50% have been reported within three kilometers of the protected areas at other marine reserves. Five spawning areas have been in the western portion of the TERSA. Four of the five spawning areas are located within the Boundary Alternative IV boundary and would be protected, thus bolstering the replenishment effect. For the commercial lobster fishery, no long-term net benefits would be expected under Boundary Alternative IV. For the commercial reef fish fishery, it is not clear whether the full 28% lost catch from displacement would be replaced from replenishment, but the costs of displacement would be mitigated and the losses expected to be less than the 28% reductions that are the basis for the losses calculated and presented in Table 1.

Boundary Alternative V

Crowding and Relocation. For the commercial lobster fishery, there is some potential for crowding costs. This boundary alternative would displace 6,487 traps. A ten percent reduction in traps in the TERSA would provide space for 3,690 traps. However, if the remaining 2,797 traps are relocated to zones 1–3 in the Keys, there would be more than adequate space given the 10% reduction in traps that took place in Monroe County between 1997–98 and 1998–99 (475,094 to 428,411). Lobster fishermen in the TERSA only catch 68% of their lobsters from the TERSA and they are knowledgeable about fishing in other areas of the Keys where they might move their displaced traps. Thus, under this boundary alternative there would be no crowding costs for the commercial lobster fishery and fishermen would be able to replace catch from other areas. Therefore, for the commercial lobster fishery, the potential economic losses identified in Table 1 are not likely to occur under Boundary Alternative V.

Crowding is not an issue for the king mackerel commercial fishery because king mackerel is a pelagic species and thus moves around and catching them elsewhere is highly likely without interfering with other fishermen. Shrimp fishermen currently only catch ten percent of their total shrimp catch from the TERSA. Displacement of shrimp catch under Boundary Alternative V would only be about ten percent of their TERSA catch and about one percent of their total shrimp catch. It would seem highly likely that there would be no crowding costs from displacement and given the small amounts of catch affected, it is highly likely that shrimp fishermen would be able to replace lost catch from other sites. Thus, for the king mackerel and shrimp commercial fisheries, the potential economic losses identified in Table 1 are not likely to occur under Boundary Alternative V.

Reef fish fishermen comprise the largest group of TERSA fishermen. Of the 90 TERSA fishermen sampled, 42 were reef fish fishermen. Under Boundary Alternative V, all 42 would be affected. Reef fish fishermen are knowledgeable of other fishing locations outside the TERSA. In 1997, they caught 52% of their reef fish from areas in the Keys outside the TERSA. However, stocks of reef fish in the TERSA and throughout the Keys appear to be overfished. Boundary Alternative V displaces 29% of the reef fish catch in the TERSA. Given the status of reef fish stocks, the losses identified in Table 1 are likely to occur in the short-term until the benefits of replenishment could offset these losses in the longer-term.

Replenishment. No replenishment benefits to the king mackerel and shrimp commercial fisheries are expected. For the lobster and reef fish commercial fisheries, replenishment benefits are expected. Increases in yields of invertebrates and reef fish of 46–50% have been reported within three kilometers of the protected areas at other marine reserves. Five spawning areas have been identified in the western portion of the TERSA. Four of the five spawning areas are located within the Boundary Alternative V boundary and would be protected, thus bolstering the replenishment effect. For the lobster commercial fishery, long-term net benefits under Boundary Alternative V are expected. For reef fish, it is not clear whether the full 29% lost catch from displacement would be replaced from replenishment, but the costs of displacement would be mitigated and the losses expected to be less than the 29% reductions that are the basis for the losses calculated and presented in Table 1.

Commercial Shipping

No effect for any of the alternatives.

Treasure Salvors

No expected effect for any of the alternatives. One permit for inventorying submerged cultural resources in Sanctuary waters was issued for the Tortugas area of the Sanctuary. There were no submerged cultural resources found on the Tortugas Bank. Currently, it is unknown whether there are any submerged cultural resources on Riley's Hump, located in Tortugas South.

Other Regulations

Boundary Alternative I

This alternative is the no-action alternative required by NEPA that assumes that no reserve would be established and that the current management regime and range of human activities would continue. Thus, no regulatory alternatives are applicable.

Boundary Alternative II

This alternative limits the reserve to the existing Sanctuary boundary for a total area of approximately 55 square nautical miles (Fig. 2). This alternative includes a portion of Sherwood Forest and the coral pinnacles north of Tortugas Bank; it does not include Riley's Hump. It includes some coral and hardbottom habitat north of the DRTO.

Regulatory Alternative A: Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North

and South. The provisions of this alternative applicable to Tortugas South are not relevant under this boundary alternative. The Sanctuary-wide regulations already apply to Tortugas North and the effects of the ecological reserve regulations have been analyzed under the no-take discussion above. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR Parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these Parts).

Regulatory Alternative B: Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South (as described in Regulatory Alternative A); and prohibit anchoring in and control access to Tortugas South via permit, require call-in for entering and leaving, and prohibit vessels longer than 100 ft LOA from using a mooring buoy. The provisions of this alternative applicable to Tortugas South are not relevant under this boundary alternative. The Sanctuary-wide regulations already apply to Tortugas North and the effects of the ecological reserve regulations have been analyzed under the no-take discussion above. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these Parts).

Regulatory Alternative C (Preferred Regulatory Alternative): Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South (as described in Regulatory Alternative A); and prohibit anchoring in and control access to Tortugas North and South via permit, require call-in for entering and leaving, and prohibit vessels longer than 100 ft LOA from using a mooring buoy (as described in Regulatory Alternative B). The provisions of this alternative applicable to Tortugas South are not relevant under this boundary alternative. The Sanctuary-wide regulations already apply to Tortugas North and the effects of the ecological reserve regulations have been analyzed under the no-take discussion above. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these Parts).

This regulatory alternative has no incremental impact on commercial fishing or recreational consumptive users since they are displaced by the ''no-take'' regulation. The dive operator servicing nonconsumptive diving and currently operating in Tortugas North would be prohibited from anchoring. His vessel is less than 100 ft LOA and thus he would be unaffected by the prohibition on mooring. The location and availability of mooring buoys would constrain the number and choice of available dive sites. It is unknown whether this would have any impact on the future business volume of dive operators or the quality of the experience to nonconsumptive divers. The extent of impact would be dependent on the number and locations of mooring buoys (to be determined).

This regulatory alternative would have little impact on commercial shipping because continuous transit would be allowed. Vessels 50m or greater in registered length are already prohibited from anchoring in 19.3% of Tortugas North. The main effect would be to ban such vessels from anchoring on the remainder of Tortugas North. There would be no incremental impact to treasure salvors since they would be displaced by the ''no-take'' regulation. The one dive operator servicing nonconsumptive diving and currently operating in Tortugas North would be required to obtain Tortugas access permits. Any new dive operators would also be required to obtain a permit. There would be minor time costs associated with obtaining a permit and getting permission to access the reserve. It is expected that fulfilling all the permit requirements and obtaining permission to access the reserve will not exceed 10 minutes of each permittee's time for each visit to the reserve. No special professional skills would be necessary to apply for a permit.

Regulatory Alternative D: Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South (as described in Regulatory Alternative A); prohibit anchoring in and control access to Tortugas North via permit, require call-in for entering and leaving, and prohibit vessels longer than 100 ft LOA from using a mooring buoy (as described in Regulatory Alternative B); and prohibit anchoring and restrict access to Tortugas South to research or education activities only. Because the provisions of this alternative applicable to Tortugas South are not relevant under this boundary alternative, the impacts of this alternative are the same as described for Regulatory Alternative C, above. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these Parts).

Boundary Alternative III (Preferred Boundary Alternative)

This alternative involves a Sanctuary boundary expansion and represents the WG's recommendation adopted by the SAC and recommended to NOAA and the State of Florida for a reserve with a total area of approximately 151 nm^2 (Fig. 3). It is NOAA's preferred boundary alternative.

Regulatory Alternative A: Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South. Boundary Alternative III includes areas currently outside the Sanctuary boundary. A small portion of Tortugas North and all of Tortugas South would be outside the existing Sanctuary boundary. The Sanctuary-wide regulations would become effective in the expansion areas of Tortugas North and South. The existing Sanctuary regulations and their impacts are presented in Table 21 of the DSEIS/SMP. More detailed descriptions of the regulations are included in Appendix C to the DSEIS/SMP. The effects of the ecological reserve regulations have been analyzed under the no-take discussion above. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these Parts).

Regulatory Alternative B: Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South (as described in Regulatory Alternative A); and prohibit anchoring in and control access to Tortugas South via permit, require call-in for entering and leaving, and prohibit vessels longer than 100 ft LOA from using a mooring buoy (as described in Regulatory Alternative B). Boundary Alternative III includes areas currently outside the Sanctuary boundary. A small portion of Tortugas North and all of Tortugas South would be outside the existing Sanctuary boundary. The Sanctuary-wide regulations would become effective in the expansion areas of

Tortugas North and South. The existing Sanctuary regulations and their impacts are presented in Table 21 of the DSEIS/SMP. More detailed descriptions of the regulations are included in Appendix C to the DSEIS/SMP. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these Parts).

The effects of the ecological reserve regulations have been analyzed under the no-take discussion above. The prohibition on anchoring would have no incremental impact on commercial fishing or recreational consumptive users since they are displaced by the ''no-take'' regulation. The one dive operator servicing nonconsumptive diving and currently operating in Tortugas North would be prohibited from anchoring. There are no known recreational dive operators servicing Tortugus South. The location and availability of mooring buoys would constrain the number and choice of available dive sites. It is unknown whether this would have any impact on the future business volume of dive operators or the quality of the experience to nonconsumptive divers. The extent of impact would be dependent on the number and locations of mooring buoys (to be determined). The prohibition on anchoring would impact commercial shipping in the boundary expansion areas, especially in Tortugas South. The prohibition on anchoring in Tortugas North is discussed under Boundary/Regulatory Alternative II.C above. Anchoring by large commercial vessels is known to occur on Riley's Hump, which would be included in the Sanctuary as part of Tortugas South under Boundary Alternative III and thus would be subject to the anchoring prohibition. The impact of this regulation on commercial vessel operators is expected to be small since other anchorages are available a short distance outside the Sanctuary boundary.

There would be no incremental impact on treasure salvors from the no-anchoring prohibition since they would be displaced by the ''no-take'' regulation. The permit requirements would have no incremental impact on fishermen or salvors because they would be displaced by the ''no-take'' regulations. There are no known nonconsumptive dive operators currently operating in Tortugas South. Any nonconsumptive dive operators operating in Tortugas South in the future would be required to obtain Tortugas access permits. It is not possible to gauge the extent of any such future activity. There would be minor time costs associated with obtaining a permit and getting permission to access the reserve.

It is expected that fulfilling all the permit requirements and obtaining permission to access the reserve would not exceed 10 minutes of each permittee's time for each visit to the reserve. No special professional skills would be necessary to apply for a permit.

Regulatory Alternative C (Preferred Regulatory Alternative): Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South (as described in Regulatory Alternative A); and prohibit anchoring in and control access to Tortugas North and South via permit, require call-in for entering and leaving, and prohibit vessels longer than 100 ft LOA from using a mooring buoy (as described in Regulatory Alternative B). The only difference between the impacts of this regulatory alternative from those discussed under Regulatory Alternative B would be those associated with the requirement to obtain a permit for other than continuous transit access to Tortugas North. The permit requirements would have no incremental impact on fishermen or salvors because they would be displaced by the ''no-take'' regulations. There is only one known nonconsumptive dive operator currently operating in Tortugas North. He and any new nonconsumptive dive operators operating in Tortugas North would be required to obtain Tortugas access permits. There would be minor time costs associated with obtaining a permit and getting permission to access the reserve. It is expected that fulfilling all the permit requirements and obtaining permission to access the reserve would not exceed 10 minutes of each permittee's time for each visit to the reserve. No special professional skills would be necessary to apply for a permit. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these Parts).

Regulatory Alternative D: Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South (as described in Regulatory Alternative A); prohibit anchoring in and control access to Tortugas North via permit, require call-in for entering and leaving, and prohibit vessels longer than 100 ft LOA from using a mooring buoy (as described in Regulatory Alternative B); and prohibit anchoring and restrict access to Tortugas South to research or education activities only. The only difference between the impacts of this regulatory alternative from those discussed under Regulatory Alternative C would be those associated with limiting noncontinuous transit access to Tortugas South to research/educational purposes. For the commercial fisheries, salvors, and recreational consumptive users, there would be no incremental impacts since the ''no-take'' regulation would displace these user groups. There are no known nonconsumptive dive operators currently operating in Tortugas South and no recreational diving is known to occur there. Under this alternative, none would be allowed in the future. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these Parts).

Boundary Alternative IV

This alternative involves an expansion to the south by 23 nm^2 of Tortugas North to make it conterminous with the NPS's proposed Research/Natural Area within the DRTO for a total area of approximately 175 nm^2 not including the Park area (Fig. 4). It also involves the same boundary expansion as Boundary Alternative III.

Regulatory Alternative A: Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South. A small portion of Tortugas North and all of Tortugas South would be outside the existing Sanctuary boundary. The Sanctuary-wide regulations would become effective in the expansion areas of Tortugas North and South. The existing Sanctuary regulations and their impacts are presented in Table 21 of the DSEIS/SMP. More detailed descriptions of the regulations are included in Appendix C to the DSEIS/SMP. The effects of the ecological reserve regulations which, under Boundary Alternative IV would apply to a larger area because of the southern expansion of Tortugas North, have been analyzed under the no-take discussion above. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological

Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these parts).

Regulatory Alternative B: Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South (as described in Regulatory Alternative A); and prohibit anchoring in and control access to Tortugas South via permit, require call-in for entering and leaving, and prohibit vessels longer than 100 ft LOA from using a mooring buoy. A small portion of Tortugas North and all of Tortugas South would be outside the existing Sanctuary boundary. The Sanctuary-wide regulations would become effective in the expansion areas of Tortugas North and South. The existing Sanctuary regulations and their impacts are presented in Table 21 of the DSEIS/SMP. More detailed descriptions of the regulations are included in Appendix C to the DSEIS/SMP. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these parts).

The effects of the ecological reserve regulations which under Boundary Alternative IV would apply to a larger area because of the southern expansion of Tortugas North have been analyzed under the no-take discussion above. The prohibition on anchoring would have no incremental impact on commercial fishing or recreational consumptive users since they are displaced by the ''no-take'' regulation. There are no known recreational dive operators servicing Tortugus South. The location and availability of mooring buoys would constrain the number and choice of available dive sites. It is unknown whether this would have any impact on the future business volume of dive operators or the quality of the experience to nonconsumptive divers. The extent of impact would be dependent on the number and locations of mooring buoys (to be determined).

The prohibition on anchoring would impact commercial shipping in the boundary expansion areas, especially in Tortugas South. The prohibition on anchoring in Tortugas North is discussed under Boundary/Regulatory Alternative II.C. above. Anchoring by large commercial vessels is known to occur on Riley's Hump, which would be included in the Sanctuary as part of Tortugas South under Boundary Alternative IV and thus would be subject to the anchoring prohibition. The impact of this regulation on commercial vessel operators is expected to be small since other non-coral reef anchorages outside the Sanctuary boundary are available a short distance away.

There would be no incremental impact on treasure salvors from the no-anchoring prohibition since they would be displaced by the ''no-take'' regulation.

The permit requirements would have no incremental impact on fishermen or salvors because they would be displaced by the ''no-take'' regulations. There are no known nonconsumptive dive operators currently operating in Tortugas South. Any nonconsumptive dive operators operating in Tortugas South in the future would be required to obtain Tortugas access permits. It is not possible to gauge the extent of any such future activity. There would be minor time costs associated with obtaining a permit and getting permission to access the reserve. It is expected that fulfilling all the permit requirements and obtaining permission to access the reserve would not exceed 10 minutes of each permittee's time for each visit to the reserve. No special professional skills would be necessary to apply for a permit.

Regulatory Alternative C (Preferred Regulatory Alternative): Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South (as described in Regulatory Alternative A); and prohibit anchoring in and control access to Tortugas North and South via permit, require call-in for entering and leaving, and prohibit vessels longer than 100 ft LOA from using a mooring buoy (as described in Regulatory Alternative B). The only difference between the impacts of this regulatory alternative from those discussed under Alternative B would be those associated with the requirement to obtain a permit for other than continuous transit access to Tortugas North. Under this boundary alternative there are 2.75 more person-days of recreational nonconsumptive use than under Boundary Alternatives II and III. While the area of Tortugas North would be increased by the expansion to the south, the permit requirements would have no incremental impact on fishermen or salvors because they would be displaced by the ''no-take'' regulations. There is only one known nonconsumptive dive operator currently operating in Tortugas North. He and any new nonconsumptive dive operators operating in Tortugas North would be required to obtain Tortugas access permits. There would be minor time costs associated with obtaining a permit and getting permission to access the reserve. It is expected that fulfilling all the permit requirements and obtaining permission to access the reserve would not exceed 10 minutes of each permittee's time for each visit to the reserve. No special professional skills would be necessary to apply for a permit. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these Parts).

Regulatory Alternative D: Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South (as described in Regulatory Alternative A); prohibit anchoring in and control access to Tortugas North via permit, require call-in for entering and leaving, and prohibit vessels longer than 100 ft LOA from using a mooring buoy (as described in Regulatory Alternative B); and prohibit anchoring and restrict access to Tortugas South to research or education activities only. The only difference between the impacts of this regulatory alternative from those discussed under regulatory Alternative C would be those associated with limiting non-continuous transit access to Tortugas South to research/educational purposes. For the commercial fisheries, salvors, and recreational consumptive users, there would be no incremental impacts since the ''no-take'' regulation would displace these user groups. There are no known nonconsumptive dive operators currently operating in Tortugas South and no recreational diving is known to occur there. Under this alternative, none would be allowed in the future. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these Parts).

Boundary Alternative V

This alternative involves a Sanctuary boundary expansion to the west by three minutes ending at longitude 83′09″ instead of 83′06″ and would increase the reserve area to 190 nm_2 (Fig. 5). Tortugas North would be expanded to the west and Tortugas South would be shortened to the north. Sanctuary-wide

regulations would be applied to the expansion area.

Regulatory Alternative A: Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South. The Sanctuary-wide regulations would become effective in the expansion area. The existing Sanctuary regulations and their impacts are presented in Table 21 of the DSEIS/SMP. More detailed descriptions of the regulations are included in Appendix C to the DSEIS/SMP. The effects of the ecological reserve regulations which, under Boundary Alternative V apply to a larger area because of the Sanctuary expansion, have been analyzed under the no-take discussion above. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these parts).

Regulatory Alternative B: Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South (as described under regulatory Alternative A); and prohibit anchoring in and control access to Tortugas South via permit, require call-in for entering and leaving, and prohibit vessels longer than 100 ft LOA from using a mooring buoy. A small portion of Tortugas North and all of Tortugas South would be outside the existing Sanctuary boundary. The Sanctuary-wide regulations would become effective in the expansion area. The existing Sanctuary regulations and their impacts are summarized in Table 21 of the DSEIS/SMP. More detailed descriptions of the regulations are included in Appendix C to the DSEIS/SMP. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these Parts).

The effects of the ecological reserve regulations which, under Boundary Alternative V apply to a larger area because of the Sanctuary expansion, have been analyzed under the no-take discussion above. The prohibition on anchoring would have no incremental impact on commercial fishing or recreational consumptive users since they are displaced by the ''no-take'' regulation. There are no known recreational dive operators servicing Tortugus South. The location and availability of mooring buoys would constrain the number and choice of available dive sites. It is unknown whether this would have any impact on the future business volume of dive operators or the quality of the experience to nonconsumptive divers. The extent of impact would be dependent on the number and locations of mooring buoys (to be determined).

The prohibition on anchoring would impact commercial shipping in the boundary expansion area, especially in Tortugas South. Anchoring by large commercial vessels is known to occur on Riley's Hump, which would be included in the Sanctuary as part of Tortugas South under Boundary Alternative V and thus would be subject to the anchoring prohibition. While the Sanctuary area has been expanded, the impact of this regulation on commercial vessel operators is still expected to be small since other non-coral reef anchorages are available a short distance away outside the Sanctuary boundary.

There would be no incremental impact on treasure salvors from the no-anchoring prohibition since they would be displaced by the ''no-take'' regulation.

The permit requirements would have no incremental impact on fishermen or salvors because they would be displaced by the ''no-take'' regulations.

There are no known nonconsumptive dive operators currently operating in Tortugas South. Any nonconsumptive dive operators operating in Tortugas South in the future would be required to obtain Tortugas access permits. It is not possible to gauge the extent of any such future activity. There would be minor time costs associated with obtaining a permit and getting permission to access the reserve. It is expected that fulfilling all the permit requirements and obtaining permission to access the reserve would not exceed 10 minutes of each permittee's time for each visit to the reserve. No special professional skills would be necessary to apply for a permit.

Regulatory Alternative C (Preferred Regulatory Alternative): Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South (as described in Regulatory Alternative A); and prohibit anchoring in and control access to Tortugas North and South via permit, require call-in for entering and leaving, and prohibit vessels longer than 100 ft LOA from using a mooring buoy (as described in Regulatory Alternative B). The only difference between the impacts of this regulatory alternative from those discussed under Regulatory Alternative B would be those associated with the requirement to obtain a permit for other than continuous transit access to Tortugas North. Under this boundary alternative there are 3.25 more person-days of recreational nonconsumptive use than under Boundary Alternatives IV. While the area of Tortugas North would be increased by the expansion to the west, the permit requirements would have no incremental impact on fishermen or salvors because they would be displaced by the ''no-take'' regulations. There is one known nonconsumptive dive operator currently operating in Tortugas North. He and any new nonconsumptive dive operators operating in Tortugas North would be required to obtain Tortugas access permits. There would be minor time costs associated with obtaining a permit and getting permission to access the reserve. It is expected that fulfilling all the permit requirements and obtaining permission to access the reserve would not exceed 10 minutes of each permittee's time for each visit to the reserve. No special professional skills would be necessary to apply for a permit. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these Parts).

Regulatory Alternative D: Apply existing Sanctuary-wide and, with minor modifications, existing ecological reserve regulations to Tortugas North and South (as described in Alternative A); prohibit anchoring in and control access to Tortugas North via permit, require call-in for entering and leaving, and prohibit vessels longer than 100 ft LOA from using a mooring buoy (as described in Regulatory Alternative B); and prohibit anchoring and restrict access to Tortugas South to research or education activities only. The only difference between the impacts of this regulatory alternative from those discussed under Regulatory Alternative C would be those associated with limiting noncontinuous transit access to Tortugas South to research/educational purposes. For the commercial fisheries, salvors, and recreational consumptive users, there would be no incremental impacts since the ''no-take'' regulation would displace these user groups. There are no known nonconsumptive dive operators currently operating in Tortugas South and no recreational diving is known to occur there. Under

this alternative, none would be allowed in the future. The existing ecological reserve regulations would be revised to reflect that fishing would be prohibited in the Tortugas Ecological Reserve except to the extent authorized by 50 CFR Parts 622 and 635 (it is anticipated that no fishing would be authorized in the Tortugas Ecological Reserve by these Parts).

Selection of the Preferred Alternative

Introduction

This section sets forth the agency's preferred alternative (Fig. 3) and why it was selected.

Preferred Alternative

NOAA has selected Boundary Alternative III combined with Regulatory Alternative C as its preferred alternative.

General Rationale

NOAA has adopted Boundary Alternative III and Regulatory Alternative C because this combination achieves the objectives of all five of the criteria listed below. Based on its analysis, NOAA believes that this preferred alternative would adequately protect the nationally significant coral reef resources of the Tortugas region and fulfill the objectives of the FKNMSPA and the NMSA.

The preferred alternative is of sufficient size and imposes adequate protection measures to achieve the goals and objectives of the FKNMSPA and the NMSA while not unduly impacting user groups. Boundary Alternative III is consistent with the recommendations of the SAC to NOAA and the State of Florida. While the WG and SAC recommended Regulatory Alternative A (application of the existing Sanctuary-wide and existing ecological reserve regulations) NOAA believes that the more protective approach of Regulatory Alternative C is warranted because of the threat to coral reef resources posed by the anchoring of vessels and the difficulty of enforcing regulations in this remote area, particularly Tortugas South. Coral cover is so high and water depths so deep in the Tortugas that anchoring is virtually impossible without damaging coral. Enforcement would be greatly facilitated by the notice of user presence that would be provided to the FKNMS by the permit requirement.

Comparison of Alternatives

This section compares the four alternatives based on five criteria which are: (1) Protect ecosystem integrity, (2) increase scientific understanding, (3) facilitate non-consumptive human activities, (4) protect natural spawning, nursery, and permanent residence areas, and (5) minimize adverse socioeconomic impacts. These criteria are consistent with the goals of the Florida Keys National Marine Sanctuary and Protection Act (FKNMSPA), the National Marine Sanctuaries Act (NMSA), the Final Management Plan (MP), the public scoping comments, the Working Group's criteria, and the U.S. Coral Reef Task Force (CRTF) recommendations.

Criteria: Protect ecosystem integrity.

Objective: Choose an area and protective measures that protect the highest biological diversity and widest range of contiguous habitats.

Rationale/Source: FKNMSPA, NMSA, scoping comments, and WG/SAC.

Analysis: Boundary Alternative II does not encompass enough range of habitat to adequately protect the integrity of the ecosystem. The critical areas of Sherwood Forest and Riley's Hump are not part of this alternative. Boundary Alternative II offers no insurance against the effects of a catastrophic event (*e.g.,* cold weather, low salinity) that could potentially damage resources of the area. Boundary Alternatives III, IV and V include a sufficient range of viable habitats to protect ecosystem integrity and include two replicate components that would help to ensure against the effects of catastrophic events. The increased area of Boundary Alternatives IV and V has negligible increased benefit to protecting ecosystem integrity compared to Alternative III. Regulatory Alternative A would not adequately protect ecosystem integrity because of the threat to coral reef resources by anchoring. Regulatory Alternative B would not adequately protect ecosystem integrity in Tortugas North because of the threat to coral reef resources by anchoring and would not provide notice to FKNMS of the presence of users to facilitate enforcement. Regulatory Alternative C adequately protects ecosystem integrity and facilitates enforcement. Regulatory Alternative D would adequately protect ecosystem integrity and facilitates enforcement but would unduly restrict uses in Tortugas South.

Criteria: Increase scientific understanding of human effects on ecosystem processes

Objective: Choose an area and protective measures that will facilitate the monitoring of anthropogenic impacts and the evaluation of the efficacy of the ecological reserve for protecting coral reef health and biodiversity.

Rationale/Source: FKNMSPA, NMSA, scoping comments, and WG/SAC.

Analysis: Given the absence of unexploited areas in the Tortugas region, Boundary Alternatives II-V would serve to increase scientific understanding of marine ecosystems, their response to management and their recovery from fishing impacts. Boundary Alternatives III-V offer the added scientific benefit of protecting Riley's Hump which would add to existing knowledge of effective reserve design regarding networks and energy flow between reserves. Also, the inclusion of Tortugas South would significantly add to the understanding of the importance of the Tortugas region in sustaining the Florida Keys ecosystem. Boundary Alternatives IV and V encompass all of Tortugas Bank which would compromise the study of fishing effects because there would be no comparable habitat for use as a reference site. Regulatory Alternatives A, B, and C would provide for essentially the same level of scientific understanding. Regulatory Alternative D would facilitate the most scientific understanding of human effects on ecosystem processes because it would create a research/education-only area in the Tortugas which could serve as a reference to areas where recreational diving is allowed.

Criteria: Facilitate non-consumptive uses.

Objective: Choose an area and protective measures that will allow non-consumptive uses and provide a range of habitats to observe and study.

Rationale/Source: FKNMSPA, NMSA, MP.

Analysis: Boundary Alternatives II–V would serve well in enhancing opportunities for non-consumptive activities such as education, photography, underwater wilderness opportunities, and ecotourism. Boundary Alternatives III–V provide enhanced opportunities over Alternative II because of the addition of Tortugas South. Regulatory Alternatives A, B, and C would provide the same non-consumptive opportunities. Regulatory Alternative D would prohibit all consumptive and non-consumptive activities in Tortugas South other than research and education.

Criteria: Protect natural spawning, nursery, and permanent residence areas.

Objective: Choose an area and protective measures that will protect known or reported spawning areas and habitat that supports resident fish and other marine life.

Rationale/Source: MP, scoping comments, and WG/SAC.

Analysis: Boundary Alternative II protects only one of eight known fish

spawning aggregations and does not include Riley's Hump which is a critical source area for larvae. Sherwood Forest, an important permanent residence area for a variety of species, is not part of Boundary Alternative II. Boundary Alternative III would protect 5 of the 8 known fish spawning areas as well as approximately 87% of the known coral reef habitat and 76% of the known hardbottom habitat. Boundary Alternative IV would encompass 6 out of 8 known fish spawning sites as well as 100% of the known coral and hardbottom habitat. Boundary Alternative V would encompass 7 out of the 8 known fish spawning sites and would protect all of the known coral and hardbottom habitat. Boundary Alternative V's expansion of Tortugas North to the west would provide increased protection for deepwater habitats and associated species. The reduction in size of Tortugas South would provide less protection for deep water habitat has the least and associated species.

Criteria: Minimize adverse socioeconomic impacts.

Objective: Choose an area and protective measures that meets the objectives of the other criteria but that does not unduly impact users.

Rationale/Source: FKNMSPA, NMSA, scoping comments, and WG/SAC.

Analysis: Boundary Alternative II will have the least impact on recreational and commercial users whereas Boundary Alternatives IV and V will have the most. Boundary Alternative III has moderate impacts on users, mostly lobster fishermen and handline fishermen. Altenatives IV and V have significantly greater impacts because they include the southern half of Tortugas Bank which is heavily utilized by both recreational and commercial users. Alternative III offers a compromise because it allows for continued exploitation of the southern half of Tortugas Bank including trolling for pelagic species. Ignoring the potential of such effects as replenishment that would result in a net economic benefit, Regulatory Alternative A has significant adverse socioeconomic effects on users including small entities. There are 12 recreational charter operations that would be affected by this alternative and approximately 110 commercial fishing operations all of which are small entities. No lesser degree of protection than that provided by Regulatory Alternative A would provide an adequate degree of protection for the resources of the Tortugas and even Regulatory Alternative A by itself would not provide sufficient protection to coral reef resources from anchoring and would not provide FKNMS adequate notice to facilitate enforcement. Accordingly, other than the no-action alternative, no other regulatory alternatives that would provide a lesser degree of protection were considered. Regulatory Alternative B would provide adequate protection from anchoring damage in the Tortugas South and would provide adequate notification to FKNMS to facilitate enforcement there but would not provide adequate protection to Tortugas North. Regulatory Alternative C would provide both adequate resource protection and adequate notification to FKNMS to facilitate enforcement with insignificant incremental costs to users. NOAA's preferred alternative (Boundary Alternative III/Regulatory Alternative C) could potentially impact, if one assumes no mitigating factors, 9 recreational charter uses with total annual revenue losses of approximately $152,054 and 64 commercial fishermen with total annual revenue losses of approximately $843,583. Regulatory Alternative D would facilitate the study of fishing impacts and diver impacts but would prohibit any uses of the area.

Paperwork Reduction Act

Notwithstanding any other provision of law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act (PRA) unless that collection of information displays a currently valid OMB control number.

This proposed rule contains collection-of-information requirements subject to review and approval by the Office of Management and Budget (OMB) under the PRA. The only record keeping or reporting requirements are the permit and call-in, call-out requirements for the reserve previously described in the Preamble under proposed regulations. There are two classes of users that would be affected by these proposed requirements: commercial dive boat operators and private boaters. The type of skills necessary to request an access permit and to provide notification when entering or leaving the proposed ecological reserve would be use of marine radio equipment. These requirements have been submitted to OMB for approval. The public reporting burden for these requirements is estimated to be 10 minutes per application for a permit and 2 minutes per call-in or call out, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Public comment is sought regarding: whether these proposed collections of information are necessary for the proper performance of the functions of NOAA, including whether the information has practical utility; the accuracy of the burden estimates; ways to minimize the burden of the collection of information, including through use of automated collection techniques or other forms of information technology.

List of Subjects in 15 CFR Part 922

Administrative practice and procedure, Coastal zone, Education, Environmental protection, Marine resources, Penalties, Recreation and recreation areas, Reporting and recordkeeping requirements, Research.

Dated: May 10, 2000.

Ted Lillestolen,

Deputy Assistant Administrator for Ocean Services and Coastal Zone Management.

Accordingly, for the reasons set forth in the preamble, 15 CFR part 922 is proposed to be amended as follows:

PART 922—NATIONAL MARINE SANCTUARY PROGRAM REGULATIONS

1. The authority citation for part 922 continues to read as follows:

Authority: 16 U.S.C. 1431 *et seq.*

2. Section 922.161 is revised to read as follows:

§ 922.161 Boundary.

The Sanctuary consists of an area of approximately 2900 square nautical miles (9,800 square kilometers) of coastal and ocean waters, and the submerged lands thereunder, surrounding the Florida Keys in Florida. Appendix I to this subpart sets forth the precise Sanctuary boundary.

3. In § 922.162, definitions for ''Length overall (LOA) or length,'' ''Stem,'' and ''Stern'' are added alphabetically as follows:

§ 922.162 Definitions.

* * * * *

Length overall (LOA) or *length* means, as used in § 922.167 with respect to a vessel, the horizontal distance, rounded to the nearest foot (with 0.5 ft and above rounded upward), between the foremost part of the stem and the aftermost part of the stern, excluding bowsprits, rudders, outboard motor brackets, and similar fittings or attachments.

* * * * *

Stem means the foremost part of a vessel, consisting of a section of timber

or fiberglass, or cast, forged, or rolled metal, to which the sides of the vessel are united at the fore end, with the lower end united to the keel, and with the bowsprit, if one is present, resting on the upper end.

Stern means the aftermost part of the vessel.

* * * * *

4. In § 922.164, paragraphs (d)(1)(ii), (d)(1)(iii), (d)(1)(v) and (d)(1)(vi) are revised as follows:

§ 922.164 Additional activity regulations by Sanctuary area.

* * * * *

(d) * * *

(1) * * *

(ii) Possessing, moving, harvesting, removing, taking, damaging, disturbing, breaking, cutting, spearing, or otherwise injuring any coral, marine invertebrate, fish, bottom formation, algae, seagrass or other living or dead organism, including shells, or attempting any of these activities, except as authorized by paragraph (d)(1)(iii) of this section. However, fish, invertebrates, and marine plants may be possessed aboard a vessel in an Ecological Reserve or Sanctuary Preservation Area, provided such resources can be shown not to have been harvested within, removed from, or taken within, the ecological reserve or Sanctuary Preservation Area as applicable, by being stowed in a cabin, locker, or similar storage area prior to entering and during transit through such reserves or Areas, provided further that in an Ecological Reserve or Sanctuary Preservation Area located in Florida State waters, such vessel is in continuous transit through the Ecological Reserve or Sanctuary Preservation Area.

(iii) Except for catch and release fishing by trolling in the Conch Reef, Alligator Reef, Sombrero Reef, and Sand Key Sanctuary Preservation Areas, and except for fishing in the Tortugas Ecological Reserve authorized by 50 CFR parts 622 and 635, fishing by any means. However, gear capable of harvesting fish may be aboard a vessel in an Ecological Reserve or Sanctuary Preservation Area, provided such gear is not available for immediate use when entering and during transit through such Ecological Reserve or Sanctuary Preservation Area, and no presumption of fishing activity shall be drawn therefrom. * * *

(v) Anchoring in the Tortugas Ecological Reserve. In all other Ecological Reserves and Sanctuary Preservation Areas, placing any anchor in a way that allows the anchor or any portion of the anchor apparatus (including the anchor, chain or rope) to touch living or dead coral, or any attached living organism. When anchoring dive boats, the first diver down must inspect the anchor to ensure that it is not touching living or dead coral, and will not shift in such a way as to touch such coral or other attached organism. No further diving shall take place until the anchor is placed in accordance with these requirements.

(vi) Except in the Tortugas Ecological Reserve where mooring buoys must be used, anchoring instead of mooring when a mooring buoy is available or anchoring in other than a designated anchoring area when such areas have been designated and are available.

4. In § 922.164, paragraphs (d)(1)(viii) and (d)(1)(ix) are added to read as follows:

§ 922.164 Additional activity regulations by Sanctuary area.

* * * * *

(d) * * *

(1) * * *

(1) * * *

(viii) Except for passage without interruption through the area, for law enforcement purposes, or for purposes of monitoring pursuant to paragraph (d)(2) of this section, entering the Tortugas Ecological Reserve without a valid access permit issued pursuant to § 922.167 or entering or leaving the Tortugas Ecological Reserve with a valid access permit issued pursuant to § 922.167 without notifying FKNMS staff at the Dry Tortugas National Park office by telephone or radio no less than 30 minutes and no more than 6 hours, before entering and upon leaving the Tortugas Ecological Reserve.

(ix) Tying a vessel greater than 100 feet (30.48 meters) LOA, or tying more than one vessel (other than vessels carried on board a vessel) if the combined lengths would exceed 100 feet (30.48 meters) LOA, to a mooring buoy or to a vessel tied to a mooring buoy in the Tortugas Ecological Reserve.

5. In § 922.164, paragraph (g) is revised to read as follows:

§ 922.164 Additional activity regulations by Sanctuary area.

* * * * *

(g) *Anchoring on Tortugas Bank.* Vessels 50 meters or greater in registered length, are prohibited from anchoring on the portion of Tortugas Bank within the Florida Keys National Marine Sanctuary west of the Dry Tortugas National Park that is outside of the Tortugas Ecological Reserve. The boundary of the area closed to anchoring by vessels 50 meters or greater in registered length is formed by connecting in succession the points at the following coordinates (based on the North American Datum of 1983):

(1) 24 deg. 39.00′ N 83 deg. 06.00′ W

(2) 24 deg. 32.00′ N 83 deg. 00.05′ W

(3) 24 deg. 37.00′ N 83 deg. 06.00′ W

(4) 24 deg. 40.00′ N 83 deg. 06.00′ W

(5) 24 deg. 39.00′ N 83 deg. 06.00′ W

6. Revise the heading of § 922.166 to read as follows:

§ 922.166 Permits other than for access to the Tortugas Ecological Reserve-application procedures and issuance criteria.

7. Redesignate § 922.167 as § 922.168 and revise it to read as follows:

§ 922.168 Certification of preexisting leases, licenses, permits, approvals, other authorizations, or rights to conduct a prohibited activity.

(a) A person may conduct an activity prohibited by §§ 922.163 or 922.164 if such activity is specifically authorized by a valid Federal, State, or local lease, permit, license, approval, or other authorization in existence on July 1, 1997, or by any valid right of subsistence use or access in existence on July 1, 1997, provided that:

(1) The holder of such authorization or right notifies the Director, in writing, within 90 days of July 1, 1997, of the existence of such authorization or right and requests certification of such authorization or right; for the area added to the Sanctuary by the boundary expansion for the Tortugas Ecological Reserve, the holder of such authorization or right notifies the Director, in writing, within 90 days of __, 2000, of the existence of such authorization or right and requests certification of such authorization or right.

(2) The holder complies with the other provisions of this § 922.168; and

(3) The holder complies with any terms and conditions on the exercise of such authorization or right imposed as a condition of certification, by the Director, to achieve the purposes for which the Sanctuary was designated.

(b) The holder of an authorization or right described in paragraph (a) of this section authorizing an activity prohibited by §§ 922.163 or 922.164 may conduct the activity without being in violation of applicable provisions of §§ 922.163 or 922.164, pending final agency action on his or her certification request, provided the holder is in compliance with this § 922.168.

(c) Any holder of an authorization or right described in paragraph (a) of this section may request the Director to issue a finding as to whether the activity for which the authorization has been issued, or the right given, is prohibited

by §§ 922.163 or 922.164, thus requiring certification under this section.

(d) Requests for findings or certifications should be addressed to the Director, Office of Ocean and Coastal Resource Management; ATTN: Sanctuary Superintendent, Florida Keys National Marine Sanctuary, P.O. Box 500368, Marathon, FL 33050. A copy of the lease, permit, license, approval, or other authorization must accompany the request.

(e) The Director may request additional information from the certification requester as he or she deems reasonably necessary to condition appropriately the exercise of the certified authorization or right to achieve the purposes for which the Sanctuary was designated. The information requested must be received by the Director within 45 days of the postmark date of the request. The Director may seek the views of any persons on the certification request.

(f) The Director may amend any certification made under this § 922.168 whenever additional information becomes available justifying such an amendment.

(g) Upon completion of review of the authorization or right and information received with respect thereto, the Director shall communicate, in writing, any decision on a certification request or any action taken with respect to any certification made under this § 922.168, in writing, to both the holder of the certified lease, permit, license, approval, other authorization, or right, and the issuing agency, and shall set forth the reason(s)for the decision or action taken.

(h) Any time limit prescribed in or established under this § 922.168 may be extended by the Director for good cause.

(i) The holder may appeal any action conditioning, amending, suspending, or revoking any certification in accordance with the procedures set forth in § 922.50.

(j) Any amendment, renewal, or extension made after July 1, 1997, to a lease, permit, license, approval, other authorization or right is subject to the provisions of Sec. 922.49.

8. Add a new § 922.167 to read as follows:

§ 922.167 Permits for access to the Tortugas Ecological Reserve.

(a) A person may enter the Tortugas Ecological Reserve other than for passage without interruption through the reserve, for law enforcement purposes, or for purposes of monitoring pursuant to paragraph (d)(2) of § 922.164, if authorized by a valid access permit issued pursuant to § 922.167.

(b)(1) Access permits must be requested at least 72 hours but no longer than one month before the date the permit is desired to be effective. Access permits do not require written applications or the payment of any fee. Permits may be requested via telephone or radio by contacting FKNMS at any of the following numbers:

Key West office: telephone: (305) 292–0311.

Marathon office: telephone: (305) 743–2437.

(2) The following information must be provided, as applicable:

(i) Vessel name.

(ii) Name, address, and telephone number of owner and operator.

(iii) Name, address, and telephone number of applicant.

(iv) USCG documentation, state license, or registration number.

(v) Home port.

(vi) Length of vessel and propulsion type (*i.e.,* motor or sail).

(vii) Number of divers.

(viii) Requested effective date and duration of permit (2 weeks, maximum).

(c) The Sanctuary Superintendent will issue a permit to the owner or to the owner's representative for the vessel when all applicable information has been provided. FKNMS will provide a permit number to the applicant and confirm the effective date and duration period of the permit. Written confirmation of permit issuance will be provided upon request.

9. Revise Appendices I, II, IV, V, VI, and VII to Subpart P of Part 922 to read as follows:

Appendix I to Subpart P of Part 922—Florida Keys National Marine Sanctuary Boundary Coordinates

(Appendix Based on North American Datum of 1983)

1. The boundary of the Florida Keys National Marine Sanctuary—

(a) Begins at the northeasternmost point of Biscayne National Park located at approximately 25 degrees 39 minutes north latitude, 80 degrees 05 minutes west longitude, then runs eastward to the point at 25 degrees 39 minutes north latitude, 80 degrees 04 minutes west longitude; and

(b) Then runs southward and connects in succession the points at the following coordinates:

(i) 25 degrees 34 minutes north latitude, 80 degrees 04 minutes west longitude,

(ii) 25 degrees 28 minutes north latitude, 80 degrees 05 minutes west longitude, and

(iii) 25 degrees 21 minutes north latitude, 80 degrees 07 minutes west longitude;

(iv) 25 degrees 16 minutes north latitude, 80 degrees 08 minutes west longitude;

(c) Then runs southwesterly approximating the 300-foot isobath and connects in succession the points at the following coordinates:

(i) 25 degrees 07 minutes north latitude, 80 degrees 13 minutes west longitude,

(ii) 24 degrees 57 minutes north latitude, 80 degrees 21 minutes west longitude,

(iii) 24 degrees 39 minutes north latitude, 80 degrees 52 minutes west longitude,

(iv) 24 degrees 30 minutes north latitude, 81 degrees 23 minutes west longitude,

(v) 24 degrees 25 minutes north latitude, 81 degrees 50 minutes west longitude,

(vi) 24 degrees 22 minutes north latitude, 82 degrees 48 minutes west longitude,

(vii) 24 degrees 37 minutes north latitude, 83 degrees 06 minutes west longitude,

(viii) 24 degrees 46 minutes north latitude, 83 degrees 06 minutes west longitude,

(ix) 24 degrees 44 minutes north latitude, 81 degrees 55 minutes west longitude,

(x) 24 degrees 51 minutes north latitude, 81 degrees 26 minutes west longitude, and

(xi) 24 degrees 55 minutes north latitude, 80 degrees 56 minutes west longitude;

(d) Then follows the boundary of Everglades National Park in a southerly then northeasterly direction through Florida Bay, Buttonwood Sound, Tarpon Basin, and Blackwater Sound;

(e) After Division Point, then departs from the boundary of Everglades National Park and follows the western shoreline of Manatee Bay, Barnes Sound, and Card Sound;

(f) Then follows the southern boundary of Biscayne National Park to the southeasternmost point of Biscayne National Park; and

(g) Then follows the eastern boundary of Biscayne National Park to the beginning point specified in paragraph (a).

2. The shoreward boundary of the Florida Keys National Marine Sanctuary is the mean high-water mark except around the Dry Tortugas where the boundary is coterminous with that of the Dry Tortugas National Park, formed by connecting in succession the points at the following coordinates:

(a) 24 degrees 34 minutes 0 seconds north latitude, 82 degrees 54 minutes 0 seconds west longitude;

(b) 24 degrees 34 minutes 0 seconds north latitude, 82 degrees 58 minutes 0 second west longitude;

(c) 24 degrees 39 minutes 0 seconds north latitude, 82 degrees 58 minutes 0 seconds west longitude;

(d) 24 degrees 43 minutes 0 seconds north latitude, 82 degrees 54 minutes 0 seconds west longitude;

(e) 24 degrees 43 minutes 32 seconds north latitude, 82 degrees 52 minutes 0 seconds west longitude;

(f) 24 degrees 43 minutes 32 seconds north latitude, 82 degrees 48 minutes 0 seconds west longitude;

(g) 24 degrees 42 minutes 0 seconds north latitude, 82 degrees 46 minutes, 0 seconds west longitude;

(h) 24 degrees 40 minutes 0 seconds north latitude, 82 degrees 46 minutes 0 seconds west longitude;

(i) 24 degrees 37 minutes 0 seconds north latitude, 82 degrees 48 minutes 0 seconds west longitude; and

(j) 24 degrees 34 minutes 0 seconds north latitude, 82 degrees 54 minutes 0 seconds west longitude.

3. The Florida Keys National Marine Sanctuary also includes the area located

within the boundary formed by connecting in succession the points at the following coordinates:

(a) 24 degrees 33 minutes north latitude, 83 degrees 09 minutes west longitude,

(b) 24 degrees 33 minutes north latitude, 83 degrees 05 minutes west longitude, and

(c) 24 degrees 18 minutes north latitude, 83 degrees 05 minutes west longitude;

(d) 24 degrees 18 minutes north latitude, 83 degrees 09 minutes west longitude; and

(e) 24 degrees 33 minutes north latitude, 83 degrees 09 minutes west longitude.

Appendix II to Subpart P of Part 922—Existing Management Areas Boundary Coordinates

1. The boundary of each of the Existing Management Areas is formed by connecting in succession the points at the following coordinates:

National Oceanic and Atmospheric Administration:

KEY LARGO-MANAGEMENT AREA

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	25 deg. 19′45″ N	80 deg. 12′00″ W.
2	25 deg. 16′02″ N	80 deg. 08′07″ W.
3	25 deg. 07′05″ N	80 deg. 12′05″ W.
4	24 deg. 58′03″ N	80 deg. 19′08″ W.
5	25 deg. 02′02″ N	80 deg. 25′25″ W.
6	25 deg. 19′45″ N	80 deg. 12′00″ W.

LOOE KEY MANAGEMENT AREA

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 31′62″ N	81 deg. 26′00″ W.
2	24 deg. 33′57″ N	81 deg. 26′00″ W.
3	24 deg. 34′15″ N	81 deg. 23′00″ W.
4	24 deg. 32′20″ N	81 deg. 23′00″ W.
5	24 deg. 31′62″ N	81 deg. 26′00″ W.

United States Fish and Wildlife Service:

GREAT WHITE HERON NATIONAL WILDLIFE REFUGE

[Based on the North American Datum of 1983]

Point	Latitude	Longitude
1	24 deg. 43.8′ N	81 deg. 48.6′ W.
2	24 deg. 43.8′ N	81 deg. 37.2′ W.
3	24 deg. 49.2′ N	81 deg. 37.2′ W.
4	24 deg. 49.2′ N	81 deg. 19.8′ W.
5	24 deg. 48.0′ N	81 deg. 19.8′ W.
6	24 deg. 48.0′ N	81 deg. 14.4′ W.
7	24 deg. 49.2′ N	81 deg. 14.4′ W.
8	24 deg. 49.2′ N	81 deg. 08.4′ W.
9	24 deg. 43.8′ N	81 deg. 08.4′ W.
10	24 deg. 43.8′ N	81 deg. 14.4′ W.
11	24 deg. 43.2′ N	81 deg. 14.4′ W.
12	24 deg. 43.2′ N	81 deg. 16.2′ W.
13	24 deg. 42.6′ N	81 deg. 16.2′ W.
14	24 deg. 42.6′ N	81 deg. 21.0′ W.
15	24 deg. 41.4′ N	81 deg. 21.0′ W.
16	24 deg. 41.4′ N	81 deg. 22.2′ W.
17	24 deg. 43.2′ N	81 deg. 22.2′ W.
18	24 deg. 43.2′ N	81 deg. 22.8′ W.
19	24 deg. 43.8′ N	81 deg. 22.8′ W.
20	24 deg. 43.8′ N	81 deg. 24.0′ W.
21	24 deg. 43.2′ N	81 deg. 24.0′ W.
22	24 deg. 43.2′ N	81 deg. 26.4′ W.
23	24 deg. 43.8′ N	81 deg. 26.4′ W.
24	24 deg. 43.8′ N	81 deg. 27.0′ W.
25	24 deg. 43.2′ N	81 deg. 27.0′ W.
26	24 deg. 43.2′ N	81 deg. 29.4′ W.
27	24 deg. 42.6′ N	81 deg. 29.4′ W.
28	24 deg. 42.6′ N	81 deg. 30.6′ W.
29	24 deg. 41.4′ N	81 deg. 30.6′ W.
30	24 deg. 41.4′ N	81 deg. 31.2′ W.
31	24 deg. 40.8′ N	81 deg. 31.2′ W.
32	24 deg. 40.8′ N	81 deg. 32.4′ W.

GREAT WHITE HERON NATIONAL WILDLIFE REFUGE—Continued

[Based on the North American Datum of 1983]

Point	Latitude	Longitude
33	24 deg. 41.4′ N	81 deg. 32.4′ W.
34	24 deg. 41.4′ N	81 deg. 34.2′ W.
35	24 deg. 40.8′ N	81 deg. 34.2′ W.
36	24 deg. 48.0′ N	81 deg. 35.4′ W.
37	24 deg. 39.6′ N	81 deg. 35.4′ W.
38	24 deg. 39.6′ N	81 deg. 36.0′ W.
39	24 deg. 39.0′ N	81 deg. 36.0′ W.
40	24 deg. 39.0′ N	81 deg. 37.2′ W.
41	24 deg. 37.8′ N	81 deg. 37.2′ W.
42	24 deg. 37.8′ N	81 deg. 37.8′ W.
43	24 deg. 37.2′ N	81 deg. 37.8′ W.
44	24 deg. 37.2′ N	81 deg. 40.2′ W.
45	24 deg. 36.0′ N	81 deg. 40.2′ W.
46	24 deg. 36.0′ N	81 deg. 40.8′ W.
47	24 deg. 35.4′ N	81 deg. 40.8′ W.
48	24 deg. 35.4′ N	81 deg. 42.0′ W.
49	24 deg. 36.0′ N	81 deg. 42.0′ W.
50	24 deg. 36.0′ N	81 deg. 48.6′ W.
51	24 deg. 43.8′ N	81 deg. 48.6′ W.

KEY WEST NATIONAL WILDLIFE REFUGE

[Based on the North American Datum of 1983]

Point	Latitude	Longitude
1	24 deg. 40.0′ N	81 deg.49.0′ W.
2	24 deg. 40.0′ N	82 deg.10.0′ W.
3	24 deg. 27.0′ N	82 deg.10.0′ W.
4	24 deg. 27.0′ N	81 deg.49.0′ W.
5	24 deg. 40.0′ N	81 deg.49.0′ W.

2. When differential Global Positioning Systems data becomes available, these coordinates may be revised by publication in the **Federal Register** Notice to reflect the increased accuracy of such data.

Appendix IV to Subpart P of Part 922—Ecological Reserves Boundary Coordinates

1. The boundary of the Western Sambo Ecological Reserve is formed by connecting in succession the points at the following coordinates:

WESTERN SAMBO

[Based on differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 33.70′ N	81 deg. 40.80′ W.
2	24 deg. 28.85′ N	81 deg. 41.90′ W.
3	24 deg. 28.50′ N	81 deg. 43.70′ W.
4	24 deg. 33.50′ N	81 deg. 43.10′ W.
5	24 deg. 33.70′ N	81 deg. 40.80′ W.

2. The Tortugas Ecological Reserve consists of two discrete areas, Tortugas North and Tortugas South.

3. The boundary of Tortugas North is formed by connecting in succession the points at the following coordinates:

TORTUGAS NORTH

Point	Latitude	Longitude
1	24 deg. 46′00″ N 83 deg.06′00″ W..	
2	24 deg. 46′00″ N	82 deg. 54′00″ W.
3	24 deg. 45′05″ N	82 deg. 48′00″ W.
4	24 deg. 43′32″ N	82 deg. 48′00″ W.
5	24 deg. 43′32″ N	82 deg. 52′00″ W.
6	24 deg. 43′00″ N	82 deg. 54′00″ W.
7	24 deg. 39′00″ N	82 deg. 58′00″ W.
8	24 deg. 39′00″ N 8183 deg. 06′00″ W..	
9	24 deg. 46′00″ N 8183 deg. 06′00″ W..	

4. The boundary of Tortugas South is formed by connecting in succession the points at the following coordinates:

TORTUGAS SOUTH

Point	Latitude	Longitude
1	24 deg. 33′00″ N	83 deg. 09′00″ W.
2	24 deg. 33′00″ N	83 deg. 05′00″ W.
3	24 deg. 18′00″ N	83 deg. 05′00″ W.
4	24 deg. 18′00″ N	83 deg. 09′00″ W.
5	24 deg. 33′00″ N	83 deg. 09′00″ W.

Appendix V to Subpart P of Part 922—Sanctuary Preservation Areas: Boundary Coordinates

The boundary of each of the Sanctuary Preservation Areas (SPAs) is formed by connecting in succession the points at the following coordinates:

ALLIGATOR REEF

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 50.98′ N	80 deg. 36.84′ W.
2	24 deg. 50.51′ N	80 deg. 37.35′ W.
3	24 deg. 50.81′ N	80 deg. 37.63′ W.
4	24 deg. 51.23′ N	80 deg. 37.17′ W.
5	24 deg. 50.98′ N	80 deg. 36.84′ W.

Catch and release fishing by trolling only is allowed in this SPA.

CARYSFORT/SOUTH CARYSFORT REEF

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	25 deg. 13.78′ N	80 deg. 12.00′ W.
2	25 deg. 12.03′ N	80 deg. 12.98′ W.
3	25 deg. 12.24′ N	80 deg. 13.77′ W.
4	25 deg. 14.13′ N	80 deg. 12.78′ W.
5	25 deg. 13.78′ N	80 deg. 12.00′ W.

CHEECA ROCKS

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 54.42′ N	80 deg. 36.91′ W.
2	24 deg. 54.25′ N	80 deg. 36.77′ W.
3	24 deg. 54.10′ N	80 deg. 37.00′ W.
4	24 deg. 54.22′ N	80 deg. 37.15′ W.
5	24 deg. 54.42′ N	80 deg. 36.91′ W.

COFFINS PATCH

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 41.47′ N	80 deg. 57.68′ W.
2	24 deg. 41.12′ N	80 deg. 57.53′ W.
3	24 deg. 40.75′ N	80 deg. 58.33′ W.
4	24 deg. 41.06′ N	80 deg. 58.48′ W.
5	24 deg. 41.47′ N	80 deg. 57.68′ W.

CONCH REEF

[Based on differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 57.48′ N	80 deg. 27.47′ W.
2	24 deg. 57.34′ N	80 deg. 27.26′ W.
3	24 deg. 56.78′ N	80 deg. 27.52′ W.
4	24 deg. 56.96′ N	80 deg. 27.73′ W.
5	24 deg. 57.48′ N	80 deg. 27.47′ W.

Catch and release fishing by trolling only is allowed in this SPA.

DAVIS REEF

[Based on differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 55.61′ N	80 deg. 30.27′ W.
2	24 deg. 55.41′ N	80 deg. 30.05′ W.
3	24 deg. 55.11′ N	80 deg. 30.35′ W.
4	24 deg. 55.34′ N	80 deg. 30.52′ W.
5	24 deg. 55.61′ N	80 deg. 30.27′ W.

DRY ROCKS

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	25 deg. 07.59′ N	80 deg. 17.91′ W.
2	25 deg. 07.41′ N	80 deg. 17.70′ W.
3	25 deg. 07.25′ N	80 deg. 17.82′ W.
4	25 deg. 07.41′ N	80 deg. 18.09′ W.
5	25 deg. 07.59′ N	80 deg. 17.91′ W.

GRECIAN ROCKS

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	25 deg. 06.91′ N	80 deg. 18.20′ W.
2	25 deg. 06.67′ N	80 deg. 18.06′ W.
3	25 deg. 06.39′ N	80 deg. 18.32′ W.
4	25 deg. 06.42′ N	80 deg. 18.48′ W.
5	25 deg. 06.81′ N	80 deg. 18.44′ W.
6	25 deg. 06.91′ N	80 deg. 18.20′ W.

EASTERN DRY ROCKS

[Based on Differential Global Positioning Systems Data]

Point	atitude	Longitude
1	24 deg. 27.92′ N	81 deg. 50.55′ W.
2	24 deg. 27.73′ N	81 deg. 50.33′ W.
3	24 deg. 27.47′ N	81 deg. 50.80′ W.
4	24 deg. 27.72′ N	81 deg. 50.86′ W.
5	24 deg. 27.92′ N	81 deg. 50.55′ W.

THE ELBOW

[Based on Differential Global Positioning Systems data]

Point	Latitude	Longitude
1	25 deg. 08.97′ N	80 deg. 15.63′ W.
2	25 deg. 08.95′ N	80 deg. 15.22′ W.
3	25 deg. 08.18′ N	80 deg. 15.64′ W.
4	25 deg. 08.50′ N	80 deg. 16.07′ W.
5	25 deg. 08.97′ N	80 deg. 15.63′ W.

FRENCH REEF

[Based on Differential Global Positioning Systems data]

Point	Latitude	Longitude
1	25 deg. 02.20′ N	80 deg. 20.63′ W.
2	25 deg. 01.81′ N	80 deg. 21.02′ W.
3	25 deg. 02.36′ N	80 deg. 21.27′ W.
4	25 deg. 02.20′ N	80 deg. 20.63′ W.

HEN AND CHICKENS

[Based on Differential Global Positioning Systems data]

Point	Latitude	Longitude
1	24 deg. 56.38′ N	80 deg. 32.86′ W.
2	24 deg. 56.21′ N	80 deg. 32.63′ W.
3	24 deg. 55.86′ N	80 deg. 32.95′ W.
4	24 deg. 56.04′ N	80 deg. 33.19′ W.
5	24 deg. 56.38′ N	80 deg. 32.86′ W.

LOOE KEY

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 33.24′ N	81 deg. 24.03′ W.
2	24 deg. 32.70′ N	81 deg. 23.85′ W.
3	24 deg. 32.52′ N	81 deg. 24.70′ W.
4	24 deg. 33.12′ N	81 deg. 24.81′ W.
5	24 deg. 33.24′ N	81 deg. 24.03′ W.

MOLASSES REEF

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	25 deg. 01.00′ N	80 deg. 22.53′ W.
2	25 deg. 01.06′ N	80 deg. 21.84′ W.
3	25 deg. 00.29′ N	80 deg. 22.70′ W.
4	25 deg. 00.72′ N	80 deg. 22.83′ W.
5	25 deg. 01.00′ N	80 deg. 22.53′ W.

NEWFOUND HARBOR KEY

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 37.10′ N	81 deg. 23.34′ W.
2	24 deg. 36.85′ N	81 deg. 23.28′ W.
3	24 deg. 36.74′ N	81 deg. 23.80′ W.
4	24 deg. 37.00′ N	81 deg. 23.86′ W.
5	24 deg. 37.10′ N	81 deg. 23.34′ W.

ROCK KEY

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 27.48′ N	81 deg. 51.35′ W.
2	24 deg. 27.30′ N	81 deg. 51.15′ W.
3	24 deg. 27.21′ N	81 deg. 51.60′ W.
4	24 deg. 27.45′ N	81 deg. 51.65′ W.
5	24 deg. 27.48′ N	81 deg. 51.35′ W.

SAND KEY

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 27.58′ N	81 deg. 52.29′ W.
2	24 deg. 27.01′ N	81 deg. 52.32′ W.
3	24 deg. 27.02′ N	81 deg. 52.95′ W.
4	24 deg. 27.61′ N	81 deg. 52.94′ W.
5	24 deg. 27.58′ N	81 deg. 52.29′ W.

Catch and release fishing by trolling only is allowed in this SPA.

SOMBRERO KEY

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 37.91′ N	81 deg. 06.78′ W.
2	24 deg. 37.50′ N	81 deg. 06.19′ W.
3	24 deg. 37.25′ N	81 deg. 06.89′ W.
4	24 deg. 37.91′ N	81 deg. 06.78′ W.

Catch and release fishing by trolling only is allowed in this SPA.

Appendix VI to Subpart P of Part 922—Special-Use Areas Boundary Coordinates and Use Designations

The boundary of each of the Special-Use is formed by connecting in succession the points at the following coordinates:

CONCH REEF

[Research Only]

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 56.83′ N	80 deg. 27.26′ W.
2	24 deg. 57.10′ N	80 deg. 26.93′ W.
3	24 deg. 56.99′ N	80 deg. 27.42′ W.
4	24 deg. 57.34′ N	80 deg. 27.26′ W.
5	24 deg. 56.83′ N	80 deg. 27.26′ W.

EASTERN SAMBO

[Research Only]

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 29.84′ N	81 deg. 39.59′ W.
2	24 deg. 29.55′ N	81 deg. 39.35′ W.
3	24 deg. 29.37′ N	81 deg. 39.96′ W.
4	24 deg. 29.77′ N	81 deg. 40.03′ W.
5	24 deg. 29.84′ N	81 deg. 39.59′ W.

LOOE KEY

[Research Only]

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 34.17′ N	81 deg. 23.01′ W.
2	24 deg. 33.98′ N	81 deg. 22.96′ W.
3	24 deg. 33.84′ N	81 deg. 23.60′ W.
4	24 deg. 34.23′ N	81 deg. 23.68′ W.
5	24 deg. 34.17′ N	81 deg. 23.01′ W.

TENNESSEE REEF

[Research Only]

[Based on Differential Global Positioning Systems Data]

Point	Latitude	Longitude
1	24 deg. 44.77′ N	80 deg. 47.12′ W.
2	24 deg. 44.57′ N	80 deg. 46.98′ W.
3	24 deg. 44.68′ N	80 deg. 46.59′ W.
4	24 deg. 44.95′ N	80 deg. 46.74′ W.
5	24 deg. 44.77′ N	80 deg. 47.12′ W.

Appendix VII to Subpart P of Part 922—Areas To Be Avoided Boundary Coordinates

IN THE VICINITY OF THE FLORIDA KEYS

[Reference Charts: United States 11466, 27th Edition—September 1, 1990 and United States 11450, 4th Edition—August 11,1990]

Point	Latitude	Longitude
1	25 deg. 45.00′ N	80 deg. 06.10′ W.
2	25 deg. 38.70′ N	80 deg. 02.70′ W.
3	25 deg. 22.00′ N	80 deg. 03.00′ W.
4	25 deg. 00.20′ N	80 deg. 13.40′ W.
5	24 deg. 37.90′ N	80 deg. 47.30′ W.
6	24 deg. 29.20′ N	81 deg. 17.30′ W.
7	24 deg. 22.30′ N	81 deg. 43.17′ W.
8	24 deg. 28.00′ N	81 deg. 43.17′ W.
9	24 deg. 28.70′ N	81 deg. 43.50′ W.
10	24 deg. 29.80′ N	81 deg. 43.17′ W.
11	24 deg. 33.10′ N	81 deg. 35.15′ W.
12	24 deg. 33.60′ N	81 deg. 26.00′ W.
13	24 deg. 38.20′ N	81 deg. 07.00′ W.
14	24 deg. 43.20′ N	80 deg. 53.20′ W.
15	24 deg. 46.10′ N	80 deg. 46.15′ W.
16	24 deg. 51.10′ N	80 deg. 37.10′ W.
17	24 deg. 57.50′ N	80 deg. 27.50′ W.
18	25 deg. 09.90′ N	80 deg. 16.20′ W.
19	25 deg. 24.00′ N	80 deg. 09.10′ W.
20	25 deg. 31.50′ N	80 deg. 07.00′ W.
21	25 deg. 39.70′ N	80 deg. 06.85′ W.
22	25 deg. 45.00′ N	80 deg. 06.10′ W.

IN THE VICINITY OF KEY WEST HARBOR

[Reference Chart: United States 11434, 21st Edition—August 11, 1990]

Point	Latitude	Longitude
23	24 deg. 27.95′ N	81 deg. 48.65′ W.
24	24 deg. 23.00′ N	81 deg. 53.50′ W.
25	24 deg. 26.60′ N	81 deg. 58.50′ W.
26	24 deg. 27.75′ N	81 deg. 55.70′ W.
27	24 deg. 29.35′ N	81 deg. 53.40′ W.
28	24 deg. 29.35′ N	81 deg. 50.00′ W.
29	24 deg. 27.95′ N	81 deg. 48.65′ W.

AREA SURROUNDING THE MARQUESAS KEYS

[Reference Chart: United States 11434, 21st Edition—August 11, 1990]

Point	Latitude	Longitude
30	24 deg. 26.60′ N	81 deg. 59.55′ W.
31	24 deg. 23.00′ N	82 deg. 03.50′ W.
32	24 deg. 23.60′ N	82 deg. 27.80′ W.
33	24 deg. 34.50′ N	82 deg. 37.50′ W.
34	24 deg. 43.00′ N	82 deg. 26.50′ W.
35	24 deg. 38.31′ N	81 deg. 54.06′ W.
36	24 deg. 37.91′ N	81 deg. 53.40′ W.
37	24 deg. 36.15′ N	81 deg. 51.78′ W.
38	24 deg. 34.40′ N	81 deg. 50.60′ W.
39	24 deg. 33.44′ N	81 deg. 49.73′ W.
40	24 deg. 31.20′ N	81 deg. 52.10′ W.
41	24 deg. 28.70′ N	81 deg. 56.80′ W.
42	24 deg. 26.60′ N	81 deg. 59.55′ W.

AREA SURROUNDING THE DRY TORTUGAS ISLANDS

[Reference Chart: United States 11434, 21st Edition—August 11, 1990]

Point	Latitude	Longitude
43	24 deg. 32.00′ N	82 deg. 53.50′ W.
44	24 deg. 32.00′ N	83 deg. 00.05′ W.
45	24 deg. 39.70′ N	83 deg. 00.05′ W.
46	24 deg. 45.60′ N	82 deg. 54.40′ W.
47	24 deg. 45.60′ N	82 deg. 47.02′ W.

AREA SURROUNDING THE DRY TORTUGAS ISLANDS—Continued

[Reference Chart: United States 11434, 21st Edition—August 11, 1990]

Point	Latitude	Longitude
48	24 deg. 42.80′ N	82 deg. 43.90′ W.
49	24 deg. 39.50′ N	82 deg. 43.90′ W.
50	24 deg. 35.60′ N	82 deg. 46.40′ W.
51	24 deg. 32.00′ N	82 deg. 53.50′ W.

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