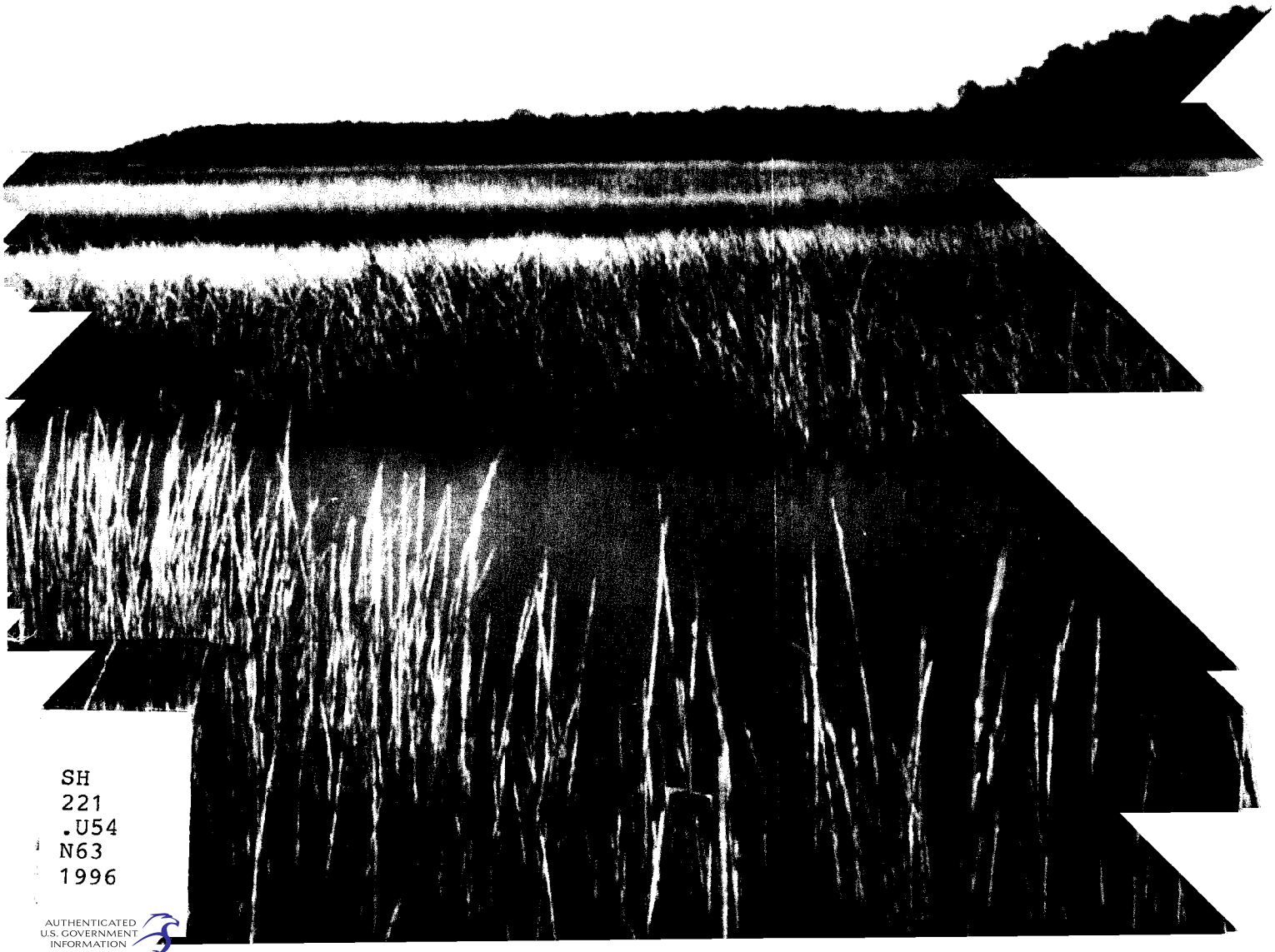
NOAA FISHERIES NATIONAL HABITAT PLAN

—1997 and Beyond—



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Acknowledgment

The NOAA Fisheries, Office of Habitat Conservation objectives are done collaboratively. Many other Federal agencies such as the Department of the Army's Corps of Engineers, the Department of Energy, the Department of the Interior's Fish and Wildlife Service, the Department of Transportation's Maritime Administration, and the Environmental Protection Agency work in partnership to restore and conserve the Nation's habitats. In addition, there are numerous non-governmental organizations and volunteer groups which also participate in these efforts.

The Office of Habitat Conservation wishes to acknowledge these partners and their valuable contributions.

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Cover photograph by Tom Blagden, Jr. Scene of tidal marsh along the Wando River in Francis Marion National Forest, South Carolina.

NOAA FISHERIES
NATIONAL HABITAT PLAN

— 1997 and Beyond —

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U.S. DEPARTMENT OF COMMERCE
Michael Kantor, Secretary
National Oceanic and Atmospheric Administration
D. James Baker, Under Secretary
National Marine Fisheries Service
Rolland A. Schmitten, Assistant Administrator for Fisheries
Office of Habitat Conservation

December 1996

US Department of Commerce
NOAA Coastal Services Center Library
2234 South Hobson Avenue
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AUG 11 1997

Dear Friends and Colleagues:

One of the greatest challenges to the National Oceanic and Atmospheric Administration (NOAA) is to ensure both the Nation's economic prosperity and healthy coastal environments for future generations. This complex mission is evident in the National Marine Fisheries Service's (NOAA Fisheries') work to protect, conserve, restore, and create habitat for fish and protected resources. Twenty-five years of NOAA Fisheries leadership have set the stage for NOAA to renew its commitment to habitat science and management programs and to the partnerships that are so vital to successful stewardship.

This publication is an important milestone in those efforts. I congratulate NOAA Fisheries on completing this first National Habitat Plan for its National Habitat Program. My appreciation begins with NOAA Fisheries leadership, Rolland A. Schmitten and Nancy Foster, and extends to the entire National Habitat Program, encompassing scientists and managers from around the Nation. The plan and this summary are vibrant symbols of our obligation to the public, the resources, and our colleagues who share our commitment to the habitats of living marine resources.

This plan marks 2 years of extensive work with our partners to determine future directions for NOAA Fisheries habitat programs. The dialogue with the general public, the environmental community, industry, state governments, and other Federal agencies will continue.

Now, I ask that you join us as we shift our attentions to implementation. NOAA recognizes the value of partnership. We invite your ideas and encourage your assistance.

I am proud to witness this milestone. Please join us in the pursuit of our mission!

Photo Credit: NOAA Public Affairs

D. James Baker
Under Secretary
U.S. Department of Commerce
National Oceanic and Atmospheric Administration

The National Habitat Program

Mission

The National Habitat Program strives to protect, conserve, restore, and create habitats and ecosystems vital to self-sustaining populations of living marine resources under NOAA Fisheries stewardship.

Vision

Healthy resources require viable habitat. The NOAA Fisheries envisions healthy, self-sustaining habitat for living marine resources. This vision requires expanded efforts to protect, conserve, restore, and create habitats and associated ecosystems. Success will increase habitat quality and quantity, with benefits to resources and constituents. National Habitat Program priorities reflect agency priorities related to riverine, estuarine, coastal, and oceanic habitats that are essential for anadromous and marine species.

Strategic Outcomes

- Protect and conserve habitats from human-induced degradation.
- Restore degraded habitats.
- Create habitats to sustain higher resource productivity.

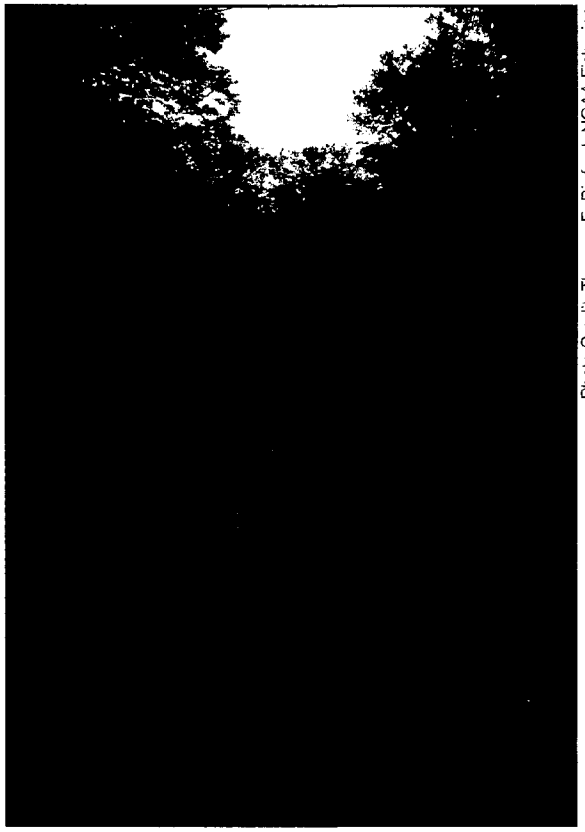


Photo Credit: Thomas E. Bigford, NOAA Fisheries

Tributary to Ammonoosuc River, a salmon stream in central New Hampshire.

Photo Credit: Jim Bybee, NOAA Fisheries

School children discussing their efforts to restore stream quality in Santa Rosa, California.

Drawing Credit: Kent Forrest, Virginia Institute of Marine Science

Artist's rendering of an oyster reef, revealing ecological connections vital to habitat health.

The National Habitat Plan will --

- Implement a common agency vision of achieving national living marine resource management objectives, and translate that vision into agency resource allocations.
- Coordinate environmental research and management to address key habitat issues in riverine, estuarine, coastal, and oceanic areas.
- Emphasize proactive approaches with benefits to living marine resources and their habitat, including an increased connection with fishery and protected species management.
- Pursue interagency and public-private partnerships to leverage technical capabilities and fiscal resources, resulting in increased effectiveness.
- Fully implement the new "essential fish habitat" provision of the Magnuson-Stevens Fishery Conservation and Management Act to increase fish productivity for the benefit of the Nation.
- Develop scientific and management capabilities to expand agency initiatives into cumulative, secondary, and indirect impacts within an ecosystem (or watershed/drainage basin) context.
- Establish effective lines of communication with constituents to learn about their efforts and to discuss the NOAA Fisheries mission, vision, strategic goals, priorities, and progress.

Photo Credit: U.S. Forest Service, Alaska Office

Spawning sockeye salmon.

The National Habitat Plan

The four major Plan elements are described on the following pages. The description for each element includes examples of recent successes and highlights of future plans.

Together, the successes reiterate the historic strength of the National Habitat Program while our plans reflect new priorities. Readers may request the full document for further details.

Protect and Conserve

Assess human-induced impacts at levels ranging from sites to ecosystems, provide scientifically based advice to reduce or eliminate those impacts, and form partnerships to protect and conserve habitats of living marine resources. Track natural habitat trends for perspective and to assess progress.

Restore and Create

Restore and create habitat, thereby reversing the net loss occurring from continued growth and development or resulting from natural events.

Understand

Obtain, interpret, and share scientific information needed to manage important habitats, increase awareness of habitat values, and enhance the agency's role.

Operate

Support those actions by developing agency policies, pursuing partnership agreements, leveraging funds, sharing staff, and other creative solutions that improve effectiveness and efficiency.

Photo Credit: NOAA Fisheries

Beach seining in Alaska.

Photo Credit: NOAA Fisheries

Installing canal plug in Louisiana bayou.

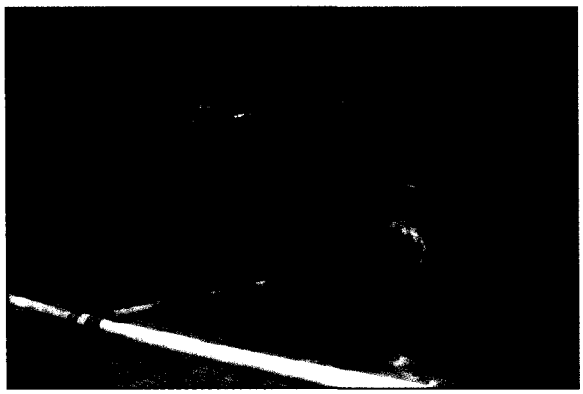


Photo Credit: Robert Hoffman, NOAA Fisheries

Transplanting seagrass plugs to test success.

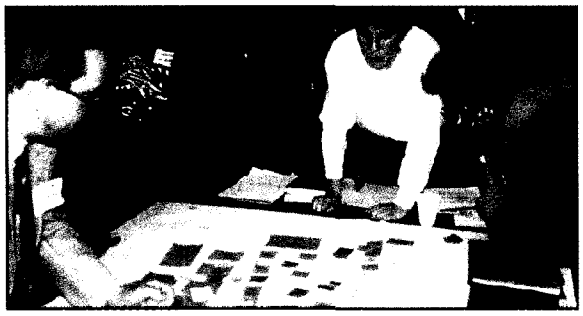


Photo Credit: Tim Hayes, Northampton County, Virginia

Negotiations on sustainable development .

PROTECT AND CONSERVE

Protecting and conserving existing habitat is significantly less costly than restoring or creating habitat. While traditional approaches have been successful, habitat losses are mounting and the overall health of many species continues to decline. Regional and national priorities could include: closer integration with other resource management initiatives; new policies on recurring issues or threats; stronger legislative mandates such as the essential fish habitat provisions of the Sustainable Fisheries Act of 1996; improved use of long-term, large-scale recommendations such as hydropower license conditions and conservation plans; and greater focus on cumulative/secondary effects. Our broad mission offers many partnership opportunities and will relate closely to our ecosystem/watershed approach. Four examples illustrate how this element will assess habitat quantity and quality issues related to human impacts and natural events.

Key recommendations:

- Integrate habitat with fishery management and protected species activities;
- Seek and implement legislative mandates that expand opportunities to protect and conserve habitat;
- Review institutional agreements and seek improvements based on this Plan and evolving priorities;
- Establish national and regional policies and guidance;
- Pursue partnerships to leverage funds and increase success, especially on an ecosystem or watershed basis;
- Redirect National Habitat Program focus to proactive approaches;
- Use special teams to address priority issues.

Photo Credit: Lee Crockett, NOAA Fisheries

Coastal marsh monitoring in Chesapeake Bay, a partnership protection effort.

Photo Credit: Mike W. White

Habitats of endangered sea turtles also need conservation.

HABITAT CONSULTATION efforts ranging from permit reviews for small projects to grand plans to maintain habitat values for special management areas. The Plan calls for:

- Continued emphasis on wetland, waterway, and hydropower permit reviews;
- Increased focus on ecosystems or watersheds;
- Full implementation of essential fish habitat provisions.

Two success stories highlight the potential to influence hundreds of acres and important habitat values, often in combination with restoration and creation initiatives.

Photo Credit: NOAA Public Affairs

Rolland A. Schmitten, NOAA's Assistant Administrator for Fisheries, has urged increased use of innovative consultative practices.

Success Story

HOUSTON SHIP CHANNEL BENEFICIAL USES PLAN is the result of a successful collaboration between the Port of Houston and seven state and federal agencies, including NOAA Fisheries. From 1990 - 1995 the Beneficial Uses Group developed a list of sites where beneficial use of material dredged from the widening and deepening of the Houston Ship Channel would result in improvements to aquatic resources habitat. The interagency plan to create 4,250 acres of intertidal habitat over the next 50 years has the broad support of the federal agencies, state agencies, Congress, local citizens, and environmental groups.

A pilot project initiated in 1993 involved pumping approximately 1.6 million cubic yards of dredged material into a diked area on Atkinson Island. Marsh vegetation was planted in test plots designed to evaluate the wetland functions of the site are planned in the coming years. This 220-acre "living laboratory" serves as an example of how collaboration among federal and state agencies can benefit both commerce and natural resources.

Photo Credit: Port of Houston Authority

Port of Houston demonstration marsh on Atkinson Island.

Success Story

BATIQUITOS LAGOON RESTORATION PROJECT is the largest lagoon and wetland restoration effort in southern California. Nearly 500 acres of non-tidal habitat is being dredged at a cost of $55 million to reestablish tidal flushing and recreate marine and estuarine habitats that were lost decades ago. California halibut and other important recreational and commercial species will benefit from the restored lagoon habitats. The project is being completed by the Port of Los Angeles at NOAA Fisheries' request to offset port-related habitat impacts.

Like the Bolsa Chica agreement, this project underscores the importance of diligent negotiations and environmental creativity.

Construction of this innovative, award-winning project began in 1995 with extensive work on bridges and roadways, continued through 1996 with dredging and shoreline stabilization, and is expected to be completed in early 1997.

Nancy Foster, Deputy Assistant Administrator for NOAA Fisheries, and lead NOAA representative to the Interagency Working Group on the Dredging Process.

Photo Credit: Brenda Rupli, NOAA Fisheries

DREDGING AND DREDGED MATERIAL DISPOSAL offer the agency tremendous opportunities to influence habitat quality and quantity. Two successful ventures in Chesapeake Bay highlight the role NOAA Fisheries hopes to play in future dredging decisions:

- NOAA Fisheries will pursue more proactive opportunities;
- Beneficial use goals and NOAA Fisheries management plans will form the basis of efforts to conserve and protect valuable habitats.

Photo Credit: Ralph Appy, Port of Los Angeles

Batiquitos Lagoon looking east into restoration site.

Photo Credit: Lee Crockett, NOAA Fisheries

Clamshell dredge commonly used in nearshore dredging operations.

Success Story

DREDGED MATERIAL DISPOSAL SITE designations involve contentious ecological, economic, social, and legal issues. When Maryland began its search for a new disposal site, NOAA Fisheries recommended an innovative approach to minimize contention while focusing efforts to identify high-value resource areas. User group tensions decreased and the approach identified several potential disposal sites. This procedure could serve as a model for how agencies, industries, and citizens can collaborate on siting challenges associated with aquaculture facilities, municipal docks, sand extraction sites, and other permitted activities that often affect habitat.

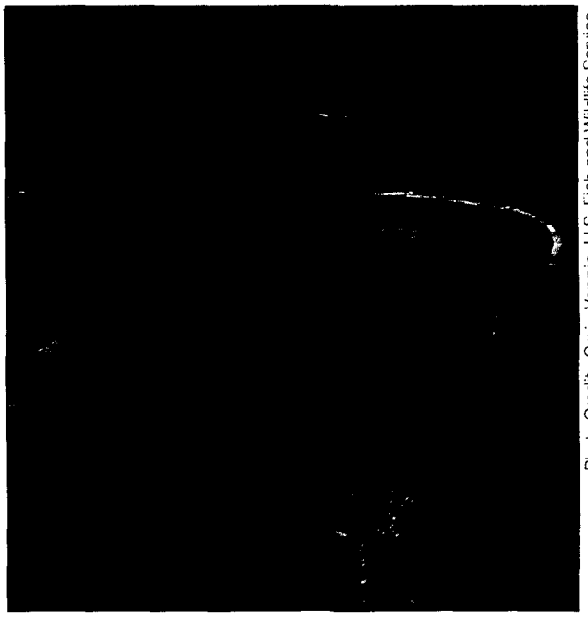
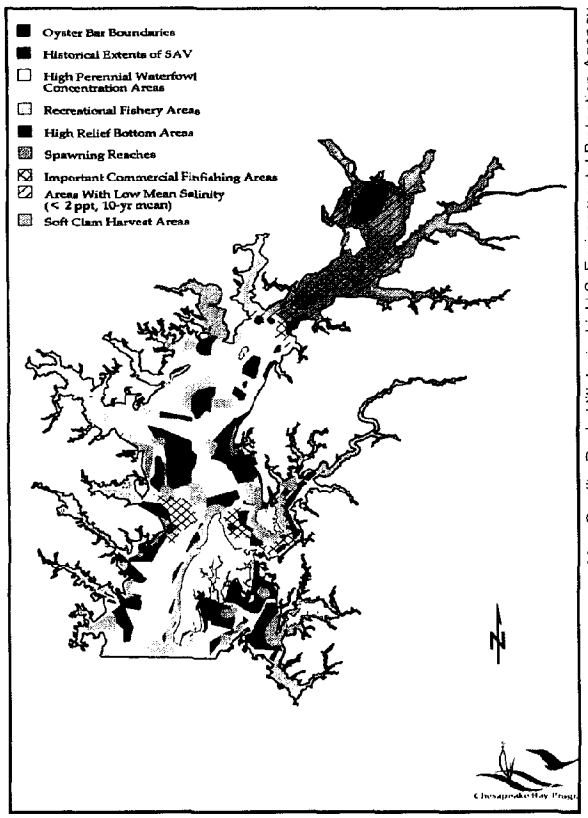


Photo Credit: Craig Vopple, U.S. Fish and Wildlife Service

Northerly perspective of eroding land in the Poplar Island complex, showing sunken barges which protect remaining uplands.



Map Credit: Paula Hill Jasinski, U.S. Environmental Protection Agency

High-value living resource areas in northern Chesapeake Bay identified in dredged material disposal discussions.

Success Story

POPLAR ISLAND HABITAT RESTORATION PROJECT was the first large-scale, beneficial-use project involving Chesapeake Bay dredged materials. Clean materials that are dredged from upper-Bay navigation channels will be used to restore an eroding island and create fish habitats. Lessons learned should prove useful where shoreline erosion is a major cause of habitat loss.

Habitat values associated with the Project will also offset lost Bay bottoms affected by maintenance dredging. NOAA Fisheries contributed to project design and baseline monitoring and will continue to provide ecological oversight.

MITIGATION BANKS offer opportunities to protect lands to offset the unavoidable impacts of development that affect wetlands and waterways. NOAA Fisheries participated in the White House Wetlands Working Group to establish mitigation banking guidance and is now actively applying the guidance around the Nation:

- NOAA Fisheries co-sponsored training to establish common mitigation banking practices;
- NOAA Fisheries provided fish habitat perspective.

Success Story

SANDY ISLAND MITIGATION BANK offered an early opportunity to implement the 1996 White House guidance. NOAA Fisheries signed an interagency Memorandum of Agreement with its partners in South Carolina and Federal agencies representing regulatory, construction, and development interests. A $14 million, 9,000 acre mitigation bank was established in 1996 to offset unavoidable environmental impacts of highway construction projects in South Carolina. The agreement will protect wetlands and adjacent uplands with outstanding fish and wildlife value. This agreement will serve as a model elsewhere for mitigation banking and agency partnerships.

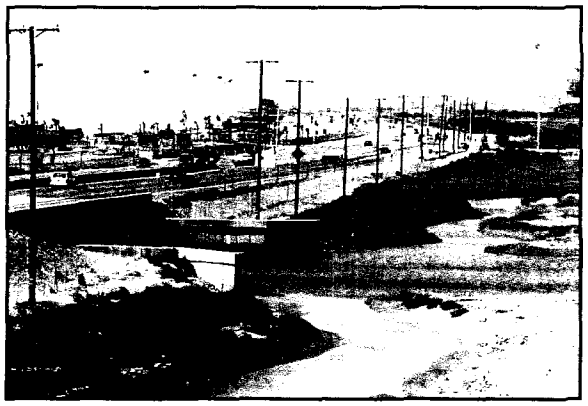


Photo Credit: Robert Brumbaugh, U.S. Army Corps of Engineers

Western and eastern views of the Huntington Wetlands Mitigation Project (California) where a levee was removed from the Santa Ana River to restore tidal flushing.

RESTORE AND CREATE

Habitat restoration and creation complement protection and conservation in our efforts to retain habitat function and value. While protection and conservation are more cost effective, restoration is evolving as a valid technique to reverse habitat loss. NOAA Fisheries leadership role in restoration and creation projects offers the opportunity to promote this important component of the National Habitat Program.

The ecological, socioeconomic, and cultural challenges of restoration and creation are immense. NOAA Fisheries considers community needs and environmental ethics when setting priorities.

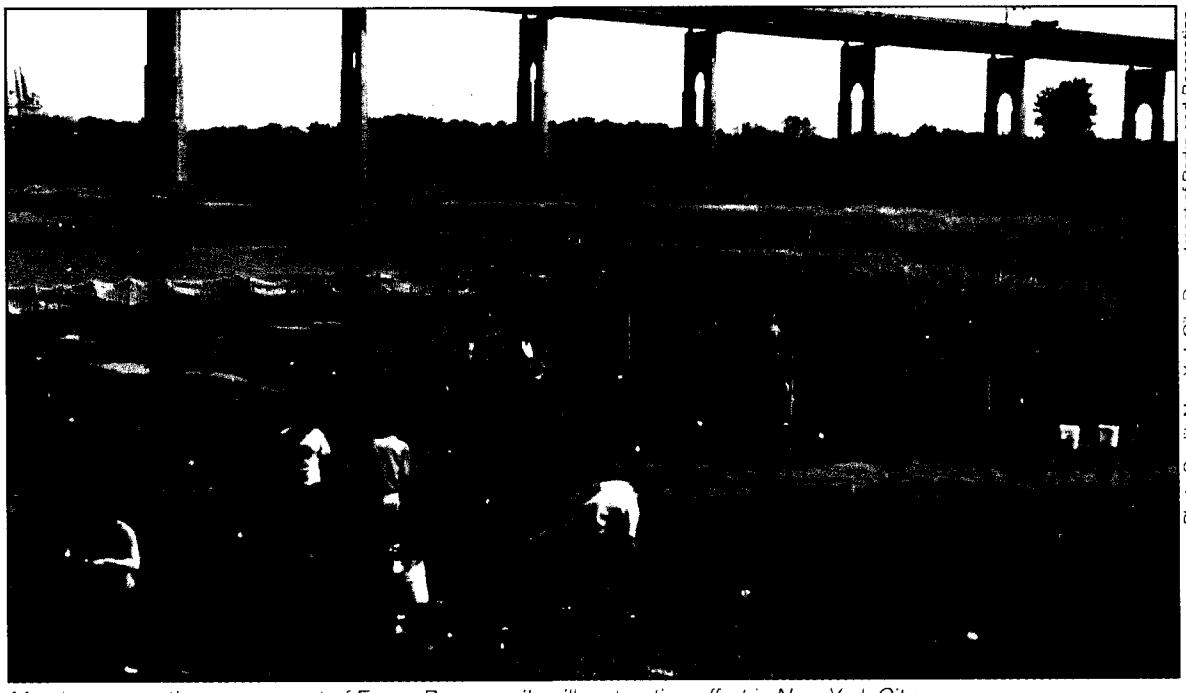


Photo Credit: New York City Department of Parks and Recreation

Marsh revegetation component of Exxon Bayway oil spill restoration effort in New York City.

Key Recommendations:

- Establish habitat restoration and creation as integral strategies in resource and ecosystem management;
- Emphasize restoration in the natural resource damage assessment process;
- Use restoration opportunities to improve and share technical expertise with government and private partners.

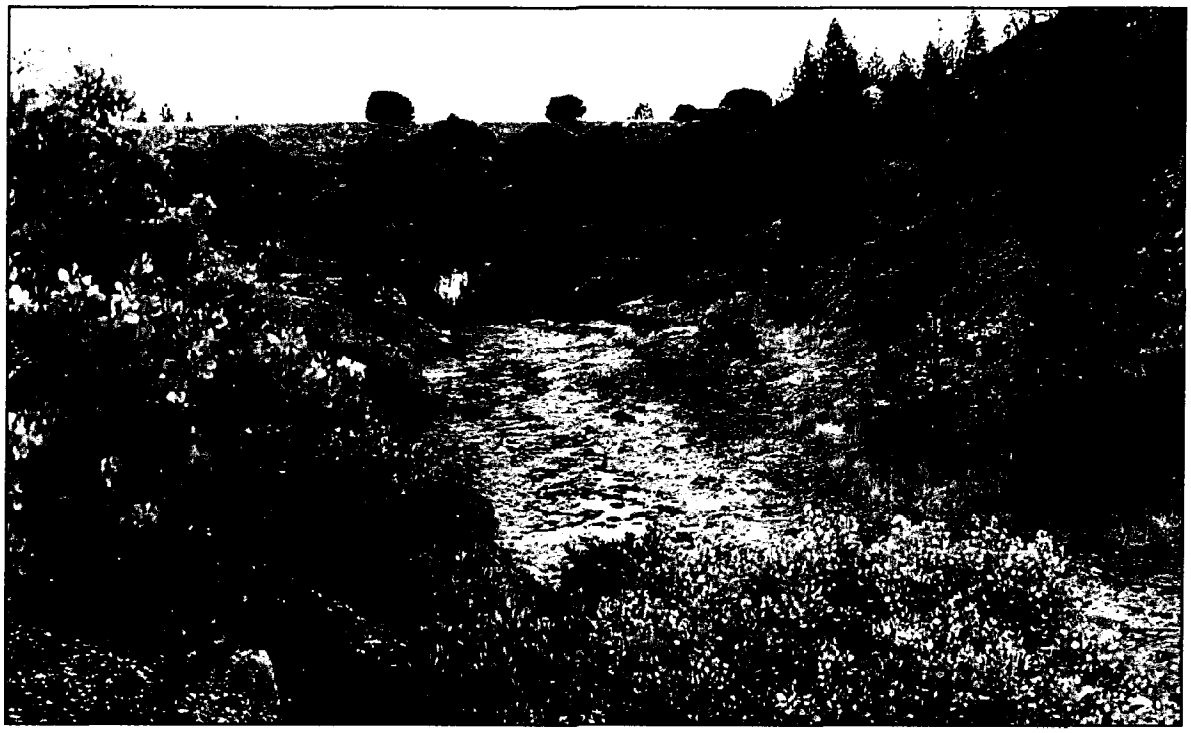
HABITAT RESTORATION AND CREATION include a complex mix of agency activities. The Oil Pollution Act, the Comprehensive Environmental Response, Compensation, and Liability Act, and the National Marine Sanctuaries Act enable the government to compensation through restoration damages for impacts resulting from oil spills, toxic chemical contamination, and physical injuries.

Our mandate is to restore, replace, or acquire resources equivalent to those injured. NOAA is a national leader in the legal, economic, and ecological challenges of restoration.

We are an active partner in about $1 billion in restoration projects, including:

- Complex efforts to remove PCBs and restore ecological health and economic vitality to New Bedford Harbor (Massachusetts);
- Innovative underwater coral reef reconstruction work after vessel groundings in the Florida Keys;
- Extensive urban harbor restoration efforts following chemical contamination in Puget Sound, with ecosystem impacts to anadromous fish and legal implications for tribal treaty rights;
- New partnerships with oil spill response and clean-up agencies to initiate restoration activities shortly after each event.

Each project involves partners from local, state, regional, and federal agencies, and strong public participation. This extensive experience enables NOAA Fisheries to improve restoration techniques and to expand capabilities at both the local and regional levels.



Contaminated stream below debris dam at the Iron Mountain Mine Superfund site, California.

Success Story

THE *M/V ALEC OWEN MAITLAND* AND THE *M/V ELPIS* ran aground in the Florida Keys National Marine Sanctuary in October 1989. Both groundings and salvage efforts caused extensive coral reef injuries.

Through legal settlements, NOAA recovered funds to restore both grounding sites. Working with our partners in the U.S. Army Corps of Engineers, NOAA stabilized the reef structures at the two sites, prevented secondary injury from loose coral rubble, and recreated the three-dimensional habitat necessary to hasten natural recovery. At the smaller *M/V Elpis* site, limestone rock and sand were placed into the damaged area to restore the natural landscape. More extensive damage at the *M/V Maitland* site required that 40 concrete units be constructed on land for placement into the crater. In an unique application of ocean engineering, non-separable concrete was poured between the units to fuse them and to connect the new structure to the surrounding reef.

Photo Credit: Harold Hudson, NOAA National Ocean Service

Example of extensive coral reef damage after grounding and salvage efforts.

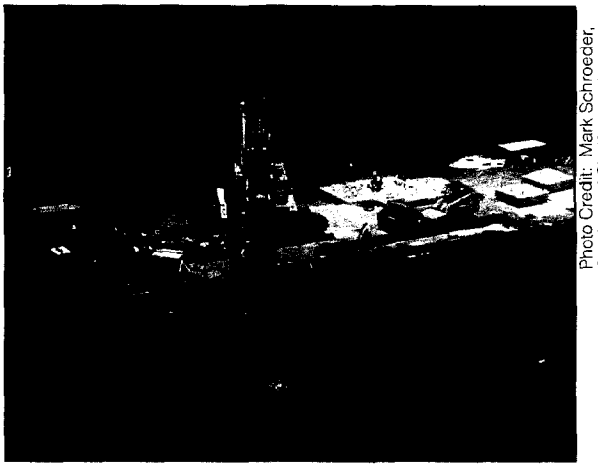


Photo Credit: Mark Schroeder, Continental Shelf Associates, Inc.

Engineering team deploying concrete blocks to restore structural integrity to the reef.

Photo Credit: Mark Schroeder, Continental Shelf Associates, Inc.

Restored reef ecosystem, with sediments over concrete blocks (note block edge visible under sediments) and marine life returning.

COASTAL WETLANDS PLANNING, PROTECTION, AND RESTORATION ACT OF 1990 (CWPPRA) includes major commitments to protect and restore the Nation's wetlands. Louisiana receives highest priority since the state has about 40% of the coastal wetlands in the lower 48 states and is experiencing about 80% of the nation's coastal wetland loss. A state/federal task force is now implementing a state-wide strategy to slow wetland loss and to create new habitat by:

- Reversing hydrological alterations;
- Promoting sediment deposition to enhance wetland accretion;
- Revitalizing barrier island habitats to protect inland wetlands.

The Louisiana projects are heavily dependent upon cooperation with local industry, parish governments, land owners, and partners in state and federal agencies. Projects include a wide variety of restoration activities. CWPPRA reaffirms the importance of partnerships, financial leverage, local participation, and other facets that underlie the National Habitat Plan.

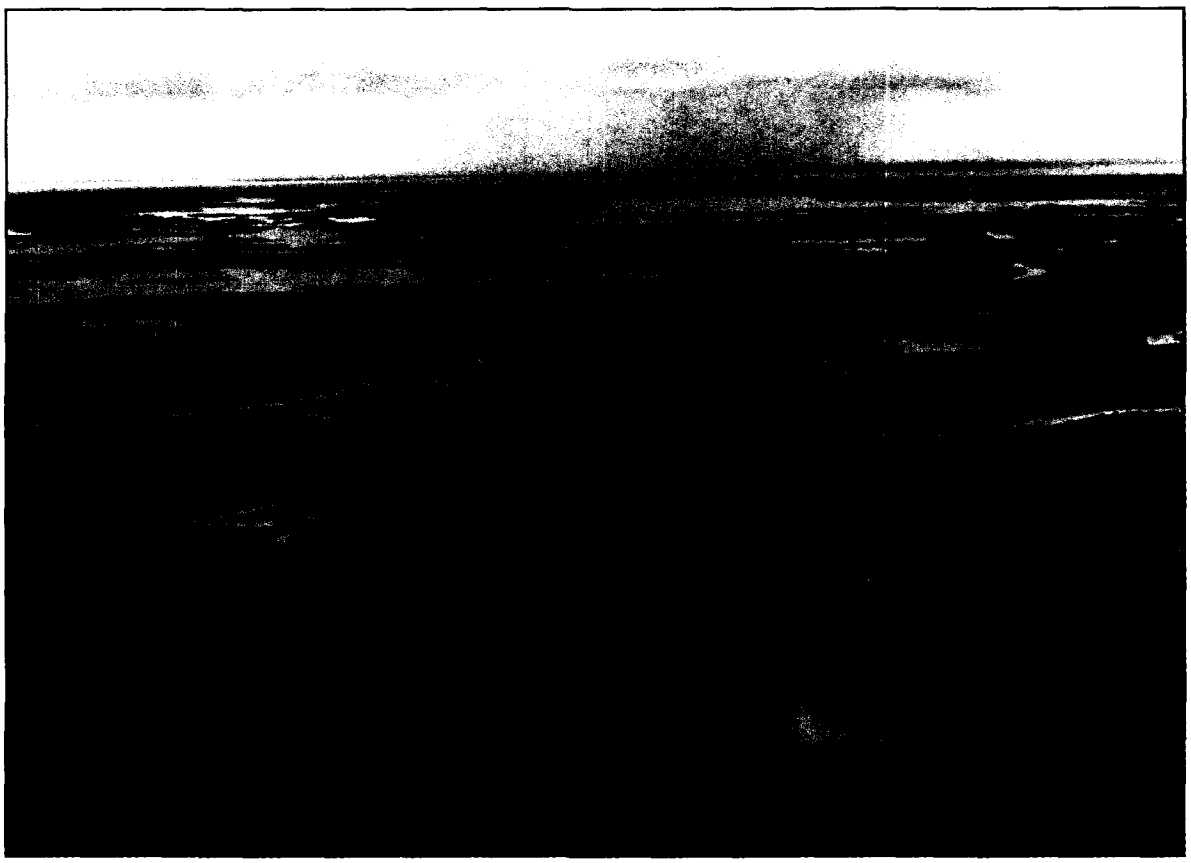


Photo Credit: NOAA Fisheries

Louisiana coastal wetlands, revealing natural change and cumulative effects of human activities.

Success Story

THE MYRTLE GROVE DIVERSION project is one example of local/state/federal cooperation to restore wetland functions. Under the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA), a federal/state task force has been awarding funds to implement wetland restoration projects since 1991. NOAA Fisheries coordinates several large-scale projects to protect and restore wetlands such as the Myrtle Grove project along the Mississippi River in Plaquemines Parish. Large siphon pipes will divert approximately 2,100 cubic feet of water per second, distributing water and sediments over 15,000 acres. When completed, the $15 million project is anticipated to protect, enhance, and create more than 10,250 acres of prime habitat for coastal and marine resources.

The Myrtle Grove project is strongly supported by the state and Plaquemines and Jefferson Parishes.

NOAA Fisheries is the federal sponsor for 10 other CWPPRA restoration projects. Each project is implemented with state cooperation for engineering, construction, monitoring, and operations/maintenance.

Photo Credit: NOAA Fisheries

These large siphons will move fresh water and sediment from the Mississippi River to renourish and restore the productivity of the adjacent marshes.

Success Story

BIG ISLAND, located at the mouth of the Atchafalaya River, was created with dredged material from the Atchafalaya River navigation channel. Although no spoil has been deposited on the island since the mid-1980s, the location and height of the island prevents the river delta from expanding and creating new wetlands along the western side of the river's main channel.

A 500-foot wide, 10-foot deep channel will be dredged just north of Big Island at a 45-degree angle to the navigation channel of the Atchafalaya River. The project's main channel will graduate into several smaller channels designed to allow sediment and fresh water to once again reach the western side of the Atchafalaya River delta lobes, creating approximately 300 acres of wetlands. More than 1,200 acres of marsh are expected to form naturally over the life of the project.

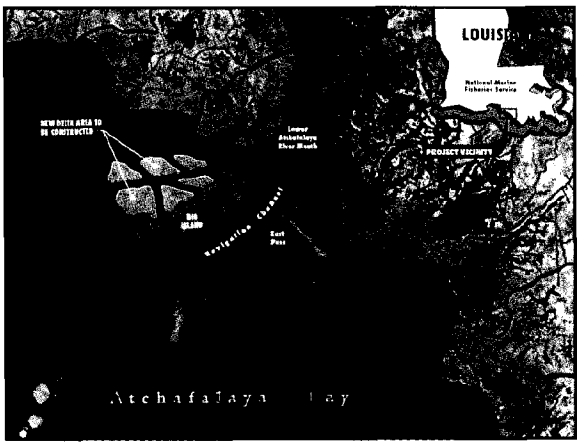


Photo Credit: GOTECH Inc.

Big Island Restoration Project to create delta islands in Louisiana.

COMMUNITY PARTICIPATION is an integral component of all restoration projects. The National Habitat Plan envisions local and regional participation to ensure that we achieve our goals of sustainable natural reosurces and economies.

- Financial support and restoration assistance is helping dozens of communities and local groups to undertake small-scale restoration activities;
- Innovative, cost-effective pilot projects meet community needs and achieve effective restoration;
- Partnerships with non-governmental organizations, the public, and industry are often supplemented by local volunteers who help to restore habitat or to monitor effectiveness.

Photo Credit: Chris Combs, Sea Grant Marine Agent

Community restoration project in Palm Bay, Florida to control exotic coastal vegetation.

Photo Credit: Anne Lange, NOAA Fisheries

Community project to restore oyster reefs in Chesapeake Bay.

UNDERSTAND

The Plan renews NOAA Fisheries commitment to understand habitat functions and values and to communicate that knowledge to others. Habitat research is a high priority that will be pursued within the NOAA science hierarchy in full cooperation with partners in academia, other agencies, and the private sector. The best scientific information must be communicated to the public and private sectors so the agency can pursue its habitat management and research objectives with the greatest prospects of success.

RESEARCH includes a mix of basic investigations to understand natural functions and applied effort to support resource management. Science and management coordination begins with a process designed to identify habitat information needs, to compare needs with research capabilities, to review funding sources and partnership opportunities, and to prepare a plan to meet needs.

NOAA Fisheries has planned regional and national meetings to implement the NMFS National Habitat Research Plan. The NOAA Fisheries Southeast Region has a long history of science/management interaction that will be adapted to meet our needs elsewhere in the country. Our efforts will involve frequent interactions with partners in the private sector and elsewhere in government agencies.

Research is a basic function of NOAA Fisheries and a vital component of the National Habitat Plan. The Plan lists recommendations for action, including:

- Implement the National Habitat Research Plan;
- Evaluate research and management programs, inventory needs, and set priorities;
- Share research results, technology, and information with partners and constituents;
- Package research results for managers, including synthesis documents and journal reports.

Among our highest priorities are research on the ecological value of various habitats, studies of the effects of human activities on habitats, and the effects of diminished habitat value on living marine resource populations.

Photo Credit: George Perkins, formerly, NOAA Fisheries

Diver conducting research in Gulena Bay, Alaska, on effects of pipeline ballast water on the biota.

Success Story

"THE HABITAT RESEARCH PLAN OF THE NATIONAL MARINE FISHERIES SERVICE" was approved by NOAA Fisheries in 1995. The Plan encompasses five areas of research needs:

- Understand the structure and function of natural ecosystems, their linkages, and their role in supporting and sustaining the abundance, distribution, and health of living marine resources;
- Quantify the response of habitats and living marine resources to natural and anthropogenic alterations;
- Develop and evaluate new techniques to restore or create productive habitats of living marine resources;
- Develop indicators to simplify determinations of habitat impacts or recovery;
- Synthesize research and communicate findings to managers.

NOAA Fisheries has surveyed its "Management Information System" to summarize existing habitat research activities according to the five research needs. The resulting data base and accompanying narrative offers insights into geographic, species, and subject coverage. Once analyzed, the information will prove useful when assessing research and management needs, setting priorities, pursuing partnerships with academia and other agencies, and allocating funds.

Photo Credit: David L. Meyers, NOAA Fisheries

Fyke net sampling at a marsh created from dredged material in North Carolina.

Photo Credit: Carla Stehr, NOAA Fisheries

Researchers quantify ecological effects of the January 1996 North Cape *oil spill off southern Rhode Island.*

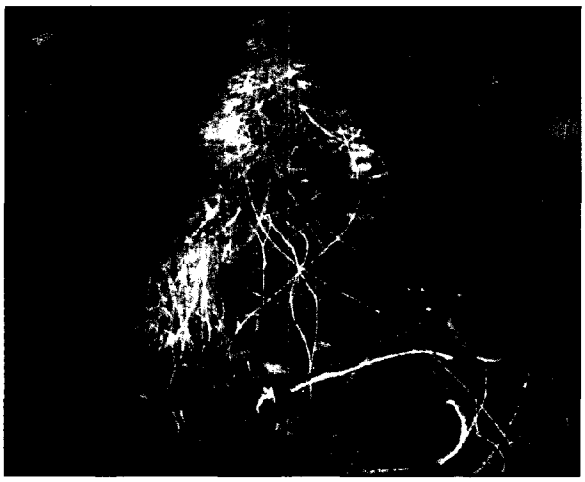


Photo Credit: Judson Kenworthy, NOAA Fisheries

Effects of vessel propellers on submerged vegetation in Florida.

OUTREACH is a vital extension of our research and management efforts. The Plan emphasizes activities with the greatest potential to influence habitat-related decisions, such as syntheses of research results or constituent meetings that generate recommendations for priorities and funding levels:

Key recommendations:

- Provide a continuous exchange of scientific expertise among science and management offices and decision makers within NOAA and outside the agency;
- Develop educational and informational products and services to stimulate participation;
- Pursue partnerships for outreach, education, publications, and other habitat initiatives.

Our outreach effort will be based on close collaboration with our partners in the private sector, academia, and other federal agencies. In many instances, co-authorship or joint sponsorship will enhance our efforts. Examples include outreach programs for local efforts such as Superfund site restorations at Commencement Bay in Puget Sound, state-wide ventures like the Coastal Wetlands Planning, Protection, and Restoration Program in Louisiana, and national programs such as Coastal America. NOAA Fisheries also supports schools and special interest groups interested in habitat issues. The agency exhibits at conferences and trade shows with a primary goal of connecting with organizations and individuals who can make a direct contribution to habitat initiatives either alone or with NOAA Fisheries.

Success Story

THE SEVENTH AMERICAN FOREST CONGRESS typifies our efforts to work with many interests to address complex issues. The Forest Congress was convened in early 1996 to create a national dialogue on a shared vision for America's forests. NOAA Fisheries participated in discussion groups involving industry, government, scientists, developers, land owners, and interested citizens. The groups developed 13 vision elements and 61 principles related to forest management practices extending into the next century.

In addition to its lead role on fish habitat issues, the agency hosted an exhibit and information booth to share NOAA Fisheries experiences with the forest community. We distributed a recent NOAA Coastal Ocean Program report on the effects of forest practices on anadromous fish streams, shared information on habitat research and management activities, and discussed the agency's keen interest in forest ecosystem issues as related to trust resources and their habitats.

Photo Credit: Brenda Rupli, NOAA Fisheries

Participants debating forestry issues at the American Forest Congress.

OPERATE

This element includes broad initiatives that provide crucial support to overall operations, both within the agency and with our colleagues elsewhere. Operational activities include initiating innovative, cooperative habitat conservation efforts with fishery councils and commissions, state agencies, federal agencies, industry, academia and tribal councils. These efforts are designed to expand NOAA Fisheries' influence and involvement with coastal watersheds and airsheds. This is done through greater proactive involvement in such activities as remediating Superfunds and oil spill sites, developing monitoring programs, initiating outreach programs and creating the necessary resources to ensure full implementation of the essential fish habitat provisions of the Magnuson-Stevens Act.

Key recommendations:

- Work with constituents to identify research, management, policy, and other priorities and to allocate resources;
- Develop systems to monitor program accomplishments and evaluate effectiveness;
- Develop and implement multi-year budget initiatives commensurate with program needs and incorporate into NOAA strategic plans;
- Expand the use of new technologies to analyze information and communicate results.

Success Story

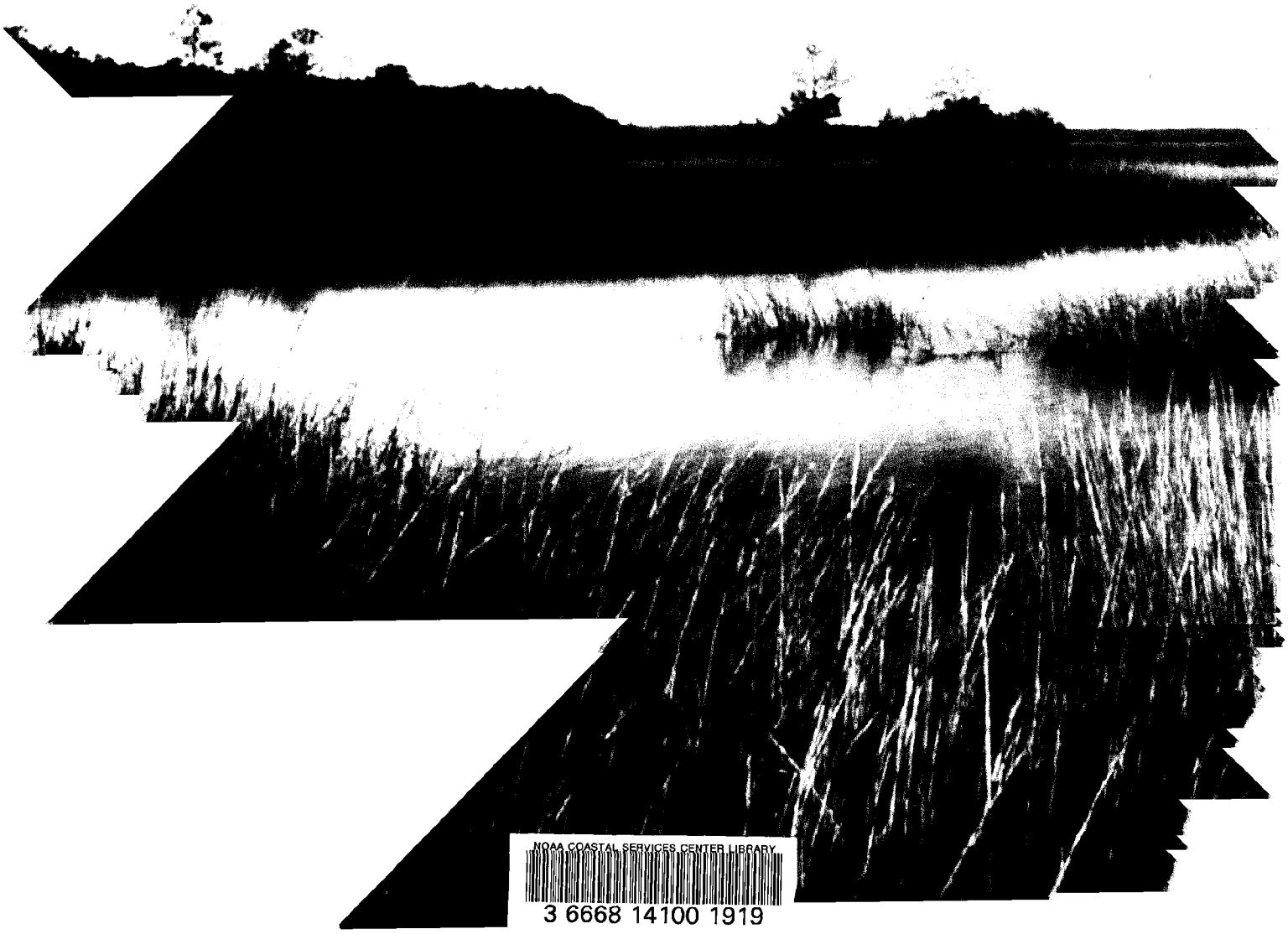
In **KAWAIHAE BAY, HAWAII,** NOAA Fisheries proposed and coordinated an unprecedented effort to transplant nearly 15 tons of live coral colonies from two sites about to be disturbed by construction of a small boat harbor. Besides being the world's first successful, large-scale coral transplant effort, the agency also forged new partnerships with local schools for the restoration work and long-term monitoring. Volunteer divers were deployed from the Hawaii Prepatory Academy to lift coral from the seafloor and transport the colonies to two new locations. Monitoring by the University of Hawaii Institute of Marine Biology will document survival and growth rates.

This project confirmed the value of public-private partnerships, in this case with two academic institutions. Funding from the U.S. Army Corps of Engineers ensured that the innovative engineering and biological steps would proceed smoothly.

Photo Credit: John Naughton, NOAA Fisheries

Fifteen tons of live coral colonies were successfully transplanted in Kawaihae Bay, Hawaii.

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration



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