Reversing The Tide

Restoring the Nation's Coastal and Marine Natural Resources

June 1998 (Second Edition)

Damage Assessment and Restoration Program
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

Cover Photograph of Wetlands Restoration for the Exxon Bayway Oil Spill: *In January of 1990, a ruptured pipeline from Exxon's Bayway Refinery released 567,000 gallons of #2 fuel oil into Arthur Kill, a saltwater channel between New Jersey and Staten Island, NY. Over 100 acres of salt marsh were oiled, severely impacting the ecosystem. Efforts have focused on restoring marshes that were impacted by the oil spill and on acquiring wetlands and other critical areas in the New York City metropolitan area. The marsh restoration project shown in this photograph has been a resounding success. Monitoring suggests that biological productivity is returning to normal, populations of fish and bottom-dwelling organisms are becoming re-established, and use of the marsh by birds is similar to use in unaffected areas. The vigorous regrowth of marsh grass has prevented the erosion of area sediments – a major concern following the spill. This restoration project has garnered awards and national recognition.*

A Legacy at Risk

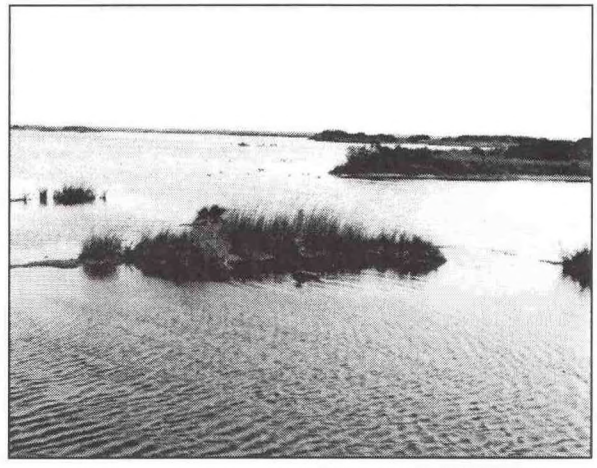
For thousands of years, people have been drawn to coastal areas. Today, coastal areas throughout the United States are hubs of commerce, recreation and tourism. More than half of the nation's population lives near the coast. As the coastal population continues to grow, the health of valuable natural resources—many of which sustain local, regional and national economies—is increasingly at risk.

Estuaries and coastal areas, both land and water, provide critical habitat for many species, including fish, turtles, marine mammals, waterfowl and other wildlife. Yet, coastal areas are no longer the clean, abundant habitats they once were.

"If we're to be responsible, we must accept the fact that we owe a massive debt to our environment. It won't be settled in a matter of months, and it won't be forgiven us."

—Russell E. Train
1970

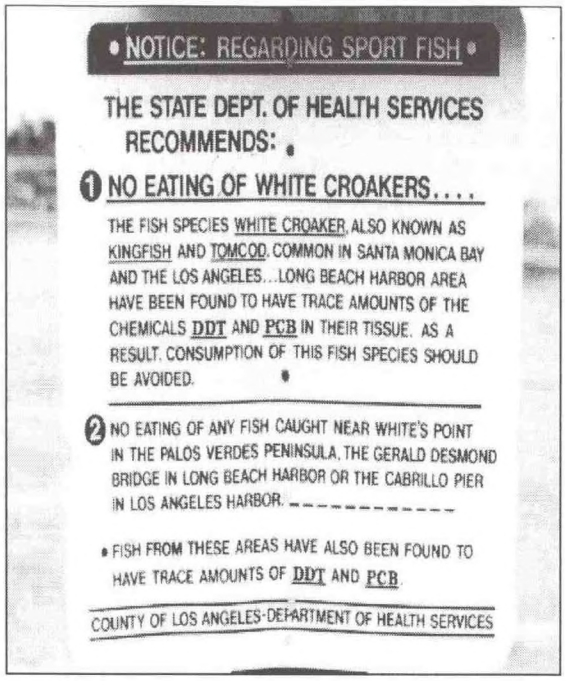
Vast areas of ecologically productive estuarine and wetland areas have been modified or destroyed to build roads and railways, and to support residential, agricultural, industrial, and commercial growth. In addition, toxic chemicals and oil discharged by various activities and accidental spills have degraded coastal waters, sediments and soils.



Exposure of marine organisms to toxic organic chemicals and metals can cause disease and other harmful changes. Fish and wildlife populations that depend on coastal habitat have declined significantly. Contaminated fish pose a threat to human health, and fish advisories and harvest area closures result in economic and recreational losses. To sustain healthy and productive ecosystems as a basis for continued economic growth and prosperity, the nation's coastal and marine resources must be protected and restored.

NOAA's Role as a Public Trustee

Following the passage of the 1980 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, more commonly known as the Superfund Act), the President directed the Secretary of Commerce to assess and recover damages for injuries to coastal and marine resources from releases of oil and other hazardous substances. The Secretary of Commerce has delegated this responsibility to the National Oceanic and Atmospheric Administration (NOAA). Natural resource "trustees" act on behalf of the public to protect and restore the nation's natural resources. Stewardship of



• NOTICE: REGARDING SPORT FISH •

THE STATE DEPT. OF HEALTH SERVICES RECOMMENDS:

1 NO EATING OF WHITE CROAKERS....

THE FISH SPECIES WHITE CROAKER, ALSO KNOWN AS KINGFISH AND TOMCOD, COMMON IN SANTA MONICA BAY AND THE LOS ANGELES...LONG BEACH HARBOR AREA HAVE BEEN FOUND TO HAVE TRACE AMOUNTS OF THE CHEMICALS DDT AND PCB IN THEIR TISSUE. AS A RESULT, CONSUMPTION OF THIS FISH SPECIES SHOULD BE AVOIDED.

2 NO EATING OF ANY FISH CAUGHT NEAR WHITE'S POINT IN THE PALOS VERDES PENINSULA, THE GERALD DESMOND BRIDGE IN LONG BEACH HARBOR OR THE CABRILLO PIER IN LOS ANGELES HARBOR.

• FISH FROM THESE AREAS HAVE ALSO BEEN FOUND TO HAVE TRACE AMOUNTS OF DDT AND PCB.

COUNTY OF LOS ANGELES-DEPARTMENT OF HEALTH SERVICES

Coastal waters and estuaries provide essential habitats for over 75 % of the total commercial fish catch and 80-90 % of the recreational catch of fish and shellfish of the U.S. These species support commercial fisheries that annually produce $2 billion in revenue to fishermen and generate $25 billion in related economic activity. They also provide recreational fishing for 17 million Americans who generate an estimated $18 billion in annual economic activity. The abundance of coastal-dependent species of fish has been reduced to historically low levels by overfishing, habitat loss, flow alterations and pollution.

Source: U.S. Dept. of Commerce, NOAA 1995-2005 Strategic Plan

the nation's natural resources is shared among several federal agencies, states and tribal trustees.

NOAA's trust resources include:

- commercial and recreational fishery resources;
- anadromous species (fish, like salmon, that spawn in freshwater and then migrate to the sea);
- endangered and threatened marine species and their habitats (sea turtles, for example);
- marine mammals (such as whales, dolphins and seals);
- marshes, mangroves, seagrass beds, coral reefs, and other coastal habitats; and
- all resources associated with National Marine Sanctuaries and National Estuarine Research Reserves (such as coral reefs).

Congress passed early environmental laws, such as the Clean Water Act, in the 1970s to address the degradation of the nation's environment. These statutes initiated various programs to manage the nation's natural resources. With the more recent passage of the Superfund Act, the Oil Pollution Act of 1990 (OPA), and the National Marine Sanctuaries Act (NMSA), Congress explicitly expanded the authority of natural resource trustees to address injuries and to restore the nation's natural resources. The Superfund Act and OPA made those who release hazardous materials and oil into the environment responsible not only for the cost of cleaning up those releases, but also for restoring any injury to natural resources caused by the releases. Restoration is achieved through activities such as improving degraded saltmarsh habitats and providing alternative recreational opportunities to the public.

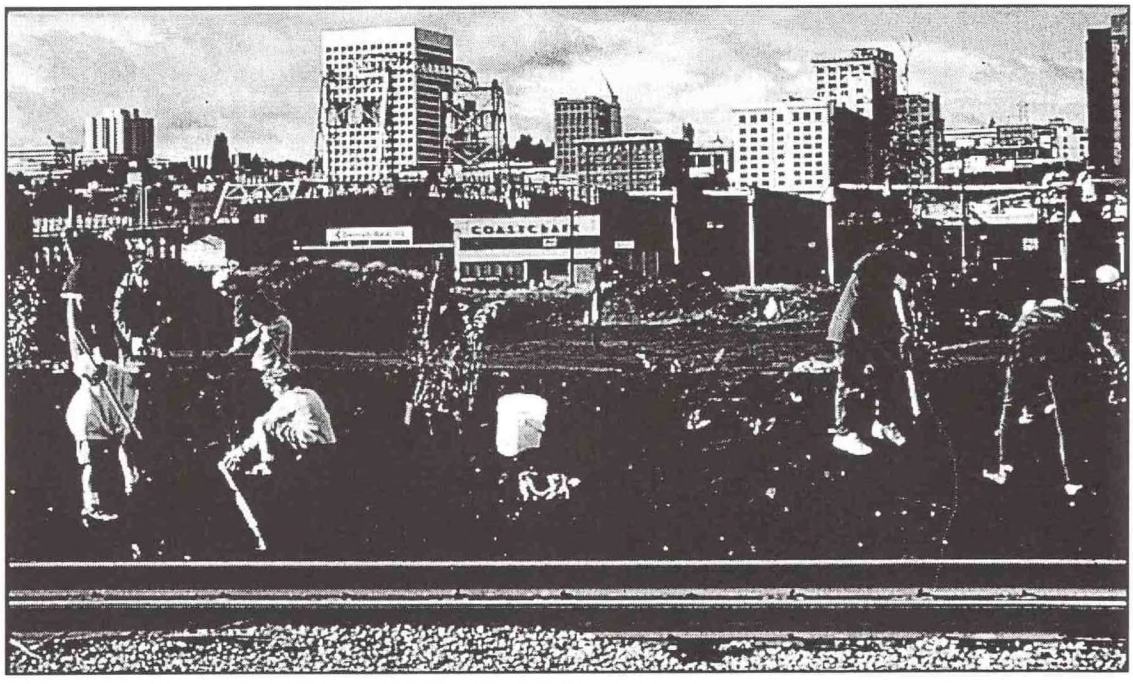
What is the Damage Assessment and Restoration Program?

NOAA established the Damage Assessment and Restoration Program in 1990 to fulfill the natural resource trustee responsibilities assigned in the Clean Water Act (CWA), the Superfund Act, OPA, and the National Marine Sanctuaries Act (NMSA). The Program consists of an interdisciplinary team dedicated exclusively to conducting damage assessments and restoring marine resources. This approach to natural resource damage assessment was shaped by the agency's experience in assessing injuries to coastal and marine resources associated with the *Exxon Valdez* oil spill in March 1989.

NOAA's program is effective because it provides an institutional focus for natural resource damage assessment and restoration. NOAA promotes coordination with appropriate state, tribal and federal trustees, cooperative assessments with responsible parties, and an open public process. This approach minimizes costly duplication of effort and reduces the chances of unnecessary litigation.

Skin tumors, like to one shown in this English sole, are often found in fish exposed to high sediment concentrations of polycyclic aromatic hydrocarbons.

Since 1990, NOAA has worked with co-trustees to recover over $200 million in settlements[1] with responsible parties. The Damage Assessment and Restoration Program has allowed NOAA to leverage a small investment of public funds to recover substantial funding from polluters, thus working with industry to restore the nation's coastal and marine natural resources. Through this program, NOAA has strengthened its expertise and its capacity for effective natural resource trusteeship.



Volunteers planting upland vegetation at Middle Waterway restoration project located in Tacoma, Washington (Commencement Bay).

[1] Exclusive of funds recovered as part of the *Exxon Valdez* settlement.

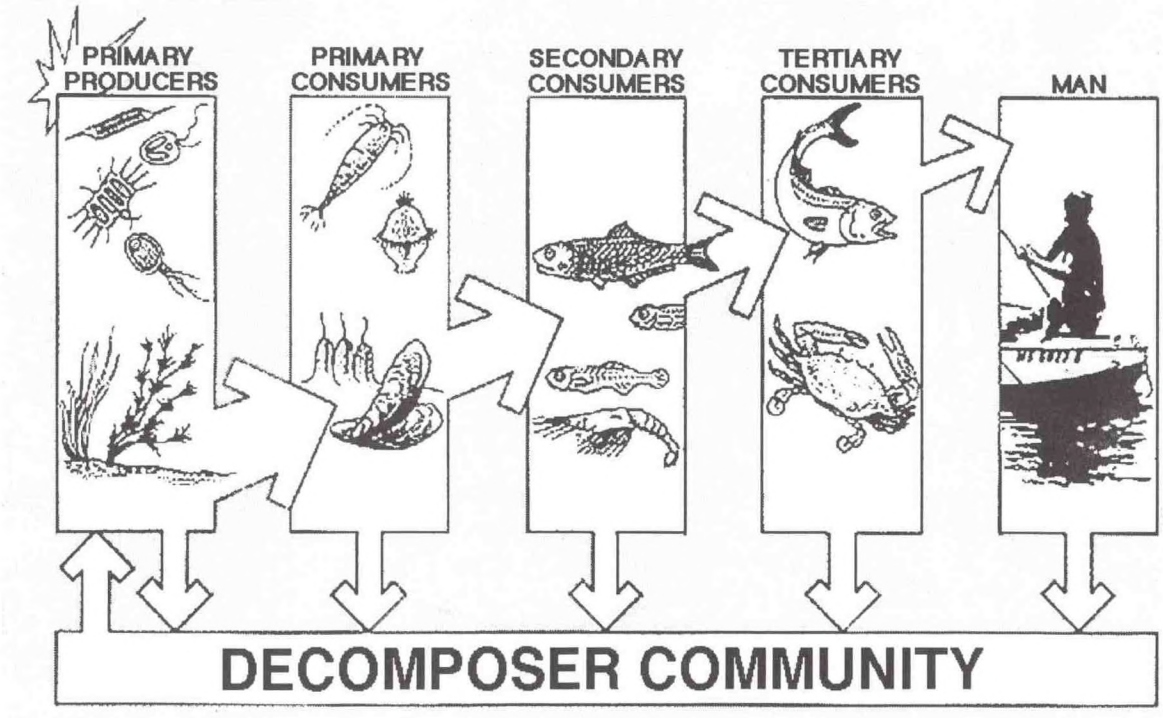
Goals and Activities

The primary objectives of the Damage Assessment and Restoration Program are to:

- assess injury to NOAA trust resources caused by spills and chronic releases of hazardous materials or oil; and
- effect the prompt and appropriate restoration of trust resources with funding from the parties responsponsible for the damage.

NOAA's damage assessment and restoration activities fall into three categories: 1) those related to long-term releases of hazardous substances and oil; 2) those associated with catastrophic spills—primarily oil; and 3) those resulting from physical injury to resources of National Marine Sanctuaries (such as coral reef groundings). To deal with this array of circumstances, NOAA has assembled a multidisciplinary team of natural scientists, resources economists and lawyers qualified to:

- assess the nature and extent of injuries;
- develop plans for restoring injured resources;
- obtain restitution for injuries to support restoration; and
- implement successful restoration programs.



Potential pathways for transfer of contaminants through a marine ecosystem to humans.

Benefits

NOAA's damage assessment and restoration efforts have made responsible parties more aware of releases of hazardous materials and their detrimental impacts on the nation's coastal and marine resources. In addition to restoring injured resources, the process:

- provides incentives to the private sector to prevent injury;
- makes the polluter pay to restore public resources; and
- demonstrates that small investments in the damage assessment process yield big returns in restoration.

Other benefits of the Damage Assessment and Restoration Program include:

- building partnerships with state, federal and tribal trustees, and with industry to protect and restore natural resources;
- advancing the state of the art in environmental science and natural resource economics; and
- enhancing awareness among the general public of natural resource stewardship through public participation in the restoration planning process.

NOAA's damage assessment and restoration capabilities provide an example for state natural resource trustees who are establishing their own programs. The development of local expertise, in turn, enhances the effectiveness of partnerships among co-trustees engaged in natural resource damage restorations around the country and reduces costs through the use of consistent approaches and methods.

In addition to coordinating with co-trustees, NOAA works with the public during the restoration planning process. Public participation is key to developing and implementing the most effective and appropriate restoration strategies. NOAA and its co-trustees actively solicit input through public hearings and other forums on the range of restoration activities for particular sites.

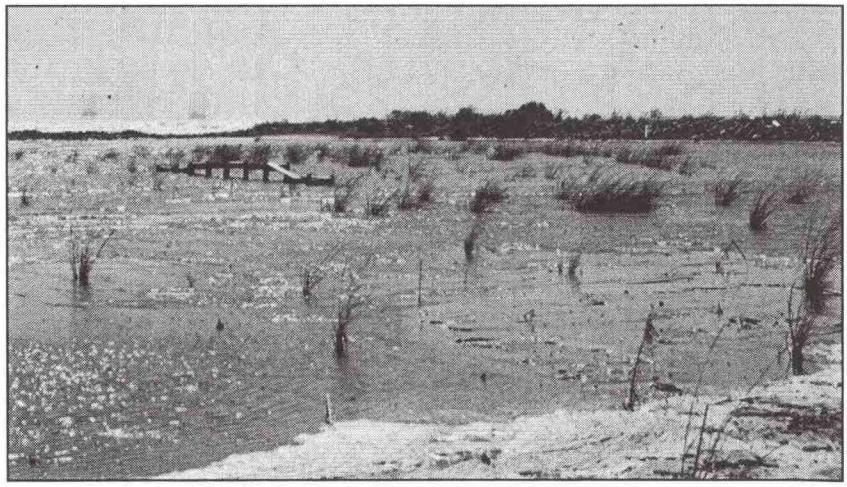
"This recovery breaks bold new legal ground because it is the first Superfund Natural Resources Damages case in the history of the Commonwealth. The settlement is the result of outstanding state and federal cooperation which should serve as a model for future efforts to restore environmental areas that have suffered harmful contamination."

—Scott Harshbarger,
Massachusetts
Attorney General
September 4, 1992,
New Bedford Harbor PCB
Superfund Settlement

Defining criteria for success is a critical part of the restoration planning process. NOAA's damage assessment performance ultimately must be measured against its effectiveness in restoring injured resources. Restoration efforts are underway across the country. For example:

- Development and implementation of Bay-wide watershed restoration plans in Elliott and Commencement Bays (Seattle and Tacoma, Washington) to benefit salmon and benthic resources.
- Lobster reef creation and shellfish restoration, as well as eelgrass and salt marsh restoration in Narragansett Bay as compensation for the M/V *World Prodigy* oil spill.
- Restoration planning and implementation at major coral reef grounding sites in the Florida Keys National Marine Sanctuary and Puerto Rico.

Natural resource restoration can be a complex and costly undertaking. Progress may be slow and involve substantial investment of financial and human resources to correct environmental impacts that have occurred over long periods of time. Nevertheless, NOAA is making progress to revitalize coastlines and marine resources. Efficient and effective damage assessment is essential to ensure that the pace of restoration is maintained, if not quickened, and that momentum builds to reverse the tide of coastal resource loss.



Newly created marsh and monitoring platform at the Greenhill Well Blowout Restoration Site on East Timbalier Island, Louisiana.

Active NOAA Restoration Sites

Case Name / Location	Restoration Funds	Restoration Activities
Elliott Bay* / Elliott Bay, WA	$24,000,000	Restoration planning completed and habitat projects being developed
Tenyo Maru / Olympic Peninsula, WA	$5,160,000	A restoration plan and environmental assessment are underway
Commencement Bay:* Simpson, Champion, WDNR / Tacoma, WA	$775,000	Middle Waterway Shore Restoration Project has been completed, which constructed an intertidal marsh
Commencement Bay: Port of Tacoma / Tacoma, WA	$12,000,000	Bay-wide Restoration Plan and Programmatic Environmental Impacts Statement has been prepared
Commencement Bay: City of Tacoma / Tacoma, WA	$4,046,800	Restoration projects will be developed over the next five years
Commencement Bay: Washington Dept. of Natural Resources (WDNR)/ Tacoma, WA	In-kind services	Habitat projects to be developed for three parcels of state-owned aquatic lands
Blackbird Mine/Salmon, ID	$77,153,000**	Water quality and anadromous fish habitat restoration and salmon reintroduction
Apex Houston / San Francisco, CA	$5,416,000	Common murre and murrelet habitat restoration ongoing
United Heckathorn / Richmond, CA	$380,000	Pursuing restoration in San Francisco Bay area
American Trader / Huntington Beach, CA	$3,285,000	Bird restoration and fish hatchery options identified; considering projects to address recreational losses
Southern California: LACSD / Palos Verdes Shelf, CA	$23,700,000	Restoration plans and environmental assessments are underway
Southern California: Potlatch/Simpson / Palos Verdes Shelf, CA	$12,000,000	Restoration plans and environmental assessments are underway

Case Name / Location	Restoration Funds	Restoration Activities
Mobil Gypsum / Pasadena, TX	$2,325,000**	Creation of tidal wetlands, upland buffer and freshwater wetland; construction to begin in 1998
Apex Galveston / Houston Ship Channel, TX	$1,313,000	Final restoration plan has been approved
Dixon Bay / Mississippi River Delta, LA	$15,000**	Emergent marsh created by freshwater diversion project
Greenhill Well Blowout/ Timbalier Bay, LA	$845,000**	Creation of 21.7 acres of intertidal wetlands
Tampa Bay Oil Spill/ Tampa Bay, FL	$15,000	Emergency restoration of an oyster reef has been completed
Elpis / FKNMS, FL	$1,660,000	Coral reef structural repair complete; biological restoration and monitoring ongoing
Alec Owen Maitland / FKNMS, FL	$1,080,000	Coral reef structural repair complete; biological restoration and monitoring ongoing
R/V *Columbus Iselin* / FKNMS, FL	$3,042,800	Preferred restoration includes reef stabilization and recreating pre-existing habitat structure
Jacquelyn L / FKNMS, FL	$125,127	Plan finalized for on-site coral transplanting, rubble stabilization, framework repair, and monitoring
Miss Beholden / FKNMS, FL	$1,671,337	Reef creation and rehabilitation pending payment of damages by defendants
Salvors / FKNMS, FL	$351,648	Restoration pending collection of restoration funds
M/V *Wellwood* / FKNMS, FL	$4,654,297	Developing an on-site restoration plan; monitoring
M/V *Fortuna Reefer* / Mona Island, Puerto Rico	$1,050,000	Emergency restoration of living corals completed; compensatory restoration projects under consideration
M/T *Kentucky* / Paulsboro, NJ	$34,500	Restoration plan is under development
Army Creek / New Castle Co., DE	$800,000	Upland wetland and anadromous fish habitat restoration; state completed survey of marshes and surface waters
Presidente Rivera / Delaware River, PA	$2,141,000	Acquisition and restoration of coastal habitat, shoreline stabilization under consideration
Jahre Spray / Westville, NJ	$117,000	NJ Dept. of Environmental Protection developing a restoration plan
T/V *Mormac Star* / Sandy Hook, NJ	$22,000	New Jersey leading development of a restoration plan
Santa Clara / Offshore Cape May, NJ	$200,000	Restoration options under development, land acquisition included
Rancocas Creek / Rancocas, NJ	$37,000	Open space preservation recommended
Exxon Bayway / Arthur Kill, NY/NJ	$14,021,913	Draft regional restoration plan completed; marsh restoration and habitat acquisition underway
Nautilus / Kill Van Kull, NY/NJ	$3,300,000	Piping plover restoration underway; educational Interpretive Center constructed
RTC380 / Long Island Sound, NY/CT	$200,000	Restoration options under development; state of New York planning to restore shellfish beds
World Prodigy / Narragansett Bay, RI	$567,000	Salt marsh restoration, lobster habitat enhancement, shellfish spawner sanctuary, and eelgrass bed restoration
New Bedford Harbor / New Bedford Harbor, MA	$18,954,192	Evaluation of restoration options pending EPA actions; projects will address injuries to wetlands, recreational areas, water column, habitat, living resources and endangered species

* Partial settlements to date ** Estimated amount/in-kind services

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