Healing our Coasts
Protecting our Future

15 Years of Protection and Restoration of the Nation's Coastal Resources

NOAA Damage Assessment, Remediation, and Restoration Program

NOAA's Damage Assessment, Remediation, and Restoration Program (DARRP)

The National Oceanic and Atmospheric Administration (NOAA) works with other agencies, industry, and communities to protect and restore coastal and marine resources harmed by oil spills, releases of hazardous substances, and vessels that have run aground.

Threats to Our Nation's Coasts

Each year, oil and toxic chemicals from ships, pipelines, and hazardous waste sites contaminate our nation's coastal waters. These pollutants harm our marine resources and our economic well-being and degrade quality of life for coastal communities. Ships also run aground on coral reefs and sea-grass beds, harming valuable habitat.

Oil spills kill fish and other wildlife, close beaches, and destroy coastal habitat.

Oil is one of the most obvious environmental pollutants. Hundreds of thousands of gallons of oil are spilled into our coastal waters each year. Local economies that rely on these resources for commercial fishing and tourism can be hit hard.

Hazardous waste releases contaminate seafood, coastal wetlands, groundwater, and sediments.

Industries have historically been located along waterfronts to ease the transport of goods. Unfortunately, this industrial development contaminated many coastal areas, although the effects are not always obvious. Pollutants such as toxic metals, pesticides, PCBs, and other harmful substances can persist in the environment for decades, and may pose threats to fish, wildlife, and people for many years.

Ship groundings immediately injure or destroy critical coral reef and sea-grass habitat.

Ship groundings of all sizes crush and destroy reef and sea-grass habitat, and the cumulative effects can be devastating and difficult to reverse.

DO NOT EAT
WHITE CROAKER
White croaker, also known as kingfish and tomcod, is contaminated with the toxic chemicals DDT and PCB in this area.
NO COMES LOS
"WHITE CROAKE
"White croakers," tambien conocid
TEMPLE CITY

Americans Value Their Coasts

More than half of Americans now call coastal counties home.

America's coasts and Great Lakes — including beaches, rocky shorelines, bays, and estuaries — are economically and socially critical to the nation.

People are drawn to the coasts for the pleasure they bring; coastal residents and visitors alike cherish the scent of sea breezes, the sound of foghorns, and the sensation of mud between their toes as they dig for clams.

Our ocean shores are lined with productive wetlands and beaches, providing nurseries for fish, nesting areas for birds, and recreation for people. Our urban coastal areas feature bustling ports and harbors vital to all Americans, no matter where they live. The shoes on your feet, the gas in your car, and the seafood on your plate travel through a coastal port on their way to you.

Coastal Resources Laws

America's environmental laws outline a framework for the clean up of contamination and the restoration of affected resources.

In 1980, the *Superfund Act* authorized the Federal government to clean up America's hazardous waste sites, and in 1990, the *Oil Pollution Act* provided specific authority to address oil spills. The *National Marine Sanctuaries Act* amendments of 1988 gave NOAA the authority to address physical injuries and other harm to sanctuary resources. These laws provide incentives to protect resources and require those responsible for an oil spill or hazardous substance release to clean them up. Those responsible are also required to actively address any harm that has been done by restoring both the injured resources and the services they provide.

Protecting and Restoring Our Nation's Coastal Resources

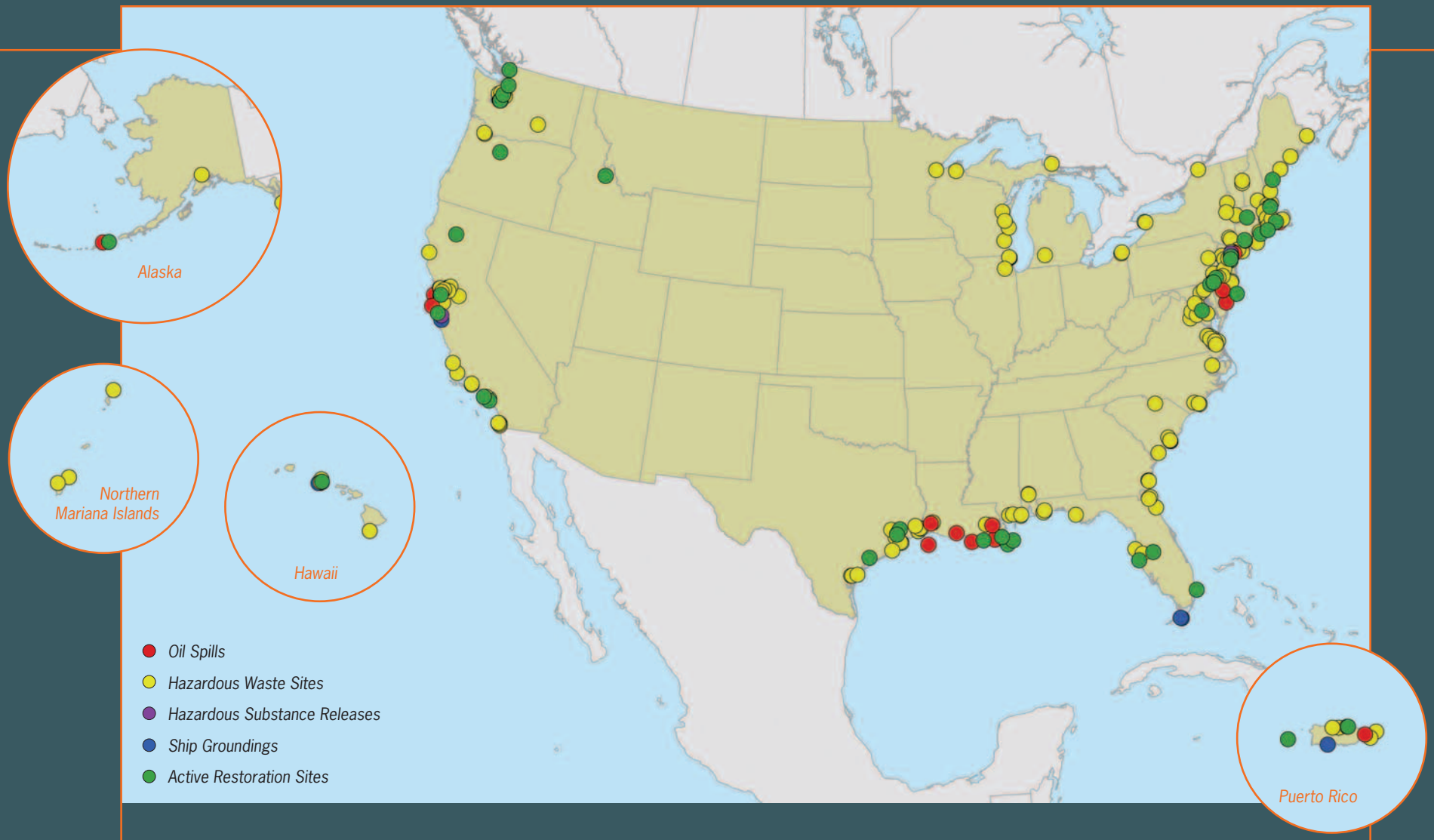
Trustees are government officials who act on behalf of the public when there is injury, destruction, loss, or threat to a natural resource as a result of a hazardous substance release, oil spill, or ship grounding.

NOAA's DARRP carries out its natural resource trustee responsibilities in two ways:

Protective Cleanups at Hazardous Waste Sites: The essential first step in protecting and restoring our environment is to stop the spread of contamination. Working with clean-up agencies, NOAA recommends control of ongoing sources and cleanup actions, and when possible, integrates cleanup and restoration to speed the recovery of natural resources.

Natural Resource Damage Assessments (NRDA): To restore coastal resources harmed by incidents, NOAA works cooperatively with federal, state, and tribal co-trustees, and those responsible to develop and carry out restoration projects. NOAA experts work to:

- Determine the amount of harm to natural resources and the degree to which the public has lost the use of those resources;
- Develop and evaluate restoration options;
- Work with the public to select restoration options to implement; and
- Oversee or implement restoration projects and monitor their progress.



2007 DARRP Activities in the United States and its Territories

NOAA's Damage Assessment, Remediation, and Restoration Program is actively working on 314 cases in the United States and its territories, including Puerto Rico and the Northern Mariana Islands. Seven additional sites in the Pacific Islands are not pictured on the maps above.

Mispillion River, Delaware

"What starts as a little spark turns into a big fire if you keep fanning it."

Bill Pike, a retired union construction electrician, grew up near the Mispillion River in Delaware. His mother's family has lived on a nearby farm since they emigrated from Eastern Europe at the beginning of the 20th century.

For the last 40 years, Bill has hunted and trapped along the river, and fished for rockfish, striped bass, and white sea perch. He has seen the quality of the environment decline over the years from overuse and development. His father, who came to America from Ireland in 1920, taught him that when you take from the environment, you must put something back.

Now that he is older, he feels it is time to "take action to keep the environment wild for future generations to enjoy the way I did when I was young." He is leaving his 50-acre riverfront property in conservation status as part of the settlement for the DuPont Newport Superfund site. Bill's dream is that his project — to create fish spawning ponds— will spread.

"I'm not doing this to receive accolades. I want other people to see what we are doing here and say, 'I can do that too.' The next thing you know, the whole river will be involved." [See p. 14 for description of DuPont Newport case.]

Biloxi, Mississippi

"Without the cleanup at Keesler, contamination would have been spread much further."

The Reverend James Black founded the Faith Tabernacle of Praise in Biloxi, Mississippi, 18 years ago. Born in the hospital at nearby Keesler Air Force Base (his father served in the military), he returned to the area after college and a tour in Vietnam to become a driver of the budding environmental justice movement.

He learned that military toxins created after World War II had contaminated aquatic life in the beautiful Back Bay adjacent to Keesler. Reverend Black has served as the co-chair of the Keesler AFB Restoration Advisory Board since its inception. He believes that the cleanup will protect the environment and benefit area residents, many of whom are people of color and disadvantaged status.

"Though there was early mistrust between the government and the community, Keesler managers evolved into an open minded group." In spite of successes at Keesler, Reverend Black believes we need a more systematic and formal approach to environmental justice to ensure that low income and disadvantaged stakeholders are protected and treated fairly.

Hurricane Katrina devastated the local area in 2005. "Without the cleanup at Keesler, contamination would have been spread much further. We need more information about the role wetlands play in protecting us from the effects of hurricanes." [See p. 18 for description of Keesler AFB case.]

DARRP Accomplishments

Through the cleanup process, NOAA has successfully protected natural resources at more than 500 waste sites. At the end of 2006, 179 natural resource damage assessment cases had been settled. These settlements generated more than $437 million to protect or restore thousands of acres of habitat and return valuable resources and services to the public.

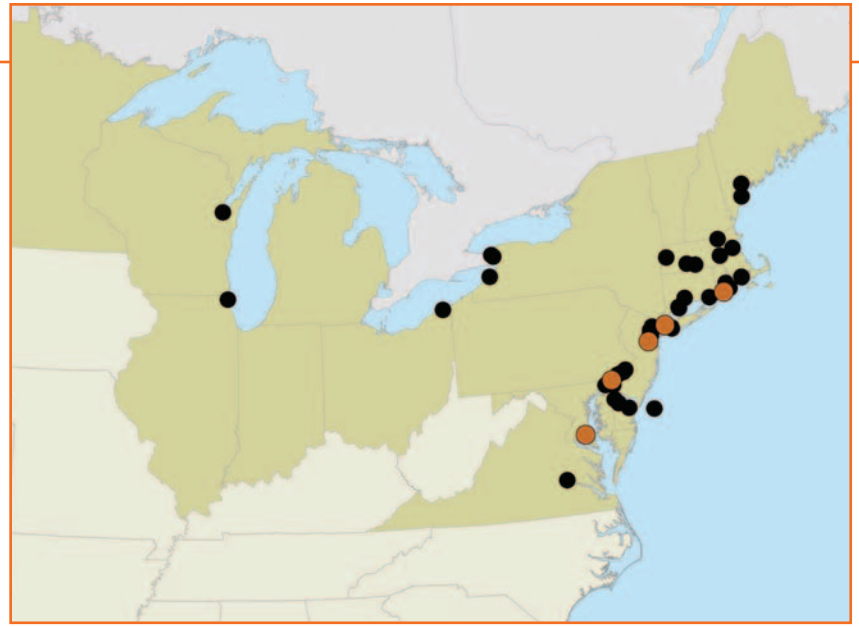
NOAA's early and effective involvement at waste sites, oil spills, and ship groundings helps maintain clean, healthy coasts for the benefit of future generations. NOAA also provides valuable technical assistance to other federal and state agencies, and is leading the way in evaluating injuries for many as yet unresolved incidents.

NOAA's DARRP strengthens the ways in which remedial agencies, co-trustees, and all parties carry out their respective responsibilities.

NOAA leads by:

- Working with the U.S. Environmental Protection Agency (EPA) to develop protective measures;
- Developing innovative approaches and techniques for restoration; and
- Encouraging all parties to cooperate when an incident occurs.

After 15 years of success, however, much remains to be done. In 2007 and beyond, NOAA will build on past experiences and work with its partners and others to identify new ways to protect and restore injured natural resources.



This map indicates cases settled in the Northeast and Great Lakes region. Colored dots indicate cases described in following pages.

Northeast and Great Lakes Region

The Northeast and Great Lakes region is home to extensive estuaries and fishing grounds that support important species, such as lobster and game fish. These habitats sustain both commercial and recreational fishing industries. Because the region is so heavily urbanized, undeveloped areas are highly valued. Beaches and harbors provide recreational opportunities and enhance local economies.

Throughout the Northeast and Great Lakes region, NOAA and its co-trustees have reached settlements for:

- 14 oil spills; and
- 34 hazardous-material releases.

Some of the most heavily industrialized cities in the United States are located in coastal areas of the Northeast and Great Lakes. Intense use of rivers and coasts results in large numbers of oil spills and hazardous waste sites that impact ports, wetlands, and beaches.

These settlements have resulted in 176 protection and restoration projects, including:

- Restoration and/or protection of 2,000 acres of marine habitats and 1,500 acres of freshwater and terrestrial habitats in the marine states;
- Protection or improvement of habitat for more than 7,000 nesting pairs of birds (including some threatened and endangered species);
- Restoration and/or protection of more than 14,000 acres of habitat in the Great Lakes; and
- Seeding of 25 million shellfish in coastal waters.

Block Island Sound, Rhode Island

On January 19, 1996, during a severe winter storm, the oil barge *North Cape* and the tug *Scandia* grounded on Moonstone Beach in southern Rhode Island, spilling approximately 828,000 gallons of home heating oil. The oil covered a large portion of Block Island Sound and closed a 250-square-mile fishing area. An estimated 9 million lobsters, 150 million surf clams, 4.2 million fish, 2,100 marine birds, and millions of other marine organisms were killed.

NOAA and its co-trustees worked cooperatively with those responsible to assess the injuries and plan for restoration. Restoration projects included purchasing conservation easements in southern Rhode Island to protect 64 acres of coastal salt pond buffer habitat, and protecting approximately 1.5 million acres of land for loon and eider nesting habitat.

Funds were also used to construct a fishway to open 220 acres of spawning habitat, and to restore oysters (right), bay scallops, and quahogs throughout Narragansett Bay. NOAA and its partners worked with the lobster fishing industry to restock and protect 1.25 million female lobsters in an effort to extend their reproductive lives so that they would eventually replace the 9 million lobsters killed by the oil spill.

"This partnership between Rhode Island's fishermen and marine biologists has been a tremendous success. Restoring the lobster population represents part of a larger effort to restore our coastal habitat. We have worked closely with the National Oceanic and Atmospheric Administration and the U.S. Fish & Wildlife Service to increase our shellfish population, protect sensitive wetlands, and allow piping plovers to flourish."

Rhode Island Governor Donald Carcieri

New York Harbor, New York and New Jersey

The Arthur Kill waterway, which separates Staten Island, New York from New Jersey, is a major shipping corridor and an important center for the petrochemical industry. The area is home to refineries, storage terminals, and thousands of acres of tidal wetlands and the fish and wildlife that depend on them.

In January 1990, a pipeline running beneath the Arthur Kill ruptured, spilling approximately 560,000 gallons of home heating oil into the river. Fish, crabs, clams, mussels, invertebrates, and birds were killed or injured, and more than 100 acres of salt marsh were oiled. Using settlement funds from the spill, NOAA and its co-trustees purchased 200 acres of wetlands and forested floodplain for permanent protection. Forty-six acres of degraded wetlands have been restored (right), with an additional 77 acres of restoration planned.

This wetland restoration established innovative techniques for the recovery of oil-impacted marshes that are commonly used today. A large volunteer and education component provided opportunities for local residents, school groups, and community groups to get involved, and led to a successful college internship program. Community members volunteered thousands of hours to the restoration.

"When it comes to public compensation for environmental damage, no project has had a stronger impact nationally than the Arthur Kill Oil Spill Restoration, which set new standards for government cooperation, scientific rigor, and long-term success."

Deborah Marton, Executive Director, Design Trust for Public Space, NYC

Long Island Sound, New York

Beginning in 1939, an area near Hempstead Harbor off of Long Island Sound was used to store petroleum and later, hazardous wastes. Over the years, contaminants entered the soil, groundwater, and sediments, harming nearby mudflats and wetlands — habitats that provide important foraging, spawning, and nursery habitat for striped bass, bluefish, flounder, and shellfish.

NOAA worked closely with the EPA to clean up and contain the contamination and monitor the area. Trustees and those responsible installed a new and more effective bulkhead to prevent the spread of contaminants and implemented a local wetland restoration project. Settlement funds were combined with funds from NOAA's Community-based Restoration Program to restore salt marsh and coastal upland habitats at Bar Beach Lagoon, located across the harbor from the site. Community volunteers planted more than 6,000 marsh and coastal upland plants at the site (right and below).

Newport, Delaware

"The cooperative approach undertaken by DuPont, NOAA, U.S. Fish & Wildlife Service, and the State of Delaware demonstrated its value by allowing all parties to streamline the assessment process, thus reaching a settlement more efficiently, and being able to undertake appropriate ecological restoration in a timely manner."

Ralph G. Stahl, Jr., Ph.D.
Principal Consultant, DuPont

The DuPont site in Newport, Delaware covers approximately 120 acres on the north and south banks of the Christina River, a tributary of the Delaware River (left). In the early 1900s, DuPont metal wastes from plant operations were placed in a landfill on-site, which contaminated soil, groundwater, and nearby river and marsh sediments. In 1990, the area was designated as a Superfund site.

NOAA and its co-trustees worked cooperatively with DuPont and other partners to integrate restoration activities during the cleanup. DuPont agreed to fund restoration measures at the site itself, to purchase a conservation easement, and to restore the nearby 56-acre Pike Property located in the Delaware River estuary (below).

By cooperating on this project, DuPont and the trustees restored local wetland habitats to support diverse fish, bird, and riverbed communities.

Patuxent River, Maryland

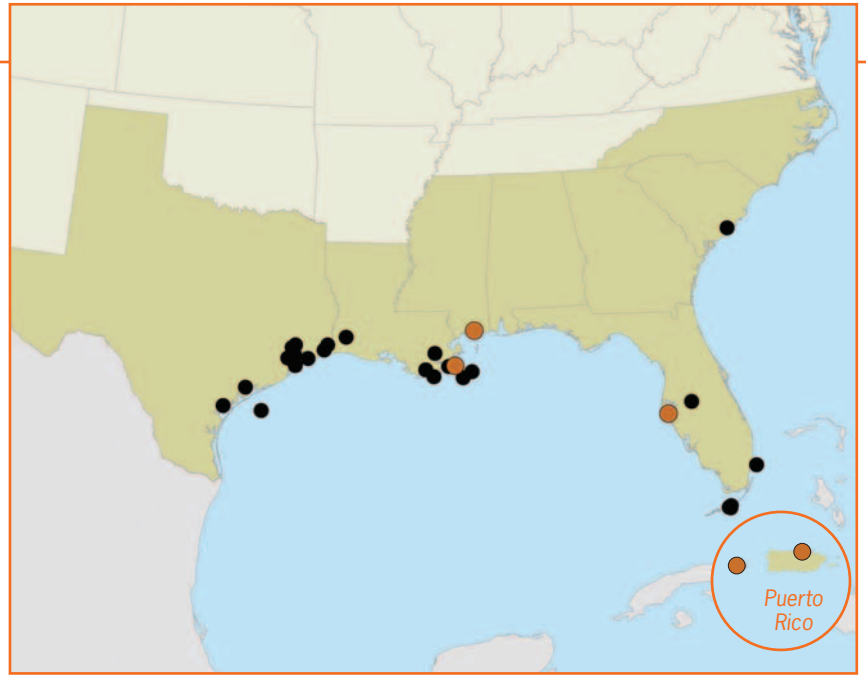
In April 2000, 140,000 gallons of fuel oil from a ruptured pipeline spilled into the Patuxent River, a tributary of the Chesapeake Bay, affecting approximately 40 miles of shoreline. NOAA initiated a natural resources damage assessment to determine which resources were affected, and to what extent. The spill limited the public's use of the river, and injured wetlands, beaches, riverbed communities, fish and shellfish, diamondback terrapins, ruddy ducks, and other birds.

Through cooperative work with those responsible, NOAA and its co-trustees restored the injured natural resources. Restoration projects included creating wetland (right and below) and beach habitat, and establishing an oyster reef sanctuary in the Patuxent River. The settlement also funded projects to improve boat access to the river, upgrade a local boardwalk, provide new canoes at a river education center, and construct a kayak/canoe launch for people with disabilities.

"By creating oyster reefs and new habitat for fish and wildlife, and providing new recreational access to the river, [the Chalk Point Restoration Plan] will help remediate the environmental and economic harm of the spill."

Retired U.S. Senator Paul Sarbanes (Maryland)

Southeast and Gulf Region



This map indicates cases settled in the Southeast and Gulf region. The Florida Keys National Marine Sanctuary includes 87 settlements. Colored dots indicate cases described in following pages.

From the vast coastal wetlands of Louisiana to the winding estuaries of North Carolina and the coral reefs of Florida, the Southeast and Gulf region supports some of the most biologically diverse habitats in the nation. Abundant, healthy coastal natural resources are essential to the region's fishing industry and to tourism and recreation.

Healthy coastal marshes and barrier islands buffer the effects of storm surge, preventing flooding and erosion. When wetlands and other coastal habitats are lost, the region's extensive oil and gas infrastructure is increasingly threatened by storms.

Pollution from oil and other contaminant releases destroys habitat and impacts fisheries and tourism. Vessel groundings in marine sanctuaries also take a cumulative toll on fragile coral reefs and sea-grass beds.

Throughout the Southeast and Gulf region, NOAA and its co-trustees have reached settlements for:

- 15 oil spills;
- 11 hazardous releases; and
- 87 large and small vessel groundings.

These settlements resulted in 68 restoration projects, including:

- Restoration and/or protection of 3,300 acres of marine habitats and 750 acres of freshwater and terrestrial habitats;
- Restoration of 12,000 coral colonies; and
- Construction of more than 20 projects to enhance the public's enjoyment of natural resources, including fishing piers and boat launches.

Mississippi River, Louisiana

As the longest and largest river in North America, the Mississippi River provides important ecological habitats, among them the coastal marshes that serve as nurseries and nesting grounds to many fish, mammal, and bird species. In November 2000, the river was severely threatened as the ship M/V *Westchester* lost control and ran aground, spilling nearly 546,000 gallons of oil.

Several thousand acres of surface waters, shoreline, and marsh habitats were exposed to the crude oil. NOAA experts determined the extent of the injury and how much restoration would be needed to compensate the public.

As part of the settlement, 20 acres of marsh (right and below) on a state wildlife refuge were restored. To compensate for lost recreational use of the river during the incident, a boat dock was constructed at a nearby reservoir and recreation amenities were improved in local public areas.

Biloxi, Mississippi

NOAA partners with the U.S. Department of Defense (DoD) to clean up contaminated military facilities and restore injured resources such as crabs (left).

From 1950 to 1965, a landfill at Keesler Air Force Base was used to dispose of a variety of chemicals that eventually contaminated the soil and nearby groundwater. A team of experts, including NOAA staff, worked with DoD to clean up and restore the site. For the past 10 years, NOAA has provided critical experience to the team, ensuring that wetland restoration was integrated into the cleanup process.

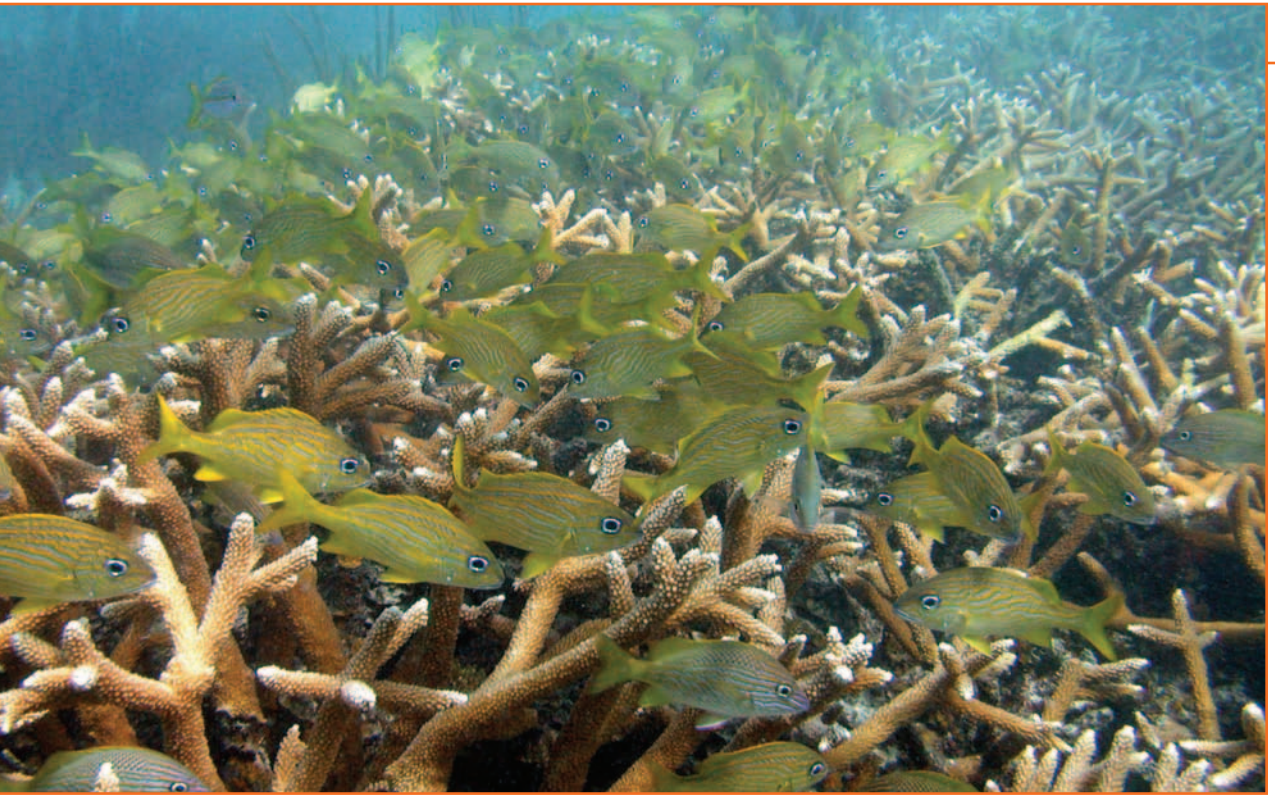
In 2005, Keesler Air Force Base was awarded the Secretary of Defense Environmental Award as the Department's top installation for environmental restoration. In accepting the award, Keesler's Base Commander acknowledged the importance of partnering with other stakeholders early in the process, conducting site-specific ecological risk assessments, and working closely with NOAA and other trustees to expedite cleanup.

> *"Keesler Air Force Base addressed ecological risk assessment issues that have stumped other Department of Defense facilities and teams throughout the country."*
>
> Robert Pope,
> EPA Remedial Project Manager, Keesler Air Force Base

Tampa Bay, Florida

On August 10, 1993, three ships collided near the entrance of Tampa Bay, Florida, spilling over 32,000 gallons of jet fuel, diesel, and gasoline, and about 330,000 gallons of heavy fuel oil. Despite emergency cleanup efforts, the oil fouled 13 miles of beaches, killing and injuring birds, sea turtles, mangrove habitat, and other natural resources, and preventing beach use in the Tampa Bay area.

Through the Tampa Bay restoration settlement, NOAA and its co-trustees funded more than 20 projects, including the restoration of wetlands (left), oyster reefs, and beaches, as well as the construction of a new fishing pier and boardwalk.



Mona Island, Puerto Rico

Coral reefs, some of the oldest and most diverse ecosystems on the planet, are threatened daily by human activities. In July 1997, the 325-foot container ship *Fortuna Reefer* ran aground on a coral reef surrounding Mona Island, Puerto Rico. The grounding and subsequent response efforts injured almost seven acres of submerged habitat, mostly coral (left), and posed a substantial threat of an oil spill.

NOAA and its co-trustees quickly reached a $1.25 million restoration settlement with the those responsible and began emergency restoration of the corals. Broken corals were removed from sandy areas where they were smothering, and were refastened to their bases with non-corrosive stainless-steel wire and nails so that they could reattach naturally (left, below).

Additional restoration included installing a light tower and mooring buoys to prevent future vessel groundings inside Mona Island's fringing reef and to prevent anchor damage to sea grass and corals.

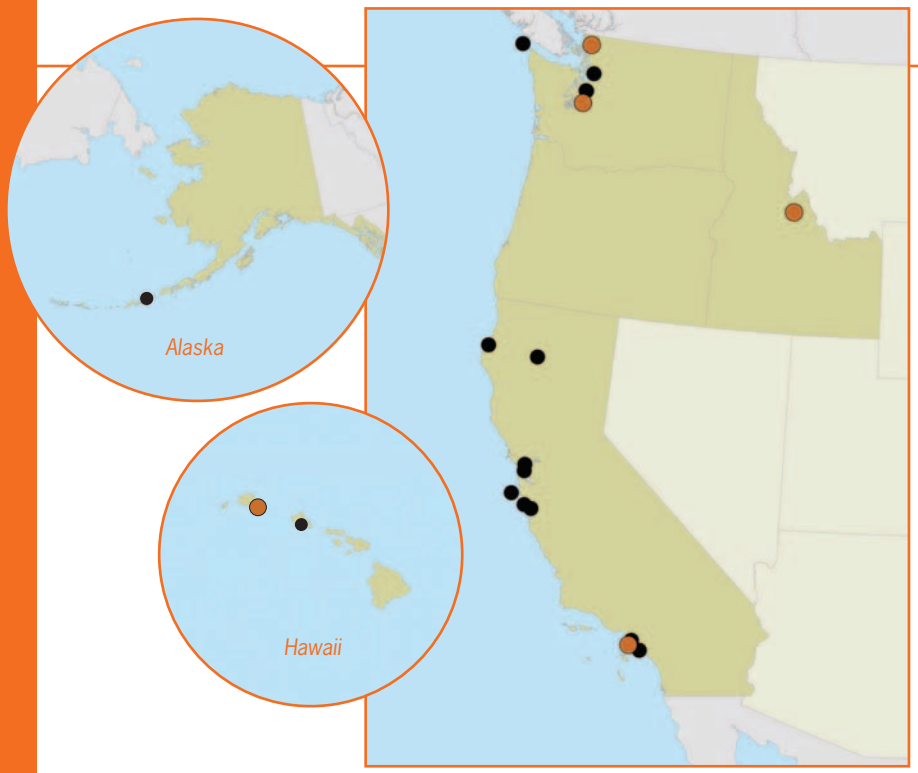
San Juan, Puerto Rico

In January 1994, the tank barge *Morris J. Berman* drifted aground near San Juan, Puerto Rico, after its tow line broke from the tug. The grounding ruptured seven of the barge's nine holding tanks and resulted in a spill of approximately 800,000 gallons of fuel oil.

Both the vessel grounding and subsequent efforts to remove the vessel injured sea-grass beds, coral reefs, and a variety of organisms that depend on these habitats, such as brittle stars (see photo). The spill affected 1,100 square miles of surface waters along the north coast of Puerto Rico and 169 miles of shoreline, including the San Juan National Historic Site. The incident closed beaches and affected tourism at the height of the tourist season.

NOAA and its co-trustees are using the restoration settlement to fund several projects, including the acquisition of a 270-acre coastal parcel (right) that will be managed as a natural reserve. Additional projects include sea-grass restoration and an artificial reef, as well as a variety of improvements to the San Juan National Historic Site to compensate for lost enjoyment of the area during the spill.

Pacific Region



This map indicates cases settled in the Pacific region. Colored dots indicate cases described in following pages. In some cases, several settlements are associated with a single site.

Many people who live in the Pacific coastal states and island territories define themselves through their relationship to the environment. Coastal uses in the region range from natural resource extraction and industrial development to recreational enjoyment and subsistence fishing. American Indian tribes and Pacific Islanders maintain their cultural and historic connections to the land and sea, and many of them rely on healthy fish stocks to survive.

Chemical contamination on this coast has endangered key fish species, such as salmon. Contamination also results in fish consumption advisories and long-term adverse impacts on other wildlife populations. Oil spills have closed beaches and injured coastal and marine habitats and wildlife.

Throughout the Pacific region, NOAA and its co-trustees have reached settlements for:

- 11 oil spills;
- 30 hazardous releases; and
- One vessel grounding.

These settlements resulted in 80 restoration projects, including:

- Restoration and/or protection of 1,600 acres of marine habitats and 8,000 acres of freshwater and terrestrial habitats;
- Establishment of 20 bird projects and restoration of habitat for up to 550 nesting pairs;
- Removal of 1,000 tons of marine debris; and
- Implementation of 13 public awareness campaigns to increase the public's knowledge of natural resources in the region.

Salmon River, Idaho

Decades of mining activity at Blackbird Mine severely contaminated water and sediments in Panther Creek (below, right), a tributary of Idaho's Salmon River. High levels of heavy metals such as copper, cobalt, and arsenic leaked into surface waters and sediments, posing risks to people and largely eliminating fish — including the Snake River Chinook salmon (below), listed as threatened under the Endangered Species Act — from the creek.

NOAA and its co-trustees developed a cost-effective program to restore injured resources and to compensate the public for losses. NOAA also provided cleanup recommendations to prevent future harm by establishing water-quality criteria for the creek. Restoration activities include improving water quality, creating additional Chinook salmon and steelhead trout habitat, and reintroducing Chinook salmon to the area.

"For over half a century, contamination from Blackbird Mine has resulted in the elimination of the Chinook salmon and degraded the environment. However, today's settlement – founded in a federal and state partnership and with great cooperation from [those responsible] – marks a time to rebuild."

Lois Schiffer
Former Assistant Attorney General for the Environment and Natural Resources Division, U.S. Department of Justice

Bellingham, Washington

Whatcom Creek is a 3.5-mile-long coastal stream that runs through a city park, residential neighborhoods, and urban industrial areas before emptying into Bellingham Bay in northern Puget Sound. In June 1999, a pipeline ruptured and discharged approximately 236,000 gallons of gasoline into Hannah and Whatcom creeks. As the gasoline moved down Whatcom Creek, the fumes ignited and caused the tragic deaths of three people. Surface water was contaminated, and vegetation and organisms were destroyed all along the creek banks.

NOAA and its co-trustees worked with the City of Bellingham and those responsible to replant 40,000 trees in the local watershed, and acquired 12 acres of land to expand the park. NOAA also restored the Whatcom Creek stream bed (left) to improve spawning habitat for salmon, and constructed two additional salmon wetland projects.

"...the pipeline rupture and fire ... caused significant damage to a stream, public park and the community's sense of well being. NOAA's leadership ... produced a reasonable settlement agreement in a timely manner."

Clare Fogelsong,
Environmental Resources Manager,
City of Bellingham

Commencement Bay, Washington

As the harbor for Tacoma, Washington, Commencement Bay and its eight waterways are home to dozens of industrial and commercial operations, including chemical manufacturing companies, oil refineries, and food processing plants. The area is also home to diverse marine species, including Chinook, coho, and chum salmon; steelhead trout; flatfish; and numerous bird species.

For decades, hazardous substances released through storm drains from area industries contaminated Commencement Bay, its waterways and sediments. In October 1991, NOAA and its co-trustees began a damage assessment and restoration planning process. NOAA conducted studies of injuries to natural resources resulting from exposure to hazardous substances, entered into settlement agreements with willing parties, and planned and carried out projects to restore injured resources such as wetlands and salmon habitat (right and below).

The trustees are currently engaged in settlement negotiations with most of the remaining responsible parties at the site. NOAA continues to provide recommendations to ensure that the site is cleaned up to prevent future harm to the marine environment.

"This agreement demonstrates what can be accomplished when we direct our energies to meet the basic purpose of the law — restoring natural resources."

David McEntee,
Simpson Tacoma Kraft Company

Palos Verdes Peninsula, California

From the late 1940s to the early 1970s, the Montrose Chemical Corporation and other industries in the Los Angeles area released millions of pounds of DDTs and PCBs into the ocean waters off of Southern California. Although this practice stopped in the 1970s, the chemicals still contaminate sediments, water, and living organisms of the southern California marine environment (left, top), including the Channel Islands.

DDTs can cause birds to lay abnormally thin-shelled eggs that break easily, a factor that contributed to the decline and, in some cases, the disappearance of several species of birds throughout the Channel Islands. Human health risks associated with high levels of DDTs and PCBs in certain species of fish also led to fish consumption advisories and to a commercial catch ban for white croaker.

While the EPA continues to explore cleanup and remediation strategies, NOAA and its co-trustees conduct restoration projects for bald eagles, peregrine falcons, seabirds, fish, and recreational uses. Together, EPA and the trustees surveyed contaminant levels in fish, and ran an outreach campaign to educate the public about safe fish consumption.

In 2006, NOAA and its co-trustees celebrated a milestone success in bald eagle restoration efforts when bald eagles reproduced successfully on their own for the first time in 50 years in the Channel Islands (left, bottom).

> *"The success of this nest brings hope that we will reestablish bald eagles on the Channel Islands. All Americans can share in the excitement of this historic event."*
>
> Russell Galipeau
> Superintendent, Channel Islands National Park

Oahu and Kauai, Hawaii

In August 1998, a hose failure at a Tesoro Corporation mooring facility near Oahu spilled an estimated 420 gallons of oil into the ocean. Cleanup operations were conducted immediately following the spill; but two weeks later, tarballs and dead oiled birds began to wash ashore on the eastern shore of Kauai.

Chemical analysis linked the tarballs and oiled birds collected from Kauai with the oil spilled from the refinery on Oahu. Based on this analysis, an additional 4,500 gallons may have been spilled. The oil spill affected seabirds (right), Hawaiian monk seals (right), invertebrates, algal communities, opihi (a Hawaiian shellfish delicacy), subsistence activities, beaches, and recreation.

Restoration activities included removing fishing nets, cleaning beaches, and controlling predators to foster an increase in seabird populations.

Acknowledgements

NOAA's DARRP thanks all of the people that made this document possible.

Photos

Many of the photos in this document were taken by NOAA employees during the normal conduct of their NOAA activities. Their photographic talents and contributions to this publication are gratefully acknowledged.

Other credits are as follows:

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- *Each year, oil and toxic chemicals from ships, pipelines, and hazardous waste sites contaminate our nation's coastal waters. These pollutants harm our marine resources and our economic well-being. Ships also run aground on coral reefs and sea-grass beds, harming valuable habitat.*

- *America's coasts and Great Lakes — including beaches, rocky shorelines, bays, and estuaries — are economically and socially critical to the nation.*

- *NOAA's Damage Assessment, Remediation, and Restoration Program works cooperatively with partners to protect and restore coastal resources that have been injured by oil and hazardous material releases or vessel groundings.*

- *Through the cleanup process, NOAA has successfully protected natural resources at more than 500 waste sites. At the end of 2006, 179 natural resource damage assessment cases had been settled. These settlements generated more than $437 million to protect or restore many thousands of acres of habitat and return other resources and services to the public.*

- *In 2007 and beyond, NOAA will build on past experiences and work with its partners and others to identify new ways to protect and restore injured natural resources.*

April 2007

Carlos M. Gutierrez
U.S. Secretary of Commerce

Conrad C. Lautenbacher, Jr.
Vice Admiral, U.S. Navy (Retired)
Under Secretary of Commerce for Oceans and Atmosphere and Administrator,
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