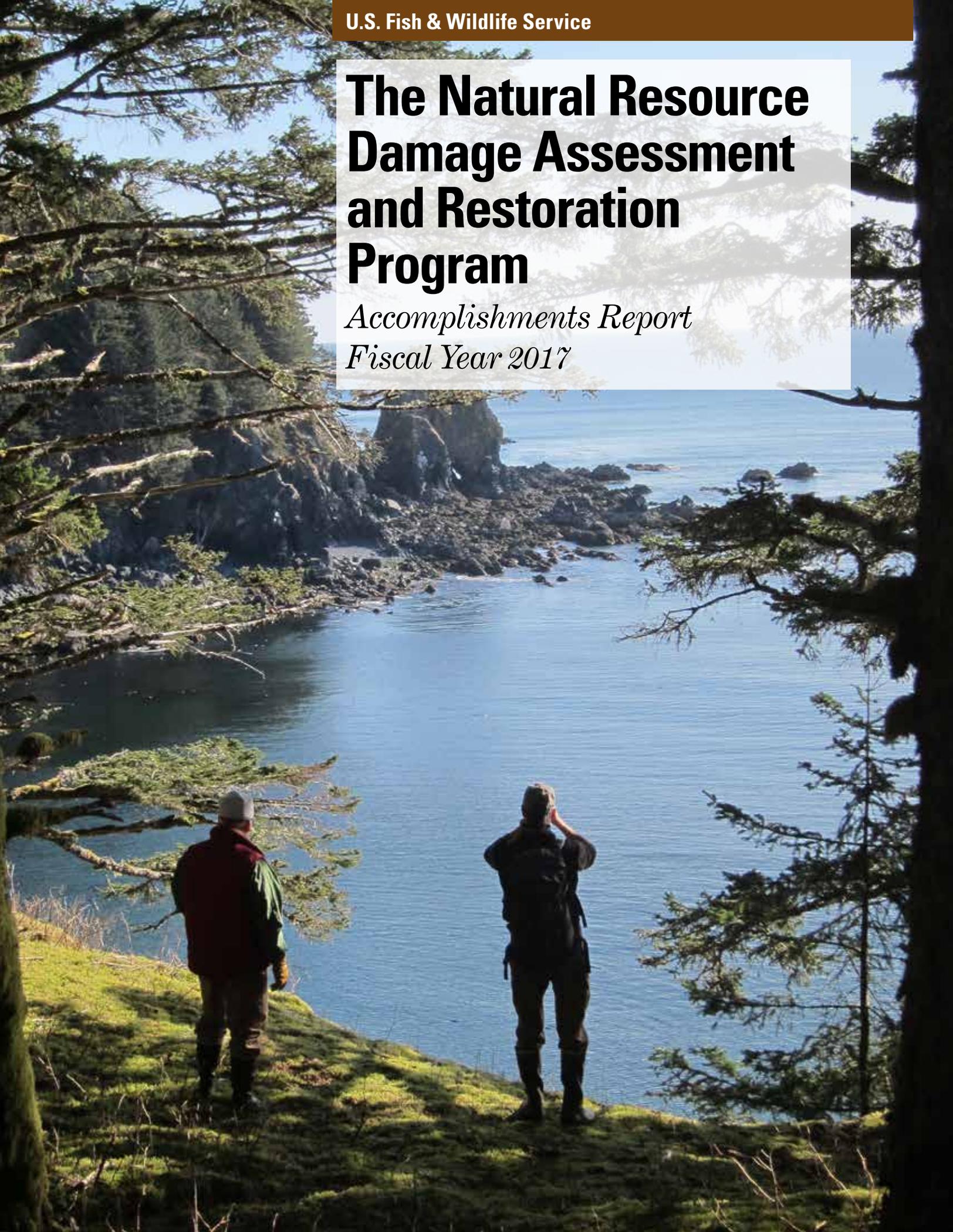


The Natural Resource Damage Assessment and Restoration Program

*Accomplishments Report
Fiscal Year 2017*



COVER PHOTO: The Exxon Valdez Natural Resource Damage Assessment and Restoration Program recently protected 1058 acres of coastal habitat near Kodiak, Alaska. Termination Point's coastal shoreline, uplands, and freshwater wetlands provides habitat for sea otters and several species of seabirds, provides subsistence harvest opportunities for local Alaskans, protects three sites culturally valuable to Alaska Natives, and provides recreational hiking and wildlife watching to the public. Photo courtesy of Great Land Trust.

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Summary of Accomplishments in Fiscal Year 2017

The Natural Resource Damage Assessment and Restoration Program

Our coasts, rivers, estuaries, wetlands and other natural places are home to spectacular native wildlife and provide Americans with unrivaled places to fish, hunt, and get outdoors. They also play a critical role in our economy, generating revenues in tourism and recreational opportunities, while providing us with clean water and performing countless other important ecological functions.

We continue to work collaboratively with states, Tribes, municipalities, private landowners and industries to keep these special places vibrant and healthy, but oil and chemical spills can hamper those efforts, causing serious and potentially permanent ecological damage. The challenge of managing such releases is increasing in complexity and magnitude. Many people are familiar with the large, catastrophic oil spills of national significance, such as the 2010 Deepwater Horizon spill and the 1989 Exxon Valdez spill. However, the U.S. Environmental Protection Agency estimates that 70 much smaller oil spills occur every day in the country. In addition, the federal government receives reports of 12 hazardous substance releases per day, some of which are so large that they threaten human health or the environment, and are eventually deemed as Superfund sites.

The U.S. Fish and Wildlife Service (FWS) has responsibility for conserving National Wildlife Refuges, endangered and threatened species, migratory birds, other natural resources and the ecosystem services they provide, including recreational opportunities. When fish, wildlife, and other natural resources are harmed by oil or other hazardous substances, our Environmental Response and Restoration specialists work with other response agencies to minimize negative impacts to natural resources from the spill and associated response activities. In addition, we research and document the impacts of the spill or hazardous substance release. This information can

be used to pursue a Natural Resource Damage Assessment and Restoration (NRDAR) claim against the responsible parties. We, along with other federal, state, and Tribal partners, act as trustees for natural resources in these claims. Trustees work with the responsible party to identify the natural resources injured, determine the extent of the injuries, recover damages from those responsible, and plan and carry out restoration activities to offset the injuries.

The primary benefit of the NRDAR Program is to achieve restoration of injured resources for the benefit of the American people. This program allows all Americans to enjoy healthy public rivers and lands that are once again teeming with wildlife and safe for recreation.

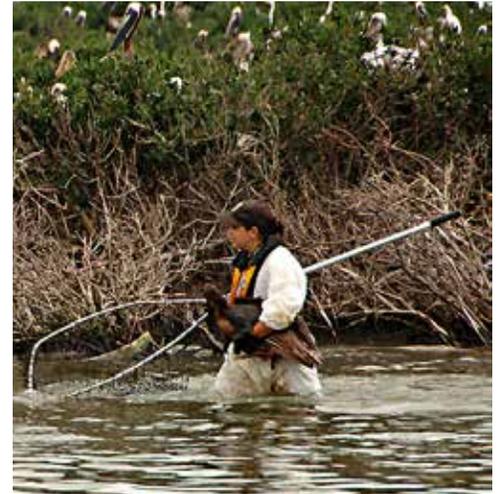
In the federal fiscal year 2017 (October 1, 2016 – September 30, 2017) FWS used more than \$13.5 million in funds recovered from responsible parties to implement restoration projects for the benefit of the American people. A recent report estimates these projects generated approximately \$46 million for the economy and 480 year-long jobs:

■ Nearly 400 river miles and 3,500 acres were made available for recreational opportunities

■ A total of 85 restoration projects were completed

- 26 projects benefited threatened or endangered species
- 56 projects benefited migratory birds
- 30 projects benefited interjurisdictional fishes
- 1 project benefited marine mammals

■ More than 20,000 acres were newly managed and more than 4,500 acres protected through fee title or conservation easement.



USFWS employee Kayla DiBenedetto carries an oiled pelican she netted on June 5, 2010, part of a massive wildlife rescue effort in the wake of the Deepwater Horizon oil spill in the Gulf of Mexico. Photo: Petty Officer 2nd Class John D. Miller, US Coast Guard.

■ More than 6,000 acres and 200 streams/shorelines were enhanced restored

FWS also provided direct support or guidance for more than 250 spill responses, and helped write or update more than 100 hazardous response plans. In addition, staff also provided specialized expertise in spill response, remediation, restoration, toxicology, and contaminants to fulfill more than 1,400 technical assistance requests for other FWS priorities.

This FY 2017 accomplishments report showcases restoration success stories from each of the Service's geographic regions. For more restoration stories from around the country, please visit <https://www.fws.gov/ecological-services/>

Making the Kalamazoo River in Michigan Accessible for All

On July 25, 2010, Enbridge's Lakehead pipeline ruptured near Marshall, Michigan and released crude oil into a wetland in Calhoun County, Michigan. More than 840,000 gallons of oil flowed down Talmadge Creek through 38 miles of the Kalamazoo River. Part of the Kalamazoo River had to be closed to the public. The people and communities close to the river, such as Battle Creek and Marshall, lost significant recreational opportunities due to the oil spill.

As a result of the Natural Resource Trustees' evaluation of lost recreation, Enbridge agreed to implement an effort to improve and create recreational access and opportunities on the Kalamazoo River. Some examples include the following projects:

- Saylor's Landing provides a hardened launch that allows for access by trailered boats, a pavilion, an observation platform that overlooks the river, an improved parking lot, picnic tables (one of which is ADA accessible), grills and permanent bathrooms.
- Angler's Bend is a walk-in angling site along 1,200 feet of the Kalamazoo River and a stone path, a bench and an information kiosk have been placed near the river.
- Paddler's Grove provides both public access to the Kalamazoo River in addition to recreational areas for children that include a playground and a large grassy area. The site also provides improved parking, ADA accessible picnic tables, a covered pavilion, permanent restrooms, space for riverbank fishing, and a new canoe and kayak launch that provides a handrail equipped boat slide that enables disabled boaters to access the river.



*Angler's Bend is a walk-in angling site on the Kalamazoo River.
Credit: Calhoun Conservation District.*



*A stone path leads visitors to the river and walk-in angling site.
Credit Calhoun Conservation District.*

- Ceresco Green is 1.3 acres and 400 feet of river shoreline, and now provides parking, educational signage and a pavilion for public use.
- At Historic Bridge Park, there is a new parking lot with an enhanced stone pathway to the park, a new larger pavilion, improved restrooms, new picnic tables including two new wheelchair accessible tables, as well as new benches and a new concrete walk throughout the park. A new playground has been added to the park as well as a new canoe and kayak launch that enables disabled boaters to access the river in their kayaks and canoes with greater ease.



ABOVE: *Historic Bridge Park Pavilion: The new pavilion welcomes visitors to Historic Bridge Park. Credit: Enbridge Energy*



RIGHT: *An aerial photo of the new Saylor's landing, with a new hardened launch, pavilion and observation platform. Credit: Enbridge Energy*

BELOW: *A group of paddlers sponsored by the Calhoun Conservation District gather at Ceresco Green along the Kalamazoo River. Credit: Calhoun Conservation District*



Hurricane Response in Puerto Rico

2017 brought several devastating hurricane events to the Gulf coast and Caribbean, including Hurricanes Harvey, Maria, Irma and Nate. In particular, Hurricane Maria, the first Category 4 hurricane to make a direct hit on Puerto Rico in 85 years, devastated the island and all who inhabit it. More than 19,000 federal personnel have responded to the aftermath, and the U.S. Fish and Wildlife Service (FWS) is just one of numerous agencies working to restore the island.

FWS provided support to the Federal Emergency Management Agency (FEMA) with search and rescue, aerial transportation between islands, secured facilities with tarps and generators, provided security to DOI assets, enabled communication between local government and Service facilities, transported food, water and fuel, cleared roads, and stabilized facilities for the endangered Puerto Rican parrot.

Members of the FWS's Environmental Response and Restoration community also worked with FEMA, Army Corps of Engineers, U.S. Environmental Protection Agency, National Park Service, and the U.S. Coast Guard for oil and hazardous materials response. We focused on providing expeditious recommendations, through Endangered Species Act emergency section 7 consultations to remove derelict vessels while avoiding and minimizing impacts to endangered or threatened species and their critical habitats. In addition, we helped identify locations of derelict vessels, provided guidance relative to oil and gas sheening clean up recommendations, developed Marine Habitat Protection Plans and Best Management Practices for sensitive marine areas and species, and provided other guidance to help expedite the removal of derelict vessels.

Derelict vessels pose several threats to the environment. After a hurricane, many vessels end up stranded. In the process of stranding, these vessels can damage natural resources, and the vessels themselves can be so damaged they become inoperable and hazardous.

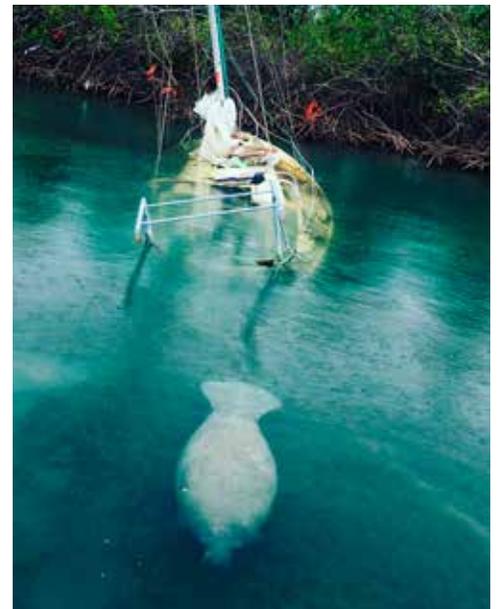


A derelict vessel washed up on the shore of Puerto Rico following a hurricane. Credit: USFWS.



FWS and NOAA staff discuss vessel removal at Islete Marina, Fajardo, Puerto Rico. Credit: USFWS.

In Puerto Rico, derelict vessels have been stranded on coral reefs, in mangrove habitats, shallow waters and even on dry land. Salvage of the vessels can also damage these sensitive habitats. However, salvage is necessary in most cases because derelict vessels may leak fuel or other hazardous substances into the environment. If released, the fuel and other substances can harm fish, wildlife



A federally protected manatee swims near a damaged vessel in Punta Arenas, Salinas, Puerto Rico. Credit: USCG.

and their habitats. There are approximately 352 derelict vessels identified for salvage or removal by the U.S. Coast Guard in Puerto Rico and 347 in the U.S. Virgin Islands. Only one is believed to be on FWS land on Vieques National Wildlife Refuge. Our technical expertise will guide the salvage efforts to remove these vessels with minimal collateral injury to the environment.

Restoring the Gulf

The 2010 explosion on the Deepwater Horizon oil rig started the largest marine oil spill in U.S. history, releasing millions of barrels of oil into the Gulf of Mexico. In 2016, the court approved a settlement with BP for natural resource injuries stemming from the Deepwater Horizon oil spill, concluding the largest natural resource damage assessment ever undertaken. The Natural Resource Trustees have begun implementing restoration as laid out in the comprehensive restoration plan.

In Alabama, restoration work is focused on restoring and conserving habitat and replenishing and protecting wildlife including sea turtles, marine mammals, birds, and oysters. We will also provide and enhance recreational opportunities, restore water quality, and restore habitat on federal lands, such as the work being done on Bon Secour National Wildlife Refuge. Bon Secour National Wildlife Refuge is home to hundreds of species of wildlife, and encompasses some of Alabama's last remaining undisturbed coastal barrier habitat.

There are several restoration projects completed or underway at Bon Secour:

- Improvements to public access on the Jeff Friend trail include replacing the 1,250-foot wooden portion of the trail with a boardwalk made of a composite material, replacing the 3,700-foot gravel portion of the trail with a gravel compressed rubber, and slightly enlarging the two ADA-compliant parking spaces in the parking lot to improve vehicular access.
- About 55 acres of dune habitats are being restored with native vegetation and sand fences. Dune ecosystems provide and protect habitat for wildlife, such as shorebirds, nesting sea turtles, and the endangered Alabama beach mouse. Dunes also help protect homes and public infrastructure by absorbing the effects of storm surges.
- FWS is working with our partners at the American Bird Conservancy to monitor and manage beach-nesting birds including snowy plovers and least terns. By placing temporary fencing and signs around nests, increasing predator control, and monitoring nesting sites, we can reduce disturbances to beach-nesting birds.



ABOVE: A biologist measures the beak of a snowy plover at Bon Secour National Wildlife Refuge in Alabama. USFWS.



LEFT: Alabama beach mouse. USFWS.



Restoration biologist Kate Healy and wildlife biologist Jackie Sablan plant *Physalis angustifolia* (ground chokecherry) at Bon Secour National Wildlife Refuge. The plants will help to stabilize sand dunes, preventing erosion and acting as a barrier against high energy storms. Photo: Denise Rowell, USFWS.

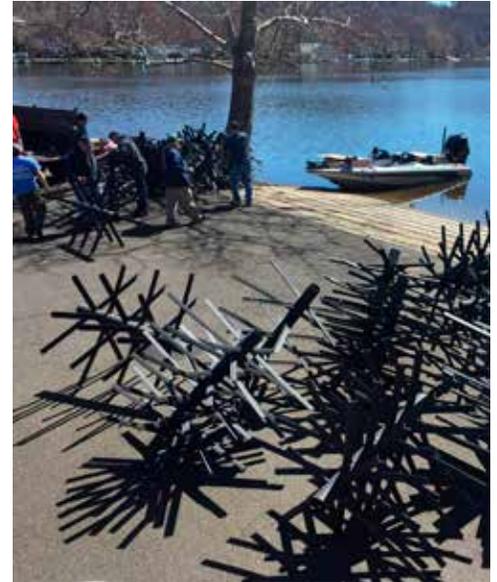
Highlights from the Housatonic River Watershed in Massachusetts and Connecticut

In 1903, General Electric began its operations in rural western Massachusetts at a 254-acre plant site on the banks of the Housatonic River. The plant historically handled polychlorinated biphenyls (PCBs), mostly for the construction and repair of electrical transformers. From 1932 through 1977, PCBs were released into the wastewater and stormwater systems of the plant and were discharged to the river. Since 2000, we have been working with our fellow Natural Resource Trustees and numerous local organizations to restore the Housatonic River watershed in Massachusetts and Connecticut.

Restoration projects completed in 2017 include the following:

- The Housatonic Valley Association completed the construction of a car-top boat launch along the Still River in the town of New Milford Connecticut, opening up nine miles of the Still River that were previously difficult to access.
- Numerous partners and the public celebrated the opening of the quarter-mile New Milford River Trail. After a ribbon cutting ceremony, participants walked along the recently created trail, fished from the new boat launch and fishing pier, and participated in other family friendly events. The boat launch, trail construction, and river bank stabilization work helps to compensate for lost recreational use as a result of the historic contamination.
- CT B.A.S.S. Nation installed artificial fish habitat structures in impoundments at hydropower reservoirs in Lakes Housatonic and Zoar to create “fish cities.”

- The town of Beacon Falls, Connecticut completed the expansion and improvement of Riverbend Park along the Naugatuck River. The park has been expanded to three acres and includes 1,000 feet of riverfront, 2,200 feet of improved walkways, a ramp for the retrieval of canoes and kayaks, and low impact lighting.



ABOVE. Artificial habitat structures on shore prior to their deployment in Lake Housatonic to create “fish cities.”
Credit: Mohawk Valley Bass Casters.

LEFT: A group of residents enjoy kayaking and the new boat launch at the New Milford River Trail. Credit: USFWS.



Volunteers complete landscaping on a new car-top boat launch in New Milford, Connecticut. Photo credit: Trish Haldin, Newstimes (www.newstimes.com).

Tallgrass Restoration in Kansas

As a result of the extensive zinc and lead mining activities in the southeastern corner of Kansas, thousands of acres and dozens of stream miles were heavily contaminated. Approximately 1,200 acres were so heavily contaminated with metals that no vegetation could grow, even decades after operations had ceased. Metal concentrations remain so high in some streams in the area that aquatic communities of fish, shellfish, and insects are still severely impacted or non-existent.

Since initiating Natural Resource Damage Assessment and Restoration activities in 1995, we worked with our partners at the Kansas Department of Health and Environment to support projects aimed at preserving, restoring, and improving tallgrass communities in the areas near the Cherokee County Superfund Site. These restoration areas now provide quality habitat for a wide variety of migratory birds, pollinators, and a number of endangered and threatened species. Aquatic habitat along streams and rivers has also been restored to provide channel stability, reduce runoff and transport of contaminants, and provide habitat and foraging corridors for bats and migratory birds.

We also partnered with the Kansas Department of Wildlife, Parks and Tourism to acquire and restore five properties totaling more than 2,100 acres that are managed as a public Wildlife Management Area. After constructing shallow, depressional wetlands, these areas were planted with a native grass seed mix and have since been managed to enhance the tallgrass community.

In addition, the Natural Resource Trustees and partners conducted several projects to restore an additional 3,000 acres on existing state-owned lands. These restoration actions include converting non-native pastures back to native grass communities, removing invasive woody vegetation, and controlling invasive species of plants.

Surveys have shown more than 130 bird species and the federally endangered gray bat using restored properties just five years after restoration, an enormous success.

8 Tallgrass Restoration in Kansas



More than 100 years of lead and zinc mining left the land strewn with contaminated debris and soil. Credit: John Miesner/USFWS.

RIGHT: *Monarch butterflies on swamp milkweed.*
Credit: Ryan Good/Kansas Department of Wildlife, Parks & Tourism.



Restored tallgrass prairie in Kansas. Credit John Miesner/USFWS.

Mimbres River Wildlife and Habitat Restoration in New Mexico

The Mimbres River has its headwaters in the Aldo Leopold Wilderness in New Mexico, and is one of the few undammed rivers left in the west. It occurs in a closed basin with no outlet to other rivers, and provides invaluable life giving waters to wildlife in the Chihuahuan Desert.

After the release of hazardous substances from copper mines in the Mimbres River watershed, we worked with our fellow Natural Resource Trustees and Freeport-McMoRan Copper & Gold Inc. to restore wildlife and habitat following the restoration plan. One of the highest priority projects recently completed restored and improved riparian and wetland habitats, and ponds, at several locations within the watershed.

The Mimbres River Wildlife and Habitat Restoration project was designed to improve water quality and availability, and increase areas of pooled water that may be used by bats and other wildlife in the Mimbres River Watershed. This watershed has a high diversity of native fauna and federally protected species, including the southwestern willow flycatcher, yellow-billed cuckoo, Abert's towhee, Gila woodpecker, Chihuahuan chub and Chiricahua leopard frog.

The riparian habitat (adjacent to the river) restoration actions included removing invasive plants, stabilizing and restoring eroding riverbanks, planting native vegetation along the riverbanks, and installing fencing to protect the restored areas. This restoration work created a complex wetland habitat for wildlife, including migratory and resident birds and waterfowl.

The pond restoration project transformed a large, old stock pond that couldn't hold water into a surface water wetland pond. The slope of the stock pond was designed to create a natural appearance, and large woody debris and native plants were added to increase wildlife habitat. The pond is accessible to wildlife, including migratory waterfowl, birds and other species, and can be used as a reintroduction site for the Chiricahua leopard frog.



Orchard Spring Pool, Chiricahua Leopard Frog habitat, During restoration.
Credit: Bat Conservancy.



Orchard Spring Pool, Chiricahua Leopard Frog habitat, After restoration.
Credit: Bat Conservancy.

These two restoration actions in this project restored a 6-mile stretch of the Mimbres River and up to 600 acres of riparian and wetlands habitat. This project is a collaboration of several public and private landowners working together to restore riparian and wetland habitats throughout the Mimbres River Watershed, including Bat Conservation International, The Nature Conservancy and the U.S. Forest Service is a collaboration of the Trustees, and several public and private landowners working together.



Chiricahua leopard frog.
Credit: Jim Rorabaugh/USFWS.

Exxon Valdez Oil Spill in Alaska, 25 Years Later

The 1989 Exxon Valdez Oil Spill in Prince William Sound, Alaska, is one of the most infamous oil spills in American history. More than 11 million gallons of crude oil spilled into Prince William Sound and the surrounding waters making it the largest single tanker spill ever. Oil contaminated approximately 1,300 shoreline miles in the area.

Over the past 25 years, the Exxon Valdez Oil Spill Trustee Council has worked diligently to restore Prince William Sound and the greater spill area to what it once was by implementing restoration projects as part of the Natural Resource Damage Assessment and Restoration Program. One of the most recent restoration projects was just completed this past year, and permanently protects 1,058 acres of coastal habitat on Kodiak Island, Alaska at Termination Point.

Termination Point (featured on the report cover) contains approximately 4.6 miles of coastal shoreline, 57 acres of freshwater and coastal wetlands, and 1,001 acres of undeveloped upland habitat. The rocky cliffs and protected beaches on the parcel provide nesting habitat for the tufted puffin and other species of marine birds, such as pelagic and red-faced cormorants. The rolling wooded uplands contain mature sitka spruce forests that are prime nesting habitat for marbled murrelets, and the kelp beds provide important habitat for sea otters and juvenile fish that contribute to commercial, sport and subsistence fisheries impacted by the spill.

The Exxon Valdez Oil Spill Trustee Council provided the funding to create a conservation easement on Termination Point that will be held by the local Kodiak Island Borough, who will manage the parcel as a town park. The Great Land Trust, an Alaskan non-profit organization that works in voluntary partnership with landowners, government agencies, and communities to conserve natural habitat for community benefit, was instrumental to achieving this conservation success.

Termination Point is popular with local hikers, campers, whale watchers, and bird viewing groups. Now these recreational opportunities are ensured for the public's future use.

The protection of Termination Point also protects cultural and subsistence resources of value to local Alaska native peoples.



Sea otters float in the water of Alaska. Credit: Kristine Sowl/USFWS.



Tufted puffins. Credit Steve Ebbert/USFWS.

Coeur d'Alene River Basin in Idaho

For more than 100 years, the Coeur d'Alene Basin was one of the most productive silver, lead, and zinc mining areas in the United States. These operations generated wastes containing heavy metals. A significant portion of these wastes were discharged into the Coeur d'Alene River and its tributaries in Idaho injuring natural resources.

The Natural Resource Trustees, including the Coeur d'Alene Tribe, State of Idaho, and the U.S. Departments of Agriculture and Interior, reached settlements with two large mining companies to resolve one of the largest Superfund Natural Resource Damage Assessment cases in the nation.

To help safeguard waterfowl such as tundra swans, the Natural Resource Trustees sought to establish clean wetland habitat for waterfowl. With the Schlepp Wetland Restoration Project (Schlepp Project), the Trustees joined with the willing property owner, Ducks Unlimited, and U.S. Environmental Protection Agency (EPA) to protect and enhance nearly 400 acres by converting farmland back to healthy wetland habitat.

The Schlepp Project now serves as an alternative feeding site which is not contaminated with fatal levels of lead. Waterfowl diversity and abundance on the property during spring migration is now among the highest in the Lower Basin. Nearly 100 bird species have been spotted in the refurbished wetlands, including a prairie falcon and the first breeding pair of American avocets documented in the county since 1903. Cinnamon teals are also taking advantage of the healthy wetland habitat – in 2015, the total number of cinnamons banded on the easement was greater than those banded in Oregon, Utah, and California, combined.

As an added benefit, the project lies adjacent to the “Trail of the Coeur d'Alene's.” This rail-to-trails bike route not only acts as a dike, keeping the Coeur d'Alene River from depositing polluted sediments in the Schlepp Project, but provides a place for the public to enjoy too.



The Schlepp Tract before purchase of conservation easement and restoration activities. Credit: Mike Schlepp, Landowner. May 2012.



The Schlepp Tract after restoration activities. Credit: Chris Bonsignore, Ducks Unlimited. September 2014.

The Cosco Busan Oil Spill in California, 10 Years Later

On November 7, 2007, the container ship Cosco Busan crashed into a Bay Bridge support tower and released more than 53,000 gallons of fuel oil into the San Francisco Bay. The spill damaged and destroyed marine wildlife, habitat and recreational activities throughout several counties in California and spurred extensive response and restoration work that continues today.

A settlement with Regal Stone Limited and Fleet Management Ltd., the owners and operators of the Cosco Busan, designated funding to a variety of projects to restore injured natural resources and compensate for recreational opportunities lost due to the oil spill. To date, the U.S. Fish and Wildlife Service and our co-trustees have allocated over \$20 million of the \$30.5 million settlement to over 50 projects around the Bay Area and beyond. These projects are designed to enhance and restore recreational opportunities, wildlife, beaches and habitat injured as a result of the spill.

At Aramburu Island, the Richardson Bay Audubon Center and Sanctuary is restoring habitat for birds, harbor seals, native vegetation and native oysters. Many shorebirds have returned to the restored island, with black-necked stilts, killdeer and black oystercatchers nesting successfully. An existing harbor seal haul-out zone has been improved and harbor seals have been observed returning to the site.

At Muir Beach, the National Park Service rerouted the beach access trail that bisected and trampled the dunes. This project decreases damage to the dunes, increases the dune restoration footprint, and improves accessibility for the public to reach the beach. Visitors also can enjoy improved access to a new picnic area, a new pedestrian bridge and boardwalk to the beach, new trails, new and improved restrooms, with a new parking lot, funded in part by the restoration settlement. These improvements, combined with wetland and dune habitat restoration, enhance both the visitor's experience and natural resources at this beautiful beach.



The container ship Cosco Busan struck a support tower in the Bay Bridge, puncturing the vessel and spilling fuel oil into San Francisco Bay.
Credit: U.S. Coast Guard.



Restored habitat at Aramburu Island provides vital habitat for wildlife just outside San Francisco. Credit: Steve Martarano/USFWS.

RIGHT: *Black-necked stilt.*
Credit : Mike Carlo/USFWS



**U.S. Fish & Wildlife Service
Ecological Services Program**

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