Cape Mohican Restoration Projects
Annual Report

January 2008

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On October 28, 1996, the *SS Cape Mohican* discharged approximately 96,000 gallons of heavy bunker fuel oil into a floating dry dock at the San Francisco Drydock Shipyard. Approximately 40,000 gallons spilled into San Francisco Bay. Oil spread from Pier 70 south to Hunter's Point and north into the central Bay, extending to the Richmond-San Rafael Bridge and oiling shorelines of Alcatraz, Yerba Buena, Treasure, and Angel islands. The Tiburon Peninsula and San Francisco waterfront were also oiled. Oil traveled outside of the Golden Gate into the Gulf of the Farallones National Marine Sanctuary (GFNMS), oiling beaches as far north as Drakes Beach in the Point Reyes National Seashore (PRNS) and as far south as Pillar Point.

The Cape Mohican Trustee Council, composed of representatives from the National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), California Department of Fish and Game (CDFG), and California Department of Parks and Recreation (CDPR), selected projects to mitigate or restore the injured natural resources. This report includes summaries of the status of each of the projects listed below as well as a summary of project budget data.

Bird Restoration:

- Shorebird Habitat Protection at the Golden Gate National Recreation Area (GGNRA)
- California Least Tern Habitat Enhancement at Alameda Point
- Restoration of Shorebird Foraging Habitat through Control of Exotic Cordgrass in San Francisco Bay Wetlands
- Farallon Seabird Restoration: Exotic Vegetation Control in Nesting Areas

Fisheries and Water Quality:

- Pacific Herring Spawning Habitat Enhancement in San Francisco Bay
- Wetland Restoration at Pier 98, India Basin, San Francisco
- Steelhead Stream Habitat Enhancement at San Francisquito Creek

Wetlands and Mudflats:

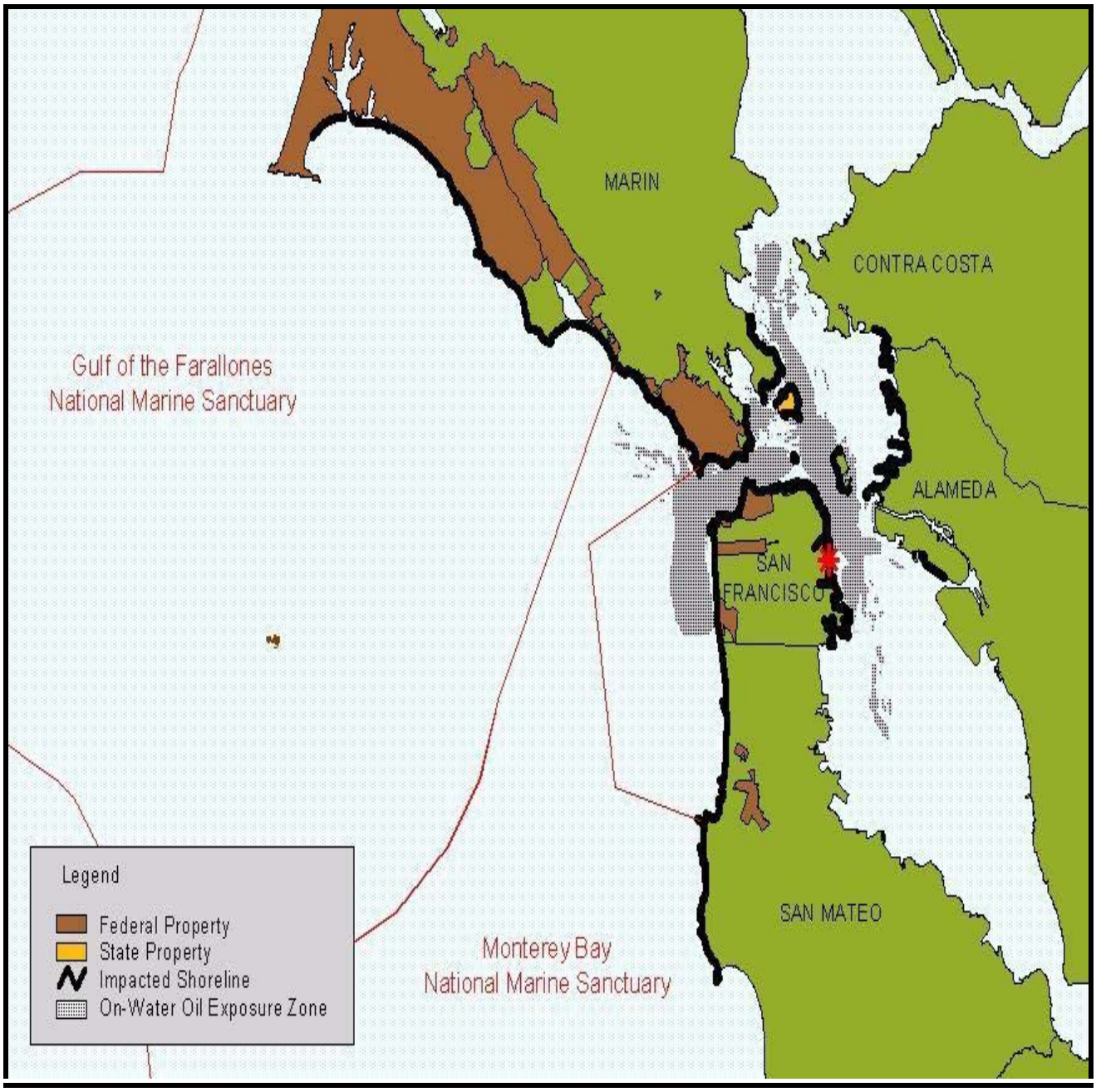
- Giacomini Coastal Wetlands Restoration

Sandy Beach and Rocky Intertidal Habitat Projects:

- Sandy Beach Habitat Restoration at Point Reyes National Seashore
- Protection of Duxbury Reef through Education

Human Use:

- Angel Island Foot Trail Enhancement
- Crissy Field Habitat Stewardship Program



Boundaries of Cape Mohican oil spill. (Red star indicates site of spill.)

Bird Restoration Projects

Shorebird Habitat Protection at GGNRA (Lead Agency: NPS)

Project Overview

Golden Gate National Recreation Area (GGNRA) previously installed 12 interpretive and regulatory signs at major beach entrances to inform the public of the presence of Western Snowy Plovers and other shorebirds, and the vulnerability of the birds to disturbance by humans and recreational activities. In addition, an interpretive bulletin on protecting Western Snowy Plovers, shorebirds, and sandy beach habitat was distributed to the public. This project will allow updating and replacement of damaged or missing signs and updating and re-printing of interpretive bulletins for up to 10 years.
This project has recently been updated to include design and installation of a broader range of signage and the implementation of a shorebird docent program.

Western Snowy Plover.

Project Status

GGNRA completed two printings of the plover/shorebird protection brochure and designed and installed portable windmaster signs. The brochures have been distributed by staff on park beaches. GGNRA staff are completing design on interpretive waysides and are in the process of developing a shorebird docent program, for which a coordinator has been identified.

Funding

Approved project budget:	$23,500
Funds allocated in FY 2002:	$0
Funds allocated in FY 2003:	$7,000
Funds allocated in FY 2004:	$0
Funds allocated in FY 2005:	$8,000
Funds allocated in FY 2006:	$0
Funds allocated in FY 2007:	$8,500
Funds spent to date:	$1,506

California Least Tern Habitat Enhancement at Alameda Point (Lead Agency: USFWS)

Project Overview

This project has created new nesting habitat at Alameda Point for the endangered California Least Tern by enlarging the nesting area and installing protective fences. The newly created habitat is being monitored by removing undesirable vegetation, repairing protective fencing, and adding nesting substrate where needed.

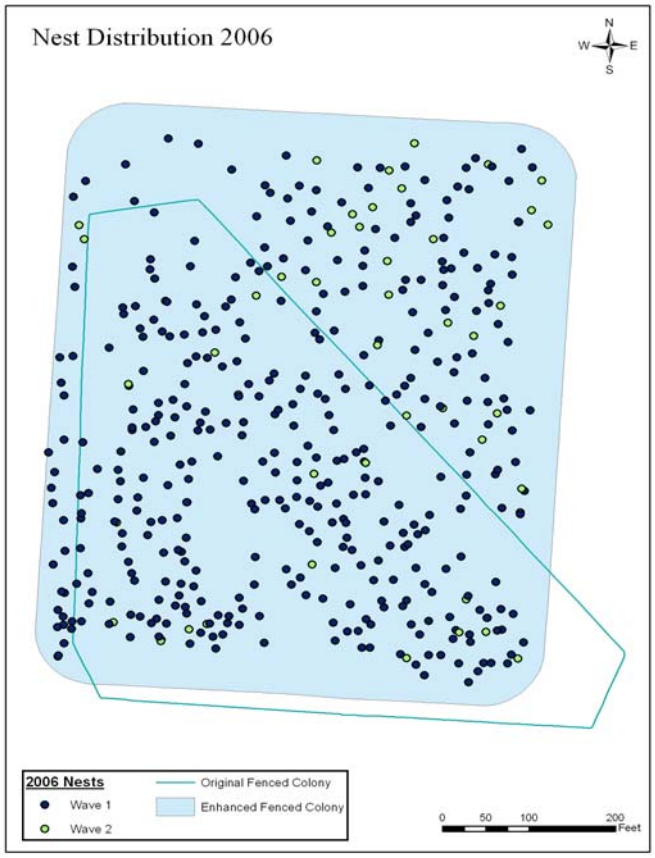
California Least Tern on new substrate.

Project Status

Major enhancements to the colony site were completed in spring 2004: The nesting area was enlarged from 6 to 9.7 acres, and the original non-functioning electrical fence was replaced with a chain link fence designed to deter avian and mammalian predators. A new plastic chick fence with small rounded openings was added to the bottom of the fence, replacing the old metal hardware cloth that had caused injury and death to several terns. Nesting substrate (a mixture of sand, small pebbles, and shell fragments) was spread over the new nesting area, and the monitoring grid was reestablished to encompass the entire 9.7 acres. Oyster shells and driftwood were also added to the colony to finish the beach appearance and provide cover for the chicks. Site-preparation activities conducted annually from 2005 to 2007 to maintain habitat included repairing fence, replacing chick shelters, and removing invasive weeds by mechanical and chemical means. In 2007, volunteers accomplished many of these activities, resulting in cost savings carried over to 2008.

Post Project Monitoring: Cape Mohican funds have been used to monitor colonization of the new area, which occurred quite quickly. In 2005, 120 nests (22% of the total nests in the Alameda Colony) were found in the expanded area. Estimated nesting pairs in the colony increased from 379 to 424 in 2005, a 12-percent increase from 2004. In 2006, 160 nests (36% of the total nests in the Alameda Colony) were found in the expanded area. During 2007, terns continued to expand into the new substrate. The area contained 169 nests (43% of the total nests in the Alameda Colony). In summary, a total of 449 nests have been made in the expanded area during the three years since the colony site was enlarged.

Volunteers and a student intern contributed a large portion of the weeding and tern monitoring, so there is carry over funding to pay for monitoring and more substrate enhancement in 2008. The initiation of a Tern Watch volunteer predatory monitoring program contributed to increased reproductive success this year.



Expanded California Least Tern nesting area (shaded rectangle) compared with original colony site (rectangle) and Nests.

Funding

Approved project budget: $141,000
Funds allocated in FY 2002: $88,000
Funds allocated in FY 2003: $0
Funds allocated in FY 2004: $19,000
Funds allocated in FY 2005: $0
Funds allocated in FY 2006: $17,000
Funds allocated in FY 2007: $17,000
Funds spent to date: $100,702

Restoration of Shorebird Foraging Habitat through Control of Exotic Cordgrass in San Francisco Bay Wetlands (Lead Agency: USFWS)

Project Overview

This project involves the eradication of the invasive Smooth Cordgrass (*Spartina alterniflora*) from mudflats and tidal salt marshes in the central and south portions of San Francisco Bay and between the Bay Bridge and the Dumbarton Bridge. Removal of Smooth Cordgrass from tidal marshes and tidal sloughs will allow native plants to reestablish on the tidal marsh plain and restore shorebird foraging and fish nursery habitat in the tidal sloughs.

Project Status

In May 2005, the San Francisco Bay National Wildlife Refuge (Refuge) and California Coastal Conservancy completed Site-Specific Control Plans for each site targeted for control in 2005-2007. The Site-Specific Plans describe methods to be used at each site and summarize impacts and mitigation measures to be used during control. Information contained in the Site-Specific Plans was used to prepare an Environmental Assessment for the implementation of the Site Specific Plans, which tiered off the Programmatic EIR/EIS. An Internal Formal Section 7 consultation was also conducted with the USFWS, resulting in issuance of a Biological Opinion with a non-jeopardy determination for listed species in the project area.

Habitat® herbicide, with the active ingredient imazapyr, was used for all control work in 2007. In July through September 2007, the fourth consecutive year of control work was conducted in the Southeast San Francisco Sub Areas, totaling 2.0 acres of non-native Spartina treatment. In addition, the third year of consecutive treatment was conducted at two sites: West San Francisco Bay (Site 19) and Alameda/San Leandro Bay (Site 20), totaling approximately 150 acres.

Expanded foraging area available for clapper rail after invasive Spartina control.

A fourth site, Colma Creek/San Bruno Complex (Site 18), was treated for the second year; 10 acres were sprayed by ground-based crews and 90 acres by helicopter, for a total of 100 acres controlled. All ground-based applications and 55 acres of the aerial application at this site were done with 3 percent imazapyr herbicide, intended to kill affected plants. Thirty-five acres of the aerial treatment was done at a 1-percent rate of imazapyr, which is a sub-lethal concentration intended to suppress seed set in the sprayed plants, but not to kill the plants. This strategy will

retain a portion of the invasive cordgrass as clapper rail habitat, while preventing production of invasive cordgrass seeds during this phased control effort.

In 2008, follow-up control work will be conducted in all previously treated marshes under the scope of this project, and the next phase of treatment will occur in Colma Creek/San Bruno Complex (Site 18). In the 2008 control season, control work is planned as early as June 1 in marshes unoccupied by clapper rails. Helicopter control work is anticipated to begin on July 15, and ground control work will begin September 1 in marshes occupied by clapper rails. FWS is working on an amendment to the 2005-2007 Biological Opinion that will cover cordgrass control activities for the next several years.

In spring 2008, the Refuge will purchase additional equipment, materials, and contract labor to conduct the control work in targeted control areas for the 2008 season. Any equipment and materials purchased with funds allocated to this project will be stored at either the Coastal Conservancy or the Refuge for future use on this project. Coastal Conservancy or Refuge personnel will train land managers who conduct control work and will monitor effectiveness of control.

Funding

Approved project budget:	$430,905
Funds allocated in FY 2002:	$0
Funds allocated in FY 2003:	$50,000
Funds allocated in FY 2004:	$0
Funds allocated in FY 2005:	$0
Funds allocated in FY 2006:	$110,000
Funds allocated in FY 2007:	$86,000
Funds spent to date:	$234,689

Farallon Seabird Restoration: Exotic Vegetation Control in Nesting Areas (Lead Agency: USFWS)

Project Overview

This project involves restoring burrow nest habitat for Cassin's auklets (*Ptychoramphus aleuticus*), ashy storm-petrels (*Oceanodroma homochroa*), and rhinoceros auklets (*Cerorhinca monocerata)* by controlling exotic vegetation, especially New Zealand Spinach *(Tetragonia tetragonoides)* and Cheeseweed *(Malva* spp.) at Farallon National Wildlife Refuge. These non-native species form dense mats inhibiting burrow nesters such as auklets from digging their burrows, and cover nesting crevices preventing petrels and other crevice nesters from entering nesting sites. Combinations of mechanical and chemical methods are being used to control exotic vegetation. Seeds collected from native Maritime Goldfields (*Lasthenia maritime)* are used to re-seed areas of bare soil created when large amounts of exotic plants are removed. The success of the reseeding efforts is highly important because the plants are used for nesting material by Brandt's cormorants (*Phalacrocorax penicillatus*) and other seabirds. Increased monitoring of the relative success of the treatments will allow us to select the vegetation removal option and time reseeding to be most effective and efficient.

Cassin's Auklets (at burrow entrance, left) and Ashy Storm petrels (right) have benefited from this project. Invasive weeds cleared from nesting crevices and burrows allow Cassin's Auklets to find burrow entrances and enable nestling petrel chicks to flourish.

Test plot location. Lower portion reseeded with maritime goldfields.

Project Status

A new Farallon Wildlife Refuge Specialist (WRS) was hired in July 2007 to replace the incumbent who transferred after four years in the position. There was only a one month gap between employees so the weed management plan, which was prepared in early 2004, continued to be implemented without interruption. Activities for 2007 have mostly mirrored those from 2003 through 2006 with focus on intense weed-pulling efforts each spring, and herbicide treatment in late summer and fall after the colonial seabird nesting seasons. Changes are the implementation of a new herbicide (Habitat®) treatment which has pre-emergent qualities and a quantified weed-pulling effort that is meant to measure the effectiveness of our strategies.

USFWS spraying Habitat® herbicide on New Zealand Spinach.

A hand re-seeding component that was added in 2005 continued in 2006 and 2007. Native *Lasthenia* plants were collected in August and September and seeded in late fall after the first rains. Areas seeded have improved the effectiveness of getting natives established and reducing the competition of non-natives, but this was only done on a small scale due to funding limitations. The three additional years of funding, 2008-2010, will allow reseeding to expand to additional areas. Several test plots were established to test the reestablishment of the *Lasthenia* in areas that had been treated with the new herbicide. Test plots were divided three ways representing the different treatments used on the island. Results should provide an indication of the overall effectiveness of the various treatments and the success rate for the reseeding efforts.

As in 2006, the Cape Mohican funds were combined with USFWS San Francisco Bay Coastal Program funding to expand the volunteer invasive plant hand-weeding effort in spring 2007. Though the process is highly intensive, the benefits and the success of the project justify the work. In addition, the hand control of non-native plants in the spring when they are intermixed with natives is advantageous to the growth of natives. The FWS Coastal Program provided transportation and per diem for the volunteers, who were recruited and supervised by the Farallon ROS. Six volunteers pulled weeds for a total of 340 hours over 2 months, yielding dramatic results. The two most invasive weeds (*Malva* and New Zealand Spinach) have been reduced 40 percent since 2005.

Funding

Approved project budget:	$289,192
Funds allocated in FY 2002:	$25,000
Funds allocated in FY 2003:	$0
Funds allocated in FY 2004:	$25,000
Funds allocated in FY 2005:	$37,296
Funds allocated in FY 2006:	$37,296
Funds allocated in FY 2007:	$37,296
Funds spent to date:	$145,487

Fisheries and Water Quality Projects

Pacific Herring Spawning Habitat Enhancement in San Francisco Bay (Lead Agency: CDFG)

Project Overview

The Cape Mohican oil spill affected aquatic organisms along the San Francisco waterfront, including rocky shore and piling communities. Pacific Herring, which spawn on these substrates, were also affected: the substrates were coated with oil only a few weeks before the start of spawning.

This project at the Port of San Francisco's Pier 45 involves enhancing water quality by removing creosote-covered pilings and replacing them with polymer-coated wood piles, which provide a non-toxic surface for encrusting organisms to attach to and enhance spawning of herring.

The new polymer-coated wood piles, which replaced the creosote-covered pilings, provide a non-toxic surface to which encrusting organisms can attach. This will enhance the spawning of herring.

Project Status

The project is now in the process of evaluating the growth of encrusting marine organisms on vinyl-coated and ACZA-treated panels relative to controls, to provide an assessment of the value of treated pilings as habitat for encrusting organisms and as an indicator of potential toxicity to herring eggs. Work completed over the last year included the project design; the design of test arrays, manufacture of test panels, and assembly of test arrays; and the deployment of test arrays at Pier 45. In the summer/fall of 2006, wood panels measuring 4" x 6" were manufactured with four different treatments: untreated (controls), vinyl-coated, uncoated ACZA-treated and vinyl-coated ACZA-treated. The panels were bolted to lengths of plastic timbers to form vertical test arrays. Each array holds four panels, one of each type of treatment, with the vertical position of each treatment randomly assigned. In early January of 2007, four test arrays were lag-bolted to each of five pilings within bents 60-62 at Pier 45 (providing 5 replicates), with the arrays positioned so that the panels are located between -1.0 m and -1.6 m MLLW. Each array is labeled with a number-punched aluminum disk. The Port of San Francisco assisted with the manufacture and deployment of the test panels. Enough additional panels and timbers were manufactured to allow for replacement of at least three replicate sets (that is, with each replicate set consisting of 5 vertical arrays of four panels each).

Retrieval and Analysis Plan: The study design calls for retrieval and replacement of a replicate set at approximately 1-year intervals, and retrieval of all remaining sets at 4 years after initial deployment. This study design allows assessment over seven exposure periods: four 1-year exposures (t = 0-1 yr, 1-2 yr, 2-3 yr and 3-4 yr), plus 2-year, 3-year and 4-year exposures from initial deployment (t = 0-2 yr, 0-3 yr and 0-4 yr); and thus provides two sets of four exposures for analysis: the same exposure length (1-year) in 4 different years, and four different exposure lengths (1, 2, 3 & 4 years) starting from the same year. Each retrieved replicate set will be fully analyzed at the time it is retrieved. The timing and number of replacements/retrievals can be amended as budget and/or project period require.

After the arrays are removed from the pilings, each panel will be photographed and examined in the field. In the lab, the percent cover of each distinct taxon on each panel will be estimated by visual examination, its biovolume or biomass measured, and its percent cover also estimated from the field photographs; these quantification methods will be compared and evaluated after the first year. Each distinct taxon will be identified to lowest possible taxonomic level. Standard statistical methods will be used to compare variables across treatments and exposure periods.

Funding

Approved project budget:	$456,500
Funds allocated in FY 2002:	$0
Funds allocated in FY 2003:	$408,500
Funds allocated in FY 2004:	$0
Funds allocated in FY 2005:	$0
Funds allocated in FY 2006:	$16,000
Funds allocated in FY 2007:	$16,000
Funds spent to date:	$350,145

Wetland Restoration at Pier 98 (Heron's Head Park), India Basin, San Francisco (Lead Agency: CDFG)

Project Overview

This project, at the Port of San Francisco's Heron's Head Park near Pier 98 at India Basin, will enhance a new saltmarsh with the propagation and planting of rare transition-zone native plant species. Successful revegetation will require materials and labor for at least five years to promote establishment of native transition-zone species and to remove non-native plant species.

Project Status

During August and September 2006, the Port completed a competitive process to select a contractor to execute the transition-zone habitat enhancement, maintenance, monitoring, and reporting to be funded by the San Francisco Bay Natural Resources Restoration Fund (a.k.a. Cape Mohican Restoration Fund) through a contract between the Port and the National Fish and Wildlife Foundation (NFWF) serving as the fiscal agent. This work will be conducted in conjunction with environmental education activities at Heron's Head Park. The Port awarded a 4-year contract, beginning October 1, 2006, to Literacy for Environmental Justice (LEJ), a non-profit organization with experience and qualifications in environmental education, native plant cultivation, and habitat restoration. Under the terms of the contract between the Port and LEJ, the detailed schedule and cost for specific tasks vary somewhat from the original proposal

included in the Cape Mohican Final Restoration Plan (approved 3/21/02). The scope of work is consistent with the original proposal, but the fees are substantially higher. The contract includes installation of 2,000 transition-zone plants within the first two years of the contract, and ongoing maintenance and monitoring of the enhancement area over the 4-year contract term. The Port is committed to completing the scope of work and will fund any expenses that exceed funds available from the Cape Mohican Restoration Fund.

A new salt marsh is enhanced by propagating and planting rare transition-zone native plant species.

Over the past seven months, LEJ has prepared the substrate (clearing physical obstructions and invasive plants) in portions of the project area and initiated field tests of various planting methods and optimal planting elevation for selected transition zone species. The pilot test areas make up approximately 10% of the total transition zone area to be enhanced, and include at least three of the more abundant transition zone species (Gumplant: *Grindelia stricta*; *Frankenia salina*, Buckwheat: *Eriogonum latifolium*) in each test area. During this period, LEJ has also collected seeds and begun cultivating seedlings of the relatively rare species that the transition zone enhancement intends to support: *Armeria maritime*, *Plantago maritime*, *Suaeda californica*, *Baccharis douglasii*, *Triglochin maritime*. The less common transition zone species are not generally commercially available and, consequently, seed collection and propagation has proven the only way to obtain seedlings for planting in the fall of 2007. The pilot testing and propagation have delayed completion of the Planting Plan and Monitoring and Maintenance Plan, and the "Year 1 planting" by approximately 9 months, but are necessary investments to implement the proposed transition zone habitat enhancement.

Funding

Approved project budget:	$146,920
Funds allocated in FY 2002:	$0
Funds allocated in FY 2003:	$70,648
Funds allocated in FY 2004:	$0
Funds allocated in FY 2005:	$0
Funds allocated in FY 2006:	$25,424
Funds allocated in FY 2007:	$25,424
Funds spent to date:	$0

Steelhead Stream Habitat Enhancement at San Francisquito Creek (Lead Agency: CDFG)

Project Overview

This project will increase the size and quality of habitat available for Steelhead trout spawning in the Bay Area by rehabilitating Steelhead spawning habitat in the San Francisquito Creek watershed. This will be accomplished through fish barrier removal and native plant revegetation.

Project Status

The subprojects that compose the "Steelhead Stream Habitat Enhancement at San Francisquito Creek" project include conducting volunteer-based habitat restoration workdays and completing designs, permits, and environmental reviews for fish-passage improvement projects at two sites. The Watershed Council holds about 15 habitat restoration workdays per year and conducts visual monitoring and site maintenance (weeding and watering as needed) year-round. The funding from the Cape Mohican Restoration Fund was part of the total funding needed to operate this program. Other funding sources currently include the NOAA Community-based Restoration Fund, the California Coastal Conservancy, and the Nature Restoration Trust.

The Watershed Council is also working on completing designs, permitting, and environmental review at four barriers to Steelhead. Funding from this grant is partially supporting the work on two of these barriers (culvert replacement at McGarvey Gulch and installation of baffles in a box culvert on Los Trancos Creek). Other funds supporting the Watershed Council's overall fish passage improvement work include the San Francisco Bay Salmonid Habitat Restoration Fund, the California Coastal Conservancy, and the Bella Vista Foundation.

Task I: Fish Migration Barrier Modifications

McGarvey Gulch: The McGarvey Gulch culvert replacement was completed in 2007. Final designs, CEQA, and permits were finished in the spring, and the culvert was built in September 2007.

Culvert replacement at McGarvey Gulch to improve Steelhead passage.

Los Trancos Creek Box Culvert: The project implementers were unable to move forward with the Los Trancos Creek double-box culvert modification because of the obstacles cited below.

The Trustee Council approved redirecting the balance of project funds to invasives removal and native revegetation work.

1. Insufficient support from key landowners. An individual who owned land at both culverts indicated that his support for the project would be based on the Watershed Council's willingness to help him secure permission to develop his creekside parcel. However, the Watershed Council could not support his request. Another landowner failed to respond to our requests to discuss the project. Permission from both of these landowners was necessary for the project to go forward.
2. Uncertainties about property ownership. We learned late this spring that property lines at the two sites were not known with certainty, and that verifying the exact location would have required surveys costing more than the funds available in current grants.
3. The lack of a public agency willing to do construction. Based on initial conversations, we anticipated that the Town of Portola Valley would serve as construction lead. However, the town informed us in May 2007 that it had decided not to take this role. We explored the possibility of engaging a nonprofit to do this work, but found that neither of the two candidates identified had sufficient capacity.

The decision to terminate the Los Trancos Project could not have been made before project designs were completed because landowners used those designs as the basis for deciding whether to sign permit applications. The same was true of the public agencies, who would not decide whether or not to serve as construction lead until they evaluated project designs.

Task II: Riparian Vegetation Restoration Projects

The task as originally defined has been completed: 16 workdays were partially funded by the Cape Mohican Restoration Fund. At these workdays, almost 300 volunteers planted approximately 2,300 native creekside plants in the riparian corridor at sites throughout the watershed. This native vegetation is helping to stabilize the banks of the creek, shade and cool the water, and provide habitat structure and food for wildlife.

In 2007, the Trustee Council approved funding for two additional riparian corridor projects: $1,505 for *Arundo donax* mapping and removal and $7,190 for Habitat Improvement Workdays, for a total of $8,695. These dollars will fund approximately 13 volunteer workdays, from September 2008 to May 2009, at five revegetation sites and two invasives-removal sites. The goals of this effort are to:

1. Plant 8,000 square feet of native plants in new areas and as infill planting to increase plant cover and species diversity in previously planted areas.
2. Maintain (weed, water, replace dead plants) 45,000 square feet of previously planted native plants to achieve well-established native plants.
3. Remove targeted invasive weeds from 40,000 square feet of riparian corridor.
4. Discourage establishment of invasive species to less than 10% cover on planting sites and less than 20% cover on invasive removal sites by the end of the project period.

Riparian restoration through removal of invasives and planting native vegetation.

Funding

Approved project budget:	$48,695
Funds allocated in FY 2002:	$0
Funds allocated in FY 2003:	$40,000
Funds allocated in FY 2004:	$0
Funds allocated in FY 2005:	$0
Funds allocated in FY 2006:	$0
Funds allocated in FY 2007:	$0
Funds spent to date:	$31,892

Wetlands and Mudflats Projects

Giacomini Coastal Wetlands Restoration Project (Lead Agency: NPS)

Project Overview

This project will restore the tidal connection and hydrologic function to 563 acres of former coastal salt marsh in Tomales Bay, which was diked in the 1940s to provide pasture for dairy cattle. Planning on the proposed project started in 2001, shortly after the purchase of the land in 2000. Since then, NPS and its partners, the Point Reyes National Seashore Association, California State Lands Commission, and Audubon Canyon Ranch, have conducted extensive studies to characterize existing and potential future conditions in the project area, as well as extensive public scoping through meetings and workshops. Construction of the first phase of the restoration component was initiated in fall 2007, with construction of Phase II anticipated to occur in 2008. Cape Mohican funds have been used in conjunction with funds from other sources to finalize planning, prepare construction specifications and final design, and implement the Alternative D, which was selected for through the environmental review process.

Project Status

The Environmental Impact Statement/Environmental Impact Report (EIS/EIR) was finalized in June 2006. The EIR was approved for certification by the board of the State Lands Commission on June 28, 2007, and the Record of Decision for the EIS was approved by the Regional Director of the Park Service on August 16, 2006. Construction of phase I of the restoration component started on September 26, 2007. Phase I involves removal of agricultural buildings and infrastructure (e.g., pipelines, fencing), shallow excavation of areas used for manure disposal, close-out of manure ponds used for dairy waste, and construction of freshwater marsh and ponds as habitat for the federally threatened California red-legged frog (*Rana aurora draytonii*). Phase II of the restoration component is anticipated to start in late spring to early summer 2008 and run through the fall. Funding is still being sought for some elements of the restoration component and the public access component of the project, the latter of which is likely to be implemented after 2008.

Funding

Approved project budget:	$435,000
Funds allocated in FY 2002:	$0
Funds allocated in FY 2003:	$0
Funds allocated in FY 2004:	$0
Funds allocated in FY 2005:	$435,000
Funds allocated in FY 2006:	$0
Funds allocated in FY 2007:	$0
Funds spent to date (estimated):	$334,897

Sandy Beach and Rocky Intertidal Habitat Projects

Sandy Beach Habitat Restoration at Point Reyes National Seashore (Lead Agency: NPS)

Project Overview

This project is increasing nesting habitat and reproductive success of shorebirds, especially Western Snowy Plover, at Point Reyes National Seashore (PRNS). This objective is being accomplished by increasing habitat for shorebird foraging and nesting through the removal of non-native European beachgrass and iceplant.

Project Status

Follow-up resprout removal continues throughout the entire 50-acres of the project through volunteer efforts coordinated by a PRNS MCC AmeriCorps habitat restoration volunteer coordinator partially funded through the Sandy Beach project. The site shows excellent progress towards becoming "weed-free." Washington University assisted in re-reading monitoring plots (summer 2007); they expect to publish their findings in 2008. Upcoming work includes (1) continued monitoring of vegetation, dune formation profiles, Snowy Plover breeding; and (2) follow-up treatment of 50 acres to remove any remaining beachgrass resprouts (scheduled through March 2007 then resuming in September 2007 after plovers have finished breeding). Remaining funds will support a vehicle for the 2008 volunteer coordinator, volunteer supplies and perhaps partially fund a 2009 coordinator.

Snowy Plovers were documented using restored dune habitat for the fifth consecutive year. In 2007 they initiated 4 of 28 nests in restoration areas; 1 was in the hand removal site on Kehoe Beach and 3 in the mechanically treated area on North Beach. This compares with 4 of 24 nests in the restoration areas in 2006 when 2 were in the mechanical-restoration site and 2 in the hand-treated area. Of the 24 chicks fledged in 2007, 11 were raised in restoration areas─4 in the hand-treated area and 7 in the mechanically treated area. Of the 23 chicks fledged in 2006, 13 were raised in restoration areas─3 in the hand-treated area and 10 in the mechanically treated area.

Funding

Approved project budget:	$330,000
Funds allocated in FY 2002:	$0
Funds allocated in FY 2003:	$60,000
Funds allocated in FY 2004	$80,000
Funds allocated in FY 2005:	$190,000
Funds allocated in FY 2006:	$0
Funds allocated in FY 2007:	$0
Funds spent to date:	$318,390

Protection of Duxbury Reef through Education (Lead Agency: NOAA)

Project Overview

This project will help prevent further injury to, and facilitate the natural recovery of intertidal rocky habitat at Duxbury Reef Marine Reserve. This will be achieved through an environmental education and stewardship program aimed at increasing public awareness of this sensitive habitat and controlling the large number of visitors to the area. The project will create opportunities for intertidal populations to recover from human-induced disturbances.

Environmental education at Duxbury Reef Tidepool.

Project Status

The Gulf of the Farallones National Marine Sanctuary (GFNMS) awarded a contract to Tenera Consulting for Phase I of this project. Tenera will complete a habitat and impact assessment that will guide restoration of Duxbury Reef.

The first field site visit to review the site and scope of work occurred in June 2005. Tenera collected information to prepare maps, took photos, and surveyed zones for the visitor census surveys. Carol Preston and Jan Roletto developed protocols for a preliminary visitor use study to determine the locations of high and low use and to control visitor use through sampling plots.

On October 26, 2006, staff from Tenera, GFNMS, and the NOAA Restoration Center met with local researchers, resource managers and marine educators and researchers to discuss the Duxbury Reef restoration program and potential collaborations. Presentations included:

- Review of the Cape Mohican oil spill, NRDA, and the restoration project goals and objectives.
- Review of the Duxbury Reef habitat and zonal communities, past and current data and visitor use patterns.
- Review of the Duxbury Reef Study Plan, monitoring plan, and proposed docent lead and self-guided tour program and trial system.

- Suggested collaborations: LIMPETS, California Academy of Sciences, home schooling programs, volunteers - adults and kids, resource monitoring programs - Point Reyes National Seashore, GFNMS, Marin County Open Space, College of Marin, Marin Storm Water Prevention Program, etc.
- Next phase of the restoration project - Phase II community outreach, proposed docent lead and self-guided tour program and trail system and funding requirements and opportunities.

Phase II objectives include developing docent and interpretation programs, and integrating sampling methods from various education programs (i.e. LIMPETS, California Academy of Sciences docent programs, etc.) with science information needs to address specific management issues (i.e., assessing effectiveness of trail routing plan and stewardship program for tide pool etiquette).

In 2007, Phase I work included completing regularly scheduled transect surveys in early spring and late summer. Completed sampling consists of two years of data collections (four baseline surveys) prior to implementing Phase II. The trail routing plan for Phase II has been completed but not implemented. Visitor count surveys associated with Phase II continued in 2007 with analysis in progress. The request for proposals to implement the Phase II managed access docent program remained in preparation in 2007.

Sea Stars at Duxbury Reef Marine Reserve.

Funding

Approved project budget:	$487,000
Funds allocated in FY 2002:	$0
Funds allocated in FY 2003:	$90,000
Funds allocated in FY 2004:	$90,000
Funds allocated in FY 2005:	$0
Funds allocated in FY 2006:	$0
Funds allocated in FY 2007:	$90,000
Funds spent to date:	$149,838

Human Use Projects

Angel Island Foot Trail Enhancement (Lead Agency: CDPR)

Project Overview

This project involves the construction of stairways, walkways, and trail improvements to enhance public access to beaches on Angel Island that were closed to the public because of the oil spill.

Stairs to Perle's Beach.

Project Status

The Quarry Beach access has been completed. The additional work needed on the trail leading to the Perle's Beach stairs as well as stabilization at the top of the stairs will be performed pending the scheduling of other work in the area.

ADA ramp construction at Quarry Beach.

Funding

Approved project budget:	$180,000
Funds allocated in FY 2002:	$180,000
Funds allocated in FY 2003:	$0
Funds allocated in FY 2004:	$0
Funds allocated in FY 2005:	$0
Funds allocated in FY 2006:	$0
Funds allocated in FY 2007:	$0
Funds spent to date:	$162,536

Crissy Field Habitat Stewardship Program (Lead Agency: NPS)

Project Overview

This project consists of developing and operating a 4-year public stewardship and biological monitoring program whereby staff and participants will visually and quantitatively measure the biological and physical changes of the newly restored habitats and participate in a variety of habitat restoration activities. Specifically, the Cape Mohican funds will support an Ecologist, as the Stewardship and Monitoring Program Coordinator, a Restoration and Public Programs Coordinator, a Field Monitoring Coordinator, and career development internships.

Project Status

Cape Mohican funds that had been used to support a four-year stewardship and monitoring program at Crissy Field have been nearly expended. Remaining funds are being used to support one career development internship at Crissy Field. In FY07, this position assisted with water quality monitoring and stewardship activities at Crissy Field. Stewardship activities included volunteer coordination, exotic plant removal, planting and seeding to enhance restored areas, fence repair, and trash and debris removal from the restored marsh. Funds were also used to support NPS maintenance personnel in replacing dilapidated post and cable fencing around sensitive dunes.

Funding

Approved project budget:	$850,000
Funds allocated in FY02	$200,653
Funds allocated in FY03	$215,330
Funds allocated in FY04	$213,143
Funds allocated in FY05	$220,874
Funds allocated in FY06	$0
Funds allocated in FY07	$0
Funds spent to date:	$847,621

Cape Mohican
Financial Summary – January 2008

Funds from Settlement	$3,625,000
Interest earnings (as of 1/16/08)	$674,664
Total	**$4,299,664**
Project funds allocated through FY2007:	
Shorebird Habitat Protection (NPS)	$23,500
California Least Tern Habitat (USFWS)	$141,000
Restoration of Shorebird Foraging Habitat/Cordgrass (USFWS)	$246,000
Farallon Seabird Restoration (USFWS)	$161,888
Pacific Herring Spawning Habitat Enhancement (CDFG)	$440,500
Wetland Restoration at Pier 98 (CDFG)	$121,496
Steelhead Stream Habitat Enhancement (CDFG)	$40,000
Giacomini Coastal Wetlands Restoration (NPS)	$435,000
Sandy Beach Habitat Restoration at PRNS (NPS)	$330,000
Protection of Duxbury Reef through Education (NOAA)	$270,000
Angel Island Foot Trail Enhancement (CDPR)	$180,000
Crissy Field Habitat Stewardship Program (NPS)	$850,000
Total	**$3,239,384**
Administrative funds disbursed for restoration planning and council activities through FY2007:	
National Park Service	$204,000*
U. S. Fish and Wildlife Service	$51,500
National Oceanic and Atmospheric Administration	$69,800
California Department of Fish and Game	$94,174**
California Department of Parks and Recreation	$8,000
Total	**$427,474**
Remaining (Unallocated) funds:	**$632,806**

* Includes $146,000 for development of RP/EA under contract to Harding Lawson/ESE.
** Includes $8,874 for newspaper reimbursement and $20,000 for land appraisal.