

Appendix D

CCP Implementation

Appendix D: CCP Implementation

A. Introduction

The Final Comprehensive Conservation Plan (CCP) for the San Diego Bay National Wildlife Refuge will be prepared following approval of the Final EIS and issuance of the Record of Decision (ROD), which will identify the proposed action. This appendix combined with Chapters 1 and 3 and portions of Chapter 2 of the Final CCP/EIS will form the basis for the Final CCP. Implementation of the CCP can begin following the issuance of the ROD. Although it is our intent to implement the proposed strategies (projects) by the established deadlines, the timing of implementation may vary depending upon a variety of factors, including funding, staffing, compliance with Federal regulations, partnerships, and the results of monitoring and evaluation. Some strategies, such as those related to habitat restoration, will require the completion of step-down plans and appropriate environmental compliance documents before they can be implemented. This appendix will further define how implementation of the preferred alternatives for both the Sweetwater Marsh Unit and the South San Diego Bay Unit (described in Chapter 2) would proceed if they are identified as the proposed action in the ROD.

B. Implementation Overview

During the 15 years following CCP approval, the CCP will serve as the primary reference document for all Refuge planning, operations, and management. Presented in Tables D-1 and D-2 are the priorities for implementing the various wildlife and habitat management and visitor services (public use) strategies described in the preferred alternatives for the Sweetwater Marsh and South San Diego Bay Units. Completion of any of these actions would however be dependent upon the various factors discussed above and the order of implementation could change if funds for a specific project are identified earlier than anticipated. These strategies would be implemented with assistance from new and existing partners, including public agencies, non-governmental organizations, and the public. Consistent public outreach and continued coordination with Refuge constituents are essential components of this implementation process. Some of the partnership opportunities to be explored during the 15-year life of this CCP are described below, as are the projects, monitoring responsibilities, and staffing and funding requirements needed to successfully implement the CCP.

CCPs are intended to evolve with each Refuge, and the Improvement Act specifically requires that these plans be formally revised and updated at least every 15 years. The formal revision process will follow the same steps as those implemented for the initial CCP development process, with a major emphasis placed on public involvement. Until a formal revision is initiated, the Service will periodically review and update the CCP (at least as often as every five years) to address needs identified as a result of monitoring or in response to adaptive management procedures. This CCP will also be informally reviewed by Refuge staff while preparing annual work plans and updating the Refuge databases. It may also be reviewed during routine inspections or programmatic evaluations. Results of any or all of these reviews may indicate a need to modify the plan. The goals described in this CCP will not change until they are reevaluated as part of the formal CCP revision process. However, the objectives and strategies may be revised to better address changing circumstances or to take advantage of increased knowledge of Refuge resources. If revisions to the CCP are required prior to the initiation of formal revisions, the level of public involvement and associated NEPA documentation will be determined by the Refuge Manager.

Table D-1
San Diego Bay National Wildlife Refuge
Prioritized List of Wildlife and Habitat Management Projects*

<u>Priority</u>	<u>Unit</u>	<u>Description</u>
<u>1</u>	SSDB	Phase 1 - Salt Pond Restoration:
		<u>a. Step-down planning and detailed engineering</u>
		<u>b. Restore tidal influence to Pond 11</u>
		<u>c. Restore tidal influence to Ponds 10 and 10A</u>
<u>2</u>	SSDB	Phase 2 - Nesting Enhancements within the Salt Pond Complex:
		<u>a. Step-down planning and detailed engineering</u>
		<u>b. Phased development of new nesting sites</u>
		<u>c. Enhance nesting substrate</u>
		<u>d. Reconfigure pond levees</u>
<u>3</u>	SSDB	Otay River Floodplain Restoration:
		<u>a. Step-down planning and detailed engineering</u>
		<u>b. Implement restoration plan</u>
<u>4</u>	SSDB	Phase 2 Salt Pond Restoration:
		<u>a. Step-down planning and detailed engineering</u>
		<u>b. Restore tidal influence to Ponds 12-15</u>
		<u>c. Restore tidal influence to Ponds 23-25 and 28-30</u>
		<u>d. Initiate the managed water system</u>
		<u>e. Prepare Pond 44 for seabird nesting habitat</u>
<u>5</u>	SWM	Restore wetland habitat at the F&G Street Marsh:
		<u>a. Step-down planning and detailed engineering</u>
		<u>b. Implement wetland habitat restoration</u>
		<u>c. Address contaminant issues at F&G Street Marsh</u>
<u>6</u>	SWM	Improve tidal circulation within Paradise Marsh:
		<u>a. Address contaminant issues in Paradise Marsh</u>
		<u>b. Step-down planning and detailed engineering to remove or lower existing weir</u>
		<u>c. Remove or lower the existing weir</u>
<u>7</u>	SWM	Improve tidal circulation within Sweetwater Marsh:
		<u>a. Step-down planning and detailed engineering to improve tidal circulation</u>
		<u>b. Add new culvert in the existing access road</u>
		<u>c. Remove old access road</u>
		<u>d. Address sediment accumulation in existing tidal channels</u>
		<u>e. Lower berm south of Gunpowder Point</u>
<u>8</u>	SWM	Enhance D Street fill to improve nesting habitat quality and fledgling access:
		<u>a. Step-down planning for substrate enhancement/improved fledgling access to foraging areas</u>
		<u>b. Implement nesting substrate enhancements</u>
<u>9</u>	SWM	Improve access between nesting and foraging areas on the D Street Fill
<u>10</u>	SWM	Restore native upland and wetland habitat on Gunpowder Point:
		<u>a. Step-down planning for habitat restoration</u>
		<u>b. Implement upland habitat restoration</u>
		<u>c. Implement wetland habitat restoration along the northern edge of Gunpowder Point</u>
<u>11</u>	SSDB	Identify Long Term Funding for Predator Management in tern and plover nesting areas
<u>12</u>	SWM	Identify Long Term Funding for Predator Management in tern and plover nesting areas

* Restoration priorities may change or implementation may be accelerated if funding for a specific project is identified sooner than anticipated.

Table D-2
San Diego Bay National Wildlife Refuge
Prioritized List of Visitor Services Projects

<u>Priority</u>	<u>Unit</u>	<u>Description</u>
<u>1</u>	<u>SSDB</u>	<u>Increase Opportunities for Wildlife Observation/Interpretation:</u>
		<u>a. Increase the number of guided tours within the salt pond complex</u>
		<u>b. Conduct step-down planning for pedestrian pathway and interpretation along south boundary</u>
		<u>c. Construct the pedestrian pathway from 7th to 10th Street</u>
		<u>d. Develop an interpretive overlook at the end of 10th Street</u>
		<u>e. Develop an observation deck at the end of 8th Street</u>
		<u>f. Construct the pedestrian pathway from Florida Street to 13th Street</u>
		<u>g. Construct an observation overlook in the vicinity of Florida Street</u>
		<u>h. Design and Construct an interpretive trail around Pond 28</u>
		<u>i. Design and implement an interpretive program about the history of hunting in San Diego Bay</u>
<u>2</u>	<u>SWM</u>	<u>Improve Opportunities for Wildlife Observation and Environmental Interpretation:</u>
		<u>a. Step-down planning for interpretive trail on Gunpowder Point</u>
		<u>b. Realign the existing trail</u>
		<u>c. Design and install new interpretive signs</u>
		<u>d. Work with National City and Chula Vista to provide environmental interpretation</u>
<u>3</u>	<u>SSDB</u>	<u>Expand the existing Habitat Heroes Environmental Education Program consistent with the CCP</u>
<u>4</u>	<u>SWM</u>	<u>Develop public outreach plan to reduce disturbance from adjacent areas</u>
<u>5</u>	<u>SWM</u>	<u>Develop public outreach plan to reduce wildlife disturbance in the open waters of the Refuge</u>
<u>6</u>	<u>SWM</u>	<u>Develop a Cultural Resource Management Plan for this Unit</u>
<u>7</u>	<u>SSDB</u>	<u>Develop a Cultural Resource Management Plan for this Unit</u>

C. Wildlife and Habitat Management

The preferred alternatives for the Sweetwater Marsh and South San Diego Bay Units include a variety of wildlife and habitat management “strategies” or projects that when implemented will meet the goals and objectives outlined in the CCP. The timing for implementation of these projects is driven by the Service’s trust responsibilities (i.e., endangered and threatened species, migratory birds), the mission of the Refuge system, Refuge purposes, and the availability of funding. The best science available will be used to measure the effectiveness of these projects in achieving the goals and objectives for the Refuge.

Past management on the Refuge has been focused on maintaining appropriate nesting habitat for seabirds, implementing predator control to protect listed species, and minimizing disturbance to resident and migratory bird populations. While these management practices would continue or be expanded (e.g., nesting substrate enhancement and nesting area expansion projects), additional management actions would be implemented as funding permits. Additional focus would be placed on the inventory and monitoring of the various species and habitats supported on the Refuge. As described below, considerable emphasis would be placed on habitat enhancement and restoration to benefit native wildlife and plant species.

Habitat Enhancement and Restoration

Various enhancement and restoration projects are described in the CCP that once implemented would expand and/or improve the overall habitat value of this Refuge for a variety of species. Full restoration of the structure and function of the coastal wetland habitats proposed within the CCP particularly for the South San Diego Bay Unit may not

be achieved within the 15-year life of this plan, however, the direction provided in the CCP will ensure that significant strides towards the goal of providing fully functional, high value habitat for migratory birds and listed species such as the light-footed clapper rail, California least tern, and western snowy plover will be achieved.

Implementation of some of the projects would involve minimal effort such as removing or lowering the weir near Paradise Marsh, while restoration of the salt ponds in the South San Diego Bay Unit would require completion of additional studies, coordination with a variety of partners, preparation of final engineering and restoration plans, approval of various permits, and funding for both step-down planning and implementation.

Restoration of tidal influence within the majority of the salt ponds on the South San Diego Bay Unit could be implemented under several scenarios, as described in Chapter 2. One of the scenarios would involve a phased approach to restoration. The details of such a phased approach are presented below.

Salt Pond Restoration Phasing Plan

Phase 1 - Implement Restoration of the Western Ponds (Ponds 10, 10A, and 11) and Initiate Nesting Enhancement Projects throughout the Salt Works

Years 1, 2, and 3 – Studies, Final Restoration Planning, and Permitting

- Prepare a work plan outlining the various studies to be conducted prior to restoring tidal influence to the salt ponds. Studies would include, but are not limited to:
 - Characterization of the pond sediments (e.g., grain size, salinity levels, presence of any contaminants)
 - Collection of data regarding avifauna abundance, diversity, use, and distribution within the salt ponds and the adjacent mudflats
 - Identification of the invertebrates present within the various ponds
 - Analysis of material to be used for new nesting areas and/or for optimizing pond elevations to achieve desired habitat types
- Provide opportunities for public input during final restoration planning and host annual public workshops to provide for public input throughout the restoration process
- Explore and promote scientific research opportunities with various universities, USGS, and others that would begin in Year 1 and extend through the life of the project, as appropriate
- Design any water control structures, bridges, and levee protection measures that would be required following restoration of tidal influence into the ponds
- Prepare final engineering/restoration plans incorporating as appropriate the results of the tasks described above
- Design a monitoring plan for Pond 11
- Obtain all necessary permits and complete environmental compliance reviews

Year 4 – Prepare for and Restore Tidal Influence in Pond 11/Begin Nesting Enhancements

- Prepare Pond 11 for restoration:
 - Remove Pond 11 from the salt production system and make the necessary changes to the system to allow water to move from Pond 10 into Pond 12
 - Reconfigure the pond elevations per final engineering plans (this may involve moving material from Pond 10 to Pond 11, transporting material from the Otay River floodplain into Pond 11, or simply recontouring the pond to achieve the desired elevations)
- Restore tidal influence to Pond 11 in accordance with approved engineering/restoration plans
- Begin implementing nesting habitat enhancements including recontouring existing levees, widening some levees, and preparing new nesting areas within existing ponds
- Initiate monitoring of Pond 11 (e.g., monitor invertebrate, fish, and plant colonization, water quality, and possible presence of invasive species in restored Pond 11; also monitor avian response to pond restoration and enhanced nesting areas and any changes in wildlife community response within adjacent ponds and levees)
- Continue public involvement process
- *Phase 2 Work - Initiate studies in the eastern ponds in preparation for Phase 2 restoration planning that would begin in Year 6*

Years 5 and 6 – Monitoring/Adaptive Management/Lessons Learned

- Continue to implement nesting habitat enhancements within existing ponds
- Continue monitoring Pond 11 per the monitoring plan
- Provide an opportunity for public review of monitoring results through Planning Updates, public workshops, or other appropriate methods
- *Phase 2 Work - Continue studies related to restoration of the eastern ponds*

Year 7 – Prepare for and Restore Ponds 10 and 10A

- Reconfigure the bay water intake system for the salt operation to allow continued salt production on the east side of the Otay River channel
- Review monitoring results obtained for Pond 11 and based on an evaluation of these results determine if any changes in restoration management, implementation, or design are necessary or desirable to achieve habitat goals and objectives

- Prepare Ponds 10 and 10A for tidal restoration in accordance with final restoration plans (this may involve excavation or filling to achieve desired elevations and/or the construction of a low berm along the eastern edge of Pond 10A)
- Restore tidal influence to Ponds 10 and 10A
- Initiate monitoring in Ponds 10 and 10A per the monitoring plan
- Continue monitoring Pond 11 per the monitoring plan
- Continue public involvement process
- *Phase 2 Work - Continue studies associated with the restoration of the eastern ponds and begin detailed analysis of managed pond strategies and designs (including brine management ponds and associated discharge requirements)*

Years 8 and 9 – Monitoring/Adaptive Management/Lessons Learned

- Continue monitoring Pond 10, 10A, and 11 per the monitoring plan
- Provide an opportunity for public review of monitoring results through Planning Updates, public workshops, or other appropriate methods
- *Phase 2 Work – Complete studies associated with the restoration of the eastern ponds, prepare final engineering/restoration plans incorporating lessons learned from the restoration of the eastern ponds, complete environmental compliance documents, coordinate with appropriate agencies, and submit and obtain all required permit applications*

Phase 2 - Implement Restoration of the Ponds to the East of the Otay River and Continue to Implement Nesting Enhancement Projects throughout the Salt Works

Years 1, 2, and 3 – Studies, Final Restoration Planning, and Permitting for Phase 1

Year 4 – Initiate Studies for Restoration and Management of the Eastern Ponds

- Prepare a work plan outlining the various tasks (e.g., baseline studies, pre-restoration eelgrass surveys, numeric modeling, detailed analysis of the brine management component) needed to prepare detailed restoration plans for some ponds and water management plans for other ponds
- Initiate various studies and analyses per the work plan
- Explore and promote scientific research opportunities with various universities, USGS, and others for Phase 2 restoration activities

Years 5 and 6 – Continue Studies and Modeling of Pond Restoration and Management

- Continue implementation of the work plan, including analysis of how best to handle gypsum and crystallized salt deposits within some of the secondary and pickling ponds
- Conduct detailed analyses of managed pond strategies and designs (including brine management ponds and associated discharge requirements) and prepare a water management plan to establish the operating, maintenance, and monitoring activities and associated costs require maintain the propose managed water systems

Year 7 – Prepare Final Engineering/Restoration Plans

- Complete the tasks outlined in the work plan
- Prepare final engineering/restoration plans incorporating lessons learned from the restoration of Ponds 10, 10A, and 11
- Design a monitoring plan
- Continue public involvement process
- Complete environmental compliance documents, coordinate with appropriate agencies, and submit all required permit applications

Years 8 and 9 – Conduct Studies and Modeling for Restoration and Management of the Eastern Ponds

- Explore and promote scientific research opportunities with various universities, USGS, and others for Phase 2 restoration activities
- Obtain all permits required to restore tidal influence in some eastern ponds and manage water in other ponds
- In Year 9, prepare for removal of Ponds 12, 14, and 15 from the commercial salt production system
- By December 31, 2016, begin closure of the salt operation by closing the intake gate and continuing to move the remaining water through the system to produce the last harvest of salt

Year 10 – Implement Restoration of Remaining Primary Ponds

- Prepare Ponds 12, 13, 14, and 15 for tidal restoration in accordance with final engineering/restoration plans
- Restore tidal influence to Ponds 12, 13, 14, and 15
- Initiate monitoring, including ground nesting seabird response to pond restoration and post restoration monitoring of adjacent eelgrass beds

- Continue to implement nesting habitat enhancements per the restoration plans

Years 11 and 12 – Monitoring/Adaptive Management/Lessons Learned

- Continue monitoring restored areas per the monitoring plan
- Provide an opportunity for public review of monitoring results through Planning Updates, public workshops, or other appropriate methods

Year 13 – Implement Restoration/Water Management Proposals for Remaining Salt Ponds

- South Bay Salt Works to implement the salt works closure provisions of the Special Use Permit
- Prepare specified ponds for tidal restoration in accordance with final engineering/restoration plans
- Prepare other ponds for long-term water management, including installing any new hydraulic structures needed to convey water into and/or out of the managed water ponds
- Restore tidal influence per the restoration plans
- Begin water management operations per the restoration plans
- Implement initial intensive water management monitoring per the water management plan
- Initiate monitoring of the restored ponds per the restoration monitoring plan
- Complete all proposed nesting habitat enhancements

Years 14 and 15 – Monitoring/Adaptive Management/Lessons Learned

- Continue monitoring restored and managed water areas per the appropriate monitoring plans
- Provide an opportunity for public review of monitoring results through Planning Updates, public workshops, or other appropriate methods

Monitoring

Monitoring the effects of management actions on the Refuge's trust resources is an important component of the CCP, as is the documentation of the Refuge's baseline conditions. By completing baseline inventories and monitoring specific management actions, Refuge staff can better understand the species, habitats, and physical processes that occur on the Refuge and the ecological interactions that occur between species.

Monitoring is an ongoing management activity at both the Sweetwater Marsh and South San Diego Bay Units and will continue per available funding. Past monitoring efforts have focused primarily on California least tern and western snowy plover nesting, although monitoring of other colonial nesting birds, including the gull-billed tern, is also implemented at the South San Diego Bay Unit. Current monitoring efforts are adequate

to identify trends in abundance, diversity, and nesting success of breeding seabirds and nesting attempts and success of snowy plovers. Monitoring programs, such as the current efforts, are focused on selected components that are representative of many other species or habitats due to funding limitations.

Monitoring is identified as a strategy in the CCP for managing the marsh complex on the Sweetwater Marsh Unit and as an integral component of salt pond restoration on the South San Diego Bay Unit. Monitoring will focus on measuring the success of CCP implementation, particularly the effectiveness of the various habitat enhancement and restoration strategies in achieving plan objectives. The objectives provided for each Refuge Unit are presented in Sections 2.2.5 and 2.3.5 of Chapter 2.

The monitoring activities associated with restoration of the Otay River floodplain and the salt ponds in the South San Diego Bay Unit are briefly described in Chapter 2. The potential salt pond restoration phasing plan, presented above, also demonstrates how monitoring could be incorporated into future detailed restoration plans. The specific details of such a plan would however be defined during step-down planning. Monitoring activities could include, examining the establishment of vegetation and invertebrates during the initial phases of tidal restoration within the ponds; monitoring seabird nesting activity on the salt pond levees following pond restoration, and initial monitoring of the managed pond areas to ensure appropriate salinity levels are maintained. The data obtained during such monitoring will provide information necessary to confirm that the objectives of the various management actions are being achieved or that changes through adaptive management are necessary to achieve desired habitat objectives.

Adaptive Management

Adaptive management involves sequential decision making, integrating project design, management, and monitoring to systematically test assumptions. Based on the data and lessons learned, subsequent phases of an ongoing restoration project or a new restoration project with similar objectives can be revised as necessary to maximize project objectives over time. Adequate baseline data, clearly defined and measurable project objectives, a monitoring plan focused on measurable results, and a process for refining and improving current and future management actions are all essential components of a successful adaptive management approach to restoration. Each of these components would be addressed during step down planning, and the details of the adaptive management approach would be integrated into final restoration plans. The step-down plans will also describe how coordination with other science-management teams involved in implementing and monitoring restoration of solar salt ponds, including those involved in salt pond restoration in San Francisco Bay, would be achieved.

D. Public Use

Various projects are included in the CCP that are intended to provide opportunities for increasing public awareness of the significance of the habitats and species protected within the Refuge, while also providing different ways for the public to experience these resources. The CCP emphasizes the importance of expanding opportunities for wildlife observation and environmental interpretation on both Refuge Units. In addition, the outstanding environmental education programs that are already being implemented on both Refuge Units would continue per available funding. Partners will be sought to expand the availability of these programs to more children throughout the region, while also expanding the depth of the programs to address the needs of

older students. Other opportunities for public outreach would also be realized by continuing to permit fishing and boating within the South San Diego Bay Unit.

E. Step-Down Plans

Some projects such as public use programs and habitat restoration proposals require more in-depth planning than the CCP process is designed to provide. For these projects, the Service prepares step-down plans. Step-down plans provide additional planning and design details necessary to implement the strategies (projects or programs) identified in the CCP. Two step-down plans – the Fire Management Plan and Predator Management Plan – are included in this CCP as Appendices L and M, respectively. Several step-down plans are proposed for completion following the approval of the CCP including a Habitat Management Plan and an Interpretive Trail Plan for the Sweetwater Marsh Unit and detailed restoration planning for the South San Diego Bay Unit.

F. Compliance Requirements for Plan Implementation

All projects and step-down plans described in the CCP will be required to comply with NEPA and the Improvement Act, as well as a variety of other Federal regulations, executive orders, and legislative acts, which are described in greater detail in Chapter 5 of this document. The Final EIS is intended to address all proposed actions at the program level; however, some actions once defined in greater detail may require additional analysis and review under NEPA. In addition, all projects that involve disturbance of the land, changes to structures more than 50 years old, and/or changes to the use, design, and/or function of the salt works, which has been deemed eligible for inclusion on NRHP, would require coordination with the Regional Archaeologist. To initiate review by the Regional Archaeologist, a Request for Cultural Resource Compliance would be prepared early in the planning process for each proposed project.

G. Anticipated Costs of Fully Implementing the CCP

Funding for Projects

The estimated costs for the various projects described for the preferred alternatives, as well as the new staffing requirements for implementing these projects, are presented in Table D-3. The costs presented under the heading Recurring Base include the anticipated long-term annual costs of maintaining equipment, structures, facilities, signage, and/or restored or enhanced habitat areas, as well as the annual costs of maintaining programs such as existing and proposed environmental education, interpretation, and volunteer programs.

Current and Future Staffing

To implement all of the proposed actions and achieve the goals and objectives of the CCP for the two Refuge Units, additional funding and staff will be necessary. Tables D-4 and D-5 present the current and future (proposed) funding and staff needs for the combined management of the Sweetwater Marsh and South San Diego Bay Units. The base budget in FY2004 for the three San Diego Coastal Refuges: Sweetwater Marsh Unit, South San Diego Bay Unit, and Tijuana Slough NWR was \$802,000.

Table D-5 presents the proposed future staffing requirements for the San Diego Coastal Refuges based on the types of projects that are proposed within the CCP.

Table D-3
ESTIMATED COSTS FOR IMPLEMENTING CCP PROJECTS
AND PROPOSED STAFFING INCREASES TO IMPLEMENT AND MAINTAIN THESE PROJECTS

Projects Proposed to Achieve Refuge Goals and Objectives	Operating Costs (in thousands)			
	FTEs	One-Time	Recurring Base	Total 1 st Year
Habitat and Wildlife Management				
Increase habitat management activities within the Sweetwater Marsh Unit: Develop and implement a Habitat Management Plan that includes actions to improve and protect marsh quality including completion of an inventory of marsh species and mapping of special status species distribution/population size; improving conditions in upland transition areas to benefit salt marsh bird's beak propagation; increasing control of invasive plants; and performing annual monitoring and maintenance activities.	-	\$25	\$5	\$25
Enhance and maintain tern and plover nesting habitat and improve nesting success: <u>Enhance existing nesting areas at the D Street Fill and on the salt pond levees by adding a 6- to 8-inch layer of clean, light-color sand to areas with poor substrate quality, and by improving chick access to adjacent foraging areas. Follow up annually with 1) preseason tern and plover nest site preparation to control vegetation and maintain quality nesting substrate; 2) predator management to minimize losses of least tern and snowy plover eggs, chicks, and adults to avian and mammalian predators during the nesting season, and 3) monitoring site use by nesting least terns and snowy plovers and recording the reproductive success of each species within the two nesting areas.</u>	-	\$75	\$2	\$75
Improve nesting habitat for plovers within the salt pond complex: <u>Seasonally manage the water level in Pond 20 or other appropriate pond to provide a minimum of 20 acres of dry salt flats in proximity to quality foraging areas to support western snowy plover nesting.</u>	-	\$5	\$1	\$5
General Refuge Management				
Reduce unauthorized access onto the Refuge: <u>Develop and implement a public outreach program directed at reducing unauthorized access by people and their pets into sensitive Refuge habitats. The program, which should be design and implemented in partnership with other agencies and organizations, should incorporate the use of effective signage, brochures, and a speakers bureau (traveling public information program) to inform the public of the need to protect the sensitive resources on the Refuge; expand law enforcement and Refuge staff visibility on the Refuge, and encourage stewardship through hands-on volunteer opportunities.</u>	-	\$15	\$1	\$15

	FTEs	One-Time	Recurring Base	Total 1 st Year
General Refuge Management (cont.)				
Reduce disturbance to wildlife in the open waters of the Refuge: Coordinate with the Coast Guard and Harbor Patrol to ensure enforcement of the designated 5 mph speed limit throughout the south bay and <u>acquire a patrol boat to increase Refuge law enforcement presence within those portions of the Refuge located within San Diego Bay.</u>	-	\$50	\$5	\$50
Secure the eastern perimeter of the salt pond complex following closure of the salt operation: Install and maintain appropriate fencing and signage around the eastern perimeter of the salt ponds to minimize the incidence of unauthorized access into the area and to discourage entry into the area by stray dogs, cats, and other mammals that could pose a threat to nesting and feeding wildlife.	-	\$45	\$5	\$45
Reduce the accumulation of fishing line within the Refuge: Develop and implement a <u>Monofilament Recovery & Recycling Program</u> to raise awareness about the dangers to wildlife of improperly discarding fishing line.	-	\$15	\$1	\$15
Prepare a Cultural Resource Management Plan for the Refuge: <u>Identify, record, and evaluate the cultural resources on the Refuge. With this information, develop and implement a cultural resource management plan, in consultation with all interested parties, that insures the long-term protection of the Refuge's sensitive cultural resources and encourages the interpretation of these resources as part of the overall interpretive program for the Refuge.</u>	-	\$25	\$1	\$25
Address contaminants issues affecting the Refuge: <u>Develop and implement baseline sampling plans for potentially contaminated areas within the Refuge. Seek additional funding to develop and implement remediation plans for those areas that are determined to require remediation due to existing contaminant levels.</u>	-	\$100	-	\$100
Improve volunteer services within the Refuge: <u>Design a volunteer program for the San Diego Bay NWR that when implemented will improve and expand volunteer opportunities within the Refuge. Obtain basic supplies, equipment, and uniforms for the volunteers and design and implement a volunteer program that would support existing and expanded proposals for environmental education, interpretation and wildlife observation, assist Refuge staff in accomplishing projects related to habitat and wildlife management (e.g., wildlife and plant surveys, invasive species control, native plant propagation and planting, construction of nesting platforms), and facilitate other special events.</u>	-	\$25	\$3	\$25
Public Use				
Redesign the existing trail system and interpretive signage on Gunpowder Point: <u>Design and implement an environmental interpretation plan for Gunpowder Point that includes a redesigned trail system and new interpretive signage to improve opportunities for wildlife observation, as well as to compliment and support the Refuge's existing environmental education programs.</u>	-	\$150	\$2	\$150

	FTEs	One-Time	Recurring Base	Total 1 st Year
Public Use (cont.)				
Increase participation in existing environmental education programs: Continue to assist in the funding and implementation of the Refuge's environmental education program, particularly the Habitat Heroes and Sweetwater Safari Programs, with the goal of renewing existing partnerships and identifying new partners to assist in expanding current outreach programs to better serve underrepresented and underserved communities.	-	\$15	\$8	\$15
Increase opportunities for guided tours of the salt ponds: Expand the number of guided tours provided at the salt works and acquire an electric multi-passenger vehicle to transport visitors along the levees.	-	\$60	\$5	\$60
Develop a pedestrian pathway along the southern edge of the Refuge: Design and construct a pedestrian pathway from 7 th to 10 th Street, north of the Bayshore Bikeway, to provide opportunities for wildlife observation, environmental education, and interpretation.	-	\$650	\$2	\$650
Develop an interpretive overlook at the end of 10th Street: Partner with the City of Imperial Beach to improve access to and develop an interpretive overlook on the coastal terrace just to the north of the Bayshore Bikeway and install interpretive panels and spotting scopes to provide opportunities to observe the birds that nest, forage, and rest within the restored salt ponds.	-	\$50	\$1	\$50
Construct an observation area at the end of 8th Street: Design and construct an observation area to the north of the Bayshore Bikeway at the end of 8 th Street in Imperial Beach to expand opportunities for wildlife observation and interpretation.	-	\$25	\$1	\$25
Improve wildlife observation opportunities at the east end of the Refuge: Design and construct an observation area at the edge of Pond 29.	-	\$20	\$1	\$20
Develop an Interpretive Nature Trail Around Pond 28: Design and construct an accessible, 1.5-mile interpretive nature trail around Pond 28 following the closure of the salt works.	-	\$450	\$2	\$450
Design and implement an interpretive program about the history of hunting in San Diego Bay: Working with partners representing the hunting community, design and implement an interpretive program that would be conducted along the outer levee of the eastern salt ponds in late fall to interpret waterfowl hunting, historic hunting on the south bay, and hunting within the National Wildlife Refuge System.	-	\$5	\$0.5	\$5
Habitat Restoration and Enhancement				
Enhance water circulation in Sweetwater Marsh/Paradise Marsh: Remove old fill areas, construct a new culvert, and remove/lower a weir to enhance tidal circulation over 130 acres of marsh habitat to benefit listed species and migratory birds.	-	\$250	\$0.5	\$250

	FTEs	One-Time	Recurring Base	Total 1 st Year
Habitat Restoration and Enhancement (cont.)				
<p>Restore intertidal wetlands on the Sweetwater Marsh Unit: After 2010, when the existing mitigation leasehold overlays expire, restore up to 20 acres of intertidal wetlands, of which a minimum of ten acres would be restored to cordgrass-dominated salt marsh habitat. The actual areas available for restoration would be dependent upon how much restoration is implemented on the mitigation leasehold overlays prior to 2010. Potential restoration areas include approximately 13 acres at the eastern end of the D Street Fill, six acres at the F&G Street Marsh, and two acres along the northern edge of Gunpowder Point.</p>	-	\$2,000	\$5	\$2,000
<p>Restore native upland and upland transition habitat on the Sweetwater Marsh Unit: After 2010, when the existing mitigation leasehold overlays expire, restore approximately 25 acres on Gunpowder Point to native upland vegetation and restore the native plant species historically found in the wetland-upland transition areas throughout the Refuge Unit. This project would involve the initial removal and long-term control of invasive, non-native species, planting and seeding of native vegetation, initial monitoring of restoration success, and long-term maintenance and monitoring of the restored habitat.</p>	-	\$300	\$5	\$300
<p>Improve tidal circulation at the southern tip of Sweetwater Marsh: Conduct a hydrologic study to analyze the benefits of removing the berm located between the bay and the southern tip of Sweetwater Marsh, and if benefits to tidal circulation and habitat quality would be realized, prepare and implement engineering plans for removing or breaching the berm.</p>	-	\$750	\$1	\$750
<p>Increase the total acreage of nesting habitat within the salt pond complex: Create a minimum of 33-acres of new nesting habitat within the salt pond complex by filling pond corners, creating "island" type fills within the ponds, widening some levees, recontouring some levee side slopes, and capping all nesting areas with appropriate depths of clean, light sand to benefit the California least tern, western snowy plover, and other ground nesting birds that nest on the levees.</p>	-	\$2,500	-	\$2,500
<p>Restore native wetland and upland habitat in the Otay River floodplain: Develop and implement step-down restoration plans to restore approximately 145 acres of disturbed habitat in the Otay River floodplain, creating freshwater wetland, coastal salt marsh, and native scrub habitats to benefit endangered species, migratory birds, and other Refuge resources.</p>	-	\$5,000	\$5	\$5,000
<p>Restore the western salt ponds to tidal action: In accordance with final restoration plans and the associated phasing plan, prepare the western ponds for intertidal restoration and then breach the pond levees to restore 200 acres of intertidal habitat.</p>	-	\$2,000	\$5	\$2,000
<p>Restore the eastern primary salt ponds to tidal action: In accordance with final restoration plans and the associated phasing plan, prepare the eastern ponds for tidal restoration, then breach the pond levees to restore 240 acres of salt ponds to tidal influence.</p>	-	\$1,500	\$5	\$1,500

	FTEs	One-Time	Recurring Base	Total 1 st Year
Habitat Restoration and Enhancement (cont.)				
Convert the remaining salt ponds to tidal marsh and managed water areas: Restore an additional 200 acres of secondary salt ponds to tidal influence and implement measures to manage salinity, water levels, and water flow within the remaining 275 acres of salt ponds.	-	\$1,500	\$30	\$1,500
Additional Staff/Contracting Needs to Achieve Refuge Goals and Objectives				
Implement a predator management program to protect listed species: Contract with APHIS-WS or other comparable contractor to conduct avian and mammalian predator control on the Refuge to protect listed species. Predator control would be implemented in accordance with the Refuge's approved Predator Management Plan.	1	-	\$75	\$75
Provide oversight of all Refuge operations and maintenance and management activities: Hire a Refuge Operations Specialist to work directly with the Refuge Manager to provide oversight of general Refuge operations and programs, including maintenance, visitor services and outreach, volunteer activities, and the Youth Conservation Corps.	1	\$2	\$60	\$62
Maintain and manage the Refuge's natural and managed habitat areas and other facilities: Hire a Maintenance Worker/Heavy Engineering Equipment Operator to maintain the levees within the restored salt pond complex; install and maintain fencing and signage around the Refuge, where needed; annually conduct pre-season nest site preparation on the D Street Fill and the salt pond levees; maintain and repair water structures, pumps, or other equipment needed to manage water in some of the salt ponds; and conduct other duties as necessary to maintain Refuge habitats and facilities.	1	\$50	\$55	\$110
Implement the Refuge's various habitat management and monitoring plans: Hire a Biological Technician to assist the Wildlife Biologist in developing and implementing a Habitat Management Plan for the Sweetwater Marsh Unit and a future monitoring and maintenance plan for the restored salt ponds that include actions to improve and protect marsh quality (e.g., completion of an inventory of marsh species and mapping of special status species distribution/population size; improving conditions in upland transition areas on the Sweetwater Marsh Unit to benefit salt marsh bird's beak propagation; increasing control of invasive plants; performing annual monitoring).	1	\$5	\$40	\$45
Improve volunteer services on the Refuge: Hire a volunteer coordinator to develop and implement a volunteer program that will support wildlife and habitat management (e.g., monitoring activity in least tern and snowy plover nesting colonies, assisting with revegetation programs) and visitor services (e.g., docent programs, nature guides).	.6	\$5	\$27	\$32
Provide oversight of wildlife and habitat management programs: Hire a Supervising Wildlife Biologist to oversee all projects related to wildlife and habitat management, habitat restoration and enhancement, and listed species recovery on the Refuge.	.6	\$5	\$45	\$50

Table D-4 Current Staffing Positions for the San Diego Coastal Refuges			
Staff Type	Employment Status	FTE	Salary Rating
<i>Management</i>			
Project Leader	PFT	0.6	GS 14
Deputy Project Leader	PFT	0.6	GS 13
Refuge Manager	PFT	1	GS 12
Refuge Operations Specialist	PFT	1	GS 11
<i>Administrative</i>			
Administrative Assistant	PFT	0.6	GS 7
<i>Biology</i>			
Wildlife Biologist	PFT	1	GS 11
<i>Public Use</i>			
Park Ranger	PFT	1	GS 5
Refuge Officer	PFT	1.5	GS 7/9
Information and Education Specialist	PFT	0.6	GS 11
Instructional Systems Specialist	PFT	0.6	GS 9
Refuge Planner	PFT	0.6	GS 12

Table D-5 Future (Proposed) Staffing for the San Diego Coastal Refuges			
Staff Type	Employment Status	FTE	Salary Rating
<i>Management</i>			
Project Leader	PFT	0.6	GS 14
Deputy Project Leader	PFT	0.6	GS 13
Refuge Manager	PFT	1	GS 12
Refuge Operations Specialist	PFT	2	GS 11
<i>Administrative</i>			
Administrative Assistant	PFT	0.6	GS 9
Receptionist/ Clerk/Typist	PFT	0.6	GS 6
<i>Biology</i>			
Supervising Wildlife Biologist	PFT	0.6	GS 12
Wildlife Biologist	PFT	1	GS 9
Biology Technician	PFT	1	GS 7

Table D-5 (continued)			
<i>Public Use</i>			
Park Ranger	PFT	1	GS 5
Volunteer Coordinator	PFT	0.6	GS 7
Information and Education Specialist	PFT	0.6	GS 11
Instructional Systems Specialist	PFT	0.6	GS 9
Refuge Planner	PFT	0.6	GS 12
Refuge Officer	PFT	1.5	GS 9
<i>Maintenance</i>			
Maintenance Worker/Heavy Engineering Equipment Operator	PFT	0.6	WG 8

Land Acquisition

The Service will continue to negotiate with the Port, City of Chula Vista, and State Lands Commission to secure management authority for all open water areas included within the approved acquisition boundary for the South San Diego Bay Unit.

H. Potential Funding Sources for Implementing CCP Projects

Several projects included in the CCP may be implemented in full or in part by sources other than the Refuge annual budget. These projects, which could include enhancement and restoration projects and public use-related projects, could be funded through partnerships with other local, state, or federal agencies, special legislative appropriations, or grants (i.e., Friends of the San Diego Refuges, National Fish and Wildlife Foundation, Ducks Unlimited, San Diego Audubon, Transportation Enhancement Funds). Other potential sources of funding for restoration projects include: the North American Wetlands Conservation Act Grants Program; the California Coastal Conservancy's Southern California Wetlands Recovery Project; the Service's National Coastal Wetlands Conservation Grant Program, if implemented in partnership with the State of California; the Cooperative Endangered Species Conservation Fund, also if implemented in partnership with the State of California; NOAA's Damage Assessment and Restoration Program for restoration projects applicable to specific oil spills or hazardous substance releases such as the American Trader Oilspill; restoration projects applicable to contaminants restoration programs (i.e., Montrose Settlements Restoration Program); and partnerships with the U.S. Army Corps of Engineers (Corps) under Sections 704, 906(b), and/or 1135 of the Water Resources Development Act of 1986. The Estuary Restoration Act of 2000 also authorizes a program under which the Corps can carry out restoration projects when the costs of the project are shared with non-Federal parties, however, funds to implement these types of programs have not yet been appropriated.

I. Partnership Opportunities

Long before the establishment of these Refuge Units, there was strong public interest in the protection, management, and stewardship of the habitats now preserved within the Refuge. This interest has continued, and several programs on the Refuge both existing and planned are made possible through a variety of public/private and interagency partnerships. Some of these partnerships focus on providing regionally significant environmental education programs (e.g., Sweetwater Safari and Habitat Heroes), while others focus on expanding opportunities for public

use and improving habitat quality for fish and wildlife (e.g., clean ups sponsored by the Port, the Friends of the San Diego Refuges, and the Audubon Society, guided tours conducted by the Chula Vista Nature Center). The proximity of the Refuge to urban development and the international border with Mexico, along with the designation of the Refuge as globally significant habitat, has and will continue to result in the development of unique and innovative partnerships with the local community and local, state, national, and international agencies and organizations.

Existing partnerships such as those between the Service and the Chula Vista Nature Center, San Diego Zoological Society, SeaWorld, SWIA, and many others will be strengthened and new partnerships will continue to be nurtured. New and existing partnerships will expand community support for the Refuge, increase stewardship of Refuge resources, and provide greater benefits to wildlife resources and the public than would be achievable within the Refuge's annual budgets.

Partnerships will be particularly important in obtaining funding to implement proposed habitat enhancement and restoration projects. More details regarding these types of partnerships are presented under the project funding and staffing discussion.