

SEAL BEACH NATIONAL WILDLIFE REFUGE COMPREHENSIVE CONSERVATION PLAN

Draft Management Alternatives

ALTERNATIVE A – NO ACTION

Wildlife and Habitat Management

Habitat Management

Continue ongoing efforts to control invasive plant species on the Refuge

Protect and maintain native plant restoration areas near Hog Island, along Kitts Highway, and to the north of Case Street Pond

Remove trash and debris from wetland and upland areas

Evaluate and maintain as necessary the various culverts that facilitate tidal exchange in wetland areas

Support the Navy in their ongoing eelgrass surveys in Anaheim Bay

Assess the status and trends of ambient conditions within the Refuge's coastal wetlands using the California Rapid Assessment Method

Continue the current partnership with the Navy in implementing habitat management on the Refuge

Wildlife Management

In cooperation with the Navy, conduct monthly night mammal surveys

Conduct monthly high tide and low tide bird counts

Per available funding, continue avian predator surveys on the Refuge until relevant research questions have been answered

In partnership with the Navy, continue to foster research that benefits Refuge resources and management

Continue to permit Audubon's Christmas bird count activities on the Refuge

Threatened and Endangered Species Management

In partnership with the Navy, implement predator management actions, consistent with the Endangered Species Management and Protection Plan for Naval Weapons Station Seal Beach and Seal Beach National Wildlife Refuge

Protect and manage the California least tern nesting site at NASA Island

- Implement pre-nesting season site preparation
- Facilitate the Eyes on the Colony volunteer predator control program
- Monitor nesting and fledgling success

Protect and manage the Refuge's light-footed clapper rail population

- Conduct fall high tide counts and spring call counts
- Monitor nests and nesting platforms during the nesting season
- Maintain and continue to upgrade nesting platforms

Public Use

Hunting and Fishing

Maintain the Refuge as closed to hunting and fishing

Wildlife Observation and Interpretation

Maintain in good condition the pedestrian path that leads from the Refuge office to the observation platform located to the south of Bolsa Avenue

Maintain in good condition the existing observation deck and associated interpretive signs located to the south of Bolsa Avenue

In partnership with the Navy, continue to provide access to the Refuge via regular monthly tours, special group tours, and periodic special bird watching outings for various groups and organizations

Photography

Continue to restrict the use of cameras on the Refuge to ensure compatibility with the mission of Naval Weapons Station Seal Beach

Environmental Education

In partnership with the Friends of Seal Beach NWR and the Navy, continue to facilitate special school outings on the Refuge that enable teachers to conduct curriculum standards-based activities in an outdoor setting

Continue to support the Friends of Seal Beach NWR in their efforts to introduce students to the Refuge's many resources through in-classroom instruction

Refuge Operations

In cooperation with the Navy, continue to maintain the current Refuge office, located on Naval Weapons Station Seal Beach just outside the Refuge boundary

In cooperation with the Navy, continue to support the Friends of Seal Beach NWR in their efforts to maintain and enhance the native plant garden located adjacent to the Refuge office

Maintain the Refuge's current staffing level (1 FTE, Refuge Manager)

Continue to support the efforts of the Friends of Seal Beach NWR

ALTERNATIVE B – MAXIMIZE SALT MARSH RESTORATION, CONTINUE CURRENT PUBLIC USE PROGRAM

Wildlife and Habitat Management

Habitat Management

Implement the actions described in Alternative A, as well as the following additional actions:

Protect natural marsh edges for shorebird foraging and as refuge for migratory bird during high tides

Minimize the adverse effects of degraded water quality on Refuge resources by developing partnerships with other federal, state, and local agencies in an effort to design and implement measures that will reduce pollutant levels entering the Bolsa Chica and Wintersberg channels upstream of the Refuge

Implement monitoring of sea level rise, habitat quality, and species composition within the marsh over time

Implement a research program that evaluates the current health of the cordgrass stands within the Refuge, identifies those factors that could be inhibiting optimum health, plant density, and height, and identifies measures that should be implemented to improve the overall health of the cordgrass

Actively participate in the development and/or implementation of watershed management plans, bird conservation plans, wildlife monitoring efforts, and other activities affecting the Refuge

Wildlife Management

Locate and compile historic monitoring and/or survey data for shorebirds, waterfowl, listed species, fish, benthic invertebrates, plants, and terrestrial invertebrates

Using historic data and data from ongoing studies determine the baseline abundance and diversity of all species groups on the Refuge, emphasizing those species that may indicate ecosystem trends

Conduct periodic surveys and implement monitoring protocols, as appropriate, for shorebirds, waterfowl, listed species, fish, benthic invertebrates, plants, and terrestrial invertebrates to be used in comparing past and present conditions on the Refuge

Survey all salt pan and upland areas within the Refuge to establish baseline data for the various species of tiger beetles present in these areas

Annually survey the islands within the 7th Street and Case Road Ponds to record bird use and assess vegetation status

Threatened and Endangered Species Management

Implement the actions described in Alternative A, as well as the following additional actions:

Work with the Navy to eliminate potential avian predator perching sites on power poles and other structures along Kitts Highway, Bolsa Avenue, Signal Road, and 7th Street

Light-footed Clapper Rail

- ◇ Work with partners to improve the design of clapper rail nesting platforms with the goal of reducing the potential for predator perching, increasing the stability of the platform during strong wind and/or wave events, and increasing the long term durability of the structure
- ◇ Protect those areas of the marsh where clapper rails are nesting in native vegetation and study these areas to determine if these conditions can be duplicated elsewhere in the marsh

California Least Tern

- ◇ Implement a study to determine the maximum number of least tern nests that could be supported on NASA Island
- ◇ Take actions to improve nesting substrate at NASA Island, including adding additional clean, light sand and shell fragments when necessary

Additional Data Collection, Surveys, Monitoring

Establish the past and current tidal salt marsh elevations in Anaheim Bay and determine if subsidence is occurring

Measure the higher high tide elevations in the marsh to track long term changes and to better understand how sea level rise may be affecting intertidal habitats in Anaheim Bay

Implement a program to study the potential adverse effects of sea level rise and/or subsidence on habitat quality and wildlife and to identify actions necessary to protect Refuge resources from these effects

Establish the proportion of subtidal to intertidal habitat on the Refuge immediately following the Port of Long Beach restoration project and compare this to current and future conditions to track changes over time

Photodocument the edges of channels and ponds created as part of the Port of Long Beach mitigation project, as well as in other specified locations throughout the Refuge, to establish existing conditions and to monitor changes over time

Survey the main tidal channels in Anaheim Bay to establish a baseline for evaluating changes in channel bathymetry over time

Implement a water quality monitoring program (with basic physical parameters such as water temperature, dissolved oxygen, water salinity, pH, light attenuation, turbidity, and levels of inorganic nitrogen and phosphorus) in Anaheim Bay that includes quarterly and first flush monitoring of runoff entering the Refuge from adjacent drainage channels (i.e., the drainage that enters the restoration area at Kitt's Highway and Bolsa Avenue, the drainage that flows into Case Road Pond, the drainage that enters the Bolsa Cell from the agriculture fields); and quarterly monitoring of turbidity levels at existing culverts and in nearby eelgrass beds during high and low tides

Model the extent of freshwater flows entering the Refuge from the Bolsa Chica and Wintersberg channels and conduct associated water quality analyses of these flows to better understand the extent of pollutants entering the Refuge from these sources

Habitat Enhancement

Partner with the Navy to:

- Control invasive plant species both on and off the Refuge, including:
 - ◇ Invasive weeds and grasses growing along the perimeter of the wetlands and within adjacent uplands
 - ◇ Aggressive invasive weeds growing along agricultural fields and around weapons magazines

- Establish a regular program to monitor for the appearance of the invasive marine algae, *Caulerpa taxifolia*, in the harbor and marsh. If it appears, aggressively contain and eradicate it before it becomes established

Implement a program to study the potential adverse effects of sea level rise and/or subsidence on habitat quality and wildlife and identify actions that could be implemented to minimize any adverse effects to Refuge resources

If surveys indicate adverse effects to cordgrass quality as a result of subsidence and/or sea level rise, evaluate the benefits of and then design and implement, if appropriate, a project to raise the existing marsh elevation by pumping sediment onto the marsh and allowing the vegetation to grow up through the sediment

Remove the invasive weeds from the tops of the four mounds on the easternmost island in the Case Road Pond and plant and maintain a mix of native wetland/upland transition vegetation on these mounds

Habitat Restoration

Restore a total of 20 acres of salt marsh habitat and 15 acres of wetland/upland transition habitat in the areas described below:

- restore the area located immediately to the north of the Case Road Pond to intertidal wetlands with a band of wetland/upland transition habitat located along the northern edge of the parcel
- restore the triangular area located to the southeast of the 7th Street Pond to salt marsh and wetland/upland transition habitat
- restore the area west of 7th Street to wetland/upland transition habitat
- restore the area east of 7th Street, across from the drop tower, to salt marsh

Once oil production on Oil Island has ceased and the site is cleaned up to Service standards, consider incorporating this area into the Refuge boundary and preparing all or a part of the site to support seabird nesting

Research

In partnership with the Navy, develop and distribute to various institutions a list of research projects that if implemented could benefit Refuge resources and Refuge management operations

Public Use

Continue to implement the public use program described under Alternative A

Refuge Operations

Implement the actions described in Alternative A, as well as the following actions:

- Once oil production ends on Oil Island and the site is cleaned up to Service standards, incorporate Oil Island into the Refuge boundary
- Coordinate with land managers and volunteer organizations responsible for working at other wetland areas in the region to better understand regional wetland needs and regional wetland issues, as well as to share information related to habitat and wildlife management
- Implement general clean up actions throughout the Refuge in partnership with the Navy, the Friends of Seal Beach NWR, and others

- Fully integrate cultural resource strategies with natural resource planning and management

Alternative C – Optimize Upland and Wetland Restoration, Improve Opportunities for Wildlife Observation and Interpretation

Wildlife and Habitat Management

Habitat Management

Implement the actions described in Alternative B

Wildlife Management

Implement the actions described in Alternative B, as well as the following additional action:

- Determine the need for, and implement, if appropriate, a tiger beetle management plan that identifies measures for protecting, maintaining, and where necessary, enhancing habitat in order to protect current tiger beetle species abundance and diversity

Threatened and Endangered Species Management

Implement the actions described in Alternative B, as well as the following additional actions:

- In cooperation with the Navy, implement the appropriate actions necessary to remove the drop tower in an effort to reduce avian predation on light-footed clapper rails and least tern chicks
- Light-footed Clapper Rail
 - ◊ Implement a program to release and monitor captive-bred light-footed clapper rails from the San Diego Bay NWR within Anaheim Bay
- Salt Marsh Bird's Beak
 - ◊ Identify locations in the marsh where conditions, including the presence of native pollinators, exist or could be provided to support salt marsh bird's beak and then, if conditions are considered appropriate, implement a program to establish one or more populations of salt marsh bird's beak on the Refuge

Data Collection, Surveys, Monitoring

Implement the actions described in Alternative B

Habitat Enhancement

Partner with the Navy to:

- Control invasive plant species both on and off the Refuge, including:

- ◇ Invasive weeds and grasses growing along the perimeter of the wetlands and within adjacent uplands
- ◇ Aggressive invasive weeds growing along agricultural fields and around weapons magazines
- Establish a regular program to monitor for the appearance of the invasive marine algae, *Caulerpa taxifolia*, in the harbor and marsh. If it appears, aggressively contain and eradicate it before it becomes established

Implement a program to study the potential adverse effects of sea level rise and/or subsidence on habitat quality and wildlife and identify actions necessary to protect Refuge resources from these effects

If surveys indicate adverse effects to cordgrass quality as a result of subsidence and/or sea level rise, evaluate the benefits of and then design and implement, if appropriate, a project to raise the existing marsh elevation by pumping sediment onto the marsh and allowing the vegetation to grow up through the sediment

Implement a research program that evaluates the current health of the cordgrass stands within the Refuge, identifies those factors that could be inhibiting optimum health, plant density, and height, and identifies measures that should be implemented to improve the overall health of the cordgrass

Remove the invasive weeds from the tops of the four mounds on the easternmost island in the Case Road Pond and then place six to eight inches of clean, light sand on top of the mounds to provide habitat suitable for nesting by terns

Habitat Restoration

Restore a total of 10 acres of coastal sage scrub habitat in the areas located immediately to the north of the Case Road Pond and to the southeast of the 7th Street Pond

Restore a total of 8 acres of salt marsh habitat on the areas located immediately to the north of the Case Road Pond and to the south of the 7th Street Pond

Restore a total of 15 acres of wetland/upland transition habitat on the areas located to the north of the Case Road Pond, to the southeast of the 7th Street Pond, to the west of 7th Street, and to the northeast of the existing drop tower

Restore one acre of salt pan habitat within the area located to the east of 7th Street, immediately to the east of the existing drop tower

Research

Implement the actions described in Alternative B

Public Use

Hunting and Fishing

Maintain the Refuge as closed to hunting and fishing to ensure compatibility with the mission of Naval Weapons Station Seal Beach

Wildlife Observation and Interpretation

Maintain in good condition the pedestrian path that leads from the Refuge office to the observation platform located to the south of Bolsa Avenue

Maintain in good condition the existing observation deck and associated interpretive signs located to the south of Bolsa Avenue

In partnership with the Navy, continue to provide access to the Refuge via regular monthly tours, special group tours, and periodic special bird watching outings for various groups and organizations

Partner with the Navy to enhance opportunities for wildlife observation by constructing a two-level 20-foot-high observation tower near Kitts Highway

Should Oil Island be incorporated into the Refuge in the future, work with the Navy to design and implement an interpretive plan for the site that includes the construction of an interpretive center and evaluates the feasibility of providing access to the center from Pacific Highway, thereby avoiding the need for the public to access the site through the Naval Weapons Station

Photography

Continue to restrict the use of cameras on the Refuge to ensure compatibility with the mission of Naval Weapons Station Seal Beach

Environmental Education

In partnership with the Friends of Seal Beach NWR and the Navy, continue to facilitate special school outings on the Refuge that enable teachers to conduct curriculum standards-based activities in an outdoor setting

Continue to support the Friends of Seal Beach NWR in their efforts to introduce students to the Refuge's many resources through in-classroom instruction

Refuge Operations

Implement the actions described in Alternative A, as well as the following actions:

- Expand the Refuge staff, which currently consists of a Refuge Manager, to also include a full time Wildlife Biologist and a seasonal wage grade maintenance worker

- Implement general clean up actions throughout the Refuge in partnership with the Navy, the Friends of Seal Beach NWR, and others
- Once oil production ends on Oil Island and the site is cleaned up to Service standards, incorporate Oil Island into the Refuge boundary
- Coordinate with land managers and volunteer organizations responsible for working at other wetland areas in the region to better understand regional wetland needs and regional wetland issues, as well as to share information related to habitat and wildlife management
- Fully integrate cultural resource strategies with natural resource planning and management