

Appendix I: Goals, Objectives, and Strategies

Overview

The following goals for Nisqually NWR provide guiding statements for Refuge development and management efforts. Refuge goals apply to all alternatives in the Final CCP/EIS.

The proposed Nisqually NWR **goals** are broad statements of desired future condition. They represent a step down from the Refuge vision statement, from National Wildlife Refuge System goals, and from broader regional and national programs.

Nisqually NWR Goals:

- I. Conserve, manage, restore, and enhance native habitats and associated plant and wildlife species representative of the Puget Sound lowlands, with a special emphasis on migratory birds and salmonids.
- II. Support recovery and protection efforts for Federal and State threatened and endangered species, species of concern, and their habitats of the Nisqually River delta and watershed.
- III. Provide quality environmental education opportunities focusing on the fish, wildlife, and habitats of the Nisqually River delta and watershed.
- IV. Provide quality wildlife-dependent recreation, interpretation, and outreach opportunities to enhance public appreciation, understanding, and enjoyment of fish, wildlife, habitats, and cultural resources of the Nisqually River delta and watershed.

In contrast, Refuge **objectives** are concise statements of what will be achieved to meet a particular goal. When possible, Refuge objectives should be specific, measurable, achievable, results-oriented, and should be time-fixed within the 15-year life span of the CCP.

Refuge **strategies** describe specific actions, tools, and techniques that can be used to meet objectives. In some cases, strategies describe specific projects in enough detail to assess funding and staffing needs. In other cases, further site-specific detail is required to implement a strategy; this usually takes the form of a step-down management plan, restoration plan, or site plan.

The fully written objective statement and associated strategies are based on the Preferred Alternative D. A table comparing each alternative for each of the main objectives is provided in this document. Specific acreage figures may change depending on the final alternative selected. The proposed objectives and strategies are listed below as they apply to each of the four Refuge goals. Note: Full citations for literature cited in Appendix I are presented in Appendix C (References).

Detailed Description of the Goals, Objectives, and Strategies

The proposed objectives and strategies are listed below as they apply to each of the four Refuge goals.

GOAL I: Conserve, manage, restore, and enhance native habitats and associated plant and wildlife species representative of the Puget Sound lowlands, with a special emphasis on migratory birds and salmonids.

Objective 1.1: Restore Estuarine Habitat

Within 3 years of the CCP’s approval, implement restoration of 699 acres of estuarine habitat in the Nisqually River delta estuary and nearshore environments. The desired future conditions include: (1) a mosaic of estuarine habitats, including native salt marsh communities; (2) major reduction of invasive reed canary grass; (3) enhanced use by juvenile salmon; (4) most ponds being connected at low tides to minimize fish entrapment; and (5) increased waterfowl, shorebird, and waterbird use.

Objective Comparison by Alternative				
<i>Objective 1.1: Restore Estuarine Habitat</i>	<u>ALT. A</u> none	<u>ALT. B</u> 318 ac. muted 140 ac. full	<u>ALT. C</u> 515 ac. full restoration	<u>ALT. D</u> 699 ac. full restoration

Rationale: During the last century, over 80% of estuarine wetlands in Puget Sound, and up to 33% of its eelgrass beds, have been lost to dredging, filling, diking, and industrial development (Dean et al. 2000; White 1997; Lane and Taylor 1986). Estuarine marsh habitats (salt marsh) are now rare in the Puget Sound region, comprising only 0.3% of the wetland and deepwater resources found here (Tanner 1999). Estuarine areas provide important feeding and rearing habitat for a variety of fish and wildlife, including the threatened chinook salmon. In the Nisqually delta itself, a loss of 54% of intertidal emergent marsh (salt marsh) habitat occurred through agricultural conversion in the early 1900s. Restoration of intertidal wetlands within the Nisqually River delta could substantially increase the amount of salt marsh in south Puget Sound. Restoring 70% of the currently diked area in the Nisqually NWR to tidal influence would increase estuarine habitat in the south Puget Sound area by 46% (Tanner 1999). Protection and restoration of native estuarine and nearshore habitats is a major ecoregional and recovery goal as identified in the North Pacific Coast Ecoregion Plan (1995), Nisqually Basin Fall Chinook Recovery Plan (2001), and the Northern Pacific Coast Regional Shorebird Management Plan (2000). This objective would benefit estuarine-dependent fish and wildlife species including waterfowl, waterbirds, seabirds, shorebirds, salmon, and invertebrates. Estuarine restoration will also improve the health and function of existing estuarine habitats in the delta. Restoration efforts will focus on habitat-forming processes and functions including tidal influences, sediment delivery, native plant communities, and distributary channel networks.

Strategies:

- Hire a 0.5 full-time equivalent (FTE) Restoration Ecologist, GS-11, to work with partners, including Ducks Unlimited, to develop and implement an estuarine restoration and monitoring plan.
- Develop an estuarine restoration plan by 2005. The plan will include the design for the physical modifications needed to restore 699 acres of estuarine habitats, including removing dikes to grade, filling borrow ditches and excavating breach

sites and historic slough channel depths. Modifications should promote the development of a gradient and mix of estuarine habitat types.

- In coordination with other CCP restoration programs, obtain permits and implement the estuarine restoration plan within 3 years after CCP approval.
- Hire a 0.5 FTE Biological Technician, GS-5/6/7, to monitor and manage invasive/exotic species to increase the native species establishment and support an adaptive management approach. This includes identifying all invasive/exotic species that pose a threat to estuarine habitat and associated control methods.
- Monitor restoration project results to determine the extent of estuarine habitat development. Monitoring should focus on amount, distribution, and processes. Hire a 0.5 FTE GIS/Data Management Specialist, GS-9, to develop and update GIS data associated with monitoring program.
- Develop and implement a monitoring program to document fish and wildlife response in the estuarine restoration area by 2005. Implementation of this program prior to restoration will allow for the collection of baseline data, resulting in a better assessment of restoration efforts and management decisions. Hire a 0.5 FTE Wildlife Biologist, GS-9/11, to focus on this monitoring program.

Objective 1.2: Reduce Human Disturbance

Reduce human disturbance in estuarine habitat of the Nisqually River delta to protect and enhance fish and wildlife dependent on this resource. Provide a minimum of 764 acres in the RNA and other areas within the approved Refuge boundary where wildlife can rest, feed, and nest with minimal human disturbance.

Objective Comparison by Alternative				
<i>Objective 1.2: Reduce Human Disturbance</i>	<i>ALT. A</i> 793 ac RNA with reduced disturbance	<i>ALT. B</i> 793 ac RNA with reduced disturbance	<i>ALT. C</i> 627 ac RNA with reduced disturbance	<i>ALT. D</i> 764 ac RNA with reduced disturbance

Rationale: Refuge estuarine habitat provides crucial feeding and resting areas for a variety of sensitive or declining migratory birds and species of management concern. There are very few areas in Puget Sound that provide long-term, low disturbance areas for fish and wildlife in estuarine habitat. Many areas receive some measure of protection from development, but most allow public access such as boating, PWC use, hunting, or fishing activities. Current public use management is contributing to wildlife disturbance throughout almost all estuarine habitat on the Refuge, providing no sanctuary areas in the estuary. Unauthorized waterfowl hunting is allowed in large portions of Refuge estuary habitat, and required RNA closures to consumptive uses are not enforced. The only remaining substantial eelgrass beds in the Nisqually delta are located in this RNA. Boating occurs year-round with few restrictions throughout Refuge estuarine habitat. There is a need to reduce human disturbance in the estuary, including the RNA and in newly restored estuarine habitat, so natural processes and wildlife response can occur without disturbance from human activities. Implementing use restrictions in the RNA is

also consistent with RNA management policy (Refuge Manual 8 RM 10.8). The Service will conserve these areas for scientific research, wildlife and habitat monitoring, and environmental education.

Low disturbance areas are extremely important for wildlife on Refuges that allow hunting and other public uses because they provide high quality habitat for feeding, breeding, resting, and thermal protection. Without these areas, wildlife species exposed to repeated human disturbances may change food habits and distribution patterns, feed only at night, lose weight, have decreased reproductive success, or abandon the feeding, nesting, and resting areas.

Strategies:

- Manage the existing RNA (764 acres instead of 793 acres) to reduce disturbance to estuarine-dependent wildlife by enforcing prohibitions on consumptive uses and establishing seasonal closures, including posting and signing RNA boundaries. The RNA will be closed to boats from October 1 through March 31.
- Designate the restored estuarine habitats within the Brown Farm Dike (699 acres) and Nisqually Indian Tribal land (300 acres), east of the Nisqually River, as a sanctuary for estuarine-dependent wildlife by prohibiting public boating and consumptive uses and restricting public access to trails along the edge of the site.
- Work with surrounding landowners to assist as volunteer observers to monitor effects of human activities in the Nisqually delta to identify the need for additional wildlife protection measures.
- Implement and enforce 5 mph boat speed limit on all Refuge waters to improve wildlife and habitat protection and reduce disturbance.
- Monitor watercraft activity and reevaluate annually to ensure that restrictions are effective in minimizing wildlife and habitat disturbance and use is compatible.
- Hire a 0.5 FTE Refuge Officer, GS-7, to conduct all enforcement patrols associated with boating, hunting, fishing, and trail use activities on Refuge lands and waters.
- Monitor wildlife use distribution and abundance to evaluate effectiveness of public use restrictions to allow for adaptive management.
- Post closure signs at Luhr Beach notifying public of closed Refuge property south of Luhr Beach Nature Center.
- Develop cooperative agreement with WDFW to manage Luhr Beach and establish a visitor contact station that includes information on Refuge regulations and ethical viewing advice to reduce wildlife disturbance.

Objective 1.3: Freshwater Wetlands and Grasslands

By 2015, the Service would protect, restore, and enhance a mosaic of 600 acres of freshwater wetlands and grasslands in the Nisqually River delta and lower Nisqually River watershed to serve as foraging and nesting habitat for a variety of migratory and resident bird species, mammals, and native amphibians. A mix of habitats would generally include 5% permanent freshwater, 10-20% grassland, 15-30% riparian, and at least 60% seasonal freshwater habitat.

Objective Comparison by Alternative				
<i>Objective 1.3: Freshwater Wetlands and Grasslands</i>	<u>ALT. A</u> 1,000 ac in diked area	<u>ALT. B</u> 542 ac in diked area 350-400 ac in expansion	<u>ALT. C</u> 447 ac in diked area 350-400 ac in expansion	<u>ALT. D</u> 263 ac in diked area 350-400 ac in expansion

Rationale: Although the actual amount of acres lost is unknown, estimates of freshwater wetlands lost in Washington range from 20% to as much as 50% during the past two centuries (Lane and Taylor 1996). Roughly 500 to 1,000 acres of freshwater wetlands are filled each year in western Washington (White 1997). Current loss and degradation of freshwater wetlands in western Washington are due to urban expansion, forestry and agricultural practices, industrial development, and invasive or exotic plants and animals (Lane and Taylor 1996). Currently, freshwater wetlands comprise only 18% of wetlands in the Puget Sound area (Tanner 1999) yet they provide habitat for many fish and wildlife species observed in South Puget Sound. Improved management of Refuge lands within the diked area will greatly improve the habitat quality for fish and wildlife.

Much of the lands within the study area located south of I-5 were historically freshwater wetland lowlands. There is excellent potential for wetland restoration on these farmed and drained wetlands. A mixture of permanent and seasonal wetlands and scrub-shrub/grassland habitats would provide a mosaic of freshwater wetlands that can be used by a variety of fish and wildlife (waterfowl, raptors, passerines, and small mammals) throughout the year. Freshwater habitat would also provide diverse wildlife viewing opportunities and interpretive programs for visitors.

Wetland Management Strategies:

- In cooperation with partners, develop and implement a restoration plan with adaptive management strategies to restore and enhance 263 acres within the diked area as approximately 5% permanent freshwater, 10% grassland, 25% riparian, and 60% seasonal freshwater habitat within 5 years after CCP approval. This would include providing seasonally flooded wetlands and grasslands to serve as forage areas for waterfowl during the fall and winter months.
- In cooperation with partners, identify and secure funding for restoration 3-4 years after CCP approval.
- Hire a 0.5 FTE Restoration Ecologist, GS-11, within 1 year after CCP approval to supervise implementation of the restoration and monitoring plan.
- The freshwater area would be subdivided into five units by new internal/external dikes to allow intensive management, thereby improving habitat quality and allowing effective reed canary grass control. Internal dikes would have 5 to 1 slopes while the external dikes, constructed to 12 feet in elevation, would have 3 to 1 slopes.
- Seasonal wetlands would be created and enlarged by excavating and sculpting areas with higher elevations. Seeding and planting would be implemented to stabilize soils and speed recovery of wetland plants. Where appropriate, small permanent ponds would be created.

- New water control structures or pumps would be installed between units to allow water movement through the units, and to provide the ability to drain and flood individual impoundments. Units and ponds would be designed to allow flooding in selected areas to at least 3 feet deep for up to 9 months to improve reed canary grass control.
- Management techniques would include a rotating cycle of draining, mowing, discing, scraping, herbicide application, seeding, and flooding to control reed canary grass, prevent brush invasion, and halt succession in these habitats.
- The water delivery system would be periodically maintained, including the excavation or cleaning of sloughs, ditches, and water control structures, or replacement of water control structures as needed.
- Where appropriate, planting and seeding along the dikes would occur to provide habitat, screening, and erosion control.
- Riparian habitat along the slough would be enhanced with appropriate native plants.
- Work with willing sellers in the study area on future possibilities of land acquisition, including focusing on areas with the highest potential for restoration to quality freshwater wetland habitat. If fee title acquisition is not possible, conservation easements or cooperative agreements would be alternatives to ensure long-term protection of these areas.

Grassland Management Strategies:

- Grassland species diversity and palatability would be increased for waterfowl by cutting once in July and again in September. Periodic discing, reseeding, and fertilizing would be conducted to reduce weed species and improve forage quality for waterfowl. Grasslands would be managed to support a variety of non-native grasses (pasture mix) used by waterfowl. Native grass species would be encouraged where possible. Soil tests would be conducted to determine appropriate amounts of fertilizer.
- Surveys for ground-nesting bird species would be conducted prior to haying or mowing before July 1.

Other Management Strategies:

- Develop and implement an Integrated Pest Management Plan for all habitat types on the Refuge to identify invasive species control priorities and preferred control methods for specific species and locations. Include adaptive management strategies and the ability to evaluate the effectiveness of our actions and adjust accordingly.
- Develop and maintain a database and mapping system to track the locations and sizes of non-native invasive species infestations over time.
- Recruit and train volunteers to help with non-native invasive species surveys, monitoring, and control measures, including data collection, entry, and analysis.
- Using the priorities established in the Land Protection Plan, work with willing sellers in the study area on land acquisition, focusing efforts on priority areas including protection of properties that would allow long-term wetland restoration of at least 350 -400 acres in the Nisqually Valley lowlands. If acquisition is not possible, conservation easements or cooperative agreements are an alternative to ensure long-term protection and enhancement of these areas.

- As applicable, restoration and management on properties acquired south of I-5 would follow these same strategies.
- Manage future major flood events inside the diked area by designing and implementing water control methods, which could include spillways, pumps, or water control structures.
- Hire a 0.5 FTE Wildlife Biologist, GS-7/9/11, to provide assistance and technical expertise to interested landowners in the study area with programs to enhance habitats and wildlife populations on private land.
- Develop and implement a long-term monitoring and evaluation protocol, including fish and wildlife response, to measure effectiveness of and provide recommendations for current and future management of freshwater wetlands and grasslands. Implementation of this program prior to restoration will allow for the collection of baseline data, resulting in a better assessment of restoration efforts and management decisions. This will require hiring a 0.5 FTE Wildlife Biologist, GS-7/9/11, and 0.5 FTE GIS/Data Management Specialist, GS-9, to focus on this monitoring program.

Objective 1.4: Riparian Habitat

Provide for the protection, restoration, maintenance, and enhancement of the ecological functions of approximately 1,000 acres of riparian mature mixed forest habitat in the Nisqually River delta and corridor to provide foraging and breeding habitat for migratory and resident landbirds and fish. Desired conditions include habitat connectivity; vegetation diversity in terms of age, native plant species composition, and vegetation layers; vegetation vigor; abundance of snags and woody debris; unimpeded occurrences of natural disturbances; minimization of human disturbances; and an irregular shape and a width adequate to retain riparian habitat functions (Knutsen and Naef 1997)

Objective Comparison by Alternative				
<i>Objective 1.4: Riparian Habitat</i>	<u>ALT. A</u> 250 acres	<u>ALT. B</u> 600 acres	<u>ALT. C</u> 600 acres	<u>ALT. D</u> 1,000 acres

Rationale: Natural riparian forests are diverse, dynamic, and complex habitats supporting a variety of fish and wildlife. Although riparian areas constitute a small portion of the surface landscape, they are highly productive. Approximately 85% of Washington’s wildlife species use riparian habitat associated with rivers and streams (Knutsen and Naef 1997). Habitat for many upland species is also directly enhanced by the presence of adjacent riparian habitat. Riparian areas provide habitat for a variety of bird species, including passerines, woodpeckers, waterfowl, and raptors. As much as 90% of riparian habitat has been lost or modified since the early 1800s (Knutson and Naef 1997). Conditions of several riparian habitats in the study area are degraded (Nisqually EDT Workgroup 1999). Improved protection and enhancement of the Nisqually River corridor would contribute to the conservation of riparian-dependent species and also to salmon recovery. This objective would contribute to ecoregional plan goals, as well as goals of the Conservation Plan for Landbirds in Lowlands and Valleys

of Western Oregon and Washington and the Nisqually Basin Fall Chinook Recovery Plan. As a key conservation agency in the Nisqually delta, the Service would play a larger role in protecting and improving riparian habitat on the Fort Lewis Military Reservation and on private lands in the study area upriver from the Refuge.

Strategies:

- Develop a riparian restoration **project** to include planting a variety of native riparian trees and shrub species and restoring natural hydrology on 38 acres of currently diked habitat on the Refuge. This may include constructing a bench that would mimic natural sediment deposition bars along the Nisqually River to reduce frequency of tidal inundation and promote sediment deposition.
- Develop and implement a monitoring program to document habitat development and bird response in the restored area. Implementation of this program prior to restoration would allow for the collection of baseline data, resulting in a better assessment of restoration efforts and management decisions. This would require hiring a 1.0 FTE Fish and Wildlife Biologist, GS-7/9, to conduct monitoring projects.
- Work with Fort Lewis to acquire or manage under a cooperative agreement riparian habitat east of the Nisqually River to protect and restore the native riparian forest. This would require development of a site plan for fishing and vehicle access and hiring a 0.5 FTE Refuge Officer, GS -7 to implement the plan.
- Using the priorities established in the Land Protection Plan, work with willing sellers in the study area on future possibilities of land acquisition, including focusing on a 200-foot protection zone of riparian habitat along both sides of the Nisqually River corridor between I-5 and the Nisqually Indian Reservation boundary. **In addition, restore riparian habitat along both sides of McAllister Creek, where feasible.** If acquisition is not possible, conservation easements or cooperative agreements would be alternatives to ensure long-term protection of these areas.
- Based on the restoration plan, add large woody debris where appropriate and restore function of large woody debris recruitment in the Nisqually River.
- Develop and implement an invasive species monitoring and integrated pest management control program using both manual and chemical treatment methods. This would require hiring a 0.5 FTE Fish and Wildlife Biologist, GS-7/9, to conduct the monitoring program and guide treatment efforts.
- Some riparian plantings would occur north of the headquarters building and along slough systems in the southern portion of the remaining diked area to widen the corridor of riparian habitat, mimicking native riparian habitat historically found in the delta. Since these areas are not directly connected to a system with natural hydrology, they would not function as native riparian systems.

Objective 1.5: Upland Forest

In 15 years, the Refuge would protect and restore 400-600 acres of native upland forest habitat along McAllister Creek and in the eastern and western bluffs of the Refuge. Protection would occur through restoration of 100 acres of upland forest on existing Refuge lands on the West Bluff and acquisition of priority bluff parcels or through easements or cooperative agreements. Protection and restoration actions would provide habitat for coniferous and deciduous forest dependent species especially tree-nesting

species, such as great blue herons and bald eagles, as well as protect water quality, continuous wildlife habitat corridors, and scenic values of the Nisqually delta.

Objective Comparison by Alternative				
<u>Objective 1.5:</u> <u>Upland Forest</u>	<u>ALT. A</u> 100 acres	<u>ALT. B</u> 400-600 acres	<u>ALT. C</u> 400-600 acres	<u>ALT. D</u> 400-600 acres

Rationale: Forested bluff areas in southern Puget Sound are often lost to or compromised by residential development or logging. Urbanization surrounding the Refuge is rapidly occurring. Activities by residents and their pets can disturb nesting birds, and in some cases compromise the stability of the slope, which can lead to erosion and siltation into adjacent Refuge creeks and rivers. Protecting forested habitat would provide a continuous wildlife corridor connecting adjacent habitats with the Refuge. The great blue heron is a monitored and priority species in the State of Washington because of the increasing loss of foraging and breeding habitats and increasing environmental pollutants associated with human expansion and development. Protection of the West Bluff parcel will not only benefit the great blue heron population nesting along McAllister Creek, but also a pair of bald eagles, a Federally listed threatened species, that also nests in the west bluff area. Maintaining the integrity of the forested bluffs would also be critical in protecting the visual character of the landscape.

Strategies:

- Using the priorities established in the Land Protection Plan, work with willing sellers in the expansion area on land protection, focusing on bluff properties and at least 200 feet along the top of bluff along the eastern boundary of the Refuge and McAllister Creek to protect slope stability, water quality, and foraging and nesting habitats of birds. If acquisition is not possible, conservation easements or cooperative agreements would be alternatives to ensure long-term protection of these areas.
- Work with the Department of Ecology to monitor water quality in McAllister Creek.
- Hire a 0.5 FTE Biological Technician, GS-5/6/7, to assist in monitoring the establishment of invasive species and implementing control measures as necessary.
- Continue to maintain closure to public use on steep bluffs to protect slope integrity and nesting birds (West Bluff parcel).
- Monitor and prevent illegal tree cutting and trespassing on the West Bluff above McAllister Creek.
- Implement an educational program focusing on the importance of forested bluff areas and involve the local community and school groups with restoration efforts.
- Work with landowners and County and City government to manage and control stormwater runoff to maintain slope stability.

- Restore and enhance approximately 100 acres of Douglas-fir dominated mature forest on the West Bluff parcel of the Refuge to reduce fragmentation of forested habitat and provide a habitat and wildlife corridor between Refuge habitats and adjacent lands.

Goal II: Support recovery and protection efforts for Federal and State threatened and endangered species, species of concern, and their habitats of the Nisqually River delta and watershed.

Objective 2.1: Chinook Salmon and Bull Trout

The Service would protect and restore approximately 4,400 acres of estuarine, freshwater, stream, and riparian habitats to protect declining runs of the chinook salmon and bull trout, which are Federally listed as threatened.

Objective Comparison by Alternative				
<i>Objective 2.1: Chinook Salmon and Bull Trout</i>	<u>ALT. A</u> 2,675 acres	<u>ALT. B</u> 3,600 acres	<u>ALT. C</u> 3,700 acres	<u>ALT. D</u> 4,400 acres

Rationale: The chinook salmon was listed as threatened in 1999 and resides in the Nisqually River and estuary. The Nisqually Chinook Recovery Plan has identified restoration of estuarine habitat within the Nisqually River delta as a top priority component to the recovery of this species. The bull trout has historically resided in the Nisqually River system. Any protection to spawning, migration, and rearing habitats would support recovery goals of these two species in the Nisqually River watershed.

Strategies:

- Restore 699 acres of estuarine habitat in the delta.
- Hire a 0.5 FTE Fish and Wildlife Biologist, GS-7/9, to monitor response of fish populations to restoration efforts.
- Implement sections of the Cooperative Agreement with the Nisqually Indian Tribe that supports estuarine restoration of the eastside parcels (east of Nisqually River).
- Protect and restore approximately 1,000 acres along the Nisqually River, McAllister Creek, and their tributaries through acquisition or other land protection measures to protect riverine and riparian habitats essential to the recovery of chinook salmon and bull trout. Where needed, restoration measures would include planting native tree and shrub species, erosion control measures, control of invasive plant species, and reducing physical damage or disturbance to soils and riparian habitats.

Objective 2.2: Species Recovery

The Refuge and Service would work with WDFW to support recovery efforts of the western pond turtle and Oregon spotted frog by protecting and restoring suitable habitats and considering future reintroduction in areas of the Refuge.

Suitable habitat for western pond turtle includes a complex of small ponds near sea level; abundant emergent basking sites; isolation from large bodies of water and streams; emergent vegetation and a mud bottom; abundant invertebrate and larval amphibian as prey; few or no non-native predators like largemouth bass and bullfrogs; and diversity of upland habitats, including open grassy areas for nesting and dense clumps of deciduous trees and shrubs for overwintering.

Suitable habitat for Oregon spotted frog includes emergent wetlands associated with lakes, ponds, and slow-moving streams; shallow emergent wetlands, 5-30 cm deep for breeding; few or no non-native predators like largemouth bass, perch, and bullfrogs; and abundant invertebrates and larval amphibians as prey.

Rationale: Both the Oregon spotted frog and the western pond turtle have highly restricted distributions in western Washington. Spotted frog habitat is scarce, as they now occur in only 10-22% of their historic range in Washington. Only three populations remain within the State (McAllister 1997). The western pond turtle has been extirpated from most of its range in Washington, with only two populations remaining in the Columbia River Gorge (Hays et al. 1999). Re-establishing self-sustaining populations is vital to the recovery of these species. The Oregon spotted frog and western pond turtle need a permanent source of freshwater such as wetlands, ponds, or slow-moving streams.

Strategies:

- Consult with others to identify potential reintroduction sites; if sites are not suitable on Refuge lands, initiate efforts for acquisition within approved acquisition boundaries or pursue other means of protection.
- Identify suitable habitat within the expansion area essential for the protection and conservation of these two species. Assist in developing and implementing improved management practices to enhance habitat and reduce impacts by non-native predators such as the bullfrog.
- Work with WDFW to conduct surveys and promote research and monitoring to better document basic life history information for the two species. Use information for management and recovery of the species.

Objective 2.3: Other Special Status Species

Identify, monitor, and protect all special-status plant and animal species on the Refuge, focusing on species that are State or Federally listed, proposed for listing, or candidates for listing.

Rationale: The Service manages endangered and threatened species as trust species and, wherever possible, strives to assist in the recovery of endangered and threatened species that occur within the Refuge System. A high priority management principle is to benefit species proactively before they become listed to prevent further decline. Federal species lists and recovery plans are found at <http://www.r1.fws.gov/es/endsp.htm>. WDFW maintains a list of special status species through Washington Administrative Codes 232-12-014 and 232-12-011 that can be found through their web site at <http://www.wa.gov/wdfw>.

Strategies:

- Develop and implement a monitoring program with detailed protocols for monitoring the status of special-status species, including methods to assess habitat needs and management actions.
- Protect the active bald eagle nest from human disturbance, using Recovery Plan guidelines (dates and distances).
- Encourage research on special-status species on the Refuge to investigate ecology relevant to improved conservation measures. Research could be conducted by local universities or other organizations with assistance from the Refuge in the form of funding, supplies, volunteers, or technical assistance.
- Identify special-status species locations outside of Refuge lands and prioritize these areas for acquisition, or work with partners to ensure long-term protection.

Goal III: Provide quality environmental education opportunities focusing on the fish, wildlife, and habitats of the Nisqually River delta and watershed.***Objective 3.1: Environmental Education - Program Management***

Provide a quality environmental education program at Nisqually with specific learning objectives and diverse opportunities that: (1) meet State standards for learning; (2) are based on Refuge and Nisqually watershed conservation and management programs; (3) support the mission of the Service; and (4) provide stewardship opportunities.

Rationale: With its variety of natural resources, facilities, and proximity to major population centers, Nisqually NWR is in a unique position to offer local education agencies, teachers, and students an opportunity to study natural resource management and conservation issues in an outdoor setting. Since the establishment of the Refuge, educators and youth professionals have been using Nisqually NWR as an outdoor classroom to enhance course curricula. The existing program serves approximately 5,000 students per year. The demand for EE is high and expected to grow.

Environmental education in Washington State is strongly supported by the State Superintendent of Public Instruction (SPI). In 1990, the Washington State School Board directed public schools to incorporate environmental education into all appropriate subject areas. Nisqually NWR is in a position to assist local educators meet the Essential Academic Learning Requirements.

To meet student needs, Refuge staff are committed to looking for ways to teach about wildlife and habitat conservation. The field trip program enhances classroom learning with hands-on outdoor experiences. Summer camps provide students with more in-depth study. As habitat restoration projects are undertaken, students and teachers will be included in hands-on restoration and monitoring activities. These types of activities require management support and commitment of personnel and funds.

Strategies:

- Hire a permanent-full time environmental education specialist (GS-09) on the Refuge staff to manage the environmental education program, within 2 years after CCP approval.

- Provide for additional program assistance through trained volunteers, interns from local colleges, AmeriCorps, or the Student Conservation Association.
- Hire a second full-time environmental education staff person (GS-09) within 4 years after CCP approval, to serve 15,000 students per year. This staffing would be comparable to other environmental education programs of that size.
- Provide opportunities during the summer for students to participate in an extended, more in-depth study of the natural environment.
- As changes are made to habitats on the Refuge, opportunities would be created to include teachers and students in these long-term restoration activities. These could be one-time activities such as planting, or long-term involvement including planning, design, and actual on the ground implementation for a restoration site.
- As changes are made to the habitats on the Refuge, specifically tidal restoration, monitoring activities for students would be developed. Plots could be identified and teachers recruited who would work over the course of the school year to carry out monitoring activities with their students on vegetation, wildlife, and water quality.
- Support the water quality testing projects conducted by the Nisqually River education project and project GREEN.
- Develop a butterfly/native garden in the area of the Education Center.
- Conduct regular evaluations with feedback from teachers and students to improve and modify program as needed.

Objective 3.2: Environmental Education - Students Served

Provide adequate information, site-specific materials, curricula, and facilities to accommodate a year-round field trip program that serves up to 100 students per day, 5 days a week, 15,000 students per year.

Objective Comparison by Alternative				
<i>Objective 3.2: Environmental Education - Students Served</i>	<u>ALT. A</u> 5,000 per yr	<u>ALT. B</u> 20,000 per yr	<u>ALT. C</u> 15,000 per yr	<u>ALT. D</u> 15,000 per yr

Rationale: Nisqually NWR serves 5,000 students and teachers annually and in 1998, reached approximately 8,000 students and teachers on and off-site. It is estimated that the Refuge could accommodate up to 15,000 on site each year if: (1) an education staff of up to 3 people ran the program full-time; and (2) educators were trained and could be recruited to utilize the Refuge during all months of the school year, not just in May and June. With more opportunities and a more structured program where teachers are trained to use the site and are provided with site-specific materials and tools, educators should be eager to use the Refuge year-round. A triple-wide trailer currently serves as the temporary indoor facility for the education program. A new 4,000 square foot EE facility, which would be located near the Visitor Center, is envisioned as the central focus of the EE program with 7 outdoor study sites located on the Refuge.

Strategies:

- The Refuge will have readily available information about the environmental education program, will respond to all inquiries in a timely manner, and will provide information to local schools.
- Groups using the Refuge for environmental education purposes would be limited to 100 students per day and would be required to make reservations in advance through the Refuge Office. Reservations would be taken on a first come-first served basis.
- Group leaders must attend a workshop or orientation session before bringing their classes to the Refuge.
- Groups using the Refuge for environmental education purposes would be limited to the trails and designated environmental education study sites, except by special use permit. Seven environmental education study sites would be designated in the area of the Twin Barns Loop Trail where students can participate in more in-depth study by 2005.
- Develop and provide site-specific materials and tools for educators' use, both on and off site. These materials would include an educator's guide "Where the River Becomes a Delta," which would serve as a site-specific field trip guide and a companion guide to the others that have been developed for the Nisqually River Watershed—"The Living River," "Where the River Begins," and "Where the River Meets the Sound."
- Provide Discovery Packs for use by small groups and non-formal education groups.
- A triple-wide trailer will be used as the temporary indoor classroom facility until a new facility is built and would be available for environmental education groups on a reservation basis. Once constructed, the new 4,000 square foot facility will have small group learning areas, a large group presentation room, bathrooms, a small kitchen, office space, parking, lunch area, and a lab to conduct activities such as water quality testing.

Objective 3.3: Environmental Education - Field Trip Program

Provide a Refuge field trip program where trained educators, volunteer adult leaders, and youth professionals lead their own students in active, hands-on field investigations focusing on the conservation of our natural resources.

Rationale: Using the "multiplier effect," educators and youth professionals will conduct their own field trips to the Refuge. This allows for the maximum number of students participating in the program with less commitment of staff time. The multiplier effect occurs when the Refuge education staff trains educators who can then use their knowledge and skills year after year with students. Other adults involved in the program also gain new knowledge and awareness and tell their friends and community leaders who influence public policy. Staff are then available to train more educators and work on program growth and development.

Strategies:

- Refuge education staff and volunteers will provide guidance to educators interested in teaching about natural resource issues by assisting in lesson and field trip planning on the phone or in person.

- The Refuge will provide educator workshops and courses sponsored by the Refuge or by Refuge partners on topics related to natural resources and the environment such as Project WET.
- Refuge education staff and volunteers will provide regularly scheduled field trip orientation workshops for educators and youth professionals.

Objective 3.4: Environmental Education Partners and Networking

Refuge staff will work with other agencies and organizations to provide assistance to other programs by designing, conducting, or hosting at least one regionally based environmental education field trip, workshop, seminar, or study course each year.

Rationale: Many opportunities exist for the Service to work together with partners to both enhance the program at the Refuge but also to provide coordination and assistance to other local programs. Refuge staff would be available and would seek out ways to collaborate in environmental education efforts throughout south Puget Sound, both on and off the Refuge.

The education staff at Nisqually NWR are also in a position to network and provide assistance to other agencies and individuals working in environmental education throughout the region. As a Federal agency with a high profile program, Refuge staff have an opportunity and responsibility to participate on a regional level in coordinating and furthering environmental education efforts.

Strategies:

- Work with partners to strengthen education programs in the Nisqually River watershed including the Nisqually River Council Education Committee, the Nisqually Reach Nature Center, and the Nisqually Indian Tribe.
- Work with partners outside the Nisqually River Watershed including Project GREEN and Sound Stewards.
- Refuge education staff would participate in regional environmental education efforts to coordinate environmental education activities, programs, and curricula with educators throughout the region.
- Nisqually NWR would serve, upon request of the Regional Office, as the Washington State Coordinating office for the Federal Junior Duck Stamp Design Contest.
- Refuge staff, materials, and facilities would be made available to other groups wishing to gather ideas for their programs and would serve as a model for other local, State, and Federal environmental education programs.

Goal IV. Provide quality wildlife-dependent recreation, interpretation, and outreach opportunities to enhance public appreciation, understanding, and enjoyment of fish, wildlife, habitats, and cultural resources of the Nisqually River delta and watershed.

Objective 4.1: Waterfowl Hunting

The Refuge would open 191 acres to waterfowl hunting 7 days per week within 1-2 years after CCP approval. Refuge lands would combine with WDFW lands to create more manageable and enforceable hunt boundaries that would reduce conflicts with other

users, reduce confusion for hunters, provide sufficient sanctuary, create uncrowded conditions, and ensure a reasonable harvest. The Refuge would also explore new opportunities for “walk-in” waterfowl hunting as property is acquired south of I-5.

Objective Comparison by Alternative				
<u>Objective 4.1:</u> <i>Waterfowl Hunting</i>	<u>ALT. A</u> Closed, but unauthorized hunting occurs	<u>ALT. B</u> Closed	<u>ALT. C</u> 713 acres (1,170 total acres with State lands)	<u>ALT. D</u> 191 acres (808 total acres with State lands)

Rationale: Hunting is a traditional activity in the Nisqually delta and one of the priority public uses of the Refuge System. Waterfowl hunting is open to the public on WDFW lands (617 acres) with around 1,100 visits estimated per year. A private hunt club operates on tribal lands east of the Nisqually River (approximately 325 acres) as part of life tenant uses by the previous landowner. Regulations such as hunting days, maximum number of hunters, etc. are different on these lands. Currently, much of the Refuge tidelands and salt marsh is administratively uncontrollable because of the irregular boundaries of the three WDFW parcels located within Refuge boundaries and the inability to keep these boundaries posted. As a result, unauthorized hunting occurs on large portions of Refuge lands, including the RNA. This unauthorized hunting occurs in spite of the fact that the Refuge has never been officially opened to hunting. This existing condition provides insufficient wildlife sanctuary and allows an unauthorized use to continue on large parts of the Refuge.

By opening a limited portion of Refuge lands (191 acres) to waterfowl hunting, a more manageable block of lands could be posted and enforced, and waterfowl hunting in the Nisqually delta would continue to be provided along with increased sanctuary. The RNA would be reduced by 73 acres to provide additional high quality hunting lands at the mouth of the Nisqually River. **However, a 44 acre area would be added to the RNA at the south end.** State lands would continue to be open to waterfowl hunting with no changes. Each agency would be responsible for managing its respective hunt program.

Refuge hunt programs are designed to provide high quality experiences. A quality hunting experience means that: (1) hunters are safe; (2) hunters exhibit high standards of ethical behavior; (3) hunters are provided with uncrowded conditions; (4) hunters have reasonable harvest opportunities; (5) hunters are clear on which areas are open and closed to hunting; and (6) minimal conflicts occur between hunters and other visitors, such as kayakers, anglers, and trail users. In general, hunting on Refuges should be superior to that available on other private or public lands, which may require special restrictions (Refuge Manual 8.RM5.14). Measures are often used to ensure quality, including limited hunt days and shell limits and using buffers for public use trails eliminating the need for seasonal trail closures. A limited waterfowl hunt program is proposed on the Refuge to accomplish the following:

- ▶ accommodate the existing hunt program on WDFW lands;
- ▶ establish consistent regulations across all lands
- ▶ provide a quality hunting experience that meets Refuge guidelines and policies

- ▶ provide sufficient sanctuary and resolve the current unauthorized hunting situation

Strategies:

- Write a hunting plan to be consistent with the CCP (hunting location, 7-day/week hunt, 25-shell limit, and 200-yard buffer from trails) and complete process to open Refuge to hunting within 1-2 years after CCP approval.
- Reach agreement with the State to implement a 25-shell limit on WDFW lands.
- Provide sufficient feeding and resting habitat for waterfowl in areas closed to hunting as a sanctuary.
- Post and sign a manageable hunting area including redefining and reducing the RNA by 73 acres **at river mouth and add 44 acres to south end.**
- Develop a hunting brochure which includes information on hunter ethics, safety precautions, and restrictions.
- Hire a 0.5 FTE Refuge Officer (GS-07) to enforce hunting program regulations; to ensure quality and safety; and to protect natural resources.
- Hire a 0.5 FTE Biological Technician (5/6/7) to conduct hunter bag checks to monitor harvest and compliance with State waterfowl hunting program regulations.
- Manage Luhr Beach boat landing area through cooperative agreement with WDFW and upgrade facilities to use as a hunter contact station.
- Lands acquired through Refuge expansion, south of I-5, would be evaluated for hunting opportunities as they come under Refuge jurisdiction.
- **Regularly** monitor and evaluate hunting program with feedback from **hunters and other users** to determine if objectives are being met, **and to allow for adaptive management.**

Objective 4.2: Fishing and Shellfishing

The Refuge would provide a variety of quality boat and bank fishing experiences in selected areas which are safe, consistent with State regulations, and compatible with Refuge resources and purposes. The Refuge fishing and shellfishing program will promote responsible and ethical behavior and a deeper appreciation and understanding of fishery resources of the Nisqually delta.

Objective Comparison by Alternative				
<i>Objective 4.2: Fishing and Shellfishing</i>	<u>ALT. A</u> 1 Existing Site	<u>ALT. B</u> 1 Existing Site 2 Expansion Sites	<u>ALT. C</u> 1 Existing Site 1 New Site 2 Expansion Sites (1 accessible)	<u>ALT. D</u> No Existing Site 1 New Site 2 Expansion Sites (2 accessible)

Rationale: The Nisqually delta supports a diverse fishery resource including shellfish, bottomfish, anadromous fish, and other freshwater species. Declines in populations of many species and area restrictions require an informed and responsible angler. Fishing is a priority activity of the Refuge System and a traditional form of recreation in the delta. Compatible opportunities can be provided with reasonable restrictions, good compliance with regulations, and if administrative oversight required is minimal. One bank fishing

site would be maintained and developed on the existing Refuge, with potential for a second site designated as a disabled visitor access only. Additional bankfishing and water access sites would be considered on lands south of I-5 as they are added to the Refuge. Location criteria for new sites considered will be accessibility, feasibility, minimal conflicts with other users, maintenance, compatibility, and potential to promote a quality fishing experience. The Trotter's Woods fishing site would be designated and managed for fishing if acquired from Fort Lewis or managed under cooperative agreement.

In 2000, recreational shellfish beds were closed in the Nisqually tideflats due to high coliform levels and health concerns. The Service can educate visitors about these closures. If water quality improves, these beds could be opened in the future.

A quality fishing or shellfishing experience means that: (1) anglers/shellfishers are safe; (2) anglers/shellfishers exhibit high standards of ethical behavior; (3) anglers/shellfishers are provided with uncrowded conditions; (4) anglers/shellfishers are clear on which areas are open and closed to fishing; and (5) minimal conflicts occur between anglers/shellfishers and other visitors, such as hikers, hunters, and kayakers.

Strategies:

- Within 3 years after CCP approval, update the fishing management plan to be consistent with the CCP and State regulations.
- As additional lands are acquired, work with partners to select and locate fishing access sites **and appropriate parking to** provide a range of fishing opportunities in riverine and tidal locations including Trotter's Woods in Fort Lewis on the Nisqually River south of I-5.
- As part of the update of the fishing management plan determine if an accessible bank fishing site could be located at the boardwalk river overlook on the Twin Barnes Loop Trail.
- Work with Nisqually Indian Tribe to provide parking, trail, and a bank fishing site on the east side of the Nisqually River.
- Provide accessible fishing site at Luhr Beach **and parking improvements**, if feasible, following development of a cooperative management agreement with WDFW.
- Provide safe fishing conditions by maintaining trails, signs, and information to alert anglers regulations and to hazards.
- Periodically monitor and evaluate fishing program and users to determine if objectives are being met.
- Provide specific information for shellfishing at the Luhr Beach access, including closure information in cooperation with other agencies.
- Restrict boaters from landing and bank fishing in closed areas through policy and regulation.
- Enforce boat speed limits in Refuge waters.
- Hire a 0.5 FTE Refuge Officer (GS-7) to conduct all enforcement patrols associated with boating, hunting, fishing, and trail use activities on Refuge lands and waters.

- Take steps to close the RNA to fishing and shellfishing, including posting, providing information on regulations at Luhr Beach and other appropriate locations, outreach, and conduct monitoring of results.

Objective 4.3: Wildlife Observation

Provide safe, attractive, and accessible wildlife viewing opportunities in all primary habitat types represented on the Refuge including estuarine, freshwater wetland, grassland, riparian forest, riverine, and upland forest.

<i>Objective 4.3: Wildlife Observation</i>	Objective Comparison by Alternative
<u>ALT. A</u>	1-mi boardwalk loop trail; 5.5-mi loop trail; 0.5-mi primitive trail
<u>ALT. B</u>	1-mi boardwalk loop trail; 5.5-mi loop trail; 0.5-mi primitive trail
<u>ALT. C</u>	1-mi boardwalk loop trail; 3.75-mi loop and boardwalk trail; 0.5-mi primitive trail; 2.5-mi east side loop trail; East Bluff trail
<u>ALT. D</u>	1-mi boardwalk loop trail; 3.5-mi round trip trail including boardwalk (no loop); 0.5-mi primitive trail; 2.5-mi east side loop trail; East Bluff trail

Rationale: As a priority public use, wildlife observation programs receive priority consideration in Refuge planning and management, secondary to the needs of fish and wildlife. Wildlife viewing and nature observation are the primary visitor activities at Nisqually NWR. The Refuge is considered by many to be one of the best birding areas in Puget Sound. High quality wildlife viewing will continue to be provided on the Refuge through the development and maintenance of trails, boardwalks, and observation sites (i.e., elevated viewing platforms). Wildlife viewing opportunities will be provided for nearly 100,000 visitors who come to Nisqually NWR each year. Estuarine restoration would result in the loss of large portions of the existing 5.5-mile dike loop trail and would require new trails and modifications to existing trails to provide quality wildlife viewing opportunities, access to a variety of habitat types, and to accommodate high visitor demand, while minimizing wildlife disturbance and providing sufficient wildlife sanctuary.

Quality wildlife observation is defined by several elements including: (1) opportunities exist to view wildlife in their habitat and in a natural setting; (2) observation opportunities promote public understanding of Nisqually NWR resources and its role in managing and protecting those resources; (3) observations occur in places with the least amount of disturbance to wildlife; (4) facilities are safe, fully accessible, and available to a broad spectrum of the public; (5) viewing opportunities are tied to interpretive and educational opportunities; and (6) observers have minimal conflict with other visitors or Refuge operations.

Strategies:

- Within 3 years following approval of the CCP, develop a visitor services plan that covers all Refuge public use programs.
- As part of the estuarine restoration project, provide an accessible 1-mile loop trail and additional trail length with boardwalk extensions. Pursue funding for a 0.75-mile one-way boardwalk spur along McAllister Creek which would provide a 3.5-mile round-trip trail, portions of which would be closed during waterfowl hunting season.
- If interests in Luhr Beach site are developed through cooperative management agreement, maintain and enhance current parking and viewing facilities. Evaluate fee collection at this site. Provide adequate parking, restrooms, signs, and gate. An information kiosk (Visitor Contact Station) will provide public use regulations to visitors to increase safety and reduce the frequency of visitors entering closed areas on the Refuge.
- Establish a 0.5-mile unimproved trail in the surge plain forest. This trail would not be fully accessible.
- In cooperation with the Nisqually Indian Tribe, design, construct, and manage a seasonal loop trail **including parking and necessary road improvements**, on tribal and Refuge lands east of the Nisqually River. Seasonal closures of this trail would be required during waterfowl hunting season until private hunt club ceases.
- If East Bluff property is acquired or protected, pursue the development of a new East Bluff upland forest trail connecting to the City of DuPont/Northwest Landing trail system, including an overlook and interpretive sites.
- **If appropriate areas are acquired south of I-5, develop up to 4 parking areas for a total of 75 cars for public access to overlooks and interpretive sites.**
- Maintain habitats to ensure abundance of wildlife for optimum viewing.
- Promote wildlife viewing and interpretation by incorporating Refuge information into Amtrak passenger train service.
- Hire an outdoor recreation planner, GS-9, (0.5 FTE).

Objective 4.4: Wildlife Interpretation

Refuge staff will continue to provide a variety of quality interpretation programs, facilities, and services to Refuge visitors. In addition, each year Refuge staff will identify and serve one new or non-traditional audience to communicate important messages about fish and wildlife conservation and provide opportunities for people to connect with nature at Nisqually Refuge.

Rationale: The Refuge is situated in an ever-growing urban area with decreasing open space and places for people to connect with the natural world. Nisqually NWR, with its visitor facilities and access to wildlife habitat, is a uniquely situated natural area in this region because of its proximity to a major freeway and large urban population.

More than 100,000 people visited the Refuge in 2000. The Refuge provides a variety of programming and services to these visitors, from a state-of-the-art Visitor Center with interpretive exhibits to special events communicating important messages about fish and wildlife conservation and connecting people with nature. But the potential is much greater. Continued growth of the area will mean an increasing need to provide people with information about the Refuge, fish and wildlife conservation, and stewardship of our

natural resources. Access to wildlife habitats would continue to be a primary focus for interpretation programs and facilities. Interpretive programs will include interpretation on habitat restoration designed to help visitors understand the importance of this program and its benefits to wildlife. New and non-traditional audiences must be reached. Refuge staff will look for ways, through partnerships, special events, and off-site programs, to reach new audiences with wildlife conservation messages.

Strategies:

- Within 3 years following approval of the CCP, develop a visitor services plan that covers all Refuge public use programs.
- Hire an outdoor recreation planner, GS-9 (0.5 FTE).
- Provide interpretation on Refuge trails through the use of interpretive panels and self-guided trail brochures.
- Maintain visitor center exhibits that interpret broad issues such as the watershed, flyway, and estuary. Replace exhibits as needed to keep them current and well maintained.
- Maintain a rotating wildlife art exhibit in the Visitor Center auditorium.
- Support efforts of the Nisqually Refuge Cooperating Association in providing quality educational and interpretive programs, materials, and sales items.
- Work together with partners to produce quality special events at the Refuge such as Summer Lecture Series, Nisqually Watershed Festival, International Migratory Bird Day, and National Wildlife Refuge Week, which communicate fish, wildlife, and habitat conservation messages. Special events will identify one new or non-traditional audience to include in publicity efforts.
- Provide weekend volunteer naturalist led interpretive programs led by on topics such as history of Brown Farm, spring wildflowers, and bird migration.

Objective 4.5: Wildlife Photography

Provide a variety of quality wildlife photography opportunities to increase visitor understanding and appreciation for and enjoyment of Nisqually River delta resources.

Rationale: Wildlife photography is one of six priority wildlife-dependent recreational uses of the National Wildlife Refuge System. Photographic opportunities promote public understanding and increase public appreciation for America's natural resources and incorporate a message of stewardship and conservation. The Refuge will provide a high quality photography program where compatible with sound principles of fish and wildlife management, other objectives, and other compatible uses.

Strategies:

- Following habitat restoration activities and as part of a visitor services plan, determine the need for and locations of permanent photo blinds. New photo blinds would be constructed and placed in areas that would have the least amount of disturbance to wildlife.
- Evaluate current use and needs of photographers on the Refuge.
- In trail development, include spur trails or widened trail or boardwalk push outs to allow photographers space for equipment.
- Provide a wildlife photography interpretive program.

- Have wildlife photo exhibits as part of rotating wildlife art exhibit in Visitor Center.
- Include information on photography and ethical behaviors in Refuge brochure.
- Conduct regular evaluations, including feedback from photographers, to determine whether objective is being met.

Objective 4.6: Outreach and Partnerships

The Refuge will take a leadership role in developing and strengthening partnerships, including a volunteer services program, and will conduct a variety of outreach efforts to more effectively achieve Refuge goals and contribution to the protection and enhancement of the Nisqually River watershed.

Objective Comparison by Alternative				
<i>Objective 4.6 Outreach and Partnerships</i>	<i>ALT. A 70 volunteers</i>	<i>ALT. B 100 volunteers</i>	<i>ALT. C 100 volunteers</i>	<i>ALT. D 100 volunteers</i>

Rationale: Strong partnerships will be essential for the Service to achieve its vision and goals for the Refuge. Cooperative efforts with key partners will greatly further habitat protection and restoration, watershed efforts, and education and interpretation. The Refuge’s location in the Nisqually delta provides a focal point that encourages participation by a variety partners to come together to strengthen watershed protection. The volunteer services program is a critical part of the Refuge workforce, benefitting all programs and goals, and strengthening community relations. Volunteers contribute the equivalent of 3.7 FTEs annually, donated by more than 70 volunteers. Outreach efforts will enable the Refuge to reach new audiences.

Strategies:

- Within 2 years of CCP approval, hire a GS-7/9 volunteer coordinator to strengthen and enlarge the volunteer services program to provide effective training and program management of the program for a corps of 100 volunteers. Continue to involve volunteers in a variety of Refuge programs to strengthen ties with the community.
- Conduct special events to reach out to new audiences and involve partners, for example the Nisqually Watershed Festival, International Migratory Bird Day, and Summer Lecture Series.
- Work to provide funding and other support to partners to strengthen the outreach and education program through challenge grants and other grant programs.
- Participate in off-site community events to further Refuge goals.
- Continue active participation in critical partnership efforts such as the Nisqually River Council and the Audubon Refuge Keepers.
- Strengthen coordination with the Nisqually Refuge Cooperating Association through regular meetings, assisting in providing training, and coordination with the volunteer program.

Objective 4.7: Cultural Resource Program

Implement a proactive cultural resource management program that focuses on meeting the requirements of the National Historic Preservation Act, including consultation, identification, inventory, evaluation, and protection of cultural resources.

Rationale: The management and protection of cultural resources is an integral element in fulfilling Refuge goals. The Refuge supports a variety of cultural resources and has opportunities to provide interpretation and education to diverse audiences on these unique aspects of the Nisqually delta area. Refuge expansion and changes to Refuge habitats and facilities warrant a comprehensive cultural resource management program.

Strategies:

- Develop an interpretive program that presents accurate information about Native American history of the Nisqually delta and lower watershed.
- Protect and record the values of the Refuge's historical landscape and archaeological resources while managing habitat and wildlife.
- Identify archaeological sites that coincide with existing and planned roads, facilities, public use areas, and habitat projects. Evaluate threatened and impacted sites for eligibility to the National Register of Historic Places. Prepare and implement activities to mitigate impacts to sites as necessary.
- Develop a GIS layer for cultural resources that can be used with other GIS layers for the Refuge, yet contains appropriate locks to protect sensitive information.
- Develop partnership with the Nisqually Indian Tribe for cultural resources inventory, evaluation, and project monitoring, consistent with the regulations of the National Historic Preservation Act.

Objective 4.8: Cultural Resources Education and Interpretation

Develop, in partnership with the Nisqually Indian Tribe and other preservation partners, a program for the education and interpretation of cultural resources of the Nisqually NWR.

Rationale: Cultural resources are not renewable. Thus, interpretation of cultural resources can instill a conservation ethic among the public and others who encounter or manage them. The goals of the cultural resource education and interpretive program are fourfold: (1) translate the results of cultural research into media that can be understood and appreciated by a variety of publics, (2) engender an appreciation for the Native American culture and perspective on cultural resources, (3) relate the connection between cultural resources and natural resources and the role of humans in the environment, and (4) instill an ethic for the conservation of our cultural heritage.

Strategies:

- Prepare interpretive media (e.g., pamphlets, signs, exhibits) that relate the cultural resources and Native American perspective and Euro-American settlement history of the Refuge for visitors.
- Prepare environmental/cultural education materials for use in education center schools concerning cultural resources, the perspective of Native Americans, the history of the area, and conservation of natural and cultural resources.

- Develop partnerships with educational institutions for the interpretation and protection of cultural resources at the Refuge.
- Consult with the Nisqually Indian Tribe to identify the type of cultural resources information appropriate for public interpretation.
- Develop an outreach program and materials so that the cultural resource messages become part of cultural events in the area, including: Washington Archaeology Month, National Wildlife Refuge Week, and appropriate local festivals.