Nisqually National Wildlife Refuge
Waterfowl Hunt Plan

I. Introduction

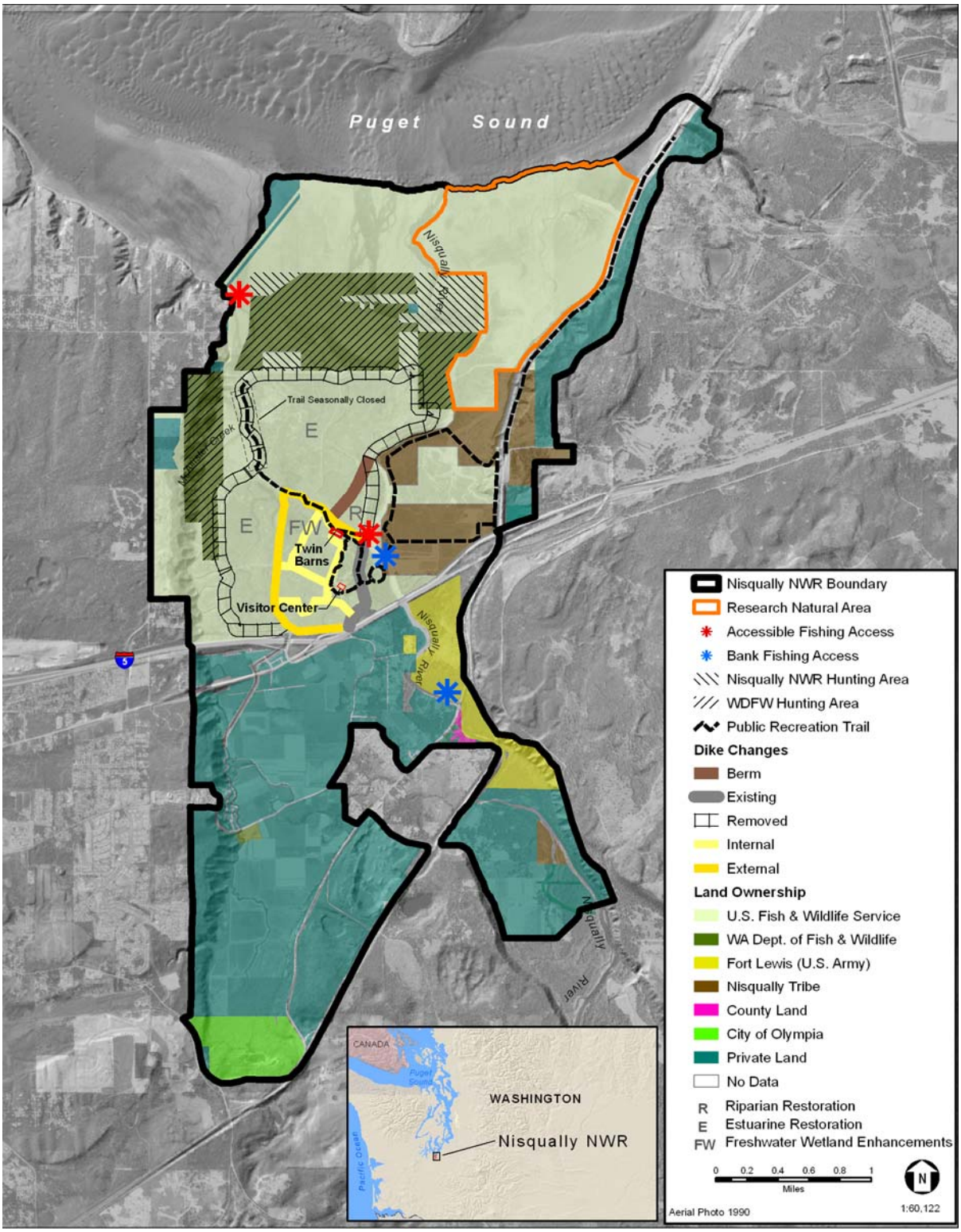
A. About the Refuge

Nisqually National Wildlife Refuge (NWR or Refuge) is located at the southern end of Puget Sound, Washington in the Nisqually River delta (Figure 1). The 2,925-acre Refuge, located in Thurston and Pierce counties, is managed by the U.S. Fish and Wildlife Service (Service) and protects one of the few relatively undeveloped large estuaries remaining in Puget Sound. The Refuge has international significance as a staging area, sanctuary, and migration stopover for migratory birds of the Pacific Flyway. The Refuge also has regional importance as migration and rearing habitat for salmon, particularly the Federally listed Chinook salmon.

Nisqually NWR was established in February 1974, in recognition of the area's unique fish and wildlife resources. Nisqually NWR was established with the following purposes:

> "… for use as an inviolate sanctuary, or for any other management purpose, for migratory birds" (16 U.S.C. ss 715d, Migratory Bird Conservation Act)
>
> "… for the development, advancement, management, conservation, and protection of fish and wildlife resources ... 16 U.S.C. 742f(a)(4) ... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude" … 16 U.S.C. 742f(b)(1) (Fish and Wildlife Act of 1956)

Appendix 1. Nisqually National Wildlife Refuge showing the authorized Refuge boundary, land ownership, and activities including the waterfowl hunt area.



The following goals provide guiding principles for Nisqually NWR. They are consistent with Refuge purposes, Refuge System Mission and goals, the National Wildlife Refuge System Improvement Act (PL 105-57), Service policies, and international treaties.

Goal 1: 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.

Goal 2: Support recovery and protection efforts for Federal and State threatened and endangered species, species of concern, and their habitats.

Goal 3: Provide quality environmental education opportunities focusing on the fish, wildlife, and habitats of the Nisqually River delta and watershed.

Goal 4: 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.

The south Puget Sound region, with its rapidly growing urban development, is undergoing dramatic changes in population and landscape. Nisqually NWR plays an increasingly important role in the protection of the Nisqually Delta and the lower Nisqually River watershed. The Refuge consists of a diverse mosaic of habitats, including salt marsh, marine waters, riparian forest, diked freshwater wetlands, pasture, and upland forest. The authorized Refuge boundary consists of 7,415 acres.

Located on the Interstate 5 (I-5) corridor 20 miles south of Tacoma and only 8 miles east of Olympia, Nisqually NWR has become an urban Refuge easily accessible to outdoor enthusiasts. Visitor use and interest in the Refuge have increased as residential developments expand in the nearby cities of Lacey, DuPont, Olympia, and the Seattle-Tacoma area. Thousands of students and teachers participate in the Refuge's environmental education program. More than 160,000 visitors come to Nisqually NWR each year to participate in wildlife interpretation, wildlife observation, environmental education, photography, boating, fishing, and shellfishing. As the local population and Refuge use have increased, so have concerns over meeting the needs of fish and wildlife species and managing conflicts among visitors.

Located at the mouth of the Nisqually River in the northeastern portion of the Refuge, the 793-acre Nisqually Delta Research Natural Area (RNA) was established by the Service in 1989 (Caicco 1989). RNA objectives are limited to: (1) preserving and protecting the delta as a significant natural ecosystem; (2) serving as a gene pool for the preservation of native and endangered species; and (3) providing educational and research areas for the study of scientific aspects, including successional trends. Management activities that

modify or alter natural ecological processes, including consumptive uses, are not allowed in RNAs (CH2M Hill et al. 1978; USFWS 1981)

Since its establishment, Nisqually NWR had never been formally opened to waterfowl hunting. However, waterfowl hunting is a traditional activity that annually occurs on State lands in the Delta immediately adjacent to Refuge-owned lands within Refuge boundaries throughout the waterfowl season (October through January). Estimated use ranges from 1,000 to 2,100 hunter visits per season (USFWS, unpublished data). Waterfowl hunting is permitted on three parcels totaling 617 acres (inholdings within the Refuge boundary) owned by Washington Department of Fish and Wildlife (WDFW). Because WDFW parcels have irregular boundaries not clearly distinguished from Refuge lands by boundary signs, hunters often hunted on Refuge lands that were closed to hunting. Unauthorized hunting occurred on large portions of Refuge tideflats, providing insufficient sanctuary for wintering migratory birds. In 2007, the Refuge-WDFW boundary was posted and waterfowl hunting is better controlled. During the waterfowl hunt season, 3 miles of the Brown Farm Dike trail are closed during the waterfowl hunt season to ensure safety for trail users adjacent to WDFW hunt areas and provide wildlife sanctuary inside the dike.

In November 2004, the Nisqually NWR Final Comprehensive Conservation Plan was approved by the Service's Regional Director. This plan guides the management of Nisqually NWR for the next 15 years. It was finalized after eight years of extensive planning and public participation and it resolved many key issues on the Refuge, including waterfowl hunting. The Nisqually NWR Final CCP and EIS (USFWS 2004) describes and analyzes four alternatives and summarizes the extensive planning effort, public comments, and Service responses. It is incorporated by reference as part of this Waterfowl Hunt Plan and is available at the following website: http://www.fws.gov/pacific/planning/main/docs/WA/docsnisqually.htm. Supporting documents include the Record of Decision (ROD) (November 2004) and a Compatibility Determination on Waterfowl Hunting (Appendix 1). In accordance with the CCP and its ROD, Nisqually NWR will open 191 acres of Refuge lands to 7 day/week waterfowl hunting adjacent to WDFW lands.

II. Conformance with Statutory Authorities

National Wildlife Refuges are guided by the mission and goals of the National Wildlife Refuge System (NWRS), the purposes of an individual refuge, Service policy, and laws and international treaties. Relevant guidance includes the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, Refuge Recreation Act of 1962, and selected portions of the Code of Federal Regulations and Fish and Wildlife Service Manual.

The Mission of the National Wildlife Refuge System is:

> "To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant

resources and their habitats within the United States for the benefit of present and future generations of Americans." (16 U.S.C. 668dd et seq.)

The National Wildlife Refuge System (NWRS) Improvement Act of 1997 provides guidelines and directives for the administration and management of all areas in the NWRS. The Act also recognized that wildlife-dependent recreational uses involving hunting, fishing, wildlife observation, photography, environmental education, and interpretation, when determined to be compatible with the mission of the System and purposes of the Refuge, are legitimate and appropriate public uses of the NWRS. Compatible wildlife dependent recreational uses are the priority public uses of the NWRS and they shall receive priority consideration in planning and management.

The initial cost of a waterfowl hunting program on the Refuge was estimated at $115,000 (USFWS 2004). Annual costs to administer the waterfowl hunt on the Refuge, if fully staffed, were estimated in 2004 at approximately $65,000. Waterfowl hunting would be permitted in accordance with State and Federal regulations and seasons. Refuge-specific regulations would also govern waterfowl hunting activities (see VII.A.).

III. Statement of Objectives

Waterfowl hunting objectives and strategies in the Nisqually NWR CCP were designed to provide a quality hunting experience that meets Refuge guidelines and policies. Refuge and WDFW lands open to waterfowl hunting will create more manageable and enforceable hunt boundaries that will reduce conflicts with other users, reduce confusion for hunters, provide sufficient wildlife sanctuary, create uncrowded conditions, and ensure a reasonable opportunity for harvest by hunters. Creating a minimum 200-yard buffer between trails and Refuge and WDFW hunt areas was also identified as an important strategy to reduce user conflicts where possible and promote public safety. A quality waterfowl hunting experience on the Refuge was defined as 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. The waterfowl hunt was designed to achieve these objectives, provide a quality waterfowl hunting opportunity, contribute to Refuge goals, provide sufficient wildlife sanctuary, and resolve the unauthorized hunting issues on the Refuge.

IV. Assessment

A. Are wildlife populations present in numbers sufficient to sustain optimum population levels for priority refuge objectives other then hunting?

Waterfowl migrating in the Pacific Flyway begin arriving on the Nisqually Delta in late September, with many remaining throughout the winter. While some birds may use the area only for short periods of time during migration, they are dependent upon the area and its rich food sources. Other birds remain for the winter on the Delta, traveling between the estuary and flooded agricultural or grass fields and wetlands on or off the

Refuge. Off-Refuge sites are found south of I-5 and in nearby tidal waters of Puget Sound.

Nisqually NWR staff has been conducting aerial surveys to monitor waterfowl population numbers on the Refuge since 1975. Dabbling ducks comprise more than 90% of all Refuge waterfowl sightings. Peak population numbers were observed during October or November with an average of 5,125 birds observed annually (1984-2000). The highest annual average was 9,641 in 1994 and the lowest was 1,630 in 1997. The American wigeon was the most abundant (76% of all dabblers) waterfowl species observed on the Refuge. Numbers of wigeon observed peaked at 12,813 in November 1987, but have been declining in recent years. About 90% of wigeon are found in primarily estuarine habitats, where the remaining 10% were found in diked habitats. Other commonly observed dabblers include the mallard, northern pintail, and green-winged teal. During the waterfowl hunting season, a majority of the delta waterfowl rest far out on the Nisqually Reach (including mudflats and subtidal areas). When not on the outer Reach, they may rest and drink in freshwater wetlands during the day (i.e., in the Nisqually Valley and move out to the salt marsh to feed at the tide's edge throughout the night). Some roost and rest on the Refuge and feed on neighboring agricultural lands.

Other waterfowl commonly observed on the Refuge include Canada geese, northern shovelers, bufflehead, and scoter. Both migratory and resident Canada geese subspecies are observed on the Refuge. Migratory Canada geese (primarily the cackling subspecies) are present during fall and winter months, while resident (western subspecies) are present in much smaller numbers throughout the year. Observations of geese, primarily migrating subspecies, have increased since the early 1990s. The number of geese observed during winter waterfowl surveys peaked at 687 in 2000. Diving ducks, including scoter and scaup, have declined in Puget Sound according to WDFW surveys.

It is not anticipated that waterfowl hunting will negatively affect priority refuge objectives or wildlife populations on the Refuge. Based on monitoring conducted by Refuge staff and volunteers for many years in the Nisqually Delta area involving primarily WDFW lands (and some unauthorized hunting on Refuge lands), harvest and hunter use were relatively low. For example, during an intensive monitoring effort in 1998, hunter success averaged 1.5 birds/hunter-visit and there were an estimated 1,000 to 1,200 hunter visits during the entire season.

The hunting of waterfowl in the United States is based upon a thorough regulatory setting process that involves numerous sources of waterfowl population and harvest monitoring data. As a result of the regulatory Annual Harvest Management options, in recent years, Washington hunter's harvested an estimated 450,000 ducks. This is approximately 3.1 percent of the U.S. harvest (14.5 million) and 13.2 percent of the Pacific Flyway's (3.4 million) estimated waterfowl harvest. Comparative numbers for estimated goose harvest yield percentages of 2.1 percent and 17 percent of the U. S. and Pacific Flyway totals, respectively. Nisqually NWR harvest numbers make up a very small proportion of local, Washington State, or Pacific Flyway harvest or population numbers.

In addition, the waterfowl hunt has been designed with measures and restrictions to insure it does not negatively affect refuge priority objectives. For example:

- The hunt area is limited in size and location, to insure sufficient sanctuary area is available.
- Habitat restoration sites will remain closed to waterfowl hunting, to allow restoration processes to evolve and provide more undisturbed areas for wildlife. This will also provide benefits from those observing wildlife from trails.
- Boat restrictions including a 5 mph speed limit and a seasonal closure in the RNA will reduce wildlife disturbance.
- Improved hunter outreach and education will be part of the waterfowl hunt program, to reduce wildlife disturbance and conflict among visitors.

B. Is there competition for habitat between target species and other wildlife?

A wide variety of other migratory birds use the estuary and Refuge tideflats. Key species or groups using these habitats during waterfowl hunt periods include seabirds, wading birds, raptors, and shorebirds. Areas that would remain closed to hunting, including portions of the tideflats and diked freshwater habitats, would provide sanctuary to waterfowl and other wildlife. Seasonal boating closures in the RNA (northeastern tidal habitats on Nisqually NWR) from October 1 through March 31 would also help to reduce human disturbance to wintering migratory birds, marine mammals, and sensitive habitats. Also, see Nisqually NWR Final CCP/EIS (USFWS 2004) and Compatibility Determination on Waterfowl Hunting (Appendix 1) for a more detailed description of effects on wildlife and habitat. Competition between species targeted by the hunting program and other wildlife or their habitats is not considered a limiting factor.

C. Are there unacceptable levels of predation by target species on other wildlife forms?

Not applicable.

V. Description of Waterfowl Hunting Program

A. Areas of the Refuge that support populations of the target species

Nisqually NWR provides important wintering and migration (stopover) habitat for a wide variety of ducks and geese. Waterfowl feed, rest, and breed on the Refuge. Waterfowl use estuarine and freshwater habitats, and move regularly among these habitats. Wigeon are the most abundant waterfowl species on the Refuge and their use is highest in estuarine habitats. Waterfowl use varies seasonally and with tidal conditions. Key habitats where waterfowl concentrate in the estuary are included in the Refuge hunt area. Important resting and feeding habitats on the Refuge will remain closed to hunting in order to provide undisturbed (sanctuary) areas for waterfowl and other birds.

B. Areas to be opened to public hunting

The waterfowl hunt program on Nisqually NWR will open 191 acres of Refuge lands (Figure 1). Waterfowl hunting is open to the public on 617 acres of adjacent WDFW lands, made up of three separate tracts. The Refuge hunt area adjoins two of these State tracts. The new Refuge hunt area provides high quality habitat including lands used by a variety of waterfowl at the mouth of the Nisqually River. This opening will provide high quality waterfowl hunting opportunities, managed consistently with adjoining WDFW lands. By opening 191 acres of the Refuge to waterfowl hunting, the hunting area north of the Brown Farm Dike would be configured in a single rectangular block that can be posted and enforced, which will greatly reduce confusion regarding boundary issues.

Because consumptive uses are not allowed in RNAs, the RNA will be reduced by 73 acres near the mouth of the Nisqually River and the RNA boundary moved to the east to provide a high quality hunting area at the mouth of the river. An additional 44 acres will be added to the RNA at the south end resulting in a net loss of 29 acres (764 acres) in the RNA. Areas designated as "No Hunting Areas" would be posted and enforced, which will eliminate unauthorized hunting that has occurred previously on the Refuge and provide improved wildlife sanctuary areas for waterfowl and other wildlife. The area within the Brown Farm Dike, including the area to be restored to estuary through dike removal, would remain closed to hunting.

C. Species to be taken, hunting periods

Geese, ducks, and coots will be taken by waterfowl hunters, in accordance with State, Federal, and Refuge specific regulations. Bag limits and hunting seasons on the Refuge will coincide with adjacent WDFW areas open to waterfowl hunting.

D. Justification for the permit, if one is required

Hunters must comply with State license requirements and no Refuge specific hunt permit would be required. The Federal duck stamp serves as a Refuge entrance fee so no additional Refuge specific fees will be required.

E. Procedures for consultation and coordination with the State

Extensive coordination was conducted with WDFW in designing the waterfowl hunt during the preparation of the Nisqually NWR CCP. The State supported the final alternative described in the ROD for the Nisqually NWR Final CCP/EIS. Waterfowl hunting would continue on all WDFW lands. WDFW would maintain jurisdiction and management responsibility over WDFW lands, and the Service would manage the hunting program on Refuge lands. Refuge outreach, education, and enforcement programs would also benefit hunting programs on State lands. Regular coordination with WDFW will continue, particularly boundary posting, law enforcement, outreach and education, and the 25-shell limit, which requires specific regulations for both State and Refuge lands.

F. Methods of control and enforcement

The following methods would be used to control and enforce hunting regulations

- Refuge and hunt area boundaries will be clearly posted
- The Refuge will provide a brochure that shows hunt areas.
- Service law enforcement staff would randomly check hunters for compliance with Federal and State laws as well as refuge-specific regulations pertinent to the hunt, including compatibility stipulations.
- Service law enforcement staff would coordinate with WDFW and other law enforcement agencies. WDFW officers would patrol State lands when available to help ensure compliance with laws and hunting regulations. Concurrent jurisdiction would allow WDFW officers some authority on Refuge lands as well.
- Information would be made available at the Refuge headquarters, Refuge website, and at the State boat launching site at Luhr Beach.

G. Funding and staffing requirements

Administering the waterfowl hunt would require Refuge staff time to coordinate with WDFW and other cooperators, produce brochures and news releases, respond to hunter inquiries, conduct hunter and visitor outreach, minimize conflicts among users, conduct law enforcement, maintain boundary posting and visitor information sites, monitor impacts to wildlife and habitat and visitor use, and ensure public safety (also see Appendix 1).

This new hunting program was described in the Nisqually NWR CCP to be implemented using increased funding and staffing including a 0.5 FTE Refuge Officer and a 0.5 FTE Biological Technician to assist in enforcement, outreach, and monitoring. Implementation is currently being done with existing staffing which includes staff reductions, so it will redirect effort from other high priority habitat and public use programs. Because of the adjoining Refuge and State lands, close coordination will be needed between Nisqually NWR and WDFW. This coordination will be necessary to effectively conduct outreach, enforcement, implement regulations, and establish informational facilities at the State boat ramp.

Surveying and posting Refuge and State hunt and RNA boundaries were accomplished in 2007. Efforts are ongoing to design and install a visitor contact station at the State boat ramp at Luhr Beach and design and fabricate new map panels for all entry points to the Refuge. Law enforcement and outreach efforts are ongoing to educate waterfowl hunters of the boundaries and regulations involving waterfowl hunting on Refuge lands**.**

VI. Measures Taken to Avoid Conflicts with Other Management Objectives

The waterfowl hunt program was designed to provide a quality waterfowl hunting opportunity, while minimizing or eliminating conflicts with Refuge purposes, goals, and management objectives. These objectives include a focus on estuarine and other habitat restoration and

reduction in human disturbance to fish and wildlife. Refuge objectives also include providing the public with safe, compatible, and accessible wildlife viewing opportunities that reduce conflicts between Refuge users. Also, see the Nisqually NWR Final CCP/EIS and the Compatibility Determination for Waterfowl Hunting (USFWS 2004; Appendix 1). Portions of Refuge trails will need to be closed during the waterfowl hunt season to ensure visitor safety, reduce conflicts with waterfowl hunting on State lands per the request of WDFW, and provide improved wildlife sanctuary. This seasonal closure will be monitored and evaluated periodically.

A. Biological Conflicts

Human disturbance to wintering birds and other wildlife using the open waters and marshes on the Nisqually delta would occur as a result of hunting activity. Migratory and wintering waterfowl generally minimize time in flight and maximize foraging time because flight requires considerably more energy than any other activity, except egg laying. Human disturbance associated with hunting includes loud noises and rapid movements such as those produced by shotguns and boats powered by outboard motors. This disturbance, especially when repeated over a period of time, can cause waterfowl to change food habits, feed only at night, lose weight, or desert feeding areas. These impacts from disturbance can be reduced by the presence of adjacent sanctuary areas allowing birds to feed and rest relatively undisturbed. Sanctuaries or non-hunt areas have been identified as the most common strategy to reduce disturbance caused by hunting. Prolonged and extensive disturbances may cause large numbers of waterfowl to temporarily or permanently leave disturbed areas (Madsen 1995, Paulus 1984). Thus, sanctuary areas are very important to minimize disturbance to waterfowl populations to ensure their continued use of the Nisqually Delta. Sanctuary areas also maintain waterfowl in juxtaposition to hunting areas which may increase harvest opportunities. Intermittent hunting (non-hunt days) can minimize disturbance, especially if rest periods in between hunting events are weeks rather than days (Fox and Madsen 1997). It is common for refuges to manage hunt programs with non-hunt days. However, the proposed hunt program at Nisqually NWR will not be intermittent in order to provide consistent management with the existing hunt program on adjacent WDFW lands and waters. This is necessary to prevent confusion by hunters on the Delta, who cannot readily distinguish between Refuge and WDFW lands. This will also provide more waterfowl hunting opportunity, which could otherwise be constrained by varying tidal conditions from day to day.

Boating activity associated with hunting during the fall and winter can alter distribution, reduce use of particular habitats or entire areas by waterfowl and other birds, alter feeding behavior and nutritional status, and cause premature departure from areas (Knight and Cole 1995). Disturbance from motorized boats can occur even at low waterfowl densities depending upon their noise, speed, and capability to cover extensive areas in a short amount of time. Disturbance from boats is especially important in the RNA and McAllister Creek because both areas typically have high waterfowl use. The habitat along McAllister Creek is a relatively narrow tidal system that receives high use by a variety of waterfowl, waterbirds, wading birds, and raptors. In addition, an active bald eagle nest is located along McAllister Creek. The nesting period identified in the Bald

Eagle Recovery Plan identifies January 1 as the beginning of the nesting season when special protective measures should begin (USFWS 1986). A great blue heron nesting colony, located along McAllister Creek since the 1970s, has been declining for several years and currently does not support active nesting. Nesting great blue herons are sensitive to a variety of human disturbances. Washington State requires a minimum 300-meter buffer zone (984 feet) to protect colonies from human disturbances (WDFW 2001). It is possible that hunting and associated boating activities may be one of the contributing factors affecting these nesting birds, as well as other wildlife using this narrow system.

Boating and hunter activity will also cause some level of soil disturbance, erosion, foot traffic in sensitive tidal habitats, among other physical effects. Boat speed limits and the establishment of closed areas will serve to help reduce these impacts.

Although hunting directly impacts individual birds that are shot, the amount of waterfowl harvest is not expected to have a measurable effect on Refuge population numbers, especially because waterfowl hunting pressure is not extremely high in the Delta. For example, the average hunter visits per day was 8.4 during the 1998/99 season (USFWS, unpublished data). (Also see Nisqually NWR Final CCP and EIS (USFWS 2004) and Nisqually NWR Cumulative Impact Analysis (USFWS 2008)).

The 7-day per week hunt program proposed on the Refuge would include the following restrictions to reduce impacts: (1) a limited hunting area (area will be posted and enforced); (2) a 25-shell limit; (3) redefining and reducing the RNA by 73 acres to allow for hunting at the mouth of the Nisqually River, but adding 44 acres to the south end of the RNA to improve the viability of the closed or restricted areas; (4) sufficient feeding and resting habitat for waterfowl in areas closed to hunting (sanctuary); and (5) periodic biological and social monitoring and evaluation of the hunting program, including feedback from users to determine if objectives are being met.

The waterfowl hunt area includes the primary marine mammal haul-out habitat on the Refuge. Enforcement of the RNA closure to consumptive uses would act to reduce some disturbance to marine mammals that currently occurs. However, the modification of the western RNA boundary would reduce the RNA from 793 acres to 764 acres, decreasing sanctuary area for marine mammals using the tideflats and salt marsh areas at the mouth of the Nisqually River.

Sanctuary areas must provide high quality habitat for feeding, resting, and thermal protection. Because the waterfowl hunt in the Delta is focused in estuarine habitat, it is important that sufficient estuarine habitat on the Refuge be set aside as sanctuary. The RNA (764 acres), a mixture of nearshore, intertidal, and salt marsh habitat, will be closed to all consumptive uses year-round and public access (boating) during the waterfowl hunting season (October 1 - March 31) to provide this sanctuary. Estuarine habitat within McAllister Creek on Refuge lands will also be closed to hunting. The newly restored estuarine area (762 acres) will be closed to public access to ensure successful restoration and to allow undisturbed research and monitoring to evaluate wildlife and habitat response to restoration activities. This area thus will also serve as a sanctuary site. The

majority of the remaining diked area (246 acres) will serve as sanctuary for waterfowl that prefer to move between the estuary and freshwater wetlands. Some of the freshwater units would include public access on trails and, therefore, would not function as complete sanctuary. Monitoring must demonstrate that sanctuary units are functional, including receiving daytime use by waterfowl throughout the hunting season.

B. Public Use Conflicts

Because of hunting on WDFW lands in McAllister Creek, the trail along McAllister Creek (in future to be replaced with a boardwalk) would continue to be seasonally closed during the waterfowl hunting season. Therefore, it is anticipated that the experience of many trail users would continue to be negatively affected by the continuation of seasonal closures of a portion of the trail. This continues to be the biggest conflict among users. However, this closure will help to insure visitor safety and would also reduce disturbance in the estuary, including the restoration site. The new boardwalk trail will be located approximately 200 yards from the nearest hunting area. If monitoring of trail and bird use and hunter activity indicates that a partial opening of that part of the boardwalk trail is possible without causing conflicts between users or too much wildlife disturbance, future seasonal trail openings will be considered in coordination with the State.

Boat speed limits and clearly marked hunt boundaries should help to reduce conflicts with limited use by non-motorized boaters observing wildlife in the estuary during the hunting season. Confusion for hunters will be reduced with a consistent program across Refuge and State lands and clear posting, addressing a frequent complaint received from many hunters.

C. Administrative Conflicts

There are no administrative conflicts at this time.

VII. Conduct of the Hunt

A. Refuge-Specific Hunting Regulations

- We allow hunting of goose, duck, and coot on designated areas in accordance with State and Refuge regulations.
- We allow no more than 25 shells in possession in the field. You may only possess approved nontoxic shotshells while in the field.
- You may access the Refuge hunt area by boat only. The maximum speed is 5 miles per hour for boats in all Refuge waters.

In order to reduce boating impacts associated with hunting and ensure compatibility, the following regulations will be implemented: (1) 5 mph speed limit for boats in all Refuge waters; (2) the RNA will be closed to boats from October 1 through March 31 to reduce disturbance to wintering waterfowl populations; and (3) estuarine restoration areas, including the site currently within the Brown Farm Dike will be closed to boats year

round. No motorized or non-motorized boats will be allowed into this area and all public access will occur on trails only. Monitoring would be conducted to evaluate whether these stipulations are sufficient to minimize disturbance to wildlife.

B. Anticipated Public Reaction to the Hunt

Extensive public participation occurred during the development of the Nisqually NWR CCP. Comments were solicited on waterfowl hunting through a variety of methods, including public meetings, presentations, newsletters, electronically, focus groups, and release of draft and final documents. More than 1700 public comments were received on the Draft CCP and EIS. The most comments received dealt with the issue of hunting on Refuge lands. A total of 1,484 people commented on their preference for or opposition to hunting on the Refuge. Of this total, 1,434 (96.6%) voiced opposition to hunting on the Refuge, 41 letters received supported allowing hunting, and 9 people expressed a preference for hunting with qualifications. Public input was thoroughly considered and extensive efforts were made to design the hunt program to meet Refuge goals and objectives, provide a high quality experience, minimize wildlife disturbance, provide improved wildlife sanctuary, reduce conflicts with other visitors, and reduce confusion for hunters. Implementation and management of the waterfowl hunt program will include outreach, education, and enforcement to maintain a high quality and minimize wildlife disturbance. Also, see Appendix M, Summary of Public Comment and the Service's Responses, pages M-50 to M-60 in the Nisqually NWR Final CCP/EIS (USFWS 2004) for a very detailed summary of public comments received and Service responses.

C. Hunter Application and Registration Procedures (if applicable)

Not applicable. This will be a free-roam hunt area which will require no applications or registrations to hunt.

D. Media Selection for Announcing and Publicizing the Hunt

The Refuge has a standard list of local media contacts for news releases. A news release announcing the new waterfowl hunting opportunities would be sent out prior to the first hunting season, and a yearly announcement thereafter. Notices would also be posted on the Refuge website, at the Refuge Visitor Center, and other appropriate locations.

E. Hunter Requirements

Hunters are required to be familiar with all State, Federal, and Refuge-specific regulations. Refuge-specific regulations would be available on the Refuge website and Refuge hunt brochure.

1. Age (if restrictions are imposed by the State)

Age requirements will be in accord with WDFW regulations.

2. Allowable equipment (dogs, vehicles, blinds, sporting arms, ammunition)

Requirements will be in accord with WDFW and Refuge regulations.

3. Use of open fires (for cooking, warmth, etc.)

All open fires are prohibited.

4. License and permits

All hunters must have valid, current Washington state licenses, state migratory bird validation (stamp), as well as a Federal Duck Stamp.

5. Reporting harvesting

Hunters must fulfill all WDFW reporting requirements.

6. Hunter training and safety (if required by State)

Hunters must fulfill all WDFW requirements for training and hunter safety classes.

VIII. References

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Appendix 1. Nisqually Waterfowl Hunt Compatibility Determination excerpted from Nisqually NWR Final Comprehensive Conservation Plan which was published in 2005.

Appendix G.3
Waterfowl Hunting

COMPATIBILITY DETERMINATION
(August 2004)

Use: Waterfowl Hunting

Refuge Name: Nisqually National Wildlife Refuge, located in Thurston and Pierce counties, Washington.

Establishing and Acquisition Authorities: Nisqually National Wildlife Refuge (NWR) was established on January 22, 1974 with approval by the Migratory Bird Conservation Commission. Approximately 2,925 acres of the approved 3,936 acres have been acquired. Legal authorities used for establishment of the Refuge include: Migratory Bird Conservation Act, as amended (16 U.S.C. 715-715d, 715e, 715f - 715r); and Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742a - 742j).

Refuge Purposes: Nisqually NWR purposes include:

...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds (16 U.S.C.-715d).

...for the development, advancement, management, conservation, and protection of fish and wildlife resources ...(16 U.S.C. 742f(a)(4).

... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...16 U.S.C. 742f(b)(1).

National Wildlife Refuge System Mission: "To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd et seq.]).

Description of Use: Nisqually NWR lands are not open to waterfowl hunting. Waterfowl hunting is allowed on 617 acres of WDFW lands within the approved Refuge boundary. Due to the irregular shape and scattered locations of these inholdings, and difficulty in posting and maintaining boundary signs, unauthorized hunting occurs on up to 1,189 acres of adjacent Refuge lands. This hunting activity has been considered administratively uncontrollable, so where signing is absent, hunting closures have not been enforced. Since the unauthorized hunting occurs on 63% of the estuarine habitat within the Refuge, including the Research Natural Area (RNA), current hunting activity provides insufficient sanctuary for estuarine-dependent wildlife and allows an unauthorized use to continue on large parts of the Refuge.

The CCP Proposed Action includes formally opening a total of approximately 191 acres of waters and tideflats of Nisqually NWR lands to waterfowl hunting (USFWS 2002). These lands are contiguous with the WDFW parcel north of the Brown Farm Dike. The RNA boundary will be moved to the east to provide high quality hunting area at the mouth of the River, reducing the RNA by 73 acres. However, a 44-acre area will be added to the RNA at the south end. By

opening 191 acres of the Refuge to waterfowl hunting, the hunting area north of the Brown Farm Dike will be configured in a single rectangular block, greatly reducing confusing boundary issues. Areas designated as "No Hunting Areas" will be posted and enforced, eliminating the unauthorized hunting that has occurred on the Refuge in the past. Waterfowl hunting will continue on all WDFW lands. A 25-shell limit will be instituted on Refuge and WDFW lands. WDFW will continue to have jurisdiction and management responsibility over WDFW lands, and the Service will manage the hunting program on Refuge lands. Hunting will be allowed consistent with annual State hunting regulations and seasons, and will be permitted by boat access only in the posted Refuge hunt area. The area within the Brown Farm Dike, including the estuarine restoration area, will remain closed to hunting. The waterfowl hunting season generally falls within the period from October through January. There will be no limit on the number of hunters, hunt days, and no designated blind sites. The State will manage their own hunt program on WDFW lands.

Uses within the Proposed Expansion Area: Chapters 2 and 3 of the Final CCP/EIS for Nisqually NWR identify areas in which the Service would seek to acquire land from willing sellers outside of the current Refuge boundary (USFWS 2002). Some private hunting occurs on property within the expansion area. The Medicine Creek Hunt Club consists of a small number of hunters using private property south of I-5. Waterfowl hunting also takes place in Trotter's Woods by approximately 3-4 hunters. Should these areas be acquired by the Service, the Refuge would consider allowing walk-in waterfowl hunting with set blinds if sufficient lands have been acquired to allow for adequate wildlife sanctuary and minimal conflicts with other priority public uses. This Compatibility Determination will be updated in the future to include walk-in hunting in the expansion area as needed.

Availability of Resources: The following funding/annual costs would be required to administer and manage waterfowl hunting activities as described above:

	One-time Cost	**Recurring Cost**
Survey and Post	75K	10K
Maintenance of Parking Area		10K
Law Enforcement		20K
Administration	25K	15K
Outreach, Education, and Monitoring	15K	10K
TOTAL	$115K	$65K

Additional funds would be required to construct, operate, and maintain a hunt program, visitor facilities, and interpretive materials. Law enforcement staffing would be needed. Funding would be sought through the Service budget process. Other sources will be sought through strengthened partnerships, grants, and additional Refuge operations funding to support a safe, quality public use program as described above.

Anticipated Impacts of Use: By its very nature, waterfowl hunting has very few if any positive effects on waterfowl and other birds while the activity is occurring, but it is well recognized that this activity has given many people a deeper appreciation of wildlife and a better understanding of the importance of conserving their habitat, which has ultimately contributed to the Refuge System mission. Furthermore, despite the potential impacts of hunting, a goal of Nisqually

NWR is to provide opportunities for quality wildlife-dependent recreation. By law, hunting is one of the six priority public uses of the National Wildlife Refuge System. Of key concern is to offer a safe and quality program and to maintain adverse impacts within acceptable limits.

Although hunting directly impacts individual birds, the amount of waterfowl harvest is not expected to have a measurable effect on Refuge populations, especially since waterfowl hunting activity is not extremely high in the delta. For example, the average hunter visit per day was 8.4 during the 1998/99 season (USFWS unpublished data). Hunting may be either compensatory or additive to natural mortality (Anderson 1995). Compensatory mortality occurs when hunting substitutes for other forms of mortality (disease, competition, predation, severe weather, etc.). Additive mortality occurs when hunting compounds the total mortality. In some cases, hunting can be used as a management tool to control populations. In concert with Canada, Mexico, and multi-state Flyway councils, the Service and WDFW regulate hunting so that harvest does not reduce populations to unsustainable levels.

Direct effects of hunting on waterfowl are mortality, wounding, and disturbance (DeLong 2002). Hunting can alter behavior (e.g., foraging time), population structure, and distribution patterns of wildlife (Owens 1977, Raveling 1979, White-Robinson 1982, Thomas 1983, Bartelt 1987, Madsen 1985, and Cole and Knight 1990). In Denmark, hunting was documented to affect the diversity and number of birds using a site (Madsen 1995). Avian diversity changed from predominantly mute swan and mallard to a more even distribution of a greater number of species when a sanctuary was established. Hence, species diversity increased with the elimination of hunting. There also appears to be an inverse relationship between the numbers of birds using an area and hunting intensity (DeLong 2002). In Connecticut, lesser scaup were observed to forage less in areas that were heavily hunted (Cronan 1957). In California, the numbers of northern pintails on Sacramento NWR non-hunt areas increased after the first week of hunting and remained high until the season was over in early January (Heitmeyer and Raveling 1988). Following the close of hunting season, ducks generally increased their use of the hunt area; however, use was lower than before the hunting season began.

Human disturbance to wintering birds and other wildlife using the open waters and marshes on the Nisqually delta would occur as a result of hunting activity. Migratory and wintering waterfowl generally attempt to minimize time spent in flight and maximize foraging time because flight requires considerably more energy than any other activity, other than egg laying. Human disturbance associated with hunting includes loud noises and rapid movements, such as those produced by shotguns and boats powered by outboard motors. This disturbance, especially when repeated over a period of time, compels waterfowl to change food habits, feed only at night, lose weight, or desert feeding areas (Belanger and Bedard 1995, Madsen 1995, Wolder 1993). Disturbance levels from hunting activity outside Chincoteague NWR were found to be high enough to force wintering black ducks into a pattern of nocturnal feeding within surrounding salt marsh and diurnal resting within Refuge impoundments (Morton et al. 1989a, 1989b). Unhunted populations have been documented to behave differently from hunted ones (Wood 1993).

These impacts can be reduced by the presence of adjacent sanctuary areas where hunting does not occur, and birds can feed and rest relatively undisturbed. Sanctuaries or non-hunt areas have been identified as the most common solution to disturbance problems caused from hunting (Havera et. al 1992). Prolonged and extensive disturbances may cause large numbers of

waterfowl to leave disturbed areas and migrate elsewhere (Madsen 1995, Paulus 1984). In Denmark, hunting disturbance effects were experimentally tested by establishing two sanctuaries (Madsen 1995). Over a 5-year period, these sanctuaries became two of the most important staging areas for coastal waterfowl. Numbers of dabbling ducks and geese increased 4 to 20 fold within the sanctuary (Madsen 1995). Thus sanctuary areas are very important to minimize disturbance to waterfowl populations to ensure their continued use of the Nisqually delta.

Intermittent hunting can be a means of minimizing disturbance, especially if rest periods in between hunting events are weeks rather than days (Fox and Madsen 1997). It is common for Refuges to manage hunt programs with non-hunt days. At Sacramento NWR, 3-16% of pintails were located on hunted units during non-hunt days, but were almost entirely absent in those same units on hunt days (Wolder 1993). In addition, northern pintails, American wigeon, and northern shovelers decreased time spent feeding on days when hunting occurred on public shooting areas, as compared to non-hunt days (Heitmeyer and Raveling 1988). However, intermittent hunting may not always greatly reduce hunting impacts. The intermittent hunting program of three hunt days per week at Sacramento NWR results in lower pintail densities on hunt areas during non-hunt days than non-hunt areas (Wolder 1993). In Germany, several studies reported a range from a few days to approximately three weeks for waterbird numbers to recover to pre-disturbance levels (Fox and Madsen 1997). The proposed hunt program at Nisqually NWR will not be intermittent in order to provide consistent management with the existing program on adjacent WDFW lands and waters, preventing confusion among hunters on the delta.

Boating activity associated with hunting during the fall and winter can alter distribution, reduce use of particular habitats or entire areas by waterfowl and other birds, alter feeding behavior and nutritional status, and cause premature departure from areas (Knight and Cole 1995). In the upper Midwest, motor boating and hunting have been found to be the two main activities that disturb waterfowl (Korschgen et al. 1985). In Connecticut, selection of feeding sites by lesser scaup was influenced by disturbances from hunters, anglers, and pleasure boaters (Cronan 1957). In Germany, boating pressure on wintering waterfowl had reached such a high level that it was necessary to establish larger sanctuaries, implement a seasonal closure on water sports and angling, and impose a permanent ban on hunting (Bauer et al. 1992). Impacts of boating can occur even at low densities, given their noise, speed, and ability to cover extensive areas in a short amount of time. This is especially important in the RNA and McAllister Creek. These are both areas with high waterfowl use. The habitat along McAllister Creek is a relatively narrow tidal system that receives high use by a variety of waterfowl, waterbirds, wading birds, and raptors. In addition, an active bald eagle nest is located along McAllister Creek. The nesting period identified in the Bald Eagle Recovery Plan identifies January 1 as the beginning of the nesting season when special protective measures should begin (USFWS 1986). A great blue heron nesting colony, located along McAllister Creek since the 1970s, has been declining for several years. Nesting great blue herons are sensitive to a variety of human disturbances. Washington State requires a minimum 300-meter buffer zone to protect colonies from human disturbances (WDFW 2001). It is possible that hunting and associated boating activities may be one of the contributing factors affecting these nesting birds, as well as other wildlife using this narrow system.
Additional impacts from hunting activity include conflicts with individuals participating in wildlife-dependent priority public uses, such as canoers, kayakers, and other wildlife observers. The Refuge has received numerous comments from canoers and kayakers indicating concern for their safety while boating during the waterfowl hunting season.

Anticipated Impacts of Uses within the Proposed Expansion Area: The following conditions must be met before allowing existing uses to occur on an interim basis on newly acquired lands: (1) There is no indirect, direct, or cumulative threat anticipated to human health or safety; (2) There is no indirect, direct, or cumulative threat anticipated to natural or cultural resources; (3) The use is consistent with management of existing Nisqually NWR lands and would contribute to achieving Refuge goals. In particular, existing Refuge regulations would not be compromised; (4) The newly acquired lands represent a meaningful unit within which to manage the activity; and (5) There are no anticipated conflicts with priority public uses.

Anticipated impacts associated with a new walk-in hunting program would be addressed in the updated Compatibility Determination to be developed in the future.

Public Review and Comment: Public review and comments were solicited in conjunction with the Draft CCP/EIS for Nisqually NWR, released in December 2002. Few comments were received on the Compatibility Determinations. Also see the Summary of Changes document and Appendix M (Comments and Responses). Minor changes were made to reflect RNA acreages accurately.

Determination:

_____Use is Not Compatible

__X__Use is Compatible with the Following Stipulations

Stipulations necessary to ensure compatibility: Refuge hunt programs will be designed to provide high quality experiences. A quality hunt 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, especially those engaging in wildlife-dependent priority public uses. The 7-day per week hunt program proposed on the Refuge would include the following restrictions to reduce impacts: (1) a limited hunting area (area will be posted and enforced); (2) a 25-shell limit; (3) redefining and reducing the RNA by 73 acres to allow for hunting at the mouth of the Nisqually River, but adding 44 acres to the south end of the RNA; (4) a 200-yard buffer from trails; (5) sufficient feeding and resting habitat for waterfowl in areas closed to hunting (sanctuary); and (6) periodic biological and social monitoring and evaluation of hunting program, including feedback from users to determine if objectives are being met.

Sanctuary areas must provide high quality habitat for feeding, resting, and thermal protection. Since the waterfowl hunt in the delta is focused in estuarine habitat, it is important that sufficient estuarine habitat on the Refuge be set aside as sanctuary. The RNA (764 acres), a mixture of nearshore, intertidal, and salt marsh habitat, will be closed to all consumptive uses year-round and boating during the waterfowl hunting season (October 1 - March 31) to provide this sanctuary. Estuarine habitat within McAllister Creek will also be closed to hunting. The newly restored estuarine area (699 acres) will be closed to public access to ensure successful restoration and to allow undisturbed research and monitoring to evaluate wildlife and habitat response to restoration activities. This area thus will also serve as a sanctuary site. The majority of the remaining diked area (263 acres) will serve as sanctuary for waterfowl that prefer to move between the estuary and

freshwater wetlands. Some of the freshwater units would include public access on trails and therefore would not function as complete sanctuary. Monitoring must demonstrate that sanctuary units are functional, including receiving significant daytime use by waterfowl throughout the hunting season.

Boating associated with hunting has high potential for adversely impacting wildlife in the estuary. Three factors that exert the most disturbance to wildlife due to boating are noise, speed, and significantly increased access to more parts of the estuary. Thus, boating regulations to ensure compatibility during the hunting season will include the following: (1) 5 mph speed limit for boats in all Refuge waters; (2) the RNA will be closed to boats from October 1 through March 31 to reduce disturbance to wintering waterfowl populations; and (3) estuarine restoration areas, including the site currently within the Brown Farm Dike will be closed to boats year round. No motorized or non-motorized boats will be allowed into this area and all public access will occur on trails only. Monitoring would be conducted to evaluate whether these stipulations are sufficient to minimize disturbance to wildlife.

Hunter compliance with current migratory bird and Refuge regulations would be achieved through a combination of printed information, signing, outreach efforts, and enforcement of regulations by Refuge officers.

Justification: Hunting is one of the six priority public uses of the National Wildlife Refuge System. Providing a quality hunting program contributes to achieving one of the Refuge goals. This program as described was determined to be compatible, in view of the potential impacts that hunting and supporting activities (boating) can have on the Service's ability to achieve Refuge purposes and goals. The Refuge would be opened to waterfowl hunting, with sufficient restrictions in place on hunting, boating, and other public uses to ensure that an adequate amount of high-quality feeding and resting habitat would be available in relatively undisturbed areas (sanctuaries) for the majority of waterfowl and other wetland birds using Nisqually NWR. Although boating has the greatest potential to impact wetland wildlife, implementing the prescribed measures listed in the Stipulations section and in the Recreational Boating Compatibility Determination should reduce major impacts to acceptable levels.

Refuge hunt programs are designed to provide high quality experiences. In general, hunting on Refuges should be superior to that available on other private or public lands, which may require special restrictions (Refuge Manual 8RM5). 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. The limited hunt program is proposed on the Refuge to accomplish the following: (1) accommodate the existing hunt program on WDFW lands; (2) establish consistent regulations across all lands and waters within the Nisqually delta; (3) provide a quality hunting experience that meets Refuge guidelines and policies; and (4) provide sufficient waterfowl sanctuary and resolve the current unauthorized hunting situation.

It is anticipated that an adequate amount of quality, non-hunted estuarine habitat would be available to the majority of waterfowl and other wetland birds because: (1) some high wildlife use areas will be set aside as sanctuary (764 acres in the RNA and 699 acres of restored estuarine area); (2) boating regulations would be maintained and enforced; and (3) hunting activity will be confined to designated areas because "no hunting zones" will be posted and enforced. Consolidation of the

hunting area into a single block of land provides a distinct, manageable unit that can be more easily delineated, posted, and enforced, resulting in larger sections of estuary in the delta that are available for waterfowl use. Thus, it is anticipated that birds will find sufficient food resources and resting places such that their abundance and use of the Refuge will not be measurably lessened, hunting pressure will not cause premature departure from the area, the physiological condition and production of waterfowl and other waterbirds will not be impaired, their behavior and normal activity patterns will not be altered dramatically, and their overall status will not be impaired. A program will be implemented to monitor waterfowl population numbers and habitat use.

Mandatory Re-Evaluation Date (provide month and year for "allowed" uses only):

___X___ Mandatory 15-year Re-Evaluation Date will be provided in the Final EIS/CCP (for priority public uses)

_____ Mandatory 10-year Re-Evaluation (for all uses other than priority public uses)

NEPA Compliance for Refuge Use Decision (check one below):

_____ Categorical Exclusion without Environmental Action Statement

_____ Categorical Exclusion and Environmental Action Statement

_____ Environmental Assessment and Finding of No Significant Impact

__X__ Environmental Impact Statement and Record of Decision

Refuge Determination

Prepared by: _____ (Signature) 10-15-04 (Date)

Refuge Manager/
Project Leader
Approval: _____ (Signature) 10-15-04 (Date)

Concurrence

Refuge Supervisor: _____ (Signature) 10-27-04 (Date)

Regional Chief,
National Wildlife
Refuge System: _____ (Signature) 10/28/04 (Date)

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