From: BrownScott, Jennifer
To: Stenvall, Charlie
Subject: DNG Mgmt Plan 1997
Date: Tuesday, May 25, 2021 12:08:16 PM
Attachments: USFWS 1997 DNWR PublicUseMgt Plan.pdf

Just in case it comes up and you want the reference on hand...

_____

Jennifer Brown-Scott
Project Leader
Washington Maritime National Wildlife Refuge Complex
715 Holgerson Road
Sequim, WA 98382
(360) 457-8451
~~Dungeness NWR~Protection Island NWR~San Juan Islands NWR~Copalis NWR~Flattery Rocks NWR~Quillayute Needles NWR~~

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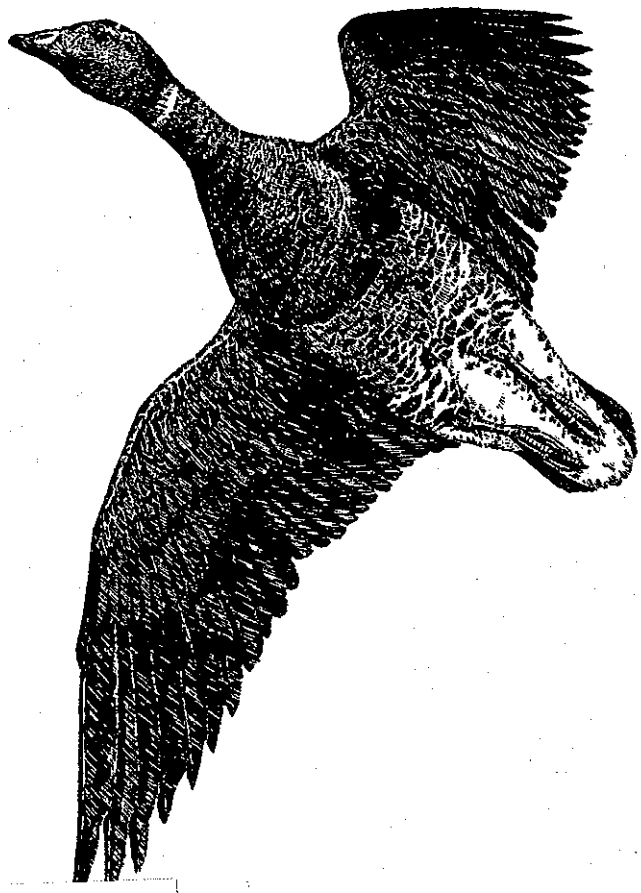
Management of Public Use for Dungeness National Wildlife Refuge



Goals
think about
objectives we want
under each goal
- how organize it
go from general
to ~~specific~~ Topic -
then work on
measurable

onmental Assessment

United States Department of the Interior

Fish and Wildlife Service

Nisqually National Wildlife Refuge Complex
100 Brown Farm Road
Olympia, Washington 98516
(360) 753-9467
fax (360) 534-9302

January 10, 1997

To: Interested Individuals, Representatives of Federal, State, County, and Local Governments; Citizens' Groups; Landowners; and Others;

The U.S. Fish and Wildlife Service is pleased to provide you with a copy of the *Finding of No Significant Impact*, the *Final Environmental Assessment for Management of Public Use for Dungeness National Wildlife Refuge*, and the *Section 7 Evaluation*. Planning for public use management on Dungeness National Wildlife Refuge was done in coordination with other Federal agencies; State, tribal, and local agencies; private groups; and many concerned individuals. The assessment identifies and addresses the issues and concerns expressed during planning. It contains a list of those who received the draft Environmental Assessment and a summary of the comments that were received. In some cases, the draft has been revised in response to questions and issues raised during the comment period. All comments were considered in preparing the final Environmental Assessment.

The final Environmental Assessment evaluates five alternatives and the potential effects upon the environment. Alternative D was selected for implementation because it effectively protects Refuge wildlife and habitat while accommodating both wildlife-dependent and non-wildlife-dependent public uses that are compatible with the Refuge purpose.

Your interest in and support for minimizing conflicts between wildlife and public use activities on Dungeness National Wildlife Refuge are appreciated. If you have questions, or would like additional copies of the final Environmental Assessment contact Robert Edens, Washington Coastal Refuges Office, 33 South Barr Road, Port Angeles, WA 98362, (360) 457-8451. Jean Takekawa, Deputy Refuge Manager, Nisqually National Wildlife Refuge Complex, Olympia, Washington, (360) 753-9467, is also available to answer questions.

Sincerely,

Willard B. Hesselbart

Willard B. Hesselbart, Refuge Manager
Nisqually National Wildlife Refuge Complex

United States Department of the Interior

FISH AND WILDLIFE SERVICE
North Pacific Coast Ecoregion
Office of the Assistant Regional Director
3773 Martin Way E. Bldg. C, Suite 101
Olympia, Washington 98501

Finding of No Significant Impact

Management of Public Use for Dungeness National Wildlife Refuge

The U.S. Fish and Wildlife (FWS) proposes to adopt and implement modifications in public use management of Dungeness National Wildlife Refuge that would provide refuge visitors with high quality wildlife-dependent education and recreational experiences while ensuring the allowed uses occur in a time, place, and manner that do not conflict with wildlife objectives and are compatible with Refuge purposes.

The Environmental Assessment evaluates five alternatives and subsequent environmental consequences of public use activities occurring on Dungeness National Wildlife Refuge. Alternative D (Allow Compatible Wildlife-Dependent and Non-Wildlife Dependent Public Use) was selected because it effectively protects Refuge wildlife and habitat while accommodating both wildlife and non-wildlife-dependent public uses which are compatible with the Refuge purposes.

Based on the review and evaluation of the information contained in the supporting reference, I have determined that the proposed action for public use management at Dungeness National Wildlife Refuge would not constitute a major federal action with significant effects on the quality of the human environment within the meaning of Section 102 (2)(c) of the National Environmental Policy Act of 1969. Accordingly, the preparation of an environmental impact statement on the proposed action is not required.

Copies of the Finding of No Significant Impact (FONSI) and the Final Environmental Assessment are being sent to all affected agencies, private groups, other interested groups, and interested individuals. Revision of public use management on Dungeness National Wildlife Refuge will not occur until 30 days after the public notification date. As part of the public notice and review process associated with the proposed changes to public use management at Dungeness National Wildlife Refuge, the FWS made the draft Environmental Assessment available for review and comment. In some cases, the draft has undergone minor revisions in response to questions and issues raised during the comment period. No changes were made to the proposed action.

The FONSI, Final Environmental Assessment, and other supporting documents are on file at the Washington Coastal Refuges Office, 33 South Barr Road, Port Angeles, Washington 98362 (telephone (360) 457-8451). They are available for public inspection upon request.

Supporting Reference — *Final Environmental Assessment for the Management of Public Use for Dungeness National Wildlife Refuge.*

12/11/96
Date

Curt Smitch
Curt Smitch, Assistant Regional Director
North Pacific Coast Ecoregion

Final Environmental Assessment

Management of Public Use for Dungeness National Wildlife Refuge

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Action is proposed under the following legal mandates

National Wildlife Refuge System Administration Act of 1966
(16 U.S.C. 688dd-668ee), as amended

Refuge Recreation Act of 1962
(16 U.S.C. 460k-460k-4), as amended

Clallam County, Washington

January, 1997

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Chapter 1

Purpose and Need for Action

Introduction

This Final Environmental Assessment (EA) presents and compares five alternatives for the management of public use on Dungeness National Wildlife Refuge (NWR) (Figure 1). Dungeness NWR has been separated into four management zones to better accommodate management discussions and facilitate implementation of any changes. Zone 1 is the half-mile of beach that extends southwest of the base of Dungeness Spit. Zone 2 includes the base and the first half mile northeast along Dungeness Spit. Zone 3 begins a half mile out from the base, continues to the lighthouse, and includes all tidelands and Graveyard Spit. Zone 4 covers the area from the eastern edge of the lighthouse compound to the end of Dungeness Spit. Trails for foot and equestrian access to Dungeness Spit traverse 74 acres of forested uplands. These forested uplands are not considered in this EA because public uses are limited to the trails and conflicts with wildlife are not occurring. The tideland parcel near Cline Spit and the three tideland parcels at the south end of Dungeness Harbor are included within Dungeness NWR, but are not addressed in this EA because they are currently administratively uncontrollable. The EA describes the predicted environmental, economic, and social consequences of each alternative, identifies a preferred alternative, and provides a means for public review.

The Proposed Action

The U.S. Fish and Wildlife Service (FWS) proposes to adopt and implement modifications in public use management on Dungeness NWR that would provide refuge visitors with high quality wildlife-dependent educational and recreational experiences while ensuring the allowed uses occur in a time, place, and manner that do not conflict with wildlife objectives and are compatible with refuge purposes.

Why Action is Being Considered

The number of visitors to Dungeness NWR has increased substantially in recent years. Between 1988 and 1994, annual visitation rose 67 percent, from 66,000 to 110,000. Visitation during 1996 was 112,000. During the same time period, wildlife use, including black brant, other waterfowl, and harbor seals, declined on Dungeness NWR. Dungeness NWR officials have become concerned that the number of visitors and the types of public use and recreational activities in which they are participating may be in conflict with the wildlife resources. A further concern is if left unregulated many of the activities could cause irreparable damage to Dungeness NWR's wildlife habitats. The rapid surge in visitation has resulted in the need to review the public use program to ensure the purpose for which Dungeness NWR was established is being upheld, and refuge wildlife and habitats are sufficiently protected. This final EA and public use plan describes the types of use and to what degree they will be permitted based on a lengthy review including extensive public participation.

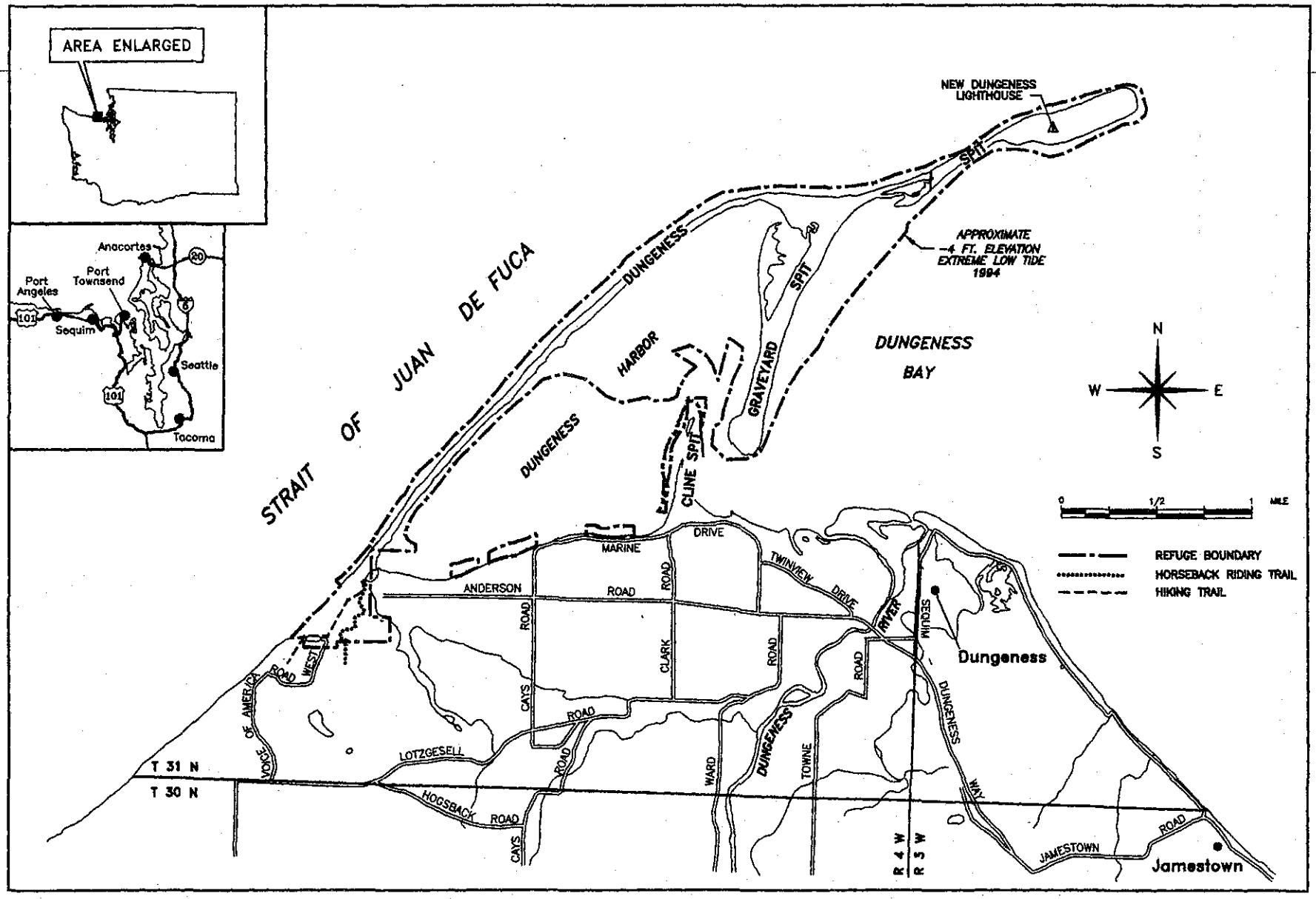

Figure 1. Dungeness National Wildlife Refuge

The Refuge Recreation Act of 1962 authorizes recreational use of refuges when such uses do not interfere with the refuge's primary purposes and when funds are available for the development, operation, and maintenance of these uses (Appendix A). The National Wildlife Refuge System Administration Act of 1966 further stipulates all uses of national wildlife refuges must be compatible with the purposes for which the refuge was established (Appendix A).

Dungeness NWR Purposes

Dungeness NWR was established by Executive Order 2123 on January 20, 1915 for the purpose of ". . . a refuge, preserve, and breeding ground for native birds . . ." under the management of the Federal Government (Appendix B). On May 29, 1943, the State of Washington granted a Use Deed to the FWS for all of the second class tidelands associated with Dungeness NWR (Appendix C). These tidelands are to be managed as part of Dungeness NWR. On March 6, 1971, approximately 45 acres and on March 25, 1972 approximately 29 acres of forested upland were acquired by the U.S. Government, under the Refuge Recreation Act, for addition to Dungeness NWR. Under that act, these lands are ". . . suitable for: (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, and (3) the conservation of endangered or threatened species . . .."

Relationship of Action to Refuge System Mission, Goals, and Dungeness NWR Objectives

Dungeness NWR is managed by the FWS under the Department of the Interior, and is a unit of the National Wildlife Refuge System (NWRS). It is managed by the Washington Coastal Refuges Office in Port Angeles, Washington, which is part of the Nisqually NWR Complex.

Refuge System Mission and Goals

The mission of the NWRS is to, "preserve a national network of lands and waters for the conservation and management of fish, wildlife, and plant resources of the United States for the benefit of present and future generations" (Executive Order 1996).

To achieve this mission, each refuge emphasizes specific contributions it can make that are consistent with the following long-range NWRS goals (602 FW 1.4M):

- To preserve, restore, and enhance in their natural ecosystem (when practicable) all species of animals and plants that are endangered or threatened with becoming endangered.
- To perpetuate the migratory bird resource.
- To preserve a natural diversity and abundance of fauna and flora on refuge lands.
- To provide an understanding and appreciation of fish and wildlife ecology and people's role in their environment, and to provide refuge visitors with high quality, safe, wholesome and enjoyable recreational experiences oriented toward wildlife, to the extent these activities are compatible with the purposes for which the refuge was established.

Refuge System Guiding Principles

Management and general public use of the Refuge System are also influenced by the following guiding principles (Executive Order 1996):

- Public Use — The Refuge System provides important opportunities for compatible wildlife-dependent recreational activities involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation.
- Habitat — Fish and wildlife will not prosper without high-quality habitat, and without fish and wildlife, traditional uses of refuges cannot be sustained. The Refuge System will continue to conserve and enhance the quality and diversity of fish and wildlife habitat within refuges.
- Partnerships — America's sportsmen and women were the first partners who insisted on protecting valuable wildlife habitat within wildlife refuges. Conservation partnerships with other Federal agencies, State agencies, Tribes, organizations, industry, and the general public can make significant contributions to the growth and management of the Refuge System.
- Public Involvement — The public should be given a full and open opportunity to participate in decisions regarding acquisition and management of our National Wildlife Refuges.

Dungeness NWR Objectives

The objectives for Dungeness NWR were developed by Refuge staff and approved by the Olympia Area Office in 1982. These objectives, as listed from highest to lower priority, further define and support the purpose for which Dungeness NWR was established.

- To provide and preserve habitat for the enhancement of wintering waterfowl and other migratory birds with emphasis on black brant.
- To protect and maintain natural habitats capable of supporting a diversity of wildlife.
- To provide public information, interpretation, and education on the wildlife resources of the Refuge.
- To provide wildlife-oriented recreation.
- To cooperate with other agencies, educational institutions, and private organizations and individuals in providing technical assistance and research opportunities consistent with Refuge objectives and management needs.

Management of Dungeness NWR is based upon the above prioritized objectives and several applicable laws and regulations (Appendix A). Regulations developed to guide implementation of applicable laws are codified under Title 50 of the U.S. Code of Regulations (50 CFR).

Public Involvement

An FWS interdisciplinary planning team was established in November 1993 to address the issue of wildlife being adversely impacted by the increase in public use at Dungeness NWR. As mentioned in the Public Involvement Plan (USFWS 1993) that resulted from the initial meeting of the team, ". . . it is the policy of the FWS to involve the public in decision-making regarding policies and/or actions that will affect or interest the public. . ."(Refuge Manual, 4 RM 4.3).

The public process began on March 28, 1994 when interested members of the public were invited to participate in a meeting in which the purpose for modifying public use management on Dungeness NWR was explained. The meeting provided a forum to identify key issues, affected public groups, public use management alternatives, and to develop a mailing list.

A public scoping meeting was held on June 9, 1994 to explain the planning process and identify issues associated with public use management on Dungeness NWR. Two booklets entitled, "Resolving Incompatible Uses at Dungeness National Wildlife Refuge" (USFWS 1994), and "Wildlife of Dungeness National Wildlife Refuge" (USFWS 1994), were distributed to the 37 people in attendance. The conflicts between public use activities and wildlife were explained, and those present were asked to help identify solutions to resolve them. Booklets were also mailed to those on the mailing list to solicit their input. The meetings resulted in numerous comments from the public and local agencies which were considered in developing the draft EA.

The draft EA was released on May 31, 1996 and distributed to individuals, organizations, agencies, governmental representatives, and libraries among others for comment and review (Appendix D). Comments were also received from 130 participants attending open houses on June 19 and 20, 1996. All comments were considered in completing the final EA.

The Issues Associated with the Proposed Action

The issues identified through the scoping effort are listed and described below.

Issue 1. Black brant, other waterfowl, waterbirds, and shorebirds are being disturbed by increased public use activities at Dungeness NWR.

The number of people visiting Dungeness NWR has increased over the past nine years to 112,000 per year. Visitors are participating in such activities as wildlife observation, hiking, clamming, boating, crabbing, picnicking, jetskiing, windsurfing, horseback riding, jogging, and other beach recreation. Depending on the type of activity and location, disturbance to wildlife has generally been greatest from October through mid-May. Many species of shorebirds, black brant other waterfowl, and waterbirds are disturbed during their resting and feeding periods in all habitat types. In 1993, Graveyard Spit was closed to public access to protect sensitive plant species and to provide an undisturbed sanctuary for wildlife.

Nesting shorebirds and seabirds are also being disturbed by public use activities. Black oystercatchers have traditionally nested along the shoreline on both sides of Graveyard Spit and along the shore on the Dungeness Bay side of Dungeness Spit near the lighthouse. Killdeer may nest anywhere along the shoreline of Dungeness and Graveyard spits, but they tend to select nesting sites on the Dungeness Bay and Harbor side of Dungeness Spit and on the east and west side of Graveyard Spit. These species are experiencing disturbance from hiking, horseback riding, wildlife observation, and visitors beaching their watercraft. Pigeon guillemots might also nest in the driftwood on the Dungeness Bay and Harbor side of Dungeness and Graveyard spits if disturbance were minimized.

Issue 2. Harbor seals are being disturbed on the tip of Dungeness Spit.

Fishing, boating, and hiking have negative impacts on harbor seal pupping and haul-out activity especially from March through September. The end of the Dungeness Spit past the lighthouse was closed to public access in August 1993 to protect harbor seals in the highest use area. Small numbers of individual seals continue to haul out and pup along the length of Dungeness Spit and may be adversely affected by public use activities.

Issue 3. The quality of wildlife-dependent recreation (wildlife observation) is being reduced by visitors participating in non-wildlife-dependent recreation.

People who visit Dungeness NWR to observe wildlife are disturbed by people involved in non-wildlife-dependent recreation such as beach use (swimming and other recreational beach activities), jogging, and horseback riding.

Compatibility Issues

National wildlife refuges are the only lands in Federal ownership managed primarily for wildlife. In 1989, two U.S. congressional committees requested that the General Accounting Office (GAO) evaluate management of national wildlife refuges to see if they were being managed for their stated purposes.

The GAO report found that refuges throughout the country were not meeting expectations. Many secondary uses were responsible for the destruction of wildlife habitats and diverting management attention from wildlife. Secondary uses are those activities that are not directly related to managing an area for wildlife. As a result of the report, refuge managers were interviewed to identify and review all secondary uses occurring on refuges to determine compatibility. A use is not compatible if it materially interferes with or detracts from the purpose(s) for which the refuge was established (Refuge Manual, Section 5 RM 20.6A).

A lawsuit was filed on October 22, 1992 against the FWS by the National Audubon Society, Wilderness Society, and Defenders of Wildlife (Audubon et. al. v. Babbitt, C92-1641), which alleged that the Service had, ". . . violated the Refuge Recreation

Act of 1962, the National Environmental Policy Act of 1969, and the Administrative Procedure Act in authorizing and allowing secondary uses of the National Wildlife Refuge System without ensuring that such uses are compatible with the purposes of the National Wildlife Refuges on which they occur, without ensuring that funds are available for the development, operation, and maintenance of secondary recreational uses, and without considering the environmental impacts of such secondary uses pursuant to NEPA . . .."

The lawsuit resulted in a settlement agreement on October 20, 1993, which required another comprehensive review and evaluation of all secondary uses occurring on refuges, and the identification of uses found to be incompatible with Refuge purposes. Compatibility determinations were to comply with the National Environmental Policy Act process and those uses found not to be compatible would either be modified to assure compatibility or eliminated by October 20, 1994.

Dungeness NWR Compatibility Determinations

On July 11, 1994 compatibility determinations were completed for sixteen secondary use activities on Dungeness NWR. Environmental education, tribal fishing, research, fishing enhancement, and permitted special uses were found to be compatible and will be allowed to continue as presently occurring. Jetskiing and windsurfing were separately reviewed and each was determined not to be compatible even with modifications. Therefore, they cannot be allowed. The remaining nine uses were determined to be potentially compatible, if modified. These nine uses were hiking, wildlife observation, wildlife photography, non-motorized boating, motorized boating, recreational fishing/shellfishing, jogging, beach use (swimming and other recreational beach activities), and horseback riding.

Chapter 2
Alternatives Including the Proposed Action

Introduction

Several alternatives were considered by the planning team to address the issues described in Chapter 1. This chapter includes:

- A description of the five alternatives analyzed.
- The identification of the FWS preferred alternative.
- A comparison of how the alternatives achieve the purpose and need for the action.
- A comparison of how the alternatives address the issues identified in Chapter 1.
- A summary of the environmental consequences of each alternative.

The Process Used to Develop the Alternatives

The following important elements were considered when developing the five alternative strategies for addressing the issues and managing public use on Dungeness NWR:

- Public comment.
- Purpose and objectives for Dungeness NWR.
- Compatibility determinations that were prepared for Dungeness NWR.
- Laws, regulations, and policies that govern secondary uses on national wildlife refuges.

Alternative Considered But Not Studied in Detail

Close Dungeness NWR to Public Use During Peak Wildlife Use: This alternative action would close Dungeness NWR to all public access from October through May. This alternative would not have major advantages over closing portions of Dungeness NWR where peak wildlife use occurs during the same time period. Public use from October through May could be managed to minimize impacts on the wildlife resource.

Description of Alternatives

The planning team considered five alternatives in detail. The different management strategies, beginning with Alternative B, represent a progression from eliminating all public use to allowing the maximum public use possible, while still complying with compatibility mandates.

Alternative A — No Action

This alternative describes current management activities. All public uses would continue to occur throughout most of the Refuge, except on Graveyard Spit and the tip of Dungeness Spit which were closed in 1993 to protect wildlife. This alternative provides a reference point to compare and evaluate environmental consequences associated with the other alternative strategies. The response of wildlife to public use activities would continue to be monitored to determine long- and short-term population trends and to determine if Dungeness NWR's establishing purpose and current objectives are being met. This review would provide a basis for evaluating wildlife and public use management.

Alternative B — Eliminate Public Use

This alternative emphasizes wildlife protection and considers only the needs of wildlife and the protection of wildlife habitat. Although limited use by research and educational groups would be permitted under restrictive special use permits, the general public would not be permitted to visit Dungeness NWR during any time of the year. Wildlife populations would be monitored to measure the effectiveness of the closure.

Alternative C — Allow Compatible, Wildlife-Dependent Public Use

Alternative C would allow compatible wildlife-dependent recreation in selected areas, in some cases on a seasonal basis (Figure 2). Graveyard Spit and the tip of Dungeness Spit would remain closed to public access. Watercraft would not be allowed to beach on any part of Dungeness NWR. Non-wildlife-dependent activities including jogging, beach use (swimming and other recreational beach activities), and horseback riding would not be permitted. Jetskiing and windsurfing would be discontinued because they are not compatible with Refuge purposes.

Wildlife-dependent recreational activities would be modified as follows under Alternative C to make them compatible with Refuge purposes:

> **Zone 1:** Hiking, wildlife observation, and wildlife photography would be permitted year round. Saltwater fishing would be permitted on the Strait side year round.
>
> **Zone 2:** Hiking, wildlife observation, and wildlife photography would be permitted on the Strait side year round and on the Harbor side, from May 15 to September 30. Saltwater fishing would be allowed on the Strait side year round. Shellfishing (clamming and crabbing) would be allowed by foot access only on the Harbor side of Zone 2, from May 15 to September 30. From October 1 to May 14, the Harbor side of Zone 2 would be closed to all access.
>
> **Zone 3:** Hiking, wildlife observation, wildlife photography, and saltwater fishing would be allowed on the Strait side year round. The Harbor and Bay side of Dungeness Spit in Zone 3, including a 100-yard buffer zone below the mean high tide line would be closed to public access year round. Where the Refuge boundary does not accommodate a 100 yard buffer, the buffer will be slightly narrower.

The buffer zone would extend to the Refuge boundary on the west side of Graveyard Spit. Motorized and non-motorized boats (kayaks, small sailboats, canoes, rowboats, etc.) would be allowed access to the areas west and east of Graveyard Spit in Zone 3, outside the 100-yard buffer, between May 15 and September 30. A no-wake zone would be in effect for power boats. This area would be closed to all access from October 1 to May 14.

Zone 4: This zone would be closed to public access year round.

Additional management actions would be taken to reduce disturbance to harbor seals pupping in areas open to public use. As soon as a new pup is found, the immediate area where the pup is located would be closed and marked with cones. A volunteer would be stationed at the site whenever possible to prevent disturbance and to educate visitors. Brochures, signs, and visitor contacts would continue to be used to educate the public about unnecessary pup disturbance and human intervention.

The response of wildlife to these modifications in public use activities would be monitored and evaluated to measure the effectiveness of the program in meeting Refuge purposes. Based on monitoring data, public use regulations could become more or less restrictive in the future.

Alternative D — Allow Compatible Wildlife-Dependent and Non-Wildlife-Dependent Public Use (Preferred Alternative)

Alternative D is the preferred alternative (Figure 3 and Table 1). It is identical to Alternative C, except that compatible non-wildlife-dependent public use would also be allowed and boats would be permitted to land in a designated area in Zone 3. Compatible wildlife-dependent uses would be permitted following the same management strategies as in Alternative C. Compatible non-wildlife-dependent activities would be permitted as follows:

Zone 1: Jogging and beach use (swimming and other recreational beach activities) would be permitted year round. Horseback riding would be permitted on the beach daily from October 1 to May 14 and on weekdays (not weekends) from May 15 to September 30, by reservation only through the Refuge Office (as deemed necessary by the Refuge). Depending on demand, numbers may be limited to prevent overcrowding and ensure public safety. Horseback riders may continue west for 3/4 mile on the County beach. Permits may be required in the future if the reservation system is not sufficient.

Zone 2: Jogging and beach use (swimming and other recreational beach activities) would be permitted on the Strait side year round.

Zone 3: Boats would be permitted to land year round, by reservation only through the Refuge Office (as deemed necessary by the Refuge), in the designated 100-yard zone of beach next to the lighthouse compound on the Bay side of Dungeness Spit. Visitors would be allowed to walk through Zone 3 in a designated area, to get to and from the lighthouse to the landing site. Boat landing

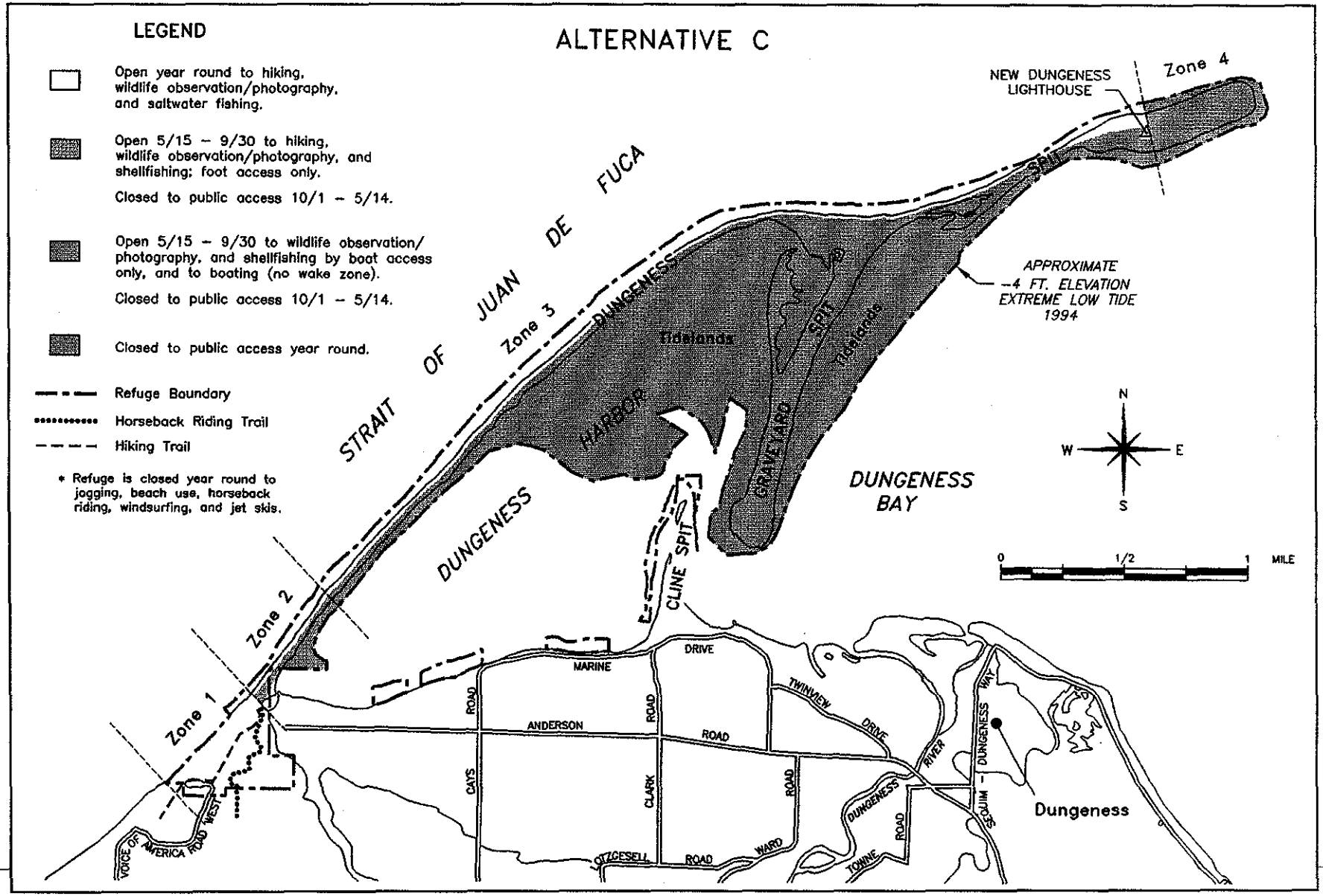

Figure 2. Alternative C.

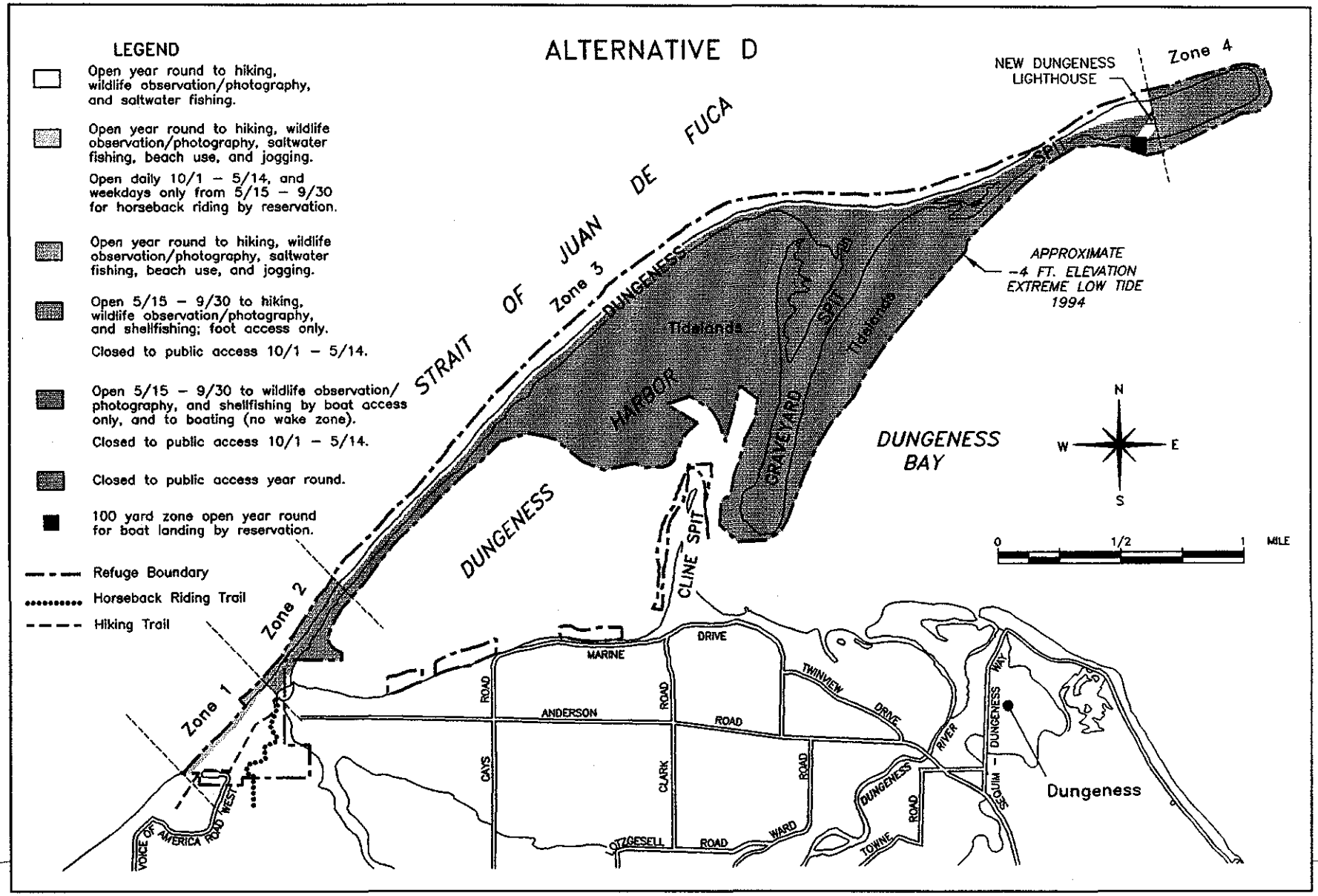

Figure 3. Alternative D.

	Zone 1	Zone 2	Zone 3	Zone 4
Hiking, wildlife observation/ photography	Foot access year round.	Foot access only. Strait side year round; Harbor side May 15 to Sept. 30.	Foot access only. Strait side year round.	— — — —
Jogging, beach use (swimming and other recreational beach activities)	Foot access year round.	Foot access only. Strait side year round.	— — — —	— — — —
Horseback riding	By reservation only. Daily October 1 to May 14. Weekdays May 15 to Sept. 30.	— — — —	— — — —	— — — —
Saltwater fishing	Foot access only. Strait side from shore year round.	Foot access only. Strait side from shore year round.	Foot access only. Strait side from shore year round.	— — — —
Shellfishing (clamming and crabbing)	Not applicable	Foot access only. Harbor side May 15 to September 30.	Boat access only. Tidelands east and west of Graveyard Spit, outside 100 yard buffer, May 15 to September 30.	— — — —
Motorized (no wake) and non-motorized boating	— — — —	— — — —	Tidelands east and west of Graveyard Spit, outside 100 yard buffer, May 15 to September 30.	— — — —
Beach landing by boat	— — — —	— — — —	By reservation only. Year round in 100 yard zone of beach next to the light-house compound on Bay side of Dunge-ness Spit.	— — — —

Table 1. *Allowed public uses under Alternative D (Preferred Alternative).*
[" — — — — " means use not allowed]

would occur under existing, natural beach conditions without additional improvements. The reservation system will allow the number of boat landings to be limited to minimize wildlife disturbance and prevent overcrowding.

Zone 4: This zone would be closed to public access year round.

Management actions to protect harbor seals described under Alternative C would continue to be taken.

The response of wildlife to these modifications in public use activities would be monitored and evaluated to measure the effectiveness of the program in meeting Refuge purposes. Based on monitoring data, public use regulations could become more or less restrictive in the future.

Alternative E — Allow Maximum Public Use

This alternative (Figure 4) allows wildlife-dependent and non-wildlife-dependent public use activities to occur in areas now closed and for a longer time span than recommended in other alternatives. Jetskiing and windsurfing would be discontinued because they are not compatible with Refuge purposes. Boats would be permitted to land on Dungeness NWR except during specific closures related to boating.

Zone 1: Hiking, wildlife observation, wildlife photography, jogging, beach use (swimming and other recreational beach activities), horseback riding, and saltwater fishing from shore would be allowed year round.

Zone 2: Hiking, wildlife observation, wildlife photography, jogging, beach use (swimming and other recreational beach activities), horseback riding, and saltwater fishing from shore would be allowed year round on the Strait side. Hiking, wildlife observation, wildlife photography, saltwater fishing, shellfishing, and boating (motorized and non-motorized) would be allowed on the Harbor side from May 1 to October 31.

Zone 3: Hiking, wildlife observation, wildlife photography, jogging, horseback riding, and saltwater fishing from shore would be allowed year round on the Strait side. Hiking, wildlife observation, wildlife photography, jogging, shellfishing, and boating (motorized and non-motorized) would be allowed on the Harbor and Bay side from May 1 to October 31 and closed November 1 to April 30. Graveyard Spit would be closed to public access October 1 to April 30.

Zone 4: Hiking, wildlife observation, wildlife photography, jogging, saltwater fishing, and shellfishing would be allowed throughout Zone 4 May 1 to September 30. From October 1 to October 31, hiking, wildlife observation, wildlife photography, jogging, and saltwater fishing from shore would be allowed on the Bay side only. The Strait side would be closed to public access during October. All of Zone 4 would be closed to public access November 1 to April 30.

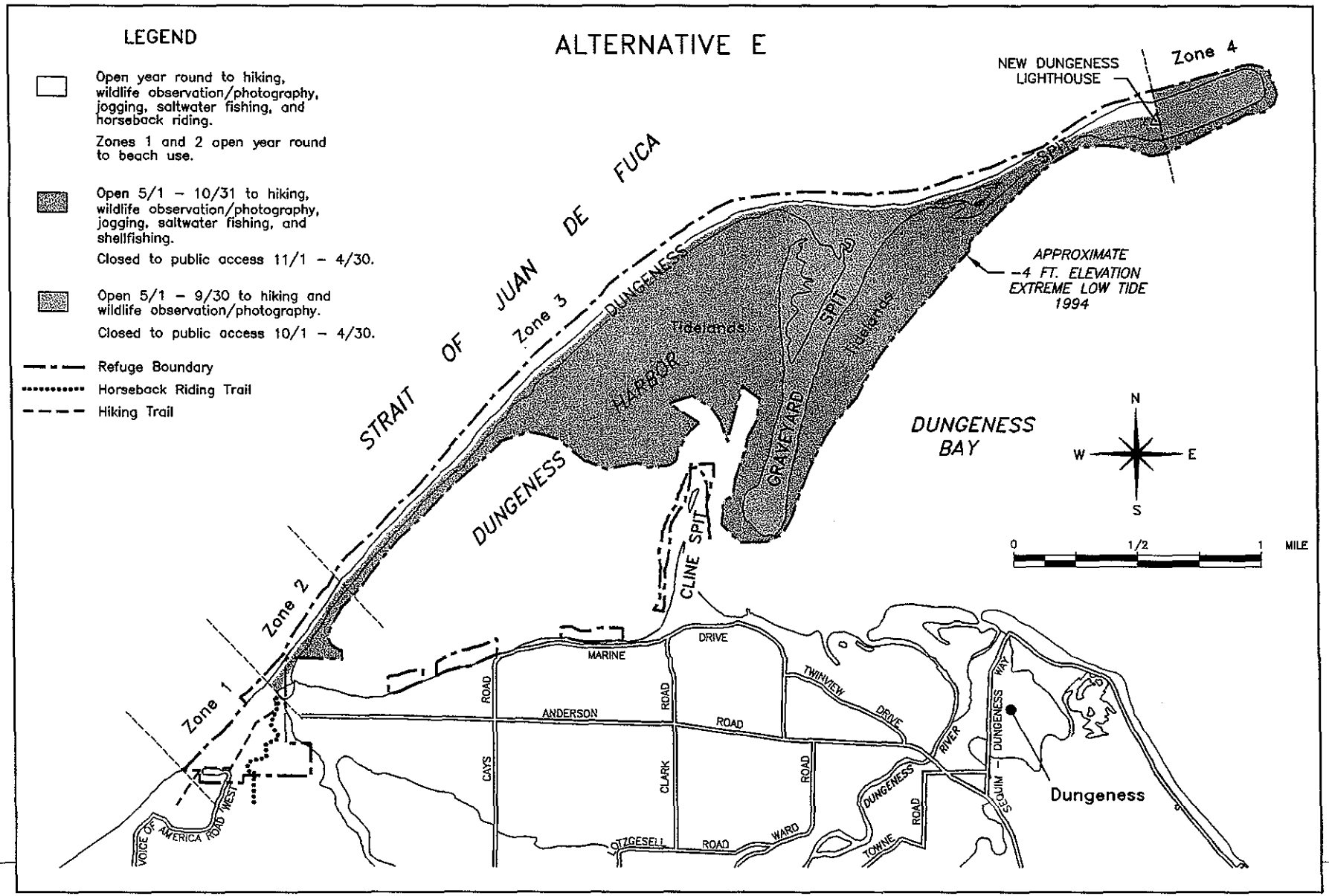

Figure 4. Alternative E.

The response of wildlife to these modifications in public use activities would be monitored and evaluated to measure the effectiveness of the program in meeting Refuge purposes. Based on monitoring data, public use regulations could become more or less restrictive in the future.

Summary of Environmental Consequences

Table 2 summarizes and compares the environmental consequences of each alternative. Each alternative was evaluated for its effectiveness in addressing the purpose and need for action, the establishing purpose and objectives, compatibility requirements, and the three issues identified in the public scoping process. (See Chapter 1). The effects of public use activities under the various alternatives on wildlife using Dungeness NWR is based on literature reviews conducted by the planning team, direct observation by staff, and responses from the public. The degree of conflict between public use activities and wildlife was assessed based on the following levels of conflict:

> *Severe Conflict:* A direct impact which affects production or causes high stress level. The impact could result in mortality.
>
> *Conflict:* An impact which is disrupting to traditional and required use patterns of wildlife. The impact would compromise wildlife objectives or the establishing purpose of Dungeness NWR.
>
> *Minimal Conflict:* An impact which is a temporary disturbance that is considered acceptable. The impact would not compromise wildlife objectives or the establishing purpose of Dungeness NWR.

The response of wildlife to the alternatives is based on an increase or decrease of total numbers of wildlife that will visit Dungeness NWR annually. Effects of the alternatives on the economy of the area is based on the revenue generated by people camping in the adjacent county campground and on the amount of money spent in the area for fuel, lodging, and food in nearby communities.

Alternative A — No Action

This alternative would not address the purpose and need for action. Wildlife would continue to be disturbed, including brant, other waterfowl, waterbirds, shorebirds, and nesting birds, as described in Issue 1. Harbor seals would continue to be protected by a closure at the tip of Dungeness Spit (Issue 2). However, disturbance of individual harbor seals that occasionally haul out or pup in other locations on Dungeness Spit would continue to occur. Viewing opportunities of visitors participating in wildlife-dependent recreation would continue to be reduced by non-wildlife-dependent recreational visitors (Issue 3). The establishing purpose and objectives set for Dungeness NWR would not be met. The following uses would not be compatible and would not be in compliance with the Refuge Recreation Act and the National Wildlife Refuge System Administration Act: jetskiing, windsurfing, jogging, beach use, horseback riding, boating (motorized and non-motorized), hiking, recreational fishing (shellfishing), wildlife observation, and wildlife photography.

Alternative B — Eliminate Public Use

This alternative would ensure that public use activities and the increase in visitation would not conflict with the needs of wildlife. Wildlife, including brant, other waterfowl, waterbirds, shorebirds, nesting birds, and harbor seals, would not be disturbed by public use activities throughout the Refuge (Issues 1 and 2). Conflicts among user groups would not occur since the Refuge would be closed to the public (Issue 3). This alternative would be compatible with the establishing purpose for Dungeness NWR, but would not provide visitors with high quality wildlife-dependent educational and recreational experiences as outlined in the proposed action. In addition, this alternative would not accomplish one of the lower priority objectives set for Dungeness NWR, to provide wildlife-oriented recreational opportunities.

Alternative C — Allow Compatible Wildlife-Dependent Public Use

Alternative C addresses the purpose and need for action by effectively providing some additional protection of wildlife while making provision for wildlife-dependent public use. Disturbance to wildlife would be reduced because public uses would not be allowed where, or during the seasons when wildlife (brant, other waterfowl, waterbirds, shorebirds, nesting birds, and harbor seals) use is highest (Issues 1 and 2). Seasonal closures (October 1 to May 14) in Zone 3 and the Harbor side of Zone 2 would protect migrating and wintering shorebirds, waterfowl, and waterbirds. Year round closure along the Harbor and Bay side of Zone 3 would provide similar protection, as well as protect nesting birds during the spring and summer. Limited incidences of disturbance to harbor seals would continue to occur in cases where seals haul out or pup in areas open to public use on Dungeness Spit. Conflicts between visitors participating in wildlife-dependent and non-wildlife-dependent recreation would not occur, because the Refuge would be closed to the latter uses (Issue 3). This alternative supports the establishing purpose and objectives set for Dungeness NWR. Jetskiing and windsurfing would not be compatible with Refuge purposes and so would not be allowed. Uses described in Alternative C would be compatible, since only wildlife-dependent public uses, modified in a way that makes them compatible with Refuge purposes, would be allowed.

Alternative D — Allow Compatible Wildlife-Dependent and Non-Wildlife-Dependent Public Use (Preferred Alternative)

This alternative addresses the purpose and need for action by providing protection for wildlife while accommodating wildlife-dependent and non-wildlife-dependent public uses. Similar to Alternative C, public uses would not be allowed where, or during the seasons when, wildlife use is highest (Issues 1 and 2). Limited incidences of disturbance to harbor seals would continue to occur in cases where seals haul-out or pup in areas open to public use on Dungeness Spit. The conflict between wildlife-dependent and non-wildlife-dependent use would be reduced by designating an area where non-wildlife-dependent recreation would be permitted (Issue 3). Alternative D would support the establishing purpose and all of the objectives set for Dungeness NWR. Jetskiing and windsurfing would not be compatible with Refuge purposes and so

would not be allowed. Wildlife such as shorebirds, would be displaced from the designated 100 yard boat landing zone and harbor seals with pups maybe affected by the increase in boat traffic. Only compatible wildlife- and non-wildlife-dependent public uses would be permitted.

Alternative E — Allow Maximum Public Use

This alternative does not meet the purpose and need for action. The establishing purpose and objectives of Dungeness NWR would not be fully met. Wildlife (brant, other waterfowl, waterbirds, shorebirds, and nesting birds) would continue to be disturbed (Issue 1). Harbor seals would be disturbed at the tip of Dungeness Spit during the most sensitive period when pupping occurs (Issue 2). Disturbance to individual harbor seals hauled out or pupping in other parts of Dungeness Spit would continue at a somewhat higher level, since more of the Refuge would be open to public use. Allowing access onto Graveyard Spit would be detrimental to nesting birds and the sensitive plants growing there. Allowing non-wildlife-dependent public use in Zone 2 and some in Zone 3 year round on the Strait side of Dungeness Spit would conflict with visitors participating in wildlife-dependent recreation (Issue 3). Wildlife use during the summer months in many parts of the Refuge and sensitive habitats (e.g., Graveyard Spit) would be adversely affected. Under this alternative, hiking, wildlife observation, wildlife photography, boating (including boat landings), shellfishing, beach use, horseback riding, and jogging would not be compatible with Refuge purposes because they would be permitted in locations and during periods that would be disturbing to wildlife.

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Ability to meet Refuge purpose and objectives	No	Yes	Yes	Yes	No
Compatibility compliance	No	Yes	Yes	Yes	No
Shorebirds (total numbers)	Likely decrease	Likely increase	Likely increase	Likely increase	Likely decrease
Black brant (total numbers)	Likely decrease	Potential increase	Potential increase	Potential increase	Likely decrease
Waterfowl and waterbirds (total numbers)	Likely decrease	Likely increase	Likely increase	Likely increase	Likely decrease
Nesting birds (total numbers)	Likely decrease	Likely increase	Likely increase	Likely increase	Likely decrease
Endangered species (total numbers)	Likely decrease	Potential increase	Potential increase	Potential increase	Likely decrease
Marine Mammals (total numbers)	Stable or increase	Stable or increase	Stable or increase	Stable or increase	Likely decrease
Physical environment	Minimal	Minimal	Minimal	Minimal	Minimal
Quality of wildlife experience for visitors	Likely decrease	Decrease	Increase	Increase	Decrease
Conflict with wildlife-dependent uses	High	Minimal	Minimal	Medium	High
Local economy	Likely decrease	Decrease	Stable or increase	Stable or increase	Stable or increase

Table 2. *Summary of environmental consequences.*

Chapter 3
Affected Environment

Physical Description of Dungeness NWR

Dungeness NWR is located near Sequim in Clallam County, Washington on the southerly side of the Strait of Juan de Fuca (Figure 1). Natural features of this 631-acre Refuge include Dungeness Spit, Graveyard Spit, and portions of Dungeness Bay and Harbor. Dungeness Spit is believed to have formed during the Vashon glacial era 10 to 20 thousand years ago. An eastward flowing longshore current aided by prevailing northwesterly winds caused an eastward drift of sediments which formed the sand spit as it exists today.

These sediments were caught and held in place by a "backbone" of logs and driftwood that stretches along the entire median of the Spit's top. The 5 1/2 mile long Dungeness Spit is very narrow averaging 300 feet wide with the narrowest portions measuring only 50 feet during high tides. It accretes at an average rate of 15 feet per year. The Spit is characterized on its north side by sand and cobble beaches, and about 300 acres of tidal mudflats to the south. At its base is a tidal pond formed by a breached dike.

Graveyard Spit connects to Dungeness Spit at a point approximately 3 miles from the base of Dungeness Spit. Graveyard Spit averages about 475 feet in width. It extends about 1 1/4 miles south into the middle of Dungeness Bay and is surrounded by tidal mudflats and extensive eelgrass beds. A large tidal pond is located at the junction of the two spits and a smaller one occurs about 1/2-mile east of Graveyard Spit on the Bay side of Dungeness Spit. Graveyard Spit was set aside as a Research Natural Area (RNA) in 1990 due to its unique native vegetation characteristics. The FWS defines RNA's as, ". . . areas where natural processes are allowed to predominate without human intervention. Activities on RNA's are limited to research, study, observation, monitoring, and educational activities that are non-destructive, non-manipulative, and maintain unmodified conditions" (Refuge Manual, 8 RM 10.7).

The end of Dungeness Spit widens to about 800 feet, 1/2 mile from the tip. The Bay side becomes more sandy resembling the character of the shoreline on the Strait side, but cobble is also present. The spit is held in place at this point by driftwood and a variety of grasses.

Cultural Resources

S'Klallam Indian Tribe

The S'Klallam Indian Tribe inhabited the Dungeness area when the first European settlers arrived. Their use of Dungeness and Graveyard spits probably included temporary camping and food gathering, but the Tribe lived on Dungeness Spit from 1872 to 1873, after being asked to move off land which had been homesteaded in the

Dungeness community. Tribal member, Harriett Adams, was born on Dungeness Spit. After two years of difficult living and hauling water by canoe the S'Klallams purchased 222 acres and moved off the Spit to the area now known as Jamestown (Seattle Times 1961).

Dungeness and Graveyard spits are known S'Klallam burial grounds. In 1980, a burial canoe was collected from Graveyard Spit by the FWS. Eells (1886) described the burial customs of the S'Klallams as matching some of the early burials which had been washed out at Dungeness Spit. Graveyard Spit was the site of a massacre between tribes, which supposedly gave rise to its name.

New Dungeness Lighthouse

In 1857, the New Dungeness Lighthouse, located 1/3 mile from the end of Dungeness Spit became the first operational light in the Strait of Juan de Fuca and Puget Sound. The 32-acre lighthouse compound includes a part of the extreme eastern portion of Zone 3 uplands and all of Zone 4 uplands. The FWS and the United States Coast Guard (USCG) manage this area through a Memorandum of Understanding (MOU) the purpose of which is to "ensure that the natural resources of these Refuges are protected while permitting them to be used for lighthouse and aids to navigation purposes" (Appendix E).

The lighthouse and two-story residence were placed on the National Register of Historic Places in 1993. In 1994, the USCG permanently withdrew on-site staff who were responsible for maintenance of the lightstation. During that same year, the United States Lighthouse Society formed the New Dungeness Chapter (NDC) with the goal of preserving the lightstation facilities. NDC obtained a license agreement with the USCG and is now responsible for maintaining and preserving this historic site. The mission of the NDC is "To preserve, protect, maintain, and improve the lighthouse, while keeping it open to the public for generations to come." The NDC, as a licensee of the USCG, is bound by all agreements stated in the MOU.

The NDC staffs the lightstation with volunteers who perform routine maintenance and conduct lighthouse tours. The FWS issues a Special Use Permit to the NDC which includes allowing trips to and from the lighthouse by watercraft or land vehicle (through Zones 2 and 3) for access needs and emergency situations. In keeping with the spirit of the license agreement, the FWS will continue to provide Lightstation access to both the USCG and the NDC.

Military

From 1942 to 1946, there was a small naval station on Graveyard Spit. Old concrete foundations, cisterns, pathways, fence lines, and rubble still remain.

Biological Environment

Dungeness NWR provides habitat for a diverse number of wildlife species. Over 250 species of birds and 41 species of land mammals have been recorded on Dungeness NWR along with eight species of marine mammals. The nutrient-rich waters and tideflats of the Dungeness Bay and Harbor support extensive eelgrass beds (Figure 5).

The eelgrass beds and tidal mudflats of the inner Bay are especially important because they provide feeding and roosting areas for a variety of waterfowl, shorebirds, seabirds, and other bird species.

The bay and estuary of the Dungeness River produce microorganisms that form the base of a food web which supports a variety of wildlife including waterfowl, shorebirds, waterbirds, shellfish, harbor seals, and anadromous fish such as salmon. Numerous species of waterfowl stop briefly in the Dungeness area each fall on their journey south for the winter and again when they head north in the spring. Many species of waterfowl winter in the area. The black brant, a species of goose that depends on eelgrass for its food, is present from late October through early May. Shorebirds and waterbirds feed and rest along the water's edge, and harbor seals haul out to rest and have their pups on the end of Dungeness Spit. The tideflats are the home of crabs, clams, and other shellfish, while chinook, coho, pink, and chum salmon occur in the waters of Dungeness Bay and Harbor.

Dungeness NWR is internationally significant because many of the birds that stop at the Refuge breed as far north as Alaska and migrate through Canada, the United States, on into Mexico, and South America. The Dungeness area is additionally important as a spring staging area (a place where large groups of birds stop to build up their fat reserves for migration) for black brant and other waterfowl. International treaties have been implemented between the United States, Canada, and Mexico to ensure that migratory birds are protected and managed on a continental basis.

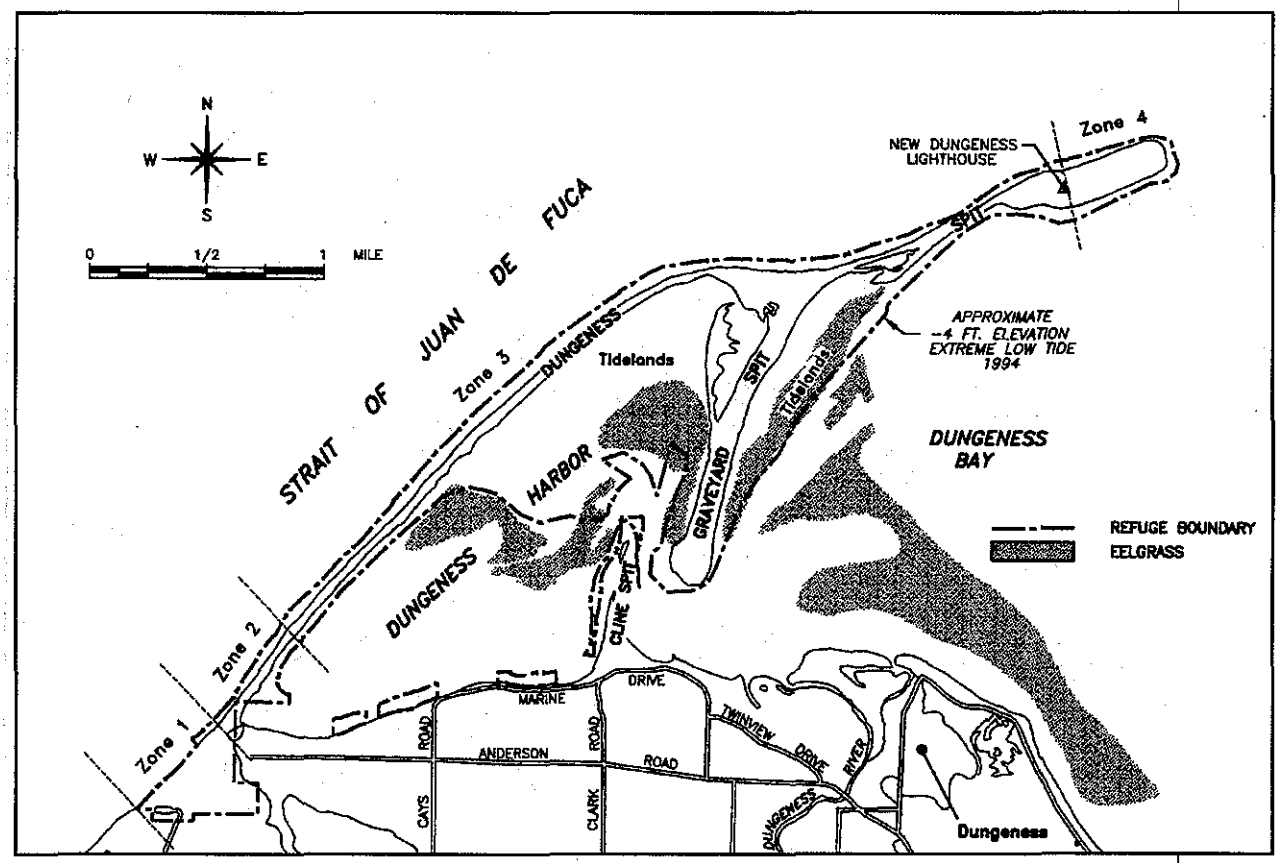

Figure 5. Eelgrass beds on Dungeness Bay and Harbor.

This EA focuses on those wildlife species or groups of species that are most prevalent on Dungeness NWR and that have the greatest potential to be impacted by public use activities. To better accommodate discussion, these species have been divided into seven categories: black brant, other waterfowl, waterbirds, shorebirds, threatened and endangered species, marine mammals, and fish and shellfish. Each wildlife category will be addressed separately in relation to its occurrence in each management zone.

Black Brant

The black brant is a true sea goose with salt glands that enable it to drink salt water and eat saltwater plants. The majority of its winter food is eelgrass interspersed with sea lettuce. Wilson and Atkinson (1995) report that Dungeness Bay is a traditional wintering area and spring staging area for brant. Approximately 1,500 brant spend the winter months (October through February) in this area. Starting in March, numbers increase and reach a peak of up to 8,000 birds in late April. This increase is due to the arrival of northbound migrants that stage in the Dungeness Bay area. Many birds use this area through mid-May. Although brant may be seen throughout the Bay, the majority of use is concentrated in Zone 3 on the tideflats adjacent to the west and east of Graveyard Spit (Figure 6).

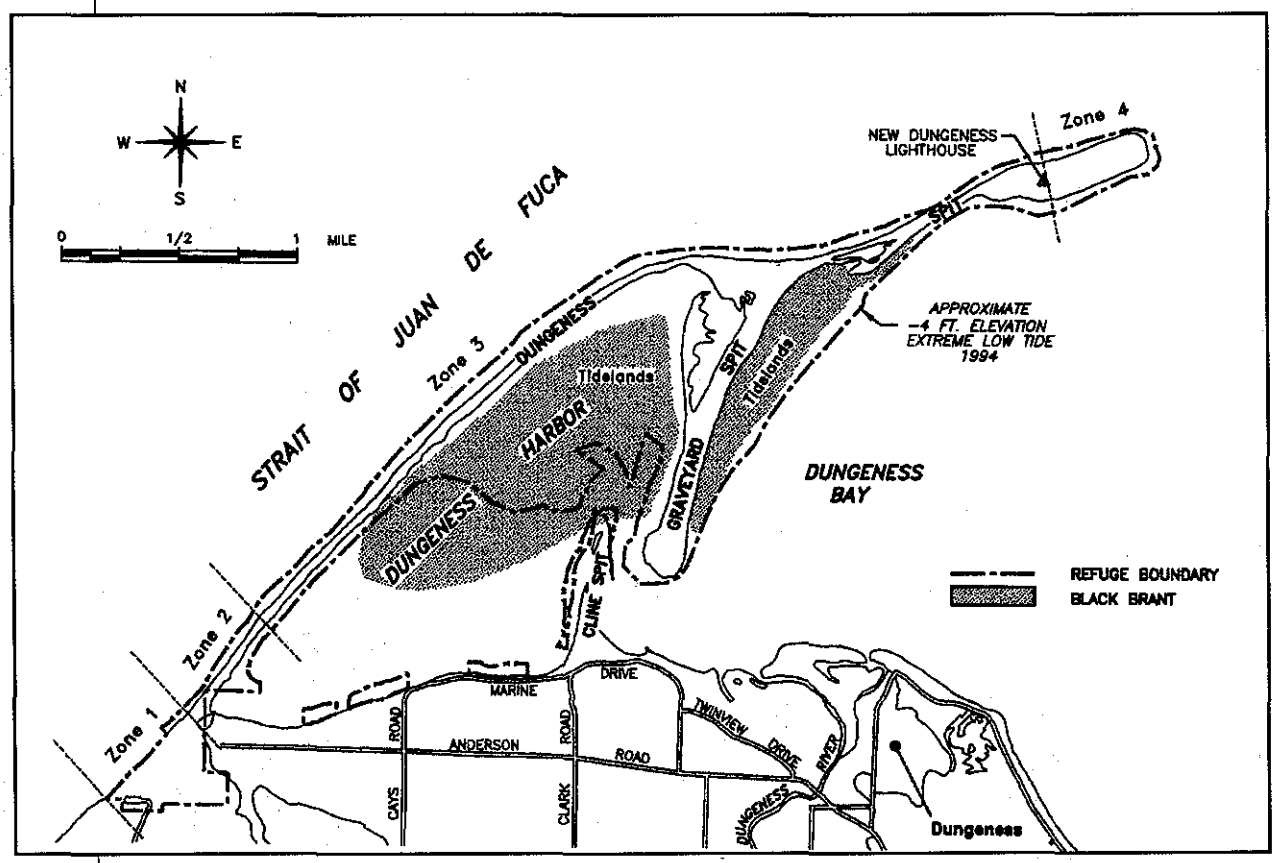

Figure 6. Higher use areas by black brant on Dungeness NWR and Dungeness Harbor.

The Dungeness area (composed of Dungeness Bay and Harbor and the nearshore waters east to Grays Marsh) is one of Washington's major wintering areas for black brant. From 1986-1993 black brant use during the critical spring-staging period declined by 63 percent in the Dungeness area (Figure 7). This decline coincided with a 31 percent decline in the area's eelgrass beds. During this period, immature black brant at Dungeness averaged 9.9 percent of the population, significantly below the 21.2 percent average for the Pacific flyway population. Low reproductive success of Dungeness brant is likely the result of poor quality wintering habitat (Wilson and Atkinson 1995).

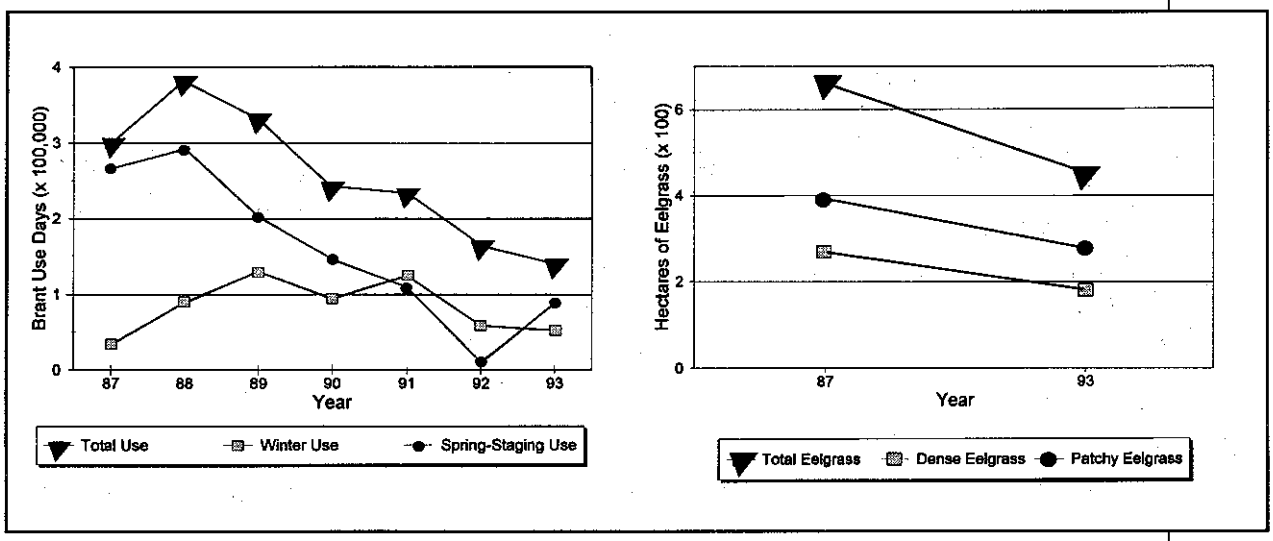

Figure 7. *(Left) Black brant total, winter and spring — staging use days in the Dungeness area, 1986/87 to 1992/93.*
(Right) Extent of total, dense and patchy eelgrass beds in the Dungeness area, 1987 vs. 1993.

Other Waterfowl

Dungeness NWR is a traditional wintering area for migratory waterfowl. Non-breeding birds also use the area through the spring, summer, and fall. The species of ducks using Dungeness NWR can be divided into dabbling and diving ducks. Dabbling ducks require shallow water for feeding and feed by tipping up their body and tail, and reaching below the surface with head and neck submerged. Common dabbling duck species found at Dungeness NWR are mallard, American wigeon, northern pintail, green-winged teal, and northern shoveler. Dabbling ducks favor the pond at the base of Dungeness Spit in Zone 2 and the water along the shoreline and lagoon at the base of Graveyard Spit in Zone 3 for feeding, but may roost anywhere along the shoreline on the Dungeness Harbor and Bay side of Dungeness Spit including Graveyard Spit (Figure 8). Migrating dabbling ducks begin arriving at Dungeness NWR in mid-October and remain through the winter months into late April. Dabbling duck numbers at Dungeness show a significant negative trend from 1976 through 1993 (USFWS Reports 1993) (Spearman rank correlation: $r = -0.643$, $n = 18$, $P = 0.0025$). The decline at Dungeness (Figure 9) is also correlated with a decline of

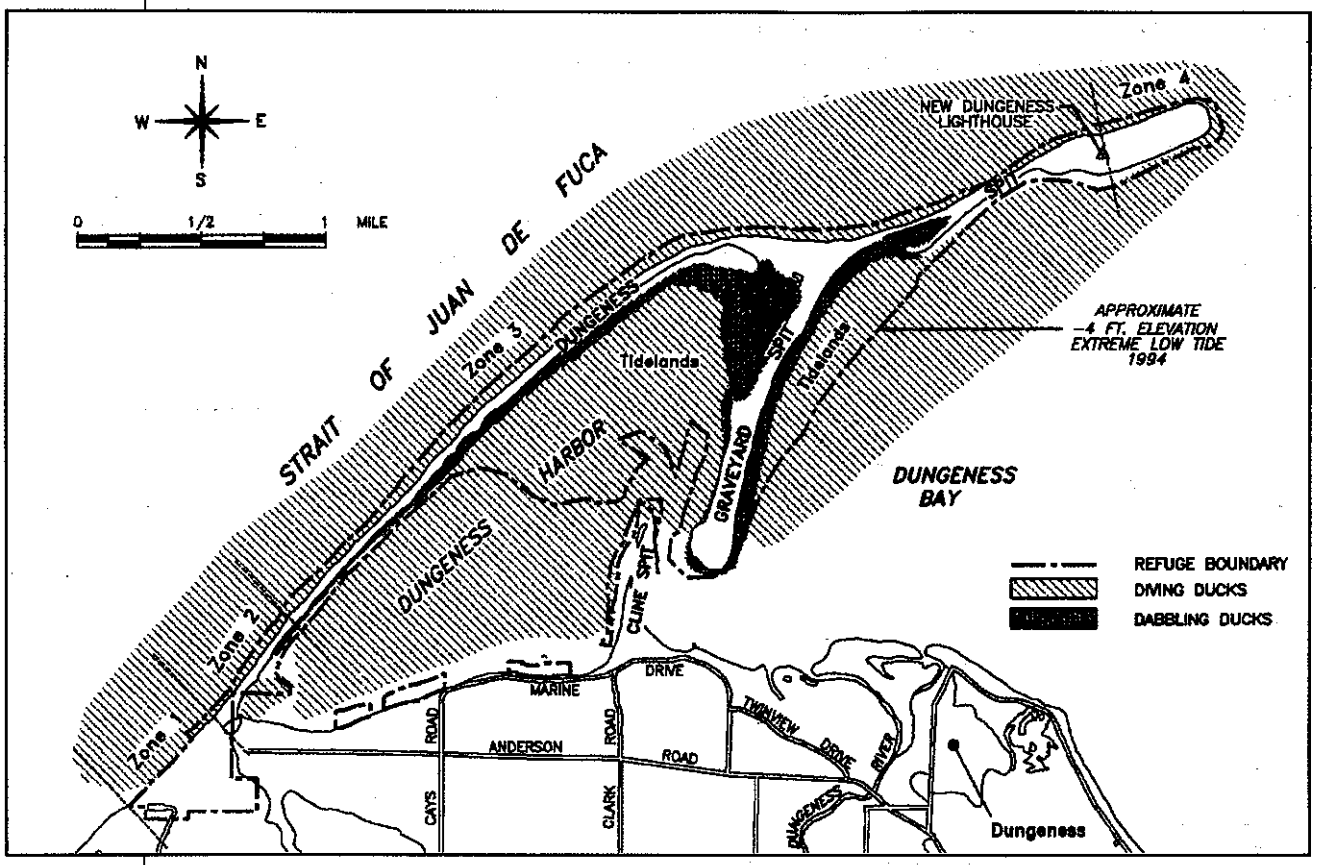

Figure 8. *Higher use areas by dabbling and diving ducks on Dungeness NWR and surrounding area.*

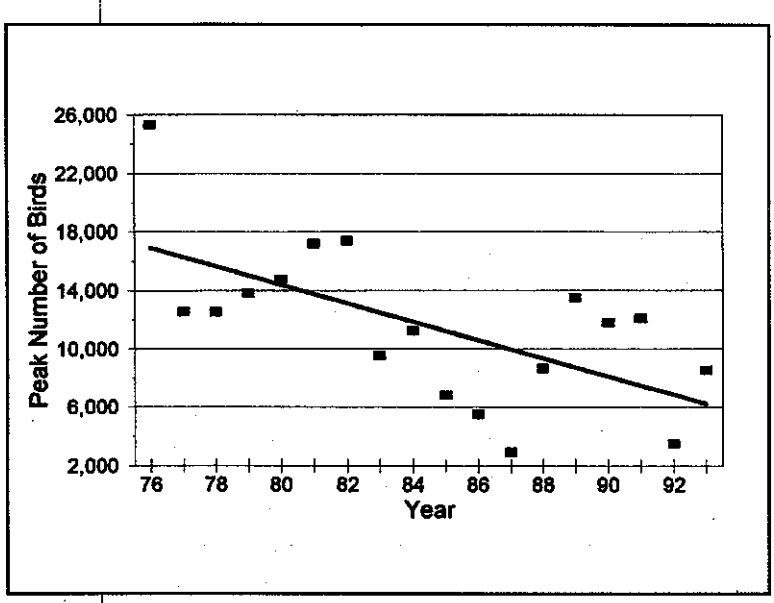

Figure 9. *Dabbling duck population trends on Dungeness NWR, 1976-1993.*

the Pacific Flyway population from 1980 through 1992 (FWS unpublished data) (Spearman rank correlation: $r = 0.593$, $n = 13$, $P < 0.025$). This suggests that factors beyond those at Dungeness are involved.

Diving ducks differ from dabbling ducks since, as the name implies, they dive for their food, which may be vegetation or animal life such as invertebrates, and therefore require deeper water for feeding. Common diving duck species that frequent Dungeness NWR are bufflehead, common goldeneye, surf and white-winged scoter, and greater and lesser scaup. Migrating

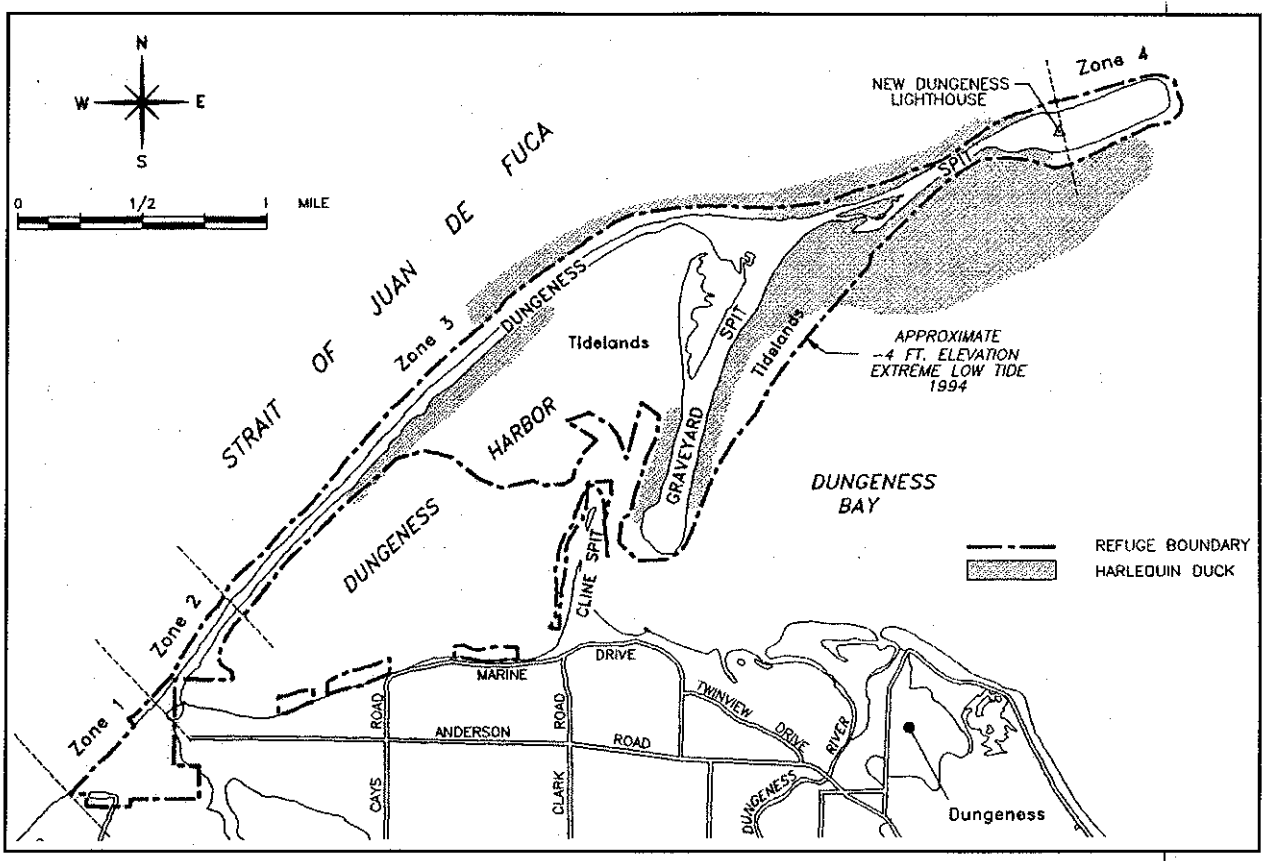

Figure 10. *Higher use areas by harlequin ducks on Dungeness NWR and surrounding area.*

diving ducks begin arriving at Dungeness NWR in early October with many remaining through the winter into April. Peak population numbers averaged 3,204 between 1976 and 1984 with a low of 1,330 in 1983 and high of 8,178 in 1981. The average peak between 1985 and 1993 was 1,954 with a low of 601 in 1988 and a high of 3,955 in 1985. Diving ducks are distributed over the open water of Zones 2, 3, and 4 and outside the Dungeness NWR boundary in Dungeness Harbor and Bay (Figure 8). The area to the west of Graveyard Spit in Zone 3 provides these birds with an important source of food and shelter from winter storms. Harlequin ducks, a state sensitive species, are year round residents of Dungeness NWR. They are commonly seen roosting on the Dungeness Bay side shoreline from Graveyard Spit northeast to the lighthouse in Zone 3. They concentrate on the north end of Zone 3 and directly opposite in Dungeness Bay (Figure 10). Harlequins feed in nearshore waters on crustaceans and molluscs, prefering rockier substrates or shoreline areas. With the exception of harlequin ducks, these diving ducks have not experienced declines similar to that exhibited by dabbling ducks.

Shorebirds

Shorebirds are a very diverse group of birds that frequent shorelines and tideflats. Each species has distinct feeding habits. Some, such as sanderlings, seek food at the surf edge while others may probe in the mudflats with their long bills. Each species has its own habitat requirements which must be considered when providing sanctuary areas on Dungeness NWR. Although 30 different species of shorebirds have been

observed at Dungeness NWR, 10 species are commonly seen. Species such as sanderling and black-bellied plover feed and roost on Dungeness NWR throughout the year. Major species during the spring and fall migration include western sandpiper, black and ruddy turnstone, whimbrel, short-billed dowitcher, and least sandpiper. Dunlins are the most abundant shorebird overwintering on Dungeness NWR forming flocks of 2,000 - 3,000 birds. The only species currently nesting on Dungeness NWR is the killdeer.

Dungeness NWR provides a stopover for shorebirds migrating from northern breeding areas in Alaska and Canada to wintering areas as far south as South America. Because of their long migration and tendency to concentrate in areas where food and shelter are most abundant, migrating shorebirds are particularly vulnerable to disturbance. The post-breeding migration to southern climates starts on Dungeness NWR in July (Paulson 1993 and FWS unpublished data 1993). About 5,000 birds, primarily dunlins, sanderlings, and black-bellied plovers will spend the winter on Dungeness NWR. The spring migration peaks in March when the total population may reach 25,000 birds but averages about 15,000 (FWS surveys 1993).

Critical feeding and roosting areas for shorebirds exist throughout Zones 2, 3, and 4 from the base to the tip of Dungeness Spit on the Dungeness Bay and Harbor side, outward and around Graveyard Spit, and on the tidelands east of the Dungeness Spit base (Figure 11). Many of the most commonly seen shorebirds feed on benthic (bottom) organisms of the Dungeness Harbor and Bay mudflats exposed during low tides. Higher shorebird counts coincide with the change of summer daytime low tides

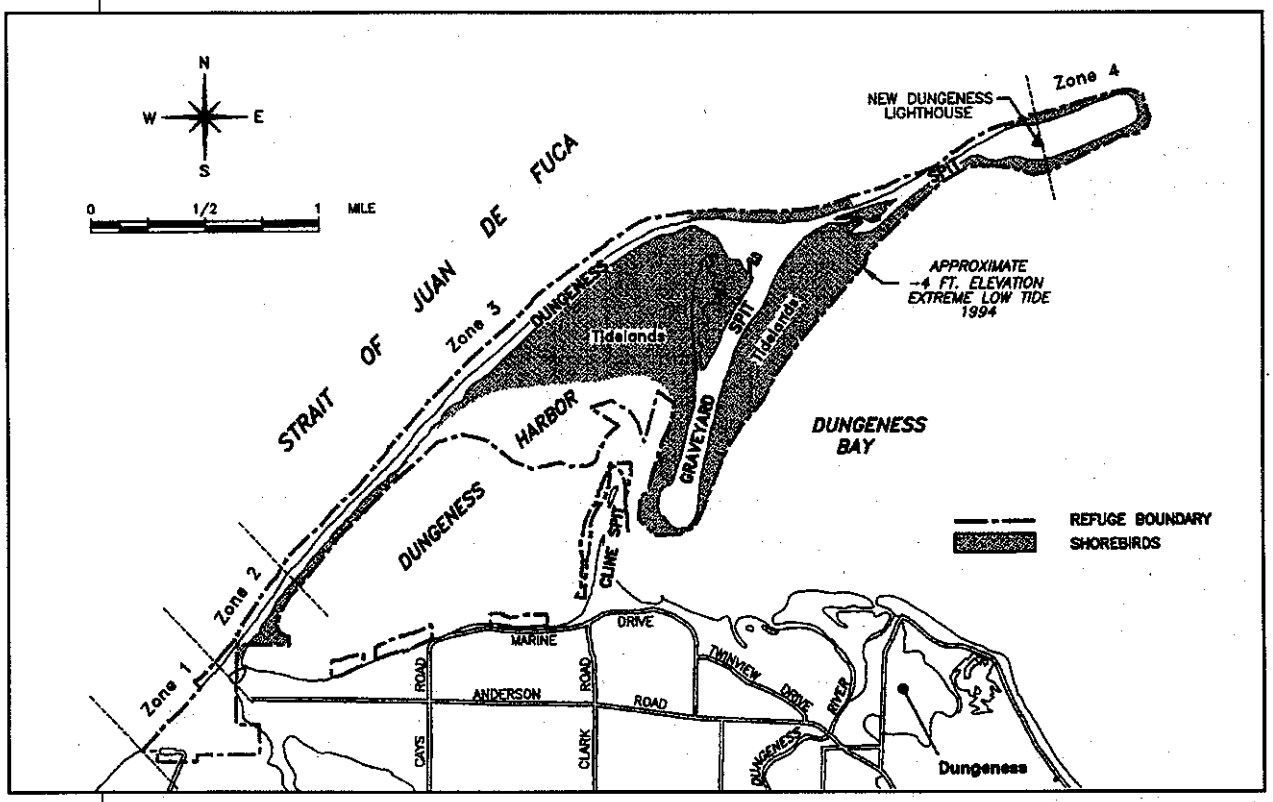

Figure 11. Higher use areas by shorebirds on Dungeness NWR.

to fall daytime high tides. These higher tides force feeding shorebirds closer into shore where they are more easily disrupted by visitors. Shorebirds also use the shoreline area on the inside of Dungeness Spit to roost during high tide or conserve energy during harsh weather conditions. Mixed flocks of 200 - 1,000 shorebirds, such as black-bellied plovers, sanderlings, dunlins, and short-billed dowitchers have been documented roosting within the first two miles of Dungeness Harbor (FWS unpublished survey data 1993, 1994, 1995). Shorebirds also roost in the upland areas from Graveyard Spit to the tip of Dungeness Spit. For example, several thousand ruddy turnstones and black-bellied plovers have been observed overnight on the open upland areas of Zone 4. Shorebirds also frequent the Strait of Juan de Fuca side of Dungeness Spit. As many as 1,000 or more sandpipers will forage along the Strait side of Dungeness Spit in the summer months.

Waterbirds

This category of birds includes great blue herons, grebes, loons, black oystercatchers, common murres, pigeon guillemots, and cormorants. Dungeness Bay and Harbor are used extensively by these birds for resting and feeding (Figure 12). Black oystercatchers have nested on Dungeness and Graveyard spits (FWS unpublished survey data 1994). Dungeness NWR is crucial to this group of birds because they return to winter in the area year after year. Some non-breeders also spend the summer. Breeding pigeon guillemots and great blue herons may come many miles from nesting colonies and rookeries to feed in this area. Dungeness Bay provides shelter and a rich feeding environment for the variety of species in this group.

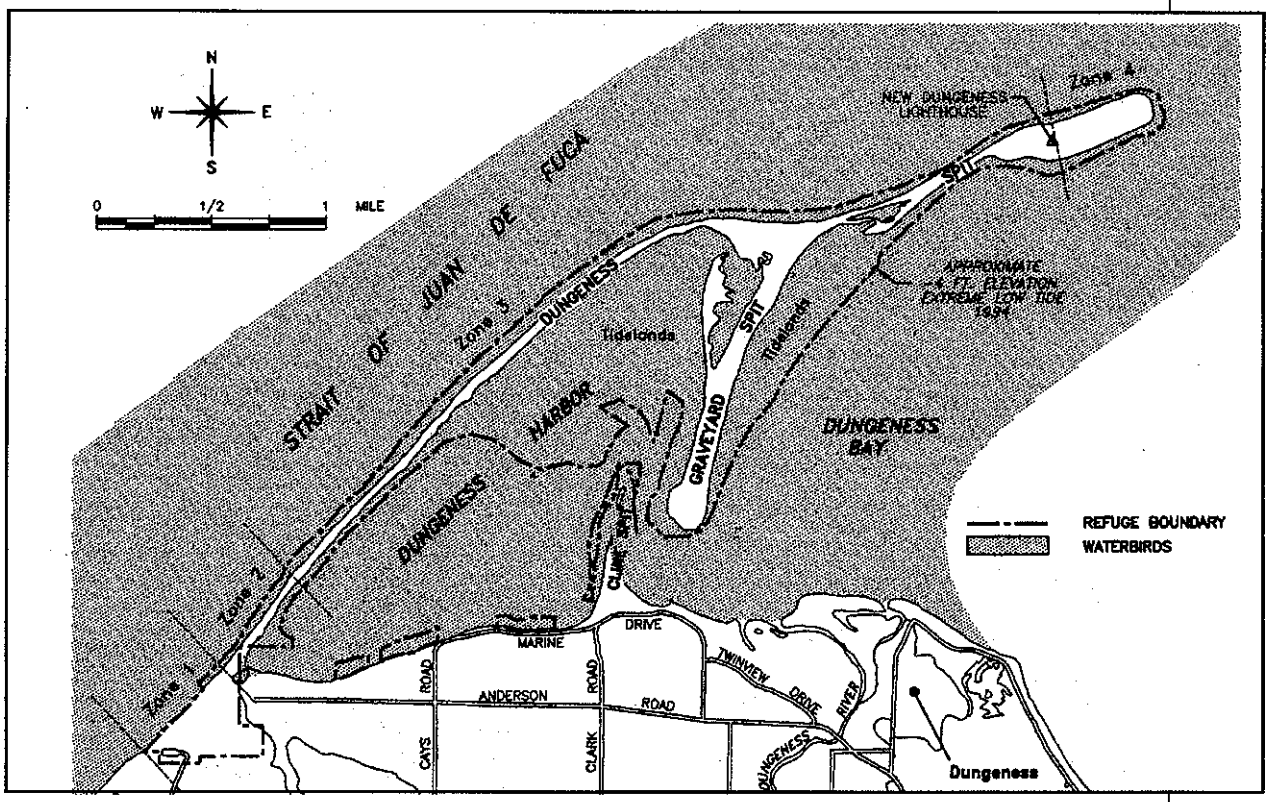

Figure 12. *Higher use areas by waterbirds on Dungeness NWR and surrounding area.*

Threatened and Endangered Species

The threatened bald eagle, western snowy plover, and marbled murrelet, and endangered peregrine falcon occur on Dungeness NWR. Of these four species, the bald eagle is observed most commonly and up to 24 birds may be seen feeding or roosting on Dungeness NWR. There are 8 known nesting territories within 10 miles of Dungeness NWR. Many of these nesting pairs are residents in the area year round. Eagles fly in and out of the Refuge frequently. Bald eagle use on the Refuge, including feeding and perching, is concentrated between the westside of Graveyard lagoon and the tip of Dungeness Spit. Sightings of peregrine falcons are rare, but they are sometimes observed during the spring and fall migrations, or in the winter. Several birds may be present occasionally.

Numbers of western snowy plovers recorded on Dungeness NWR during their summer breeding season increased from 1 bird in 1978 to 6 birds in 1986 (National Audubon Society 1978, National Audubon Society 1986). In June 1995, 4 to 6 western snowy plovers were sighted in the area between Graveyard Spit and the lighthouse (FWS unpublished data). Western snowy plovers are highly sensitive to disturbance, due to their use of open, sandy areas for nesting, where public use often occurs. Breeding status remains uncertain. Potential breeding areas on the Refuge are in the closed areas at the tip and along the inside of Dungeness Spit east of Graveyard Spit. Portions of Graveyard Spit may also be suitable for plover nesting.

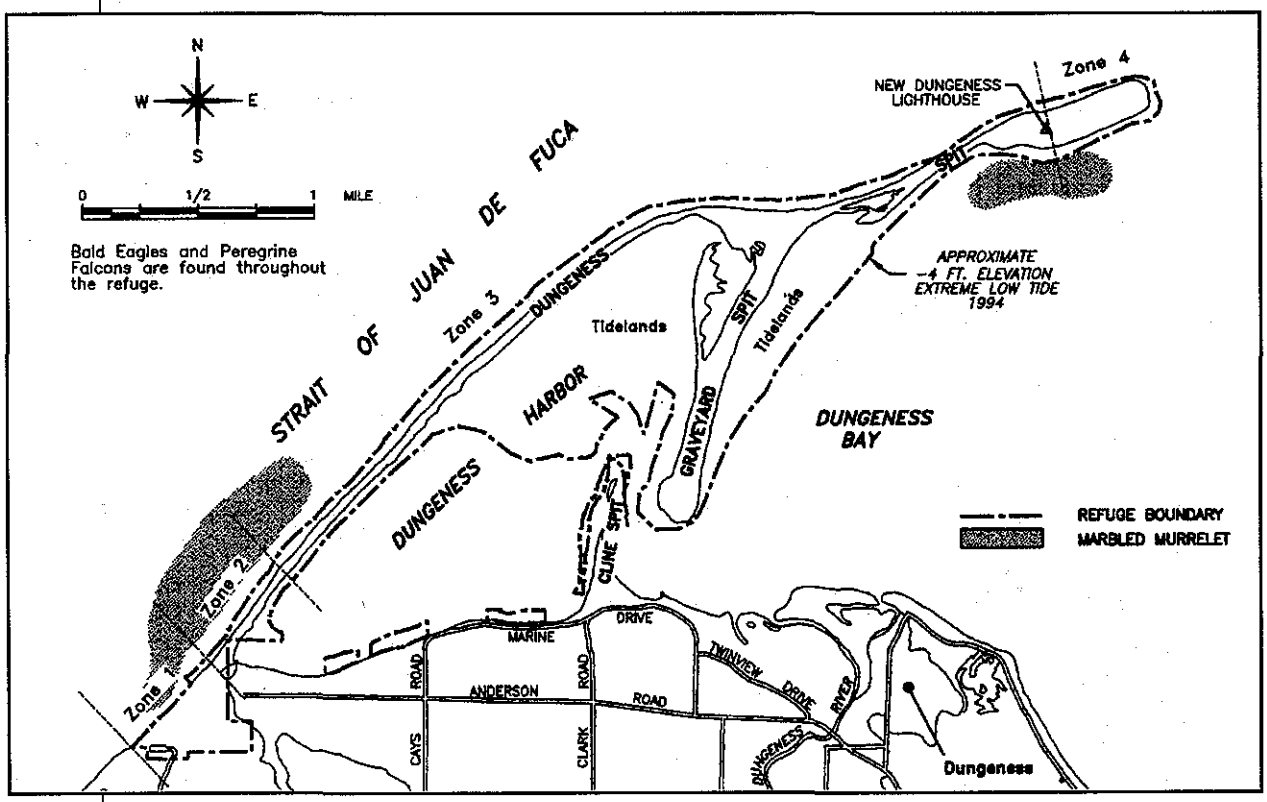

Figure 13. Highest use areas by marbled murrelets adjacent to Dungeness NWR.

The 1993 through 1995 marbled murrelet survey transects from Dungeness Spit to Morse Creek, and from the tip of Dungeness Spit to the base, averaged 12.35 birds/ km^2 and 1.85 birds/km^2 respectively (Nysewander and Stein 1996). Marbled murrelets are best observed in Zones 1, 2, and 4 (Figure 13). Sightings of brown pelicans are rarely recorded.

Marine Mammals

FWS surveys recorded up to 600 harbor seals on Dungeness NWR (FWS unpublished data 1993). The tip of Dungeness Spit in Zone 4 is a traditional haul-out and pupping site. Haul-out sites are specific areas that are used each year by seals that form colonies when they leave the water to rest and give birth to their pups. Hauling out is crucial to the survival of harbor seals. The animals rest, sleep, mate, give birth, replenish depleted oxygen levels, and nurse their pups during this period. Haul-out sites are usually located in remote areas where seals are protected from predation and human disturbance. Female harbor seals with nursing pups form nursery groups adjacent to the main haul-out site on Dungeness Spit. These groups have been observed on the sheltered Bay side near the lighthouse from July to September. Harbor seals and their pups are very sensitive to disturbance at haul-out sites.

Up to 78 pups have been produced at the Dungeness NWR haul-out site in some years. The tip of Graveyard Spit, although no longer used, was once a traditional haul-out site. It is believed that human disturbance caused this area to be abandoned, leaving one remaining haul-out site on the tip of Dungeness Spit. A small population

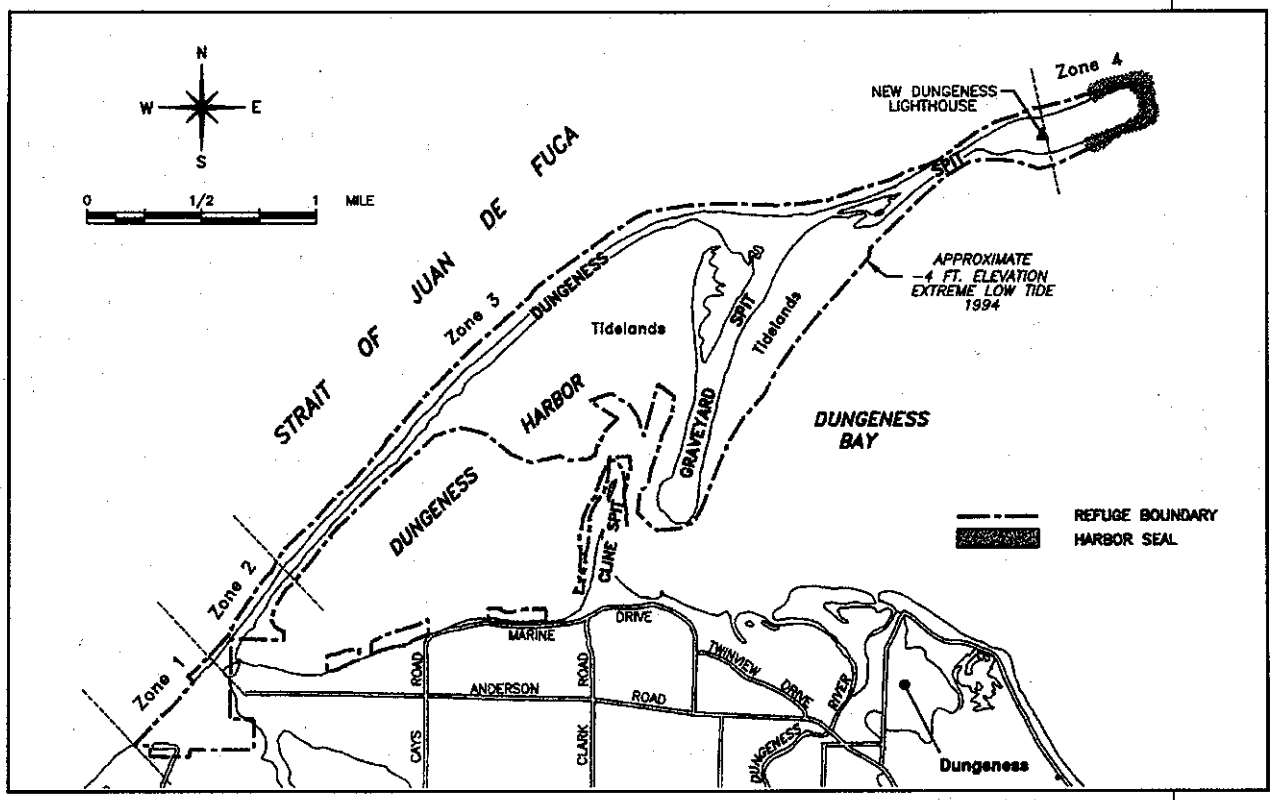

Figure 14. Harbor seal preferred haul-out sites on Dungeness NWR.

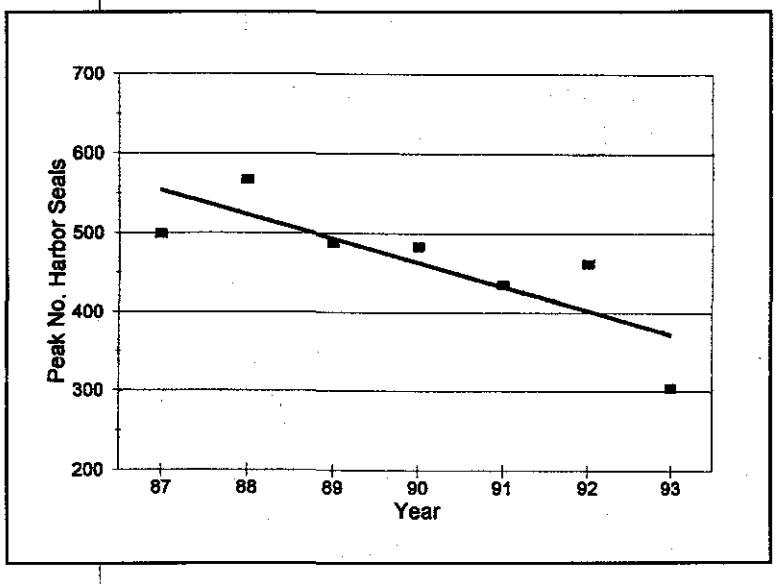

Figure 15. *Harbor seal population trends on Dungeness NWR, 1987-1993.*

of about 20 seals still pup on a small island located outside the Dungeness NWR boundary about 0.2 mile west of the tip of Graveyard Spit (Figure 14). Small numbers of individual harbor seals also haul-out and pup along the length of Dungeness Spit each year. Human disturbance has been documented to disrupt the relationship between pups and their mothers on numerous occasions along both sides of Dungeness Spit, thereby contributing to pup mortality, particularly where pups are born in higher public use areas.

In the Strait of Juan de Fuca there are two major haul-out sites in addition to Dungeness NWR. They are Protection Island and Smith/Minor Islands. Compared to Dungeness Spit these sites are relatively undisturbed. The annual pattern of harbor seal use at these sites shows little use during the winter months. Harbor seal numbers sharply increase during June and July when the first pups are born. In September and October there is another sharp increase in seals due to large numbers of molting animals followed by a decrease with the onset of winter.

According to FWS surveys conducted at Dungeness NWR, local harbor seal population numbers are depressed and the haul-out areas are frequently devoid of seals. The characteristic peak in numbers during molting in late summer no longer occurs, and the pup/adult ratio is unusually low (FWS unpublished data 1987-1993). Overall, the harbor seal population gradually declined over the past eight years (Figure 15). This decline is statistically significant (Spearman rank correlation: $r = -0.929$, $n = 7$, $P = 0.005$). The data also show the production of pups is declining (Figure 16). This decline is also

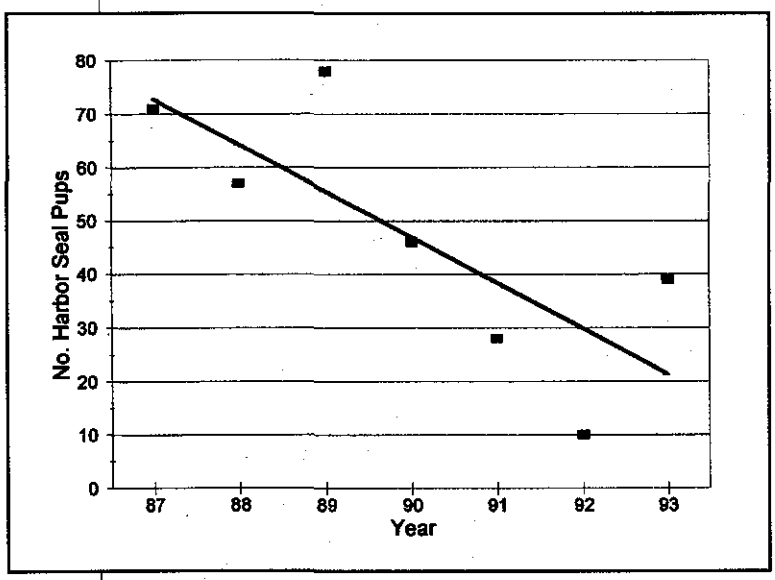

Figure 16. *Harbor seal pup production on Dungeness NWR, 1987-1993.*

statistically significant (Spearman rank correlation: r = -0.786, n = 7, P = 0.025). These trends are likely the result of increasing levels of human disturbance.

Small numbers of northern elephant seals occasionally haul-out and may molt on the tip of Dungeness Spit.

Fish and Shellfish

Dungeness Harbor, inclusive of management Zones 2 - 4, is an important nursery habitat for many species of fish including chum, pink, chinook, and coho salmon (Phillips 1984) (Figure 17). The area is especially important to the dwindling wild population of Dungeness River pink salmon. Seining surveys conducted by the FWS suggest that native pink and chum salmon migrate through Dungeness Harbor from the base of Dungeness Spit north along the eastern shoreline around Graveyard Spit and out to the end of Dungeness Spit (Hiss 1994). The shoreline and eelgrass beds provide important escape cover from predators for the juvenile salmon. Steelhead, cutthroat, lingcod, and to a lesser degree Dolly Varden, use the harbor as a rearing area during various times of the year. Adult salmon frequent the deeper parts of the harbor, including Dungeness Bay east of Graveyard Spit in Zone 3 and the tip of Dungeness Spit in Zone 4.

Littleneck and manila clams occur along the inside of Dungeness Spit in Zone 2 for about one mile from the base; other species occur in the upper portions of the Dungeness Harbor in Zone 3. Dungeness crab are found throughout the harbor, east of Graveyard Spit, and along the outside of Dungeness Spit.

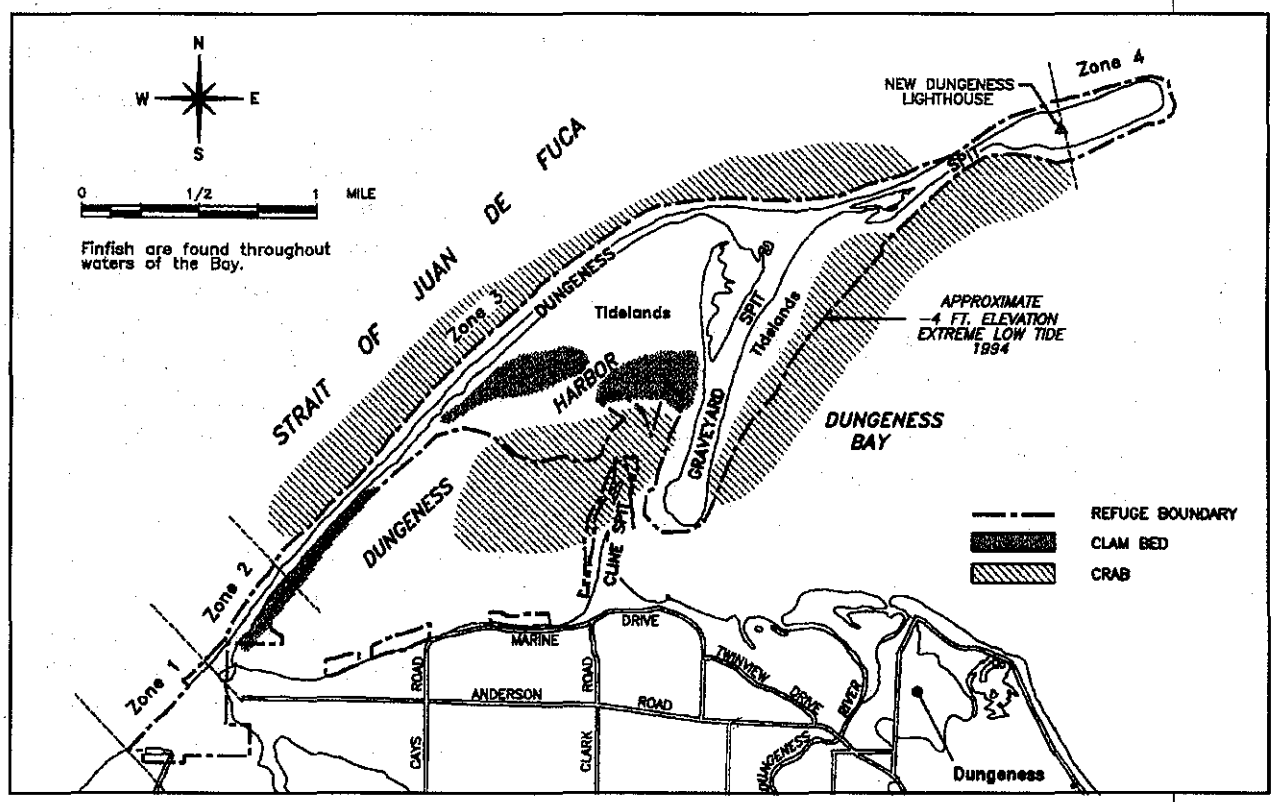

Figure 17. Fish and shellfish use on Dungeness NWR and surrounding area.

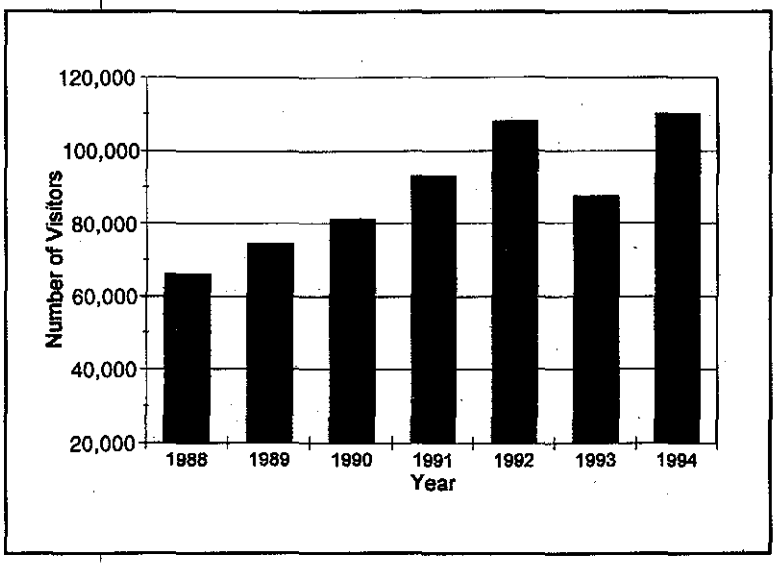

Figure 18. *Yearly visitation to Dungeness NWR, 1988-1994.*

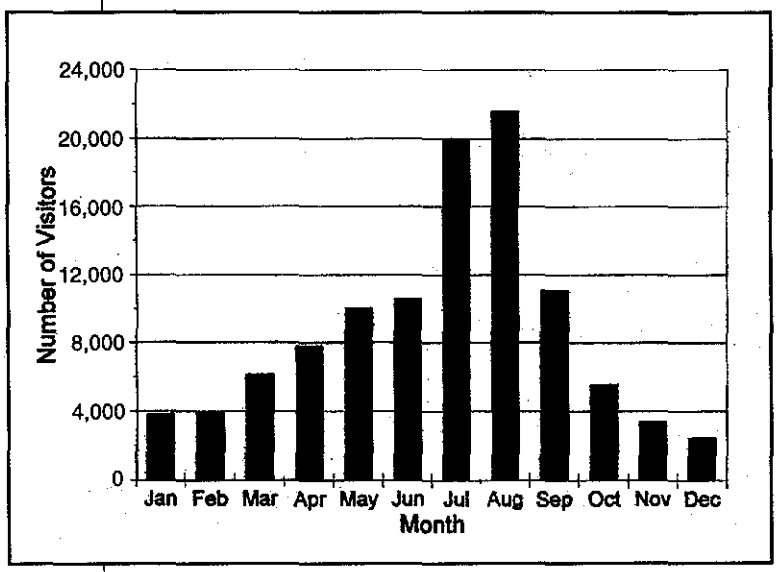

Figure 19. *Monthly visitation to Dungeness NWR, 1994.*

Visitor Trends

Dungeness NWR with its long sweeping beaches, spectacular views, and variety of wildlife has long been a major destination point for international and national visitors. For many years, Dungeness NWR has attracted people from the Seattle/Puget Sound vicinity who were seeking a place of solitude where they could experience nature or enjoy the outdoors by hiking or walking along the beach, or watching wildlife. Others were attracted to the area because of salmon fishing and shellfishing for clams and crab.

The majority of people visiting Dungeness NWR today have changed little in their recreational pursuits from those of the past. Visitors are still involved in the same kinds of activities, although some new non-wildlife-dependent activities such as jetskiing and windsurfing have emerged. Major changes have occurred, however, in the number of people visiting Dungeness NWR as is reflected in the visitation between 1988 and 1994 which increased from 66,000 to 110,000 (Figure 18). A representation of the monthly visitation to Dungeness NWR is shown in Figure 19. As would be expected, the higher use period occurs during the summer months from June to September. Visitation in 1994 is representative of a typical year in which approximately 60 percent of the visits occur between May and September.

Wildlife-dependent public uses are, "Voluntary, leisure time pursuits which require presence of or proximity to fish, wildlife, or wildlands . . ." (Refuge Manual, 8 RM 9.4A). About 60 percent of visitors to Dungeness NWR participate in this kind of use (Table 3). About 75 percent of these visitors participate in non-consumptive wildlife-dependent public use and 25 percent in consumptive wildlife-dependent use. Non-consumptive refers to uses such as wildlife observation and wildlife photography in which nothing is removed. Consumptive refers to uses such as fishing and shellfishing in which some resource is removed.

Non-wildlife-dependent public uses are, "Voluntary, leisure time pursuits which do not require presence or proximity to fish, wildlife, or wildlands . . . " (Refuge Manual 8 RM 9.4 B). About 40 percent of Dungeness NWR visitors are involved in these kinds of uses which include beach use, jogging, windsurfing, horseback riding, and jetskiing.

Wildlife-Dependent (60%)		**Non-Wildlife-Dependent (40%)**	
Non-consumptive	Consumptive	Non-consumptive	Consumptive
75 %	25 %	100%	0%

Table 3. *Wildlife-dependent and non-wildlife-dependent public use on Dungeness NWR.*

Public Use Activities Currently Occurring on Dungeness NWR

The public use review identified eleven public use activities occurring on Dungeness NWR. Wildlife-dependent recreational activities are wildlife observation, wildlife photography, hiking, recreational fishing (saltwater fishing and shellfishing) and boating (non-motorized and motorized) when used to participate in these activities. Non-wildlife-dependent activities are jetskiing, windsurfing, beach use (swimming and other recreational beach activities), jogging, horseback riding, and boating (non-motorized and motorized) when not used for a wildlife-dependent activity. The following describes uses, by management zone, as they now occur on Dungeness NWR.

Zone 1: Beach in Front of the Bluffs

Not many of the visitors currently use Zone 1, but a small percentage will walk along the beach during the summer months. Some visitors wade or swim in this zone while a few horse groups ride here. According to a 4-H group leader, their group rides their horses along the bluffs instead of riding on Dungeness Spit because they believe it is safer not mingling with people walking. When Zone 2 becomes crowded, visitors will use Zone 1 for picnicking and sunbathing.

Zone 2: Base of Dungeness Spit

Zone 2 receives the majority of visitation. People have remarked that they have seen so many people congregated at the base of Dungeness Spit on a warm summer day it resembled a southern California beach. Every person who walks on the Dungeness Spit must pass through this zone. In July and August, Zone 2 may receive up to 1,500 visits on a weekend day. It is not unusual to have 700 people in Zone 2 during the summer on weekdays. People walk both the Strait side and Dungeness Bay and Harbor side of the Spit for exercise, and to observe and photograph wildlife. Zone 2 is popular during the summer months (June through August) for beach use which includes swimming, frisbee tossing, and organized sports such as volleyball. The tideflats on the Harbor side along the first mile of the Dungeness Spit are also a popular clamming area from May through September with some clamming occurring during March, April, and October. Horseback riding is a popular activity during the summer months in Zones 2 and 3. Forty-five percent of the estimated 1,000 annual horseback riding visits occur in Zones 2 and 3 during the summer months. At present, horses are only permitted during weekdays from April 15 to October 15, and riders frequent both the Strait side and Dungeness Bay and Harbor side of the Spit.

Visitation begins to decrease in late September and by December reaches the low point for the year. The number of visitors begins to increase in March and gradually climbs, peaking in August (Figure 19). During the "off season" between October and May, Dungeness NWR may still receive up to 300 visits on a sunny weekend day. Public use activities during this time of year include hiking, wildlife observation, and horseback riding which is permitted seven days a week from October 16 to April 14.

Zone 3: Middle Dungeness Spit, Tidelands, and Graveyard Spit

Approximately 60 percent of the people visiting Dungeness NWR make it to Zone 3 by hiking or horseback, but only about 15 percent venture further than three miles from the base of Dungeness Spit. Both hikers and riders tend to favor the Strait side of the Spit, but many of these users will travel on the Dungeness Bay and Harbor side on their return trip. The shoreline along the inner Dungeness Harbor west of Graveyard Spit is also very popular with visitors who wish to observe wildlife, especially during the winter months from November through March. During the summer months of daytime low tides many visitors clam in the tidelands west of Graveyard Spit. Crabbing with crabpots east of Graveyard occurs from September through April. Both of these areas are accessed by boats. Many people beach their boats on Graveyard Spit while waiting to check their pots.

Pleasure boating takes many forms, including powerboating, jetskiing, sailboating, windsurfing, canoeing, and kayaking. Currently, jetskis are not numerous, but most of this use happens during the summer months and is likely to occur anywhere on Dungeness NWR waters much as powerboat use does. Small sailboats and canoes are occasionally used to visit this area in the summer.

It is possible for windsurfing to occur anytime of the year when the wind is right, but it is most common during the summer months. Windsurfers launch on the west side of Cline Spit and sail in a northerly direction (Figure 20). The Dungeness Harbor is

being advertised as the second best place to windsurf in Washington State and during good wind days as many as twenty windsurfers may be seen in this area. The majority of windsurfing occurs outside of Refuge boundaries and is not affected by this plan.

Kayaking is increasing in popularity on Dungeness NWR waters. Several kayak outfitters offer guided tours to Dungeness NWR and New Dungeness Lighthouse near the end of Dungeness Spit during the summer months. The kayaks launch at Cline Spit and travel through Dungeness NWR waters to a beaching spot in Zone 3 close to the lighthouse. Some kayak tours are given during the winter months, but the majority occur during the summer.

Powerboats are also used year round to visit the lighthouse and are beached in the same area used by kayak groups. Based on the visitor register at the lighthouse, a minimum of 5,000 visitors annually hike, ride horses, or boat as far as the lighthouse. Many of the visitors cross over to the Dungeness Bay side of the Spit to observe wildlife.

Zone 4: End of Dungeness Spit

The tip of Dungeness Spit from the east side of the lighthouse compound out is closed to public access.

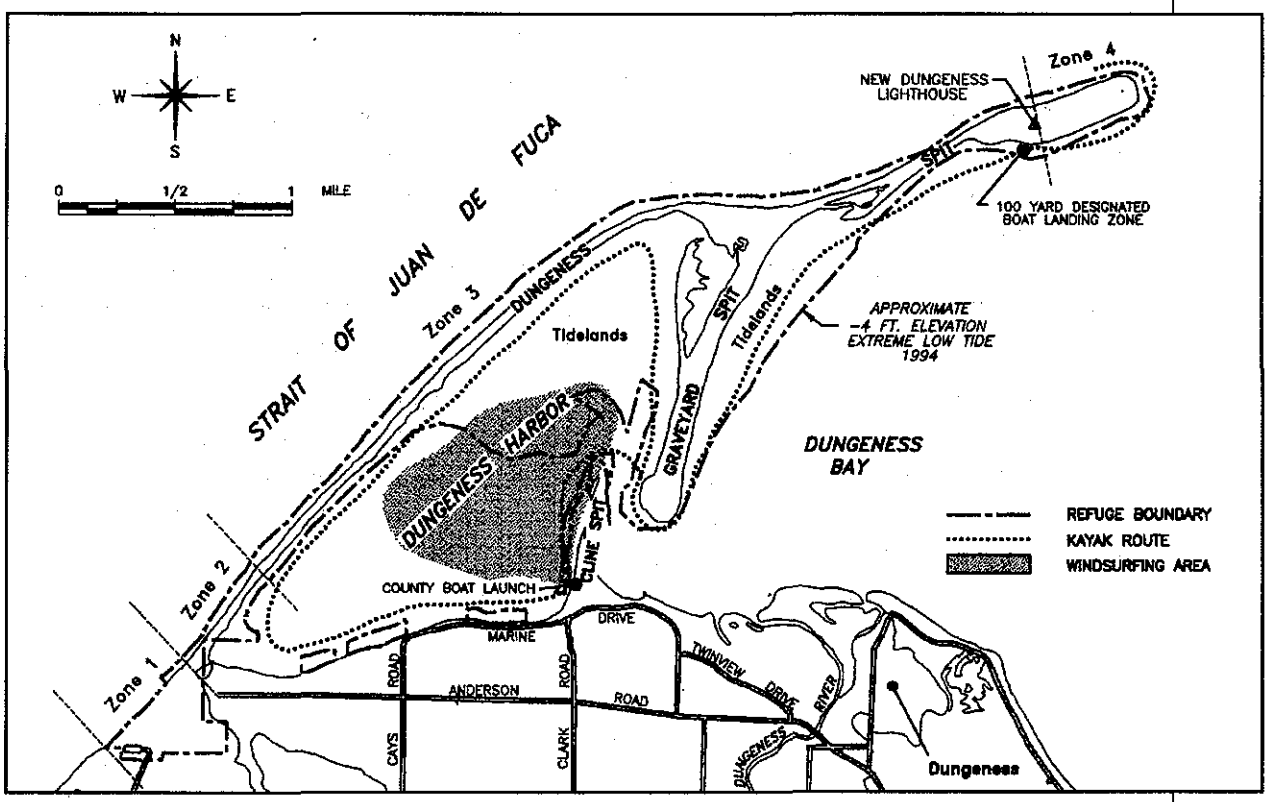

Figure 20. *Higher use areas for pleasure boating on Dungeness NWR and surrounding area.*

Cumulative Effect of Public Uses on Wildlife

As the human population grows, especially in the local area and urban centers such as Seattle, increasing numbers of people will seek wild areas like Dungeness NWR where they can experience the outdoors. Dungeness NWR is unique since even with its proximity to a growing community it still maintains a wilderness quality. The wildlife that live here and for which Dungeness NWR was set aside are basic to that quality. The increase in public use and visitation in recent years has caused managers as well as the general public to become concerned that wildlife populations are being adversely impacted. Many believe the amount of public use and the number of visitors have already reached a saturation point. On the other hand, some visitors believe their type of public use activity is not detrimental to wildlife. While this may be true if only a single use, or even a few uses, were involved, the cumulative impact of eleven unmanaged uses can be devastating to wildlife populations particularly where visitation is high. The challenge is to meet the needs of wildlife (the primary purpose of Dungeness NWR) while ensuring allowed public use activities are compatible, giving priority to wildlife-dependent uses (Executive Order 1996).

Economic Environment

Natural resource-based industries (timber, fishing, and agriculture) have historically dominated the economy of Clallam County (Clallam County 1992). Major employers within eastern Clallam County are the Jamestown S'Klallam Tribe, Olympic Memorial Hospital, Port Angeles School District, ITT Rayonier and Diashowa America. The 1990 census reported the per capita income in Clallam County to be $16,402.

The scenic opportunities of Olympic National Park, state parks, and the ferry to Victoria, British Columbia draw upwards of three million visitors per year to the area. This supports a growing tourism-based industry. Benefiting businesses include motels, campgrounds, restaurants, grocery services, sporting goods suppliers, marinas, and gasoline stations. In 1990, visitor expenditures within Clallam County were over $60 million. In addition, this scenic environment combined with a mild climate attracts a growing population of retired people to the Sequim-Dungeness area. The Sequim-Dungeness valley remains rural-residential with the highest rate, both in value and numbers, of residential building construction for the county.

Wildlife viewing opportunities are an important component of the local economy of Clallam County. In a market trend analysis for the North Olympic Peninsula, tourists were surveyed to detect what attractions and recreational opportunities were most significant to visitors (Runyan 1995). The opportunity to visit national parks or scenic wonders, and to view wildlife was ranked in the top three choices for visitor activities on the Peninsula (Runyan 1995) (Appendix F).

Chapter 4
Environmental Consequences

Introduction

This chapter identifies the environmental effects of each management alternative. The effects of specific activities are discussed for the following:

- Effects on Wildlife.
- Effects on the Physical Environment.
- Effects on Visitors Participating in Wildlife-dependent Uses and the Quality of their Experience.
- Effects on the Local Economy.

Effects of Alternative A — No Action

Review of the current public use activities identified many that are in conflict with wildlife and wildlife-dependent public use at Dungeness NWR. These activities are occurring during the same time period large numbers of wildlife are present on Dungeness NWR and in the same areas these species require for feeding, roosting, nesting, or seal pupping. The conflicts are resulting in many wildlife species being harassed and displaced from their preferred use areas. No change in public use activities would continue to stress already depleted wildlife populations. Under this alternative public use activities have a higher priority than wildlife. With the exception of harbor seals, most of which are protected by the closure at the end of Dungeness Spit, the no action alternative would most likely result in a continued decline of wildlife on Dungeness NWR.

Effects on Wildlife

Disturbance to nesting, feeding, and roosting wildlife can have far reaching effects. For example, migratory birds depend on undisturbed feeding and resting to build resources in preparation for breeding. Their ability to store adequate resources during the migratory and wintering periods may influence their breeding success the following season (Raveling and Heitmeyer 1989). In addition, the feeding and resting period may be compressed, leaving a very limited time (e.g., days) for replenishing resources before it is time to move on to another location. Continued or repeated disturbance that causes birds to flush from their feeding or resting site has an energetic cost, disrupts their behavior, temporarily displaces them from optimal sites, and may cause them to leave the area entirely. Alternative sites of equal value may not be available, particularly since the Refuge represents some of the best wildlife feeding and resting habitat in the area. If nesting birds are flushed, unattended eggs or chicks may be more vulnerable to predation. In worst cases, birds may abandon their nests altogether. Some wildlife populations have undergone declines due to a variety of

factors, including habitat loss, e.g., black brant. The need to protect these already depleted populations from added stresses, like disturbance, becomes even more important. Disturbance effects on wildlife are accentuated by the relatively small size of the Dungeness area and the overlap between optimum habitats and public use areas.

Effects on wildlife were evaluated in detail by public use activity to make it easier to compare alternatives.

Jetskiing. This activity is extremely disturbing to wildlife because of the high noise levels, extreme speed, the small area of water available on the Refuge where they could operate, and the high mobility of jetskis. One machine can cause enough disturbance to frighten all of the birds off of Dungeness NWR in a matter of minutes. For example, a jetski was observed putting up clouds of birds west of Graveyard Spit in mid-March 1995. Other nearby areas are available for this kind of activity such as Sequim Bay and Discovery Bay which have boat launch facilities.

Windsurfing. Windsurfing is increasing in popularity and occurs on Dungeness NWR west of Graveyard Spit. This activity causes conflicts with wildlife that frequent open water including black brant, other waterfowl, waterbirds, and harbor seals. The erratic movement of the sail and its associated popping sound causes birds to flush from their feeding and roosting areas on the water. Disturbance from windsurfers can last for long periods and cover large areas when the wind conditions are suitable, since one or more windsurfers will sail into and out of the Dungeness NWR repeatedly. Disturbance to wildlife is greatest from early October through mid-May, but may occur at other times since waterbirds or waterfowl are present in the Harbor all year. The south half of Dungeness Harbor is outside of the Dungeness NWR boundary. The majority of the windsurfing area (Figure 20) is outside the Refuge boundary and would not be affected by this plan. According to many people involved in this sport the area is large enough for tacking so that entry into Dungeness NWR is not necessary. This activity would contribute to a continued reduction in the use of Dungeness NWR by black brant, other waterfowl, and waterbirds resulting in a decline of these wildlife populations.

Boating (motorized). Motorized boating is associated with crabbing, clamming, and pleasure boating which occur all year on Dungeness NWR. The movement of the boat and engine noise are disturbing to black brant, other waterfowl, and waterbirds from October through mid-May when the birds are wintering, or resting and feeding during migration. Beached boats and the associated occupants conflict with shorebird use from late November through late April, but especially during the spring migration from March

through April when shorebird populations peak. Beaching of boats is detrimental to nesting black oystercatchers during the spring and summer. Boating would cause a decrease in the use of Dungeness NWR by shorebirds, and contribute to a continuing decrease in waterfowl, waterbirds, black brant, and nesting birds.

Boating (non-motorized). Non-motorized boating includes sea kayaks, small sailboats, rowboats, and canoes. Currently, the majority of use occurs during the summer months from May through September. Commercial outfitters offer tours originating outside of Dungeness NWR. The heaviest use also takes place during the summer months. Greatest conflicts with wildlife result from boaters "tracking" too close to shorelines and beaching their watercraft in areas where shorebirds, waterfowl, waterbirds, and harbor seals rest and feed and black oystercatchers and killdeer nest. These activities displace shorebirds, waterbirds, waterfowl, nesting birds, and harbor seals causing them to seek less preferred sites, either off Dungeness NWR or to concentrate in other areas on Dungeness NWR where they are less likely to be disturbed. Continuation of current boating patterns would likely lead to a decline of the total number in each wildlife population, since some of the habitat would not be available thus resulting in a lower carrying capacity.

Hiking, wildlife observation, and wildlife photography. These activities are similar in that they all occur in the same areas during the same time of the year and result in similar conflicts with wildlife. Conflicts with wildlife occur when visitors involved in these activities walk along the shore on the Dungeness Bay and Harbor side of Dungeness Spit from the early part of October through mid-May. Shorebirds and waterbirds which feed and roost along the shoreline and on the tideflats are easily disturbed by just a few visitors. For example, one person, or a group, may begin walking along the shore toward a group of feeding shorebirds. The approach of people causes the birds to move further along the beach until they eventually flush and return back to their feeding area. If this were the only instance of disturbance, the birds would be able to resume feeding without much harm. It is common, however, for several groups of visitors to visit an area such as this during the birds' feeding period. If the birds are pushed off of their feeding area several times, energetic costs are higher, feeding is disrupted, and they will eventually abandon the area.

Research has shown that birds such as shorebirds must feed intensively during the time that the tideflats are exposed by low tides to get enough food to survive (Dugan et al 1981). Continual disturbance can deprive them of their food source which will hamper their food intake and therefore lower their energy and fat reserves, which

are especially important for migration and breeding (Boyle and Samson 1985, Burger and Gochfeld 1991). Black brant, bald eagles, and some waterfowl that frequent shorelines, are also disturbed off their feeding and roosting areas by these activities. Before the end of Dungeness Spit was closed to visitor access, harbor seals were often chased from their haul-out sites into the water by people on foot. Pup disturbance, which contributes to mortality, continues to be documented along both sides of Dungeness Spit, where small numbers of individual harbor seals haul out and pup each year. These activities also cause enough disturbance during the spring and summer to impede nesting by black oystercatchers and killdeer on the Dungeness Bay and Harbor side of the Dungeness Spit. Pink and chum salmon smolts that seek cover in the shallows may also be frightened into deeper water by people walking along the shore, causing smolts to become easier prey for larger fish.

These activities, as currently occurring, would likely result in a decline of wintering shorebirds, black brant, other waterfowl, some species of waterbirds and bald eagles on Dungeness NWR. Pink and chum salmon populations would continue to be slightly impacted by these activities.

Recreational fishing and shellfishing. Visitors travel to the clamming and crabbing beds either by foot or by boat. The preferred clamming area is on the tideflats at the base of Dungeness Spit and continues out for about one mile. This area is accessed mostly by foot. Conflicts with wildlife are the same as for people hiking, as described in the previous section. The tidelands east and west of Graveyard Spit also receive some clamming use, but are more popular for crabbing. These areas are accessed by both motorized and non-motorized boats so the conflicts with wildlife are the same for both kinds of boating. Clammers using the tideflats west of Graveyard Spit, however, tend to keep black brant and other waterfowl off of the eelgrass beds during the early spring when brant are staging. Crabbers on the other hand set out crab pots east of Graveyard Spit by boat which impacts waterbirds, black brant, and other waterfowl from November through February. Overall impacts on wildlife would be the same as for hiking and motorized boating.

Effects on the Physical Environment

The effect to the physical environment would be minimal. Foot traffic on the Dungeness Bay and Harbor side of Dungeness Spit may cause minor erosion, but not enough to cause serious damage. Horse traffic may cause more erosion. Clam diggers may disturb the tideflats by leaving uncovered holes. According to recent seagrass research, eelgrass bed scarring may occur when a boat's propeller or anchor tears and cuts up the eelgrass's roots, stems, and leaves (Sargeant 1995). This is more likely to happen in the summer when low tides occur in the daytime. During this

time, boaters frequently anchor over shallow beds and their boats swing at anchor. The retrieval of crab pots from eelgrass beds or the movement of unweighted pots also may dislodge eelgrass plants.

Effects on Visitors Participating in Wildlife-Dependent Uses and the Quality of Their Experience

The quality of the wildlife viewing experience would continue to decline as the number of visitors increase and wildlife populations decrease. The effect of visitors participating in non-wildlife-dependent activities on visitors participating in wildlife-dependent activities such as wildlife observation and wildlife photography would be high. The activities of visitors involved in non-wildlife-dependent activities including jogging, beach use (swimming and other recreational beach activities), and horseback riding create the greatest conflicts with visitors who are viewing wildlife.

During the last few years, Dungeness NWR staff and volunteers have received over 100 oral complaints from visitors regarding non-wildlife-dependent activities. Some who have traveled for several hundred miles to visit Dungeness NWR said that they were expecting a refuge and instead found a recreation site. In addition to oral comments, written comments range from, "Most disappointing, completely overrun by careless people. Put up a boardwalk and restrict access!! Where's the wildlife?" to "We stopped after walking a short distance out onto the Spit. We support your work in managing this area as a wildlife refuge, but are concerned about the large number of people we saw walking and clamming. Can the area really serve as both a refuge and popular recreational area?"

Many oral complaints regarding conflicts with horses and people on Dungeness NWR have been received, as well as complaints about horses interfering with people observing wildlife. People report being frightened by a horse's behavior because of the horses size and unpredictability. The following is one example of these kinds of conflicts. A written complaint relates, "At 3:30 p.m. three horses were galloping on trails near the clam beds on the Harbor side of Dungeness Spit. I had to leave the trail quickly since one horse was shying. One rider than began rodeo maneuvers in the sand and startled a great blue heron into flight."

Visitors have expressed concern for their personal safety when horses gallop toward them on a narrow portion of beach; visitors on foot have few places to move out of the way of the horses. A woman reported she had been sitting on some driftwood logs enjoying the sounds of the surf and watching seabirds when she saw three horses approaching along the beach. The rider of one horse was apparently not in control and the horse began side prancing and backing in her direction. The horse kept backing into her until it almost backed over her. She finally had to quickly push herself backwards off the log to avoid being injured.

Other conflicts arise on the main trail which is shared by horses and people and leads down the hill to Dungeness Spit. Several people have reported they were pushed off the trail by riders and that horses blocked the trail at the top. People have said they were afraid to pass horses on the trail for fear of being kicked.

Effects on the Local Economy

The revenue generated by people visiting Dungeness NWR would most likely decrease as wildlife populations decrease. According to a recent Tourism Market Analysis, 66.9 percent of survey participants were attracted to vacation in the Sequim/ Port Angeles area because of the opportunity to view wildlife (Runyan 1995). This demonstrates another value of Dungeness NWR's wildlife resource as a marketing asset to the community and the importance of preserving and enhancing the appeal of this attraction. Kerlinger (1995) found that Federal lands are an important economic asset to both the national economy and the economies of the communities in which they are located. Ecotourists to national wildlife refuges provide a major source of external revenue to a community, for which the community does not have to provide or pay for the attraction that draws the ecotourists.

Effects of Alternative B — Eliminate Public Use

Effects on the environment from public use would be virtually eliminated. Minimal effects might occur from small groups which were allowed to use Dungeness NWR by Special Use Permit.

Effects on Wildlife

Conflicts with wildlife would be greatly decreased. Black brant, other waterfowl, waterbird, shorebird, threatened and endangered species, and harbor seal use would increase with the absence of public use on Dungeness NWR. The potential for nesting birds would also increase.

Effects on the Physical Environment

Since the majority of public use would be eliminated, adverse effects on the physical environment would be minimal.

Effects on Visitors Participating in Wildlife-Dependent Uses and the Quality of Their Experience

No wildlife viewing experience would occur since visitation would not be permitted. Conflicts between visitors participating in wildlife-dependent use and non-wildlife-dependent use would not exist since neither activity would be permitted.

Effects on the Local Economy

The revenue generated by people visiting Dungeness NWR would decrease since people would not be allowed to visit and therefore would not be attracted to the Refuge.

Effects of Alternative C — Allow Compatible, Wildlife-Dependent Public Use

Adverse environmental effects would greatly decrease since Dungeness NWR would be managed to fully benefit wildlife. Visitors would not be permitted to enter key areas when or where wildlife use was occurring. The overall effect of this alternative would likely be an increase in wildlife use and populations of Dungeness NWR.

Effects on Wildlife

Effects on wildlife were evaluated in detail by public use activity to make it easier to compare alternatives.

Jetskiing. Jetskiing would not be permitted, thus wildlife would not be disturbed by this activity.

Windsurfing. Windsurfing would not be permitted, thus wildlife would not be disturbed by this activity.

Boating (motorized). The effect of boating on wildlife would be minimized because it would only be permitted in a time, manner, and place that would not disturb higher use areas for black brant, other waterfowl, waterbirds, shorebirds, and nesting birds. Use of Dungeness NWR by all of these groups of birds would likely increase. The tip of Dungeness Spit would remain closed under this alternative thus helping to ensure the harbor seal population would either remain stable or increase.

Boating (non-motorized). The effect from canoes, sea kayaks, and small sailboats under this alternative would be the same as for motorized boats.

Hiking, wildlife observation, and wildlife photography. Restrictions placed on these activities under this alternative, would greatly reduce the negative effects on shorebirds, black brant, other waterfowl, waterbirds, bald eagles, and pink and chum salmon smolts. These species would likely increase their use of Dungeness NWR under this alternative. As many as 1,000 or more shorebirds would continue to be disturbed by public activities along the Strait side of Dungeness Spit during the late summer months. However, key shorebird use areas would receive greatly improved protection from disturbance. Harbor seals that haul out and pup in areas open to public use would continue to be vulnerable to disturbance, contributing to occasional pup mortalities. Management actions, including closure of the tip of Dungeness Spit, localized closures to protect individual pups, presence of volunteers, and other educational efforts, will help to reduce effects on harbor seals and insure numbers remain stable or increase.

Recreational fishing and shellfishing. Effects from fishing and shellfishing, under this alternative, would be the same as for hiking and motorized boating.

Effects on the Physical Environment

Effects on the physical environment would be minimal, similar to but slightly less than those described for the No Action alternative.

Effects on Visitors Participating in Wildlife-Dependent Uses and the Quality of Their Experience

The quality of wildlife viewing activities would increase because wildlife abundance would increase and non-wildlife-dependent public use activities that are in conflict with wildlife viewing would not be permitted. Conflicts between visitors participating in wildlife-dependent and non-wildlife-dependent activities would not occur, since non-wildlife-dependent uses would not be allowed.

Effects on the Local Economy

The revenue generated by Dungeness NWR visitors could remain stable, but there is a strong possibility it would increase over time. If wildlife populations were to increase as predicted, more people would be drawn into the local area for the purpose of wildlife observation.

Effects of Alternative D — Allow Compatible, Wildlife-Dependent and Non-Wildlife-Dependent Public Use

The effects would be similar to the Allow Compatible, Wildlife-Dependent Public Use Alternative, with the exception of Effects on Wildlife from boating and Effects on Visitors Participating in Wildlife-Dependent Uses and the Quality of Their Experience.

Effects on Wildlife

Effects on wildlife were evaluated in detail by public use activity to make it easier to compare alternatives.

> **Boating (motorized and non-motorized).** Wildlife, such as feeding and roosting shorebirds, would be displaced from the 100-yard boat landing zone. Harlequin ducks which commonly roost and feed adjacent to the boat landing site may be flushed off the shore. They probably would shift and increase their concentration at the northeast junction of Graveyard Spit and Dungeness Spit. The increase in visitors to this area may be disturbing to harbor seals on the tip of Dungeness Spit due to increased human activity and associated noise levels. The increased landing of boats would limit the accessibility of female-pup pairs to a portion of their preferred nursery areas increasing the potential of pup separation and abandonment. Controlling beach landing by reservation should help to reduce effects on wildlife.

Effects on Visitors Participating in Wildlife-Dependent Uses and the Quality of Their Experience

Although an area would be designated where non-wildlife-dependent uses would be permitted, some of this type of use would no doubt occur outside the area and could conflict with wildlife-dependent public use. Some conflicts would continue to occur between user groups on the Strait side of Zones 1 and 2, where most uses would be allowed. However, fewer numbers of horses will reduce the conflicts between horses

(non-wildlife-dependent activity) and people participating in wildlife-dependent activities. Fewer horses would also reduce public safety issues, where users share the same trails and use areas. Wildlife-dependent users would still need to traverse Zone 2 where some non-wildlife-dependent use occurs, to reach Zone 3. However, effects on the quality of wildlife-dependent recreation would be reduced overall, especially in Zones where non-wildlife-dependent recreation is not allowed. The potential for this to occur would therefore be medium. Although both types of uses would be allowed under Alternative D, new restrictions would provide a focus on wildlife-dependent recreation over non-wildlife-dependent recreation.

Effects of Alternative E — Allow Maximum Public Use

Environmental effects would increase when compared to the No Action Alternative, since Dungeness NWR would be managed with public use as a higher priority than wildlife. The overall effect of this alternative would be a decrease in wildlife use and populations of Dungeness NWR. The effects to the local economy, however, would most likely remain stable, but may increase since the area would attract people interested in using Dungeness NWR as a recreation site.

Effects on Wildlife

Effects on wildlife were evaluated in detail by public use activity to make it easier to compare alternatives.

Jetskiing. Jetskiing would not be permitted, thus wildlife would not be disturbed by this activity.

Windsurfing. Windsurfing would not be permitted, thus wildlife would not be disturbed by this activity.

Boating (motorized and non-motorized) and Recreational fishing and shellfishing. Allowing these public use activities to occur before May 15 would disturb black brant east and west of Graveyard Spit which use this area for feeding and roosting. Allowing these activities to occur on the Dungeness Bay and Harbor side of Dungeness Spit after September 30 would cause disturbance to migrating shorebirds, waterbirds, and waterfowl. Use by populations of black brant, other waterfowl, or shorebirds would likely continue to decrease because of the expanded times that people would be allowed into these areas. Permitting boats to land would have the greatest effects during the spring and summer on nesting black oystercatchers and on migrating shorebirds in the fall.

Hiking, wildlife observation, and wildlife photography. Allowing these public use activities to occur throughout Dungeness NWR from May 1 to September 30 would have the same effect as the No Action Alternative in relation to the impact on wildlife on the Dungeness Bay and Harbor side of Dungeness Spit. A major difference between this alternative and the other four is that Graveyard

Spit and the tip of Dungeness Spit would be open to public access from May 1 to September 30. The harbor seal haul-out site and harbor seal population would be severely impacted by human disturbance during these months as they were prior to the closure of these areas in August 1993. Wildlife habitat and sensitive plants would also be impacted on Graveyard Spit during these months. These activities during this time of the year would cause decreases in the number of animals using these areas.

Effects on the Physical Environment

Effects on the physical environment would be minimal, similar to those described in the No Action alternative, although slightly greater.

Effects on Visitors Participating in Wildlife-Dependent Uses and the Quality of Their Experience

Effects on this activity would be the same as for the No Action alternative except there may be fewer harbor seals in the vicinity of the tip of Dungeness Spit and fewer birds in the vicinity of Graveyard Spit for visitors to view.

Effects on the Local Economy

The number of visitors that would be attracted to Dungeness NWR for non-wildlife-dependent activities would most likely increase. This increase in visitors may generate an increase in revenue for the local area. However, as described under the No Action alternative, as wildlife continues to decrease, visitors participating in wildlife-dependent activities would also likely decline. This decline in visitation by wildlife-dependent visitors may reduce or limit any increases in revenue for the local area.

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Chapter 6
Consultation and Coordination

A number of actions were taken between March 28, 1994 and the present to inform the public and encourage involvement to resolve incompatible secondary uses occurring on Dungeness NWR. These public involvement actions are listed here as a summary. Also summarized are the major comments received in response to the draft EA. The summary does not include all of the numerous informal meetings, letters, and telephone conversations with the public and concerned agencies at the state and local level.

Meeting of Interested Parties

Interested members of the public were invited to participate in a meeting on March 28, 1994, in which the purpose of revising public use management was explained. The meeting provided a forum for discussion of objectives, public use management strategies, and development of a mailing list.

Information Letter

An initial information letter was sent to key agencies and individuals during the spring of 1994 stating our intentions to involve the public in the planning process and enhance communication regarding the revision of public use management and resolution of incompatible uses on Dungeness NWR.

Potential Audiences

Efforts were made to identify all organizations, groups, businesses, and individuals that might want to be involved in the planning process. Handouts were distributed during May 1994 to visitors at the Dungeness NWR entrance to encourage them to sign-up to be on the mailing list and to participate in the planning process.

Scoping Meeting

A scoping meeting was held on June 9, 1994 to explain the purpose for revising the management of public use on Dungeness NWR. Two booklets entitled, "Resolving Incompatible Uses at Dungeness National Wildlife Refuge" and "Wildlife of Dungeness National Wildlife Refuge" were distributed to the 37 people in attendance. The conflicts between secondary uses and wildlife were explained, and those present were asked to help identify strategies to resolve them. Booklets were also mailed to those on the mailing list to gather their responses.

Analysis of Public Input

All responses from the scoping meeting and miscellaneous responses were sorted into categories. This analysis summarized public concerns and opinions and helped the planning team in the process of determining solutions to resolve incompatible public uses at Dungeness NWR. The Public Involvement Plan, names of individuals and organizations who provided comment, and the analysis of all comments are on file at the Washington Coastal Refuge's Office, 33 South Barr Road, Port Angeles, Washington, 98362.

Meetings with User Groups and Other Interested Parties

Several briefings were held prior to release of the draft EA to provide information and encourage additional comments. Meetings were held with Senator Gorton's Office; Senator Murray's Office; Congressman Norm Dicks' Office; Clallam County Commissioner Martha Ireland; Clallam County Parks Director, Craig Jacobs; Washington Department of Fish and Wildlife Regional Manager, John Conklin; Esther Veltkamp, Sequim Chamber of Commerce; Duane Catract, Backcountry Horsemen; Dennis Boyd, Backcountry Horsemen; Bruce Bedinger, Past President, U.S. Lighthouse Society; and Fred Hudson, interested party.

Intra-Service Section 7 Evaluation

An evaluation, pursuant to Section 7 of the Endangered Species Act was completed on November 14, 1996. It was determined that the public use plan was "not likely to adversely affect" the peregrine falcon, bald eagle, marbled murrelet, western snowy plover, or brown pelican (Appendix G).

Draft EA

The draft EA was released on May 31, 1996, and distributed to 238 interested and affected individuals, organizations, agencies, governmental representatives, and libraries (Appendix D). A news release was widely distributed to encourage public participation. Two open houses were held during the 30-day public comment period, which ended on July 1, 1996. All comments received were considered in preparing the final EA.

Open Houses

Open houses were in Sequim, Washington on June 19 and 20, 1996. Open houses were advertised in the cover letter of the draft EA and in a news release. A second letter was sent to those on the mailing list informing them of the meeting times and format of the open houses. The open houses were designed to be informal and to allow everyone the opportunity to make comments. At the open houses, seven identical stations were set up with each station having a technical person and recorder with a flip chart. As people arrived, they were asked to sign-in, given an optional written comment form, and directed to a waiting area where copies of the draft EA were available. As space became available, every person who wished was able to make comments at one of the stations. All of the comments were recorded on flip charts and the commentor was able to verify that the comment was recorded correctly. Comments were later compiled and transcribed to accommodate review. According to the sign-in sheet, 130 people attended the open houses and made comments. Everyone who signed-in was put on the mailing list to receive the final EA.

Summary of Comments

Overview

A total of 185 letters were received during and after the 30-day comment period; 450 individual comments were recorded or received during the open houses. Of the letters received, 121 respondents selected an alternative. Of those, the majority (65 percent) preferred Alternative D, with 9 percent preferring Alternative C, and 7 percent saying they would support either C or D. Twelve percent preferred

Alternative A, 3 percent preferred Alternative E, and 4 percent preferred Alternative B. One person said they preferred A or C. Many people who supported Alternative D commented they preferred Alternative C, but they realized Alternative D was an attempt to maintain a balance between public use and wildlife and would therefore support Alternative D. Percentages could not be accurately determined for the open houses because some people visited multiple stations and repeated their comments and preferences.

Three resolutions were received during the comment period. On June 6, 1996, the Olympic Audubon Society passed a resolution supporting Alternative D as the minimum acceptable level of wildlife protection at Dungeness NWR. The Washington State Environmental Council (WEC) passed Resolution #96-47 dated June 9, 1996 in support of Alternative D as the minimum level of wildlife protection acceptable to the WEC. The Board of Clallam County Commissioners adopted Resolution Number 96 on June 25, 1996 recommending current regulations be retained (Alternative A) with further scientific study, or if Refuge management was compelled to select Alternative D, that it be modified. Recommended modifications included allowing horseback riding on the north side of the spit in Zone 3 with some restrictions, expanding Zone 2 to one mile in length, allowing hiking, wildlife observation/photography, shellfishing, boating, and fishing on the inside of Zone 3 including Graveyard Spit from May 1 to October 31, and eliminating permit requirements for boat landings.

In preparation of the final EA both oral and written comments were reviewed and sorted into the following categories: wildlife and public use management, horseback riding, windsurfing, hiking, boating and beach landing, shellfishing, jetskiing, beach use, jogging, cultural resources, and data content. The strongest appeals came from 1) people who wanted wildlife and habitat protection to come first, 2) horseback riders, and 3) windsurfers.

A summary of the comment categories is presented here; each comment category is addressed separately. Because it is a summary, it does not include every specific comment received. All of the comments received were considered in the development of the final EA.

Wildlife and Public Use Management

The majority of all commentors believed wildlife should be given priority in habitat management at Dungeness NWR. Although many commentors had individual concerns regarding specific activities, only a few said too much emphasis was being put on wildlife. Many expressed their preference to discontinue non-wildlife dependent recreation. Many asked that Dungeness NWR not be allowed to continue to be managed as a recreation area and to at least not let recreational activities increase. Many stated the area should remain a National Wildlife Refuge.

Of the few that believed too much emphasis was being put on wildlife, some said Dungeness NWR should be managed for recreation (people) first and wildlife second. A few people suggested the Refuge status be changed to a National Recreation Area. A few people asked that more weight be given to local needs before considering national needs. One respondent said public use was already significantly controlled

and wildlife had uninterrupted use of the Refuge at night; that charging Refuge entrance fees and closing Protection Island NWR to the public provided a form of mitigation for public use impacts at Dungeness NWR; and since hunting was allowed on 30 percent of some refuges, public use at Dungeness NWR should be compatible.

There was a comment that Zone 2 should be expanded from 1/2 mile in length to 1-mile and all recreational activities should be expanded to include the entire strait side of Dungeness Spit in Zones 2 and 3. A few people believed the Harbor and Bay side should be closed to all use year round.

There were a few comments relating to fish predation by seals; these people believed that seals should not be protected and the population should be controlled on Dungeness NWR to protect salmon stocks and sport fishing.

A number of commentors said their public use activity was related to wildlife observation. Kayakers, horseback riders, power boaters, windsurfers, and one jogger all remarked they saw wildlife while they were recreating. A few people asked if wildlife viewing platforms were going to be installed on the backbone of Dungeness Spit.

Horseback Riding

The majority of people who commented specifically on horse use were horse riders who did not agree that Zone 3 should be closed to horseback riding. The majority of riders said they would be willing to accept Alternative D if horses were allowed on the Strait side of Zone 3, otherwise most preferred Alternative A with no change. However, the majority of overall commentors, by showing a preference for Alternative D, did not support horseback riding past Zone 2.

Some riders agreed there may be conflicts with other users, but believed these conflicts could be resolved by changing the way horseback riding was permitted and by educating riders about the concerns other users have about horses. Other riders questioned the conflicts with other visitors caused by horses and stated that most riders were considerate and careful. Riders suggested ways to change the way horses are ridden on Dungeness NWR in order to minimize conflicts with other users. These changes included not allowing galloping, leading horses the one-half mile through Zone 2, riding horses up and down the hill, and developing some way to separate horses and people on the hill. One person commented that the safety problem between horses and other users was not resolved in Alternative D because people and horses would still be mingling on the hill.

Most riders indicated riding at the Refuge was a unique, family experience, and riding opportunities were dwindling in the area. Several voiced a concern about Alternative D in that horse use would be concentrated in a congested area in Zone 1 and access along the bluffs was almost impossible during the winter months when tides were high during the day and the water comes all the way to the bluff. They also commented that horses provided many handicapped riders the opportunity to visit the lighthouse and enjoy Dungeness Spit. Some users did not see the reason for permits. There were a few riders who said the horse trail in the forested uplands should be closed to hikers.

A few comments were received suggesting horses should not be allowed on Dungeness NWR at all. Most non-riders who commented on horseback riding believed there was a safety problem between horses and people. One commentor mentioned that fecal matter left by horses potentially disperses the seeds of non-native plants.

Windsurfing

Most people agreed Dungeness NWR should be closed to windsurfing and did not support this activity on a National Wildlife Refuge. Many of the windsurfers who supported this activity confused Dungeness NWR with Cline Spit and objected to the closure of this area to their sport. One windsurfer supported Alternative C once he understood the majority of the area used by windsurfers (around Cline Spit) would not be affected by the plan. A few windsurfers commented that windsurfing only occurred during high winds when birds were not on the water, so it did not conflict with wildlife. They also said the popping of the sail did not occur very often and it was not a disturbance to birds. They also challenged the use figures and said high use periods only included 15 to 20 windsurfers instead of 30. Many were offended that they had been included with jetskiing or asked to be distinguished from that user group, and said windsurfers enjoyed wildlife, were very environmentally aware, and they appreciated nature.

Hiking

Most people who commented on hiking supported Alternative D which allows hiking on the strait side of Dungeness Spit in Zones 2 and 3, and not on the Bay and Harbor side, indicating it provided a good balance between protection of habitat for wildlife and wildlife-dependent recreation for people. A few people objected to closing the area to hiking at all. They commented that the government was being too restrictive on "the Spit" and things were running OK the way they are now and should not be changed. A few comments suggested more research should be conducted to prove hiking and other activities were conflicting with wildlife before implementing any changes. One comment said people should be allowed to hike on Graveyard Spit and the tip of Dungeness Spit when wildlife numbers were not at their peak.

Boating and Beach Landing

The majority of comments received on boating indicated agreement with boat closures on the Bay and Harbor side in Alternative D. A few comments were received opposing any boating at all on Dungeness NWR. A few people were strongly opposed to the boat landing in Zone 3 and commented that the Lighthouse Society should not be allowed to operate a commercial venture on Dungeness NWR. They also said they opposed a dock. Some people, however, requested the landing zone be increased to 1/4-mile wide instead of 100 yards. One respondent questioned whether boat landings have substantially impacted wildlife numbers or mortality rates. A number of people remarked the permit system was not needed. A few people requested they be allowed to land on Graveyard Spit and one person asked that a landing zone be established at the base of Dungeness Spit for local people. One comment suggested hovercraft be included as not being permitted on Dungeness NWR.

Shellfishing

A few comments requested the tidelands on the Bay and Harbor side of Zone 3 in Alternative D be opened to foot access for clamming. A few also requested that shellfishing dates be expanded or that shellfishing restrictions be reconsidered.

Jetskiing

Many comments supported the closure of Dungeness NWR to jetskiing.

Beach Use

A few people asked that kite flying not be permitted.

Jogging

One person asked that jogging be allowed in Zone 3.

Cultural Resources

The Jamestown S'Klallam Tribe asked for a revision of the section relating to tribal use of Dungeness NWR. The New Dungeness Chapter of the U.S. Lighthouse Society asked for a revision and inclusion of a more accurate history of the lightstation.

Data Content

A few people questioned the validity of the data for the draft EA and said more qualitative data were needed. One person said everything should be thrown away that had been written and to start over. Another comment asked that others be involved in the preparation of the EA. A few said no changes should be made to current public use management until independent research was conducted for five years to determine wildlife/people interactions on Dungeness NWR. After five years a determination could be made whether more restrictions were needed. Another person commented more research was needed before anything was closed. One comment suggested studies on the effects of predation on bird populations be done before more restrictions on public use were established. This respondent also said the effects of the closures on Graveyard and the Tip of Dungeness spits should be determined. A few comments were made about basing the decline in wildlife on the increase in visitation and non-wildlife-dependent activities. It was suggested wildlife declines are nationwide and not related to the increase in numbers of people on Dungeness NWR.

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Appendix A

Laws and Regulations Affecting National Wildlife Refuges

All migratory birds are federally protected at Dungeness NWR under the authorities of the ***Migratory Bird Treaty Act*** of 1918 (16 U.S.C. 703-712), the ***Migratory Bird Conservation Act*** of 1929 (16 U.S.C. 715-715r), and the ***Migratory Bird Hunting and Conservation Stamp Act*** of 1934 (16 U.S.C. 718-718h).

Refuge management is guided by the ***National Wildlife Refuge System Administration Act*** of 1966 (U.S.C. 668dd-668ee). The act provides guidelines and directives for administration of all areas in the National Wildlife Refuge System for the conservation of fish and wildlife. Uses of a refuge are authorized by the act if FWS determines that such uses are compatible with the major purposes for which such areas were established.

The ***Refuge Recreation Act*** of 1962 (U.S.C. 460k-460k-4) authorizes the recreational use of refuges when such uses are compatible and do not interfere with the area's primary purposes. It authorizes the charging of fees for public use, and permits recreation programs only is sufficient funding and staffing are available. The act also authorizes the acquisition of lands adjacent to a refuge which are suitable for wildlife-oriented recreation, protection of natural resources, and conservation of threatened and endangered species.

The ***Endangered Species Act*** of 1973 (16 U.S.C. 1531-1543) instructs federal agencies to carry out programs to conserve the ecosystem on which these species depend. This act has relevance for Dungeness NWR since the bald eagle, peregrine falcon, and marbled murrelet frequent a variety of Refuge habitats.

The ***Marine Mammal Protection Act*** of 1972 (16 U.S.C. 1361-1407) gave authority to the Secretary of Interior and Commerce (depending on the species involved) to enforce provisions against "taking" or importation of marine mammals. Harbor seals are protected under the act.

The ***National Environmental Policy Act*** of 1969 (42 U.S.C. 4321-4347), known as NEPA, requires federal agencies to ensure public involvement in the decision making process, such as the management planning of national wildlife refuges, and to fully consider the environmental and social impact of federal actions.

Appendix B

Executive Order

It is hereby ordered that Dungeness Spit, an arm of land extending from the north shore of the State of Washington into the Strait of Juan de Fuca, as the same is shown upon the official plats of survey of townships thirty-one north, ranges three and four west of the Willamette Meridian, on file in the General Land Office, and as segregated by the broken line upon the diagram hereto attached and made a part of this order, be and the same is hereby reserved and set apart for the use of the Department of Agriculture as a refuge, preserve and breeding ground for native birds. This order is not intended to abrogate the orders creating military and lighthouse reservations located in part upon the same lands, nor shall it in any manner interfere with the use of the lands for military or lighthouse purposes, but rather, in addition to such uses, shall insure the protection of the native birds therein.

It is unlawful for any person to hunt, trap, capture, wilfully disturb or kill any bird of any kind whatever, or take the eggs of such birds within the limits of this reserve, except under such rules and regulations as may be prescribed by the Secretary of Agriculture.

Warning is expressly given to all persons not to commit any of the acts herein enumerated, under the penalties, prescribed by Section 84 of the U.S. Penal Code, approved March 4, 1909 (35 Stat., 1088).

This reservation to be known as Dungeness Spit Reservation.

WOODROW WILSON

The White House,

20 January, 1915.

(No. 2123.)

Note: This has been retyped from an original document.

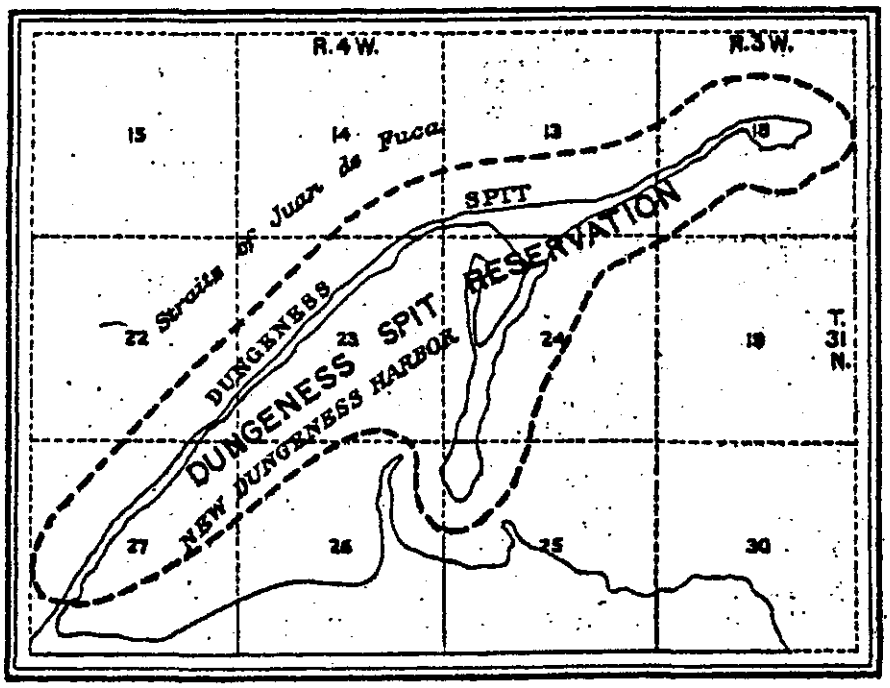
Appendix B. *Executive Order 2123 establishing Dungeness National Wildlife Refuge.*

DUNGENESS SPIT RESERVATION

For Protection of Native Birds

WASHINGTON

Embracing an arm of land extending from the North shore of Washington into the Straits of Juan de Fuca, in T.31 N. Rgs. 3 and 4 West Willamette Meridian as segregated by broken line and designated "Dungeness Spit Reservation" containing 226.02 acres



DEPARTMENT OF THE INTERIOR

GENERAL LAND OFFICE

Clay Tallman, Commissioner

Note: This has been retyped and scanned from an original document.

Attachment to Executive Order 2123 establishing Dungeness National Wildlife Refuge.

Appendix C

State of Washington

IN CONSIDERATION of Section 152, Chapter 255, Laws of 1927 *the STATE OF WASHINGTON does hereby grant, bargain, sell and convey unto* United States of America Fish and Wild Life Service, its successors *and assigns, the following described tide lands of the second class, as defined by Chapter 255 of the Session Laws of 1927, situate in* Clallam *County, Washington, to-wit:*

All tide lands of the second class owned by the State of Washington, situate in front of, adjacent to or abutting upon the following described uplands in township 31 north, range 4 west, W.M.

Lots 1, 2, 3, and 4, section 13, with a frontage of 156.35 lineal chains, more or less, also

Lot 1 Section 14, with a frontage of 30.18 lineal chains, more or less; also

Lot 1, section 22, with a frontage of 54.21 lineal chains, more or less; also

Lots 1, 2, and 3, section 23, with a frontage of 179.28 lineal chains, more or less; also

Lots 1, 2, 3, 4 and 5, section 24, with a frontage of 258.35 lineal chains, more or less; also

Lot 5, section 25, with a frontage of 40.93 lineal chains, more or less; also

Lot 2, section 26, except the tide lands included in a deed from the State of Washington to Don H. Palmer, issues February 26, 1930, under application No. 7609 and except the tide lands included in a tract of oyster land deeded by the State of Washington to San Juan Farm Association , December 23, 1931, under application No. 9396, with a frontage of 47.53 lineal chains, more or less; also

Lot 3, section 26 with a frontage of 5.00 lineal chains, more or less; also

The E1/2 in width of the John Thronton Donation Claim No. 38, in section 26, with a frontage of 20.29 lineal chains, more or less; also

The C.M. Bradshaw Donation Claim No. 39, in sections 26 and 27, except the est 330 feet of the east 1684.39 feet thereof, with a frontage of 34.59 lineal chains, more or less; also

Lots 5, 6 and 7 and the northwesterly side of lot 4, section 27, with a frontage of 174.63 lineal chains, more or less; also

Lots 1 and 2, section 18, township 31 north, range 3 west, W.M., with a frontage of 149.66 lineal chains, more or less.

The above decribed tide lands are conveyed under the provisions of section 152 of Chapter 255 of the Session Laws of 1927.

NOTE: The above described tide lands have a tidal frontage of 1151 lineal chains, more or less.

The above described lands are sold subject to all the provisions of Chapter 312 of the Session Laws of 1927, to which reference is hereby made, and which shall be as binding upon the grantor and any successor in interest of said grantee as though set out at length herein.

"The grantor hereby expressly saves, excepts and reserves out of the grant hereby made, unto itself, its successors and assigns forever, all oils, gases, coal, ores, minerals and fossils of every name, kind or description, and which may be in or upon said lands above described, or any part thereof, and the right to explore the same for such oil, gases, coal, ores, minerals and fossils: and it also hereby expressly saves and reserves out of the grant hereby made, unto itself, its successors and assigns forever the right to enter by itself, it agents, attorneys and servants upon said lands or any part or parts thereof, at any and all times, for the purpose of opening, developing and working mines thereon, and taking out and removing therefrom all such oil, gases, coal, ores, minerals and fossils, and to that end it further expressly reserves out of the grant hereby made, unto itself, its successors and assigns forever, the right by its or their agents, servants, and attorneys at any and all times to erect, construct, maintain and use all such buildings, machinery, roads and railroads, sink such shafts, remove such soil, and to remain on said lands or any part thereof for the business of mining and to occupy as much of said land as may be necessary or convenient for the successful prosecution of such mining business hereby expressly reserving to itself its successors and assigns, as aforesaid, generally all rights and powers in, to and over said lands, whether herein expressed or not, reasonably necessary or convenient to render beneficial and efficient the complete enjoyment of the property and rights hereby expressly reserved": Provided. That no rights shall be exercised under this reservation by the state, its successors or assigns, until provision has been made by the state, its successors or assigns to pay to the owner of the land upon which the rights herein reserved to the state, its successors or assigns are sought to be exercised, full payment for all damages sustained by said owner, by reason of entering upon said land.

TO HAVE AND TO HOLD the said premises, with their appurtenances, unto the said United States of America Fish and Wild Life Service, its successors *and assigns, forever.*

WITNESS, The Seal of the State, affixed this 29th *day of* May *, 194* 3 *.*

[SEAL]

Deed No. 18251 *Application No. 10585*

Note: This has been retyped from an original document.

Appendix C. *Use Deed granted by the State of Washington to the FWS for all the second class tidelands associated with Dungeness National Wildlife Refuge.*

Section 7797-152 of the Revised Statutes of Washington (Vol. 9, page 91), relating to grants to the United States of any State-owned tide or shore lands, provides as follows:

> "Whenever application is made to the commissioner of public lands, by any department of the United States Government, for the use of any tide or shore lands belonging to the State, for any public purpose, and said commissioner shall be satisfied that the United States requires or may require the use of such tide or shore lands for such public purpose, said commissioner may reserve such tide or shore lands from public sale and grant the use of them to the United States, so long as it may require the use of them for such public purposes, and the commissioner of public lands shall certify such fact to the Governor, who shall thereupon execute an easement to the United States, which shall be attested by the Secretary of State, granting the use of such tide or shore lands to the United States, so long as it shall require the use of them for said public purpose." (L. '27, page 551, section 152.).

Note: This has been retyped from an original document.

Attachment to Use Deed for second class tidelands.

Appendix D

Recipients of the Draft Environmental Assessment

Organizations and Individuals

Admiralty Audubon Society
Alexander, Ginger
Anderson, J.
Anderson, Leslie
Anderson, William
Angiuli, Jerry
Augenfield, John
Backcountry Horsemen of Washington
Baker, Sam
Baker, Tamra
Ball, Polly
Barton, Jay
Batelle Northwest
Beam, Jim and Ann
Beckman, Glenn
Bedford, Pam
Bedinger, Bruce
Blakenship, Penni
Blanton, Thomas
Brooke, Steve
Bourm, Melene
Boyd, Dennis
Boyer, Michael
Brestel, Perry
Burnette, James
Cable, Glenda
Cameron, Dave
Carson, John
Carson, Cecil Jr.
Catract, Duane
Colley, Gary
Commeree, Juanita
Cullinan, Tim
Cumming, Jeff
Dewitt, Dan
Diekow, Gearhard
Doig, Carol M.
Doss, Diane
Driver, Charles
Drovdahl, Kat
Easling, Allen
Eisert, Theresa
Engle, Helen
Eshon, Daphne
Fletcher, Jack
Frazier, Homer
Froines, Eric
Gallagher, Tom
Gallant, Jim
Gaw, D.C.
Goin, Dick
Golec, Matt
Goodin, M.P.
Grant, Marianne
Greeley, Sam
Hamilton, Murray
Hanson, Annette and Aaron
Hart, Phil
Hays, Gayleen
Hazelton, Judy
Heal, John
Hiss, Joe
Holden, Pat
Howard, Yvonne
Hudson, Fred
Hughes, Jane
Iverson, John
Jennings, David
Jenks, Vincent J.
Johnson, Nancy
Johnson, Russ
Johnstad, Terri
Jones, Les
Kailin, Eloise
Kalamar, Rick
Kayaks and More, Barry Dove
Kelly, Becky
Kennedy, Tom
King, Dana

Kridler, Gene
Krueger, Max
Kunkle, Babette
Kuntz, John
LaCrampe, Emile and Margaret
Leiter, Renee
Lennstrom, Nancy K.
Lieberg, Jennette
Linton, Darrell
Livermore, Shirely
Louch, Charles
Madden, Carol
Marshall, Norma
Martin, Milt
May, Karl
McCrorie, Robert
Meier, H.W.
Moore, Betty and Bob
The Mountaineers, Mariann Mann
Muench, Lynn
Myers, Jane
National Marine Manufacturers Assoc.
National Wildlife Refuge Association
The Nature Conservancy, Fayette Krause
New Dungeness Chap. of the U.S. Lighthouse Soc., Sheila Ramus
Nisbet, Andrew
N. Olympic Pen. Bed and Breakfast Assoc.
Nolson, Bill
Norvell, Rod and Jean
Olympic Environ. Council, Pat Wennekins
Olympic Park Association
Olympic Peninsula Institute
Olympic Peninsula Audubon Society
Olsen, Evelyn
Pacific Mountain Sports, Lee Mayer-Task
Panamaroff, Marcie
Pareira, Barbara
Pearson, Lloyd
Perrin, Frank
Port Angeles Charter and Tackle Comp.
Port Angeles Launch Service
Port Angeles Marine
Port Townsend Marine
Price, Brian
R&R Marine Supply
Rayl, Eric
Reaume, Dave
Rebar, Michelle
Renkens, Madeline
Redwine, Nancy
Richmond, Judy
Riedel, Bill
Rogers, Clarie
Ryan, Mike
Sallee, Cathy
Sallee, Jeanie
Sandison, Les
Schanfald, Darlene
Schroeder, Pete and Carolyn
Sebastian, Marion
Sequim Bay Yacht Club
Sequim-Dungeness Valley Lodging
Sequim Senior Center
Siebens, Sherry
Siebersma, Steve and Lois
Sierra Club Legal Defense Fund
Silano, Martha
Simons, Tom
Smith, L.M.
Smith, Larry
Smith, Lon
Smith, Stan and Dorie
Sorkness, Pat
Souders, Cindy
Springer, Ron and Dee
Stanford, Pricilla
Stopps, Eleanor
Strait & Nar. Kayak Tripping, Irv Walden
Susong, Alice and Dunbar
Swartz, David
Taylor, Sue
Thomas, Nancy
Titus, Jon
Graeme, Ton
Tovey, Walt
Tyler, Sue
United States Windsurfers Association
Vest, R.J.
Waltman, Jim
Westwood, Deborah
Whitney, Teresa

The Wilderness Society, Steve Whitney
Wiley, Stuart
Wylie, Christopher,
Zarlingo, Ben

Federal and State Delegations

Office of U.S. Senator Slade Gorton
Office of U.S. Senator Patty Murray
Office of U.S. Representative Norm Dicks
Office of State Senator James Hargrove
Office of State Representative Lynn Kessler
Office of State Representative Jim Buck

Federal Agencies

U.S. Department of Interior
Nat. Park Service, Olympic National Park
Fish and Wildlife Service

U.S. Department of Transportation
U.S. Coast Guard, Port Angeles
Commanding Officer

U.S. Department of Commerce
National Oceanic and Atmospheric Admin.
Olympic Coast Nat. Marine Sanct.

Tribal Representatives
Jamestown S'Klallam Tribe
Ron Allen, Tribal Chairman
Leo Gaten
Lower Elwha S'Klallam Tribe, Carol Brown

State and Local Agencies

Wash. State Dept. of Fish and Wildlife
John Conklin, Reg. Manager, Montesano
Dungeness Fish Hatchery
Steve Evans, Hatcheries Program
Tom Juelson
Mary Lou Mills, Marine Resources Division
Bill Wood, Point Whitney Shellfish Lab
Anita McMillan, Wildlife Biologist

Wash. State Dept. of Ecology
Jeffree Stewart

Wash. State Dept. of Nat. Resources
Jennifer Belcher, Commisioner. of
Public Lands
SEPA Center

Clallam County Commissioners
Martha Ireland, District 1
Dorothy Duncan, District 2
Phil Kitchel, District 3

Clallam County
Annette Warren, Planning
Craig Jacobs, Director, County Parks
and Fairground
Leanne Jenkins, Community Develop.
Jerry Royal, Park Man., Dung. Rec. Area

Port Angeles Chamber of Commerce

Sequim Chamber of Commerce
Esther VeltKamp, Executive Director

City of Port Angeles

City of Sequim

Port of Port Angeles
Port Commissioners
John Wayne Marina

Universities and Colleges
Peninsula College, Pat Willits
Peninsula College Fisheries Program
West. Wash. University, Walt Pearson

Public Libraries
North Olympic Library
Clallam Bay
Forks
Port Angeles
Sequim
Peninsula College Library
Jefferson County Library
William G. Reed Public Library

Media

Newspapers
Sequim Gazette
The Sun
Peninsula Daily News
Port Townsend Leader

Television
KING 5
Northland Cable News

Radio
KAPY, KONP

Appendix E

Memorandum of Understanding

between
United States Fish and Wildlife Service
and
United States Coast Guard
for
Operation of Lighthouses on
Dungeness Spit, Destruction Island, and Smith Islands

Purpose

The Coast Guard has the responsibility for the operation and maintenance of lighthouses and aids to navigation located on three National Wildlife Refuges that are administered by the Fish and Wildlife Service (Service): Dungeness, Quillayute Needles, and San Juan Islands National Wildlife Refuges.

The Service has the responsibility for the protection and management of the natural habitat and wildlife on these areas. These areas are major seabird nesting and roosting areas. The Federally listed endangered peregrine falcon and the threatened bald eagle also use the areas. All three areas are important as haulouts and pupping areas for harbor seals. This Memorandum of Understanding will ensure that the natural resources of these Refuges area protected while permitting them to be used for lighthouse and aids to navigation purposes.

The following elements of responsibilities for each party of this Memorandum of Understanding should provide for the protection of the natural resources. Appendix A contains the current Coast Guard and Service contact names, addresses, and phone numbers.

Coast Guard Responsibilities:

1. The Coast Guard will ensure that all non Coast Guard personnel and contractors using the facilities are made aware of the restrictions and cautions.

2. To the extent possible, all non-essential work will be scheduled between November 1 and March 1 in order to minimize the disturbance during the nesting season.

3. To the extent possible, except as required for search and rescue, law enforcement emergency, and other essential operations, activities will be restricted to the developed areas and travel routes. The beach may be accessed on Destruction Island by the trail north of the water tower or near the old tram bridge. All other areas, access routes, and Service maintained trails are closed to all access except as required in essential operations cited above.

4. In the event that any expansion of Coast Guard facilities to areas not now under development is planned, input from the Service will be considered as part of the Coast Guard planning process.

5. Except as required for search and rescue, law enforcement, emergency and other essential operations, helicopter activity will be limited to the developed areas. The following areas that are especially sensitive to overflights and should be avoided unless required for essential operations noted above.

Dungeness:	The tip of the main spit and all of Graveyard Spit.
Smith Island:	The west slopes and the southern half of the Island.
Destruction Island:	The western rocks and the entire eastern half of the Island.

6. The Coast Guard will inform the Service of requests by agencies or persons requesting non-official use of the areas. All requests for use will be reviewed and permits issued if approved by the Service.

<u>The Service Responsibilities:</u>

1. The Service will obtain approval from the Coast Guard of any activities that may affect the operation of the lighthouses and/or aids to navigation.

2. The Service will obtain prior approval from the Coast Guard to use the bunk house on Destruction Island. All facilities will be clean and secured at the end of each field trip.

3. The Service will caution all employees and permittees that use these areas to be careful with the Coast Guard facilities and to immediately report any problems noticed. This includes any fire hazards, unsafe conditions, or any conditions(s) indicating or leading to structural damage.

4. The Service will work with Coast Guard planners to reduce potential wildlife conflicts if changes need to be made in the facilities in these three areas.

Both parties agree to the elements of responsibility as stated above.

This Memorandum of Understanding will remain in effect until canceled by either party or until it is no longer needed.

Amendments may be added to the Memorandum or Understanding by mutual agreement. This Memorandum of Understanding is executed as of the date last signed below.

United States Coast Guard Thirteenth Coast Guard District

Date: 9/16/92 **By:** John U Quinn, Capt USCG
13th District Commander, Acting

U.S. Fish and Wildlife Service
Nisqually National Wildlife Refuge Complex

Date: July 29, 1992 **By:** Willard B Hesselbart, Refuge Manager

APPENDIX A

Agency Contacts

Fish and Wildlife Service

Nisqually National Wildlife Refuge Complex
100 Brown Farm Road
Olympia, WA 98516
(360) 753-9467
FAX: (360) 534-9302

Refuge Manager: Willard B. Hesselbart
Assistant Refuge Manager: Michael J. McMinn
- Nisqually Refuge
- San Juan Islands Refuge
- San Juan Islands Wilderness Area
- Flattery Rocks Refuge
- Quillayute Needles Refuge
- Copalis Refuge
- Washington Islands Wilderness Area
- Grays Harbor Refuge

Assistant Refuge Manager: Robert H. Edens, Jr.
Washington Coastal Refuge Office
33 S. Barr Road
Port Angeles, WA 98362
(360) 457-8451
- Dungeness Refuge
- Protection Island Refuge

U.S. Coast Guard District

Commander
13th Coast Guard District
915 Second Ave.
Seattle, WA 98174-5000

District Planning Officer, Phone (206) 553-1635
District Operations, Phone (206) 553-5886
Group Port Angeles, Phone (360) 457-5229
District Aids to Navigation, Phone (360) 457-4401
Civil Engineering Unit Oakland (510) 535-7258
2000 Embarcadero, Suite 200
Oakland, CA 94606-5337

Appendix F

Summer Visitor Activities by First or Repeat Visitors on the Olympic Peninsula

	Percent of Visitors		
	First	Repeat	Total
Visit national parks/scenic wonders	81.0%	72.8%	77.6%
Sightsee	73.3%	71.4%	72.5%
View wildlife	66.9%	62.1%	64.9%
Visit state parks	56.7%	55.4%	56.2%
Walk/hike	51.2%	48.7%	50.2%
Stroll/window shop	46.0%	51.3%	48.2%
Visit museum/historic site	48.2%	47.3%	47.8%
Shop	31.9%	38.4%	34.5%
Picnic	30.4%	35.7%	32.5%
Camp	32.2%	33.0%	32.5%
Go to restaurant or club for entertainment	24.2%	29.5%	26.4%
Visit friends or relatives	17.5%	27.2%	21.5%
Tour	21.5%	12.9%	18.0%
Swim	10.4%	14.7%	12.2%
Visit vinery/vineyard	9.2%	8.9%	9.1%
Fish	5.2%	10.7%	7.5%
Bike	8.0%	5.8%	7.1%
Attend fair/festival/rodeo	5.5%	8.9%	6.9%
Attend concert or arts event	4.9%	5.8%	5.3%
Canoe/raft/kayak	4.3%	5.8%	4.9%
Golf	2.5%	6.3%	4.0%
Motor boat/water ski	2.5%	6.3%	4.0%
Ride horseback	3.4%	3.1%	3.3%
Sail	1.2%	3.1%	2.0%
Attend sports event(s)	2.1%	1.3%	1.8%
Gamble/game	1.5%	1.3%	1.5%
Windsurf	1.2%	1.3%	1.3%
Hunt/shoot	0.0%	.9%	.4%
Other	3.7%	6.7%	4.9%

Note: Multiple responses total to more than 100 percent.

Source: Dean Runyan Associates, 1995.

Appendix G

Intra-Service Section 7 Evaluation

Originating Person: Ulrich W. Wilson
Date: November 6, 1996

I. **Region:** Region 1.

II. **Service activity:** The U.S. Fish and Wildlife Service will modify public use management of Dungeness National Wildlife Refuge, to provide refuge visitors with high-quality wildlife-dependent educational and recreational experiences while ensuring that the allowed public uses do not conflict with refuge purpose and wildlife objectives.

III. **A. Listed species and/or their critical/essential habitat.**

1. Within the action area that will or may be affected:
   Peregrine Falcon *(Falco peregrinus anatum)*
   Bald Eagle *(Haliaeetus leucocephalus)*
   Marbled Murrelet *(Brachyramphus marmoratus)*
   Western Snowy Plover *(Charadrius alexandrinus nivosus)*
   Brown Pelican *(Pelecanus occidentalis)*
2. Within the action area that will not be affected: None

B. Proposed species and/or proposed critical habitat.

1. Within the action area that will or may be affected: None
2. Within the action area that will not be affected: None

IV. **Geographic area or station name and action:**

Geographic area:

Dungeness National Wildlife Refuge is located near Sequim, Washington along the south side of Juan de Fuca Strait. The 631-acre refuge includes the 5 1/2 mile long Dungeness Spit which forms Dungeness Bay. For a more detailed description see page 17 of attached Environmental Assessment (EA).

Action:

The subject action changes the way visitors may use the refuge. The future management of Dungeness NWR would reduce non-wildlife dependent recreation by area and use, and would allow certain wildlife-dependent recreational activities only in selected areas in some cases on a seasonal basis. Wildlife sensitive areas would be closed to public use year round or seasonally depending on

area. Because the proposed new management scheme is complex, please refer to pages 10 to 12 of attached EA.

V. Location:

(A) County and State: Clallam County, Washington.

(B) Latitude and longitude: 48°10'N, 123°09'W.

(C) Distance and direction to nearest town: 6.9 miles north of Sequim, Washington.

VI. Description of proposed action: The new public use plan for Dungeness NWR would identify four zones on Dungeness Spit where public uses would be modified (see map on page 10b of attached EA). The tip of Dungeness Spit (Zone 4) and the Harbor side of Zone 3 (including Graveyard Spit) would be closed to the public year round, except that a boat landing site would be allowed near the lighthouse. Zones 1 and 2 would support the largest number of public uses, while the remainder of Zone 3 (Strait side) would be open to wildlife-dependent public uses only. See pages 10 to 12 of attached EA.

VII. Explanation of impacts of action:

Peregrine Falcon

Peregrine falcons use Dungeness NWR year round. During the migration periods in early spring and fall, birds may stop at the refuge for several days. Wintering falcons are known to use the refuge and adjacent areas, while non-breeders may occur on the refuge during the spring and summer. The closest known aerie sites are located in the San Juan Islands, over 22 miles northwest of the refuge. The refuge is outside the hunting domain of the nearest known breeding pairs. Peregrine falcon sightings on the refuge are sporadic, although several birds may be present occasionally.

The Dungeness Bay area is attractive to peregrine falcons because of its concentrations of waterbirds and shorebirds. Surrounding agricultural areas are rich in songbirds, pigeons, and starlings. Gulls feed on open pastures, where they also seek shelter from storms. The area also is diverse in habitat types. Forest stands, tall cliffs, beaches, mudflats, marshes, river and creek mouths, and agricultural areas provide for the birds' needs. The reasons peregrines have not nested here is because available cliffs are rapidly eroding and unstable. The area is an important migration stop over for peregrine falcons as well as a general use area during the winter and summer months. The area provides ample feeding opportunities as well as excellent perching and roosting sites. A study conducted by Fred Dobler of the Washington Department of Fish and Wildlife in 1983 and 1984 showed that peregrines wintering in the area feed mainly on ducks, gulls, thrushes, passerines, and starlings. The minimum number of peregrines in the area during the study was seven birds. During their use of the entire Dungeness area the falcons fly in and out of the refuge frequently. One bird was documented to roost on Graveyard Spit during the night.

The anticipated effects of the proposed management action on peregrine falcons are as follows:

- Public use will become more concentrated in Zones 1, 2, and 3 and the 100 yard boat landing area near the lighthouse. Peregrine falcons using these portions of the refuge will face an increased likelihood of being disturbed by refuge visitors.
- The closures along the inside of the spit will result in less human disturbance to peregrine falcons using these sections of the refuge. The additional tide lands closure during the winter will likely result in increased concentrations of undisturbed waterbirds and shorebirds during the October through May 15 period. This will also benefit peregrine falcons using these areas by providing more undisturbed hunting, feeding, and roosting opportunities. These positive effects are expected to outweigh the negative influences mentioned above.

Bald Eagle

Bald eagles use the refuge year round and are commonly observed by visitors. Up to 24 individuals have been seen on the refuge at the same time. There are 8 known nesting territories within 10 miles of Dungeness NWR. Many of these nesting pairs are resident throughout the year and depend on the Dungeness area for all their needs. The nearby Dungeness River attracts additional eagles during the fall and winter when returning salmon and steelhead trout are abundant.

The Dungeness area is attractive to eagles because of its concentrations of waterbirds, seabirds, and anadromous fish on which the eagles feed. The area's diversity provides excellent nesting, perching, and roosting opportunities. During their use of the entire Dungeness area eagles fly in and out of the refuge frequently. The most concentrated bald eagle use of the refuge occurs in the area between the west side of Graveyard lagoon and the tip of Dungeness Spit. Groups of eagles hunt in this area and use the beaches, drift wood, and pilings for feeding and perching.

The anticipated effects of the proposed management action on bald eagles are as follows:

- Public use will become more concentrated in zones 1, 2, and 3 and the 100 yard boat landing area near the lighthouse. Bald eagles using these portions of the refuge will face an increased likelihood of being disturbed by refuge visitors and boaters on their way to the lighthouse.
- The closures along the inside of the spit will result in less human disturbance to bald eagles using these sections of the refuge where eagle use is most concentrated. The additional tide lands closure during the winter will likely result in increased concentrations of undisturbed waterbirds and more seabirds during the October through May 15 period. This will benefit bald eagles using these areas by providing more undisturbed hunting and feeding opportunities. These positive effects are expected to outweigh the negative influences mentioned above.

Marbled Murrelet

Marbled murrelets feed in deep water along portions of Dungeness Spit (See page 26 of attached EA). The birds generally do not occur inside Dungeness Bay where the water is too shallow. The closest area where these birds concentrate is off Green Point approximately 5 miles west of the base of the spit. Studies conducted by the Washington Department of Fish and Wildlife indicated a density of 1.85 birds/km along the outer Dungeness Spit.

- The effect of increased visitor use of the outer beaches of the refuge may be to increase the distance some murrelets feed from the beach, or to displace some birds further toward Green Point. Murrelets using the waters along the inside of the tip of Dungeness Spit will likely be subjected to increased levels of disturbance by boaters due to the proximity of the 100 yard boat landing area near the lighthouse.

Western Snowy Plover

In Washington, western snowy plovers are known to breed in very small numbers at Leadbetter Point at Willapa Bay, and near Ocean Shores north of the mouth of Grays Harbor Bay. Because of the sensitivity of this species to human disturbance breeding success has been low. At Dungeness NWR western snowy plovers have been observed during the breeding season on the inside of Dungeness Spit between the lighthouse and the base of Graveyard Spit. The numbers of plovers seen increased from one bird in 1978 to six birds in 1995. The birds appeared to be non breeders, but because of their secretive habits their breeding status remains uncertain. Potential breeding areas on the refuge are in the closed areas at the tip and along the inside of Dungeness Spit east of Graveyard Spit. Portions of Graveyard Spit may also be suitable for breeding by this species.

- Plovers attempting to breed near the boat landing site near the lighthouse may be prevented from breeding there, or may suffer lower reproductive success. Birds feeding on the outside of Dungeness Spit open to the public will be exposed to increased levels of human disturbance, while birds using the protected portions of the refuge at the tip and on the inside of the bay will be disturbed less, possibly increasing the chance of future breeding attempts in those areas.

Brown Pelican

Brown pelicans do not breed in Washington. Birds from California and Mexico start showing up at Willapa Bay, Grays Harbor Bay and the outer coast of the Olympic Peninsula in June. Numbers peak in September when several thousand individuals may be present on the Washington west coast. By early November most of these pelicans will have migrated back south. In Washington the highest numbers are usually encountered during El Nino years when food becomes scarce around their breeding colonies in the south. During such years a few individuals may move into Juan de Fuca Strait and some may end up on Dungeness or Graveyard Spits for several weeks. In the past five years only one brown pelican has been seen on the refuge.

- Brown pelicans using the outer portions of Dungeness Spit open to the public will face an increased probability of being disturbed by refuge visitors, while birds using the closed areas at the tip of the spit and on the inside of the bay will be subjected to less human disturbance.

VIII. Effect determination and response requested.

A. Listed species/critical/essential habitat:

Determination	Response Requested
____will not affect	____*concurrence
____beneficial effect	____concurrence ____*formal consultation
_x_ is not likely to adversely affect	_x_ concurrence ____*formal consultation
____is likely to adversely affect	____formal consultation

(* optional)

Initiating Officer _____ Date 11-8-96

[X] Concur (mark one) [ ] Do not concur

Comments:

ES Field Office Supervisor for _____ Date Nov. 14, 1996

[✓] Concur (mark one) [ ] Do not concur

Comments:

The U.S. Fish and Wildlife Service manages national wildlife refuges and national fish hatcheries throughout the country for the continued conservation, protection, and enhancement of our fish and wildlife resources and their habitats.

U.S. Department of the Interior
Fish and Wildlife Service

January, 1997