



Chapter 5 Human Environment

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Chapter 5. Human Environment

5.1 Cultural Resources

5.1.1 Native American Overview

Prehistory

Jeanne M. Welch and R.D. Daugherty prepared a compilation of the prehistoric era on the Olympic Peninsula as part of their background information for a 1988 survey project on Dungeness NWR (Welch and Daugherty 1988). The following information is paraphrased from their report.

The five periods of occupation for the region proposed by Eric Bergland (Bergland 1984) cover approximately 12,000 years and include: Early Prehistoric, Middle Prehistoric Early Maritime, Prehistoric, Northwest Coast Pattern, and Historic. On the Olympic Peninsula, the prehistoric people are characterized as small groups of hunters and gatherers who moved around to utilize both terrestrial and maritime resources. This period on the peninsula is represented by the Manis Mastodon site (45CA218) which attests to the hunting of large game animals. It is likely that the onset of the Middle Prehistoric saw an increase in the use of maritime resources such as anadromous fish. By the Early Maritime period, proposed to have begun around 3,000 years before present (BP), the use of maritime resources was well established. It is likely that the cultural manifestations of these later prehistoric periods resembled those of the ethnographic period, but details such as the existence of villages with large, cedar plankhouses are uncertain.

During the Prehistoric Northwest Coast Pattern period, which began 1,000 years BP, chipped stone assemblages virtually disappeared while large plankhouse villages became prominent. As Welch and Daugherty note, however: “Bergland’s presumed appearance of cedar plank house villages at this time is based largely upon negative evidence and it may be that this type of settlement pattern is somewhat older, thus, there may have been many significant elements of continuity between the Early Maritime and Prehistoric Northwest Coast periods” (Welch and Daugherty 1988).

Ethnography

Ethnographically, the Refuge is located within the territory of the “Central Coastal” or “Straits” Salish Klallam people (Welch and Daugherty 1988). Tribal groups lived in large winter villages along the shoreline or at mouths of rivers to access the marine resources. The villages housed extended families. They utilized spits for gathering shell resources and as launch sites for fishing. Spits were also used for burial grounds (Kennedy 1981). During the summer season the villagers would break into smaller groups and move inland to gather plants and berries and to hunt. Along with the Quinault, the Klallam were the only Coast Salish who hunted whales (Suttles 1990). Canoes made of red cedar were central not only to the survival of the Klallam as a source of transportation, but also featured in their burial practices. In 1868, Graveyard Spit was the site of a massacre of Tsimshian Indians that gave the spit its name. The massacre is discussed in more detail in Section 5.1.3.

Contemporary

The Klallam continue to occupy the Olympic Peninsula with tribal communities in three locations, consisting of the Port Gamble S’Klallam, the Lower Elwha S’Klallam, and the Jamestown S’Klallam, all of whom were signatories to the Point No Point Treaty of 1855. The transition from

ethnographic period to the establishment of the Bureau of Indian Affairs over their tribal structure has not been seamless. Initially, many Native Americans patented lands under the Indian Homestead Act, but policy changes reversed the trend toward private ownership. Suttles notes that “around 1875 the Dungeness people were forced off their traditional site and bought land nearby to establish the settlement of Jamestown....Jamestown received federal acknowledgment in 1980” (Suttles 1990).

According to Jamestown S’Klallam tribal history, despite the fact that they were nearly reorganized into a larger S’Klallam tribe with the other two groups during the Indian Reorganization Act period (1935-1939), the tribe chose to stay on the land they had purchased in 1875 rather than relocate (Jamestown S’Klallam Tribe 2012). Among the consequences of this decision was the termination of their recognition by the federal government in 1953. The continuity and stability of their land base contributed to a sense of group identity and independence. The push for recognition lasted from 1974 until achieved on February 10, 1981.

Known Prehistoric Sites

While there are no prehistoric archaeological sites recorded on the Refuge, there has been very little systematic archaeological survey or testing conducted. A large portion of the approved boundary is tidelands, generally not a conducive environment for archaeological survey. Evidence of buried prehistoric archaeological use of the bluff above Dungeness Spit is unlikely because of the glacially deposited sediments. The dense forest stand generally precludes observation of the surface. However, the presence of known cultural resources in areas adjacent to the Refuge indicates that the potential exists for sites to be identified within Refuge boundaries in future.

5.1.2 Euro-American Overview

Although first visited by explorers as early as 1790 when Captain Manuel Quimper inspected the area, the first Euro-American settlers came to the Dungeness area in 1851 while the region was still part of the Oregon Territory. The Washington Territory, which separated from Oregon Territory in 1853, established Clallam County in 1854 (Welch and Daugherty 1988). Within the next few years, a thriving community was established east of what is now the Refuge. Whiskey Flat was named as the county seat in an 1860 election, though two years later New Dungeness was designated as such. These two communities were located essentially in the same location; the latter was located above the former on the bluffs. By 1892, the present location of the town of Dungeness was established as the community center (Kennedy 1981). The heavily forested bluff margin northwest of the Whiskey Flat and Dungeness communities was not developed during the early historic period.

The New Dungeness Light Station, which began operating in 1857, was built by the Lighthouse Board at the behest of Congress. The lighthouse, located at the end of Dungeness Spit, is discussed in more detail in Section 5.1.3. Travel during the nineteenth century was primarily along the coastline by watercraft, few roads were constructed through the very dense, rugged terrain of the interior. The earliest road from Sequim to Port Angeles was not developed until 1890-1891. The timbered slopes and old growth forests supplied lumber to San Francisco during the gold rush along with the spruce trees needed for manufacture of World War I aircraft (Welch and Daugherty 1988). Lumber mills and shingle mills were established on nearly every water way around the peninsula as fluming logs down the rivers was the easiest method for getting the logs out of the mountains. The timber industry continued to be the largest economic employer into the twentieth century.

Agriculture and ranching is productive in pockets where micro-climates provide shelter from the very wet conditions of the Salish Sea. Cold weather crops such as potatoes, wheat, oats, peas, hay, and hops thrive. Located on the inland road system, Sequim was incorporated in 1913 and by 1914 the town had its own telephone franchise and electricity (Welch and Daugherty 1988).

Establishment of Dungeness NWR

The Refuge was established by Executive Order (E.O.) 2123 on January 20, 1915, by President Woodrow Wilson, for the purpose of preserving land "...as a refuge, preserve and breeding ground for native birds." The original 226.02 acres were known as the Dungeness Spit Reservation. The name was changed to Dungeness National Wildlife Refuge on July 25, 1940, by Presidential Proclamation 2416. Over the years, various tracts of land and tidelands have been acquired in fee title or easement within the approved Refuge boundaries. Today, Dungeness NWR is 772.52 acres in size.

During World War II, the general area was used as an Army encampment, and a 147-acre tract on Dungeness Spit acquired in 1940 was reserved for use by the Navy until the requirement was terminated in 1955. Additional tracts were added in the following decades, including the Mellus and Dawley properties, both acquired in the early 1970s. However, very little development of the Refuge was undertaken until the 1980s when the parking lot, hiking trails, and interpretive signs were installed.

Dawley Unit

The Dawley Unit is a noncontiguous parcel of the Refuge, located near the base of Sequim Bay. Born in Sequim in 1915, Cecil L. Dawley engaged in numerous successful local business ventures both before and after his stint in the Army, which ended in 1945. He and his family lived in the home on the Dawley Unit from 1957, purchasing property and developing ponds and pens for his bird collection. Mr. Dawley donated 125 acres of uplands and bay frontage to the Service in 1973. He continued to live on the property until his death in 2005. It was Dawley's specific intent that the land be preserved as a wildlife sanctuary.

Known Historic Sites

With the exception of the small inholding owned by the U.S. Coast Guard (USCG) at the end of Dungeness Spit, all parcels within the approved boundary of Dungeness NWR are currently owned under fee title or managed through easements, and consist primarily of tidelands and beach.

On those parcels where habitation is feasible, historic features associated with previous landowners can and do occasionally occur. Some upland habitat occurs in the bluff above Dungeness Spit and on the Dawley Unit. However, historic use of the bluff was isolated, with just a few homesteads and settlers in the nineteenth century. Use was limited until roads were established. In the 1940s, the military used the area for an encampment and training ground.

The bluff area is heavily forested, far from transportation corridors, and lacks productive agricultural values. Therefore, settlement and development of this area lagged behind property closer to the community centers. Based on previous surveys and background research, prehistoric, ethnographic, and early historic period archaeological resources are not expected in the bluff area.

5.1.3 Current Knowledge of Local Cultural Resources and Archeological Sites Occurring On Refuge Lands

Graveyard Spit: 45CA238H – T31N R4W Section 24, 25 and T31N R3W Section 13, Dungeness 7.5-minute USGS quad

The 1969 National Register of Historic Places (NRHP) nomination form for Graveyard Spit describes the event that made Graveyard Spit significant at the local level:

“On September 21, 1868, a party of Chimsean Indians consisting of 10 men, 8 women, and one child left Port Ludlow for Victoria. The Port Discovery Indians hearing of this, concocted a plan to murder and rob them, and started to Dungeness to obtain the assistance of the Sequim (Squim) and Dungeness Indians (in which they were successful). In the meantime, the Chimseans had camped on Dungeness Spit (Graveyard Spit) near the Lighthouse and erected a sail-tent to accommodate all 19; shortly after midnight, the Sklallams cut the tent ropes and let the tent fall on the sleeping Chimseans; when one party of the Sklallams drew their knives and spears and stabbed them through the tent indiscriminately; the other party of Sklallams seized their guns and revolvers, and shot and killed all excepting one woman [sic] who secreted herself under a mat and thereby saved her life. Captain James G. Swan relates that the Indian woman was cared for by the wife of Benjamin Ranie of New Dungeness, a Chimsean. Later she was sent back to her home at Fort Simpson, Canada. With the woman went all the things recovered from the site and a lot of presents sent to the Chimseans, many of which were from the Clallam Indians. The British Columbia Colonist, the Seattle Intelligencer, the Port Townsend Weekly Argus, and the Olympia Territorial Republican for the year of 1868, tell of the massacre.

From the report of the Secretary of Interior, 2nd session, 41st Congress, 1869-1870, No. 3414, Washington Government Printing Office, Washington Superintendency No. 1, T.J. McKenny, Superintendent of Indian Affairs, reports on August 14, 1869 to Bureau of Indian Affairs, on the Chimsean Indian massacre, saying some law should be passed for the punishment of the crimes of Indians committed among themselves. The offenders were arrested and required to work with ball and chain for 6 months on their reservation.”

According to Jamestown S’Klallam history (Duncan 2012), the massacre was in retaliation for the theft by the Tsimshian:

“of one of Lame Jack’s wives and his son. Stealing members from other tribes was a common practice. The stolen person may be sold or kept for slavery. When an offence occurred there could have been a payment made to counteract the wrong done to Lame Jack. As a payment did not occur then the S’Klallam saw revenge as the means to right the wrong done to a member of their Tribe. Revenge was another common practice of Coastal Indians. After a couple of years Lame Jack’s wife and child made it back after having escaped their captors.”

Determination of Eligibility: Graveyard Spit was nominated for the NRHP by the Clallam County Historical Society at a local level of significance in 1969. It does not appear that the nomination form was ever forwarded for consideration.

Status: Although not listed on the NRHP, the resource “is listed on the State Register by being recognized for its value and determined a significant cultural resource of the state” (DAHP 2012).

Dungeness Canoe: Found on Graveyard Spit near its southern tip

According to Refuge records, a Native American canoe was recovered from Graveyard Spit in 1980. Although locals reportedly had known about its existence and location since the 1930s, it remained on the spit, susceptible to wildfires, winds, and illegal removal, prompting staff at the Refuge to urge for its recovery and protection. Experts estimated the age to ca. 1830s (150 years old in 1980) and considered it to be a significant find representing Pacific Northwest Indian craftsmanship (USFWS 1981). A Memorandum of Understanding (MOU) between the USFWS and the Sequim-Dungeness Museum was prepared for conservation and permanent exhibition of the canoe.

Status: The canoe was transferred to the Jamestown S’Klallam Tribe on September 4, 1994 through an agreement with the Sequim Museum and Arts Center. It is currently on display at the Jamestown S’Klallam tribal cemetery.

New Dungeness Light Station: 45CA242H – T31N R3W Section 18 Dungeness 7.5-minute USGS quad

The New Dungeness Light Station is located near the end of Dungeness Spit in a small inholding owned by the U.S. Coast Guard. The NRHP nomination includes the following information about the property:

“The New Dungeness Light station was the first federal navigational aid constructed north of the Columbia River. Lighted in December, 1857 (just a few weeks before the light on Tatoosh Island), the station consists of the original lighthouse with tower and a nearby keepers’ residence built in 1904. The Light station is situated at the tip of Dungeness Spit in the Strait of Juan de Fuca, and has served for nearly 140 years as a maritime beacon in an area plagued by strong storms, dense fog, and heavy commercial traffic. Although the tower was lowered in the early 20th century, the station retains excellent integrity and remains an enduring symbol of the historic lighthouses of Washington.”

Determination of Eligibility: The light station was determined to be significant at the state level and nominated to the NRHP in 1993. It was listed the same year (#93001338). The property was determined eligible under Criterion A – it was associated with events that have made a significant contribution to the broad patterns of our history, in this case the area of significance was Maritime History and the period of significance was 1857-1942.

Status: The property continues to be listed on the NRHP. It is currently managed on a day-to-day basis by the New Dungeness Light Station Association, a nonprofit volunteer organization. In the event that the USCG declares the light station property excess to its needs, the Service will work with the USCG to bring the light station property into the Refuge System either through interagency cooperative management agreement or property transfer. The Service would then work with the New Dungeness Light Station Association to develop an agreement for the continued management and maintenance of the light station facilities.

Mellus Cabin: T31N R4W Section 27 Dungeness 7.5-minute USGS quad

The Mellus Cabin was recorded in 2006 (Speulda 2006). Based on a review of maps and an understanding of the military timeline, it appears that the cabin was likely built sometime in the early

1950s. Walter B. Mellus purchased the parcel in 1940 with no improvements during a period when the military presence may have limited his access to the area. He lived in the cabin along with a caretaker until his death in 1973, a year after the land had been sold to the U.S. Fish and Wildlife Service. Although the initial Service inventory documented two cabins and an outhouse on the parcel, when it was recorded in 2006 only the original 10 x 23-foot cabin remained. The cabin was remodeled prior to acquisition by the Service and was subsequently renovated in the 1980s to serve as temporary Refuge staff housing. A garage was added in 1992. The Cabin currently serves as quarters for a full-time volunteer Refuge caretaker.

Determination of Eligibility: It was determined that the Mellus Cabin does not meet NRHP eligibility criteria. The cabin was constructed after World War II and is not associated with any historic period, theme, or event. Mr. Mellus was not a prominent citizen in the area and does not appear in the historical record. The cabin's original appearance may have been rustic, but changes over the years destroyed the original characteristics. No archaeological materials were noted.

Status: Although slated for demolition since 2006, the cabin is still standing as of May 2013.

“Signal Station” Foundations and Debris: Graveyard Spit, Dungeness 7.5-minute USGS quad

The site consists of an assemblage of historic materials including cement foundations, pier blocks, septic tank, cistern, brick, tile, ceramic fragments, metal fragments, and some glass. Field notes taken in 2006 (Valentine 2006) indicate that a member of the local historical society referred to the location as a World War II era signal station. However, this fact has not been confirmed. The site has not been formally recorded or evaluated.

Dawley Unit Structures: T29N R3W S2 Sequim 7.5-minute USGS quad

Several structures constructed over 50 years ago are located on the Dawley Unit, including the main residence and multiple outbuildings (See Section 5.2, Refuge Facilities)

None of these structures have been formally recorded, nor have they been evaluated for historic significance, a process which must be accomplished prior to any proposed demolition or remodeling.

5.1.4 Current Knowledge of Local Cultural Resources and Archeological Sites Located Near Refuge Lands

Known Cultural Resources Occurring Off-refuge

A record search documented several additional cultural resources—both prehistoric and historic, sites and isolates—that have been recorded within a one-mile radius of the Refuge boundaries. While these sites do not fall under the jurisdiction of the Service, they provide a context for settlement and commerce in the vicinity of the Refuge. The closest sites are just east of the Refuge boundary—the “New Dungeness” townsite (45CA231) and the Tse’esqut Village (45CA239)—located at the base of Cline Spit. Both sites were noted by Smith in 1907 and relate to the ethnographic period (Smith 1907). Historic property inventories have been prepared for several houses located in Sequim that are greater than 50 years old.

5.1.5 Previous Archaeological Research

Three previous archaeological surveys of the Dungeness NWR contain information about the setting and potential for cultural resources within the Refuge. In 1907, Harlan L. Smith and company

documented numerous shell middens and burials in the vicinity of what is now Dungeness NWR. Smith's survey encompassed the whole of the Gulf of Georgia and Puget Sound (Jesup North Pacific Expedition directed by Franz Boas of the American Museum of Natural History). According to Smith in his acknowledgments, William H. Thacker conducted reconnaissance on Smith's behalf in the "San Juan group" during the summer of 1898. He continues, "In 1899 we examined the shell-heaps on Puget Sound, the Straits of Juan de Fuca as far west as New Dungeness" (Smith 1907). Site 45CA239 Tse'esqut Village, the ethnographically recorded site near New Dungeness Townsite is likely one of the sites described above.

In 1981, Robert Thomas and Hal Kennedy conducted an intensive surface survey of six sites proposed for development on the Dungeness NWR. Results of the investigations at these six locations were all negative, no cultural resources were identified (Kennedy 1981). Based on their research and review of other topographic areas similar to the bluff where they were surveying, Thomas and Kennedy prepared a list of categories of cultural resources that might be expected. These included isolated artifacts, burials, early archaeological sites (ca 60,000-8,000 years old), and ethnographically documented archaeological sites (Kennedy 1981).

They also noted that "Because soil conditions are related to glaciomarine and recessional outwash, buried archaeological sites would not be expected" (Kennedy 1981).

In 1988, Jeanne Welch and Dr. Richard Daugherty completed a survey and limited subsurface testing (augering) of the proposed enlargement of the parking lot at Dungeness NWR. No cultural resources were identified by this field effort.

Other archaeological investigations that have occurred at Dungeness NWR include survey for a vault toilet installation and environs (Raymond 1989, Valentine 1993), and the evaluation of the Mellus Cabin (Speulda 2006).

5.2 Refuge Facilities

The infrastructure and facilities discussed in this section include buildings, structures, roads, parking lots, trails, fences, signs, and utilities. Refer to Table 5-1 and Figure 5-1 for maps showing the locations of existing Refuge facilities.

5.2.1 Public Entrances and Access Points

The primary public entrance point for the Refuge is through the entrance station located adjacent to the public parking area at the north end of Voice of America Road within the Clallam County managed Dungeness Recreation Area. Visitors can also access the Refuge from the primitive trail entrance station located at the northern end of the County horse trail in the Dungeness Recreation Area. The Refuge bluff trail is accessible from five points along the public parking area and connects to the County bluff trail segment but does not provide direct access to Refuge beach areas.

Boaters may access tideland areas, which are open seasonally May 15 through September 30, through the Dungeness Harbor and Bay. The only boat access to dry land areas within the Refuge is located adjacent to the New Dungeness Light Station. The boat landing zone is designated by two yellow posts and is directly south of the lighthouse on the south side of Dungeness Spit. Reservations

are required to land and boaters are required to stay on the designated trail from the beach to the lighthouse as areas on either side are closed to the public to protect plants and wildlife.

5.2.2 Administrative Buildings and Other Structures

Dungeness Unit Buildings and Structures

The Washington Maritime National Wildlife Refuge Complex headquarters is located at 715 Holgerson Road in Sequim, Washington. Public access is located at the north end of Voice of America Road in the Dungeness Recreation Area. The headquarters consists of an administrative building (3,756 square feet), shop building (3,848 square feet), and an equipment storage building (2,220 square feet), all completed in 2009.

Additional buildings and structures include the Mellus Cabin (See Section 5.1.3) which is located in the forest on the bluff above the base of Dungeness Spit where the primitive trail joins the main trail and descends to the beach. Although the property was purchased by Mr. Mellus in 1940, the cabin (750 square feet) was not constructed until sometime in the early 1950s. The Mellus Cabin is currently used as a volunteer office and as the Refuge caretaker's residence. There is a septic system associated with the residence. Adjacent to the Mellus Cabin is an equipment storage garage built in 1992 (400 square feet) and a pump house built in 1973 which services a well drilled in the 1940s.

In 2011, the Service constructed a new entrance station in the "Northwest" timber frame style adjacent to the public parking area at the main trailhead. The station includes two structures, a fee station, and an interpretive kiosk with an attached structure containing three public trash/recycle cans. The facility includes four wood outdoor benches and a metal bicycle rack. A garbage storage structure located near the public restrooms was also constructed in a similar style and includes a dumpster and three public trash/recycle cans. There is a second smaller fee station constructed in 1987 located at the primitive trailhead.

There are two viewing decks totaling 1,300 square feet near the north end of the primitive and main trails adjacent to the Mellus Cabin with benches and telescopes overlooking the Dungeness Spit. The upper deck is wheelchair accessible. The Refuge leases a public restroom facility and drinking fountain (425 square feet) built in 1973 from Clallam County. It is located next to the public parking area, also leased from Clallam County, adjacent to the main Refuge entrance station and includes a 1,000 gallon twin vault septic system and drain field constructed around 2005 and located to the west of the building. However, that system is not able to handle the heavy use associated with the busiest visitor use days the Refuge experiences.

In 2011, the Service constructed an additional septic system for that facility on County property to increase capacity. A 2,000 gallon pump tank was added with a high capacity pump and aqua works controls. A much larger drain-field was added and includes ten 3 x 1 foot trenches, five measuring 60 feet in length and five measuring 70 feet in length. Pipe was installed in each trench which is designed to equally disperse effluent. The old system was left in place and a connecting valve was added to allow selection of the old or new system depending on needs.

Dungeness Unit – Other Infrastructure

Infrastructure at the Refuge Complex headquarters includes an on-site wastewater treatment/disposal system with two 1,000-gallon septic tanks, 250 linear feet of 4-inch diameter PVC effluent piping, and two gravel-less 60-foot long chamber drainfields; all installed in 2009. The domestic water

system is tied to the Dungeness Recreation Area's domestic water which is supplied by a community water company. It is comprised of 800 linear feet of 3-inch diameter PVC pipe, a 500-gallon storage tank, booster pump/controls, 1-inch diameter flowmeter, pressure sustaining valve, and 240 linear feet of 2-inch diameter PVC piping to the office building. The electrical infrastructure includes underground utilities (15 KV underground power cable in 2-inch PVC conduit (137 linear feet off-site and 643 linear feet on-site)); 75 KVA transformer; CT enclosure; 2 electric meters; and two 2-inch diameter conduits with underground power to the office, all installed in 2009.

Dawley Unit

There are 21 buildings, ponds and other substantial structures located on the Dawley Unit which is closed to all public access. In addition there is a 2,640 linear foot water distribution system to and from the large earthen impoundment pond south of Highway 101 constructed in 1964. Table 5-1 lists each structure including size, condition, and year constructed and/or deconstructed. Structure locations are identified by number on the associated map (Figure 5-1).

5.2.3 Fencing and Boundary Markers

Dungeness Unit Fences

Fencing on the Dungeness Unit falls into two general categories, split rail and plank rail. There is split rail and/or plank fencing surrounding most of the headquarters complex as well as delineating the Refuge property from the County recreation area. There is also plank rail fencing delineating the area which is closed to the public around the Mellus Cabin from the public trail. A few small fence sections also line both the main and primitive trails to discourage visitors from creating illegal "social" trail shortcuts.

Split Rail Fencing

In 2009, contractors installed 953 linear feet of split rail fencing on the southern and eastern boundary of the headquarters complex as part of the new headquarters construction. That fence includes an electronic security gate at the north end of Holgerson Road. Later in 2009, Refuge volunteers installed an additional 247 linear feet of split rail fencing in the staff parking area, around the new Complex office entrance, and at the entrance to the primitive trail. In 2011, 134 linear feet of split rail fence was added between the overflow parking area and the office path and behind the fee station.

Plank Rail Fencing

In 2011, contractors added 84 linear feet of heavy plank rail fencing between the office path and the main trail and an additional 30 linear feet between the entrance to the bluff trail and the parking space closest to the kiosk. This fence was very similar in style to the existing fence which fairly accurately delineates the boundary between the Refuge and the County Recreation Area. The primary difference is that the old fencing incorporated round creosote treated posts and the new fencing uses square untreated cedar posts. The old fence runs 1,389 linear feet from east of the garage building to the west end of the public parking lots and includes breaks or gaps for the primitive and main trail, the Refuge entrance station, the bluff trail entrance and four parking lot access points along the bluff trail.

The Mellus Cabin is separated from the main trail by 206 linear feet of plank rail fencing and there is 146 linear feet of fence separating the primitive trail from the main trail adjacent to the cabin. Three

additional sections of plank rail fence totaling 128 linear feet are located along the main trail and one measuring 33 linear feet is located in the forest near the middle section of the primitive trail.

Dawley Unit Fences

The Dawley Unit has 920 linear feet of chain link fencing, mostly north and east of the three “natural” ponds and around the stone shed. That fence includes two double gates (one unhinged) and one single gate. There is another double gate separating the Olympic Discovery Trail from the main residence driveway. An additional 306 linear feet of wire fencing stretching from the mobile home to the stone shed was installed by the Discovery Trail during construction.

Saltwater Pilings

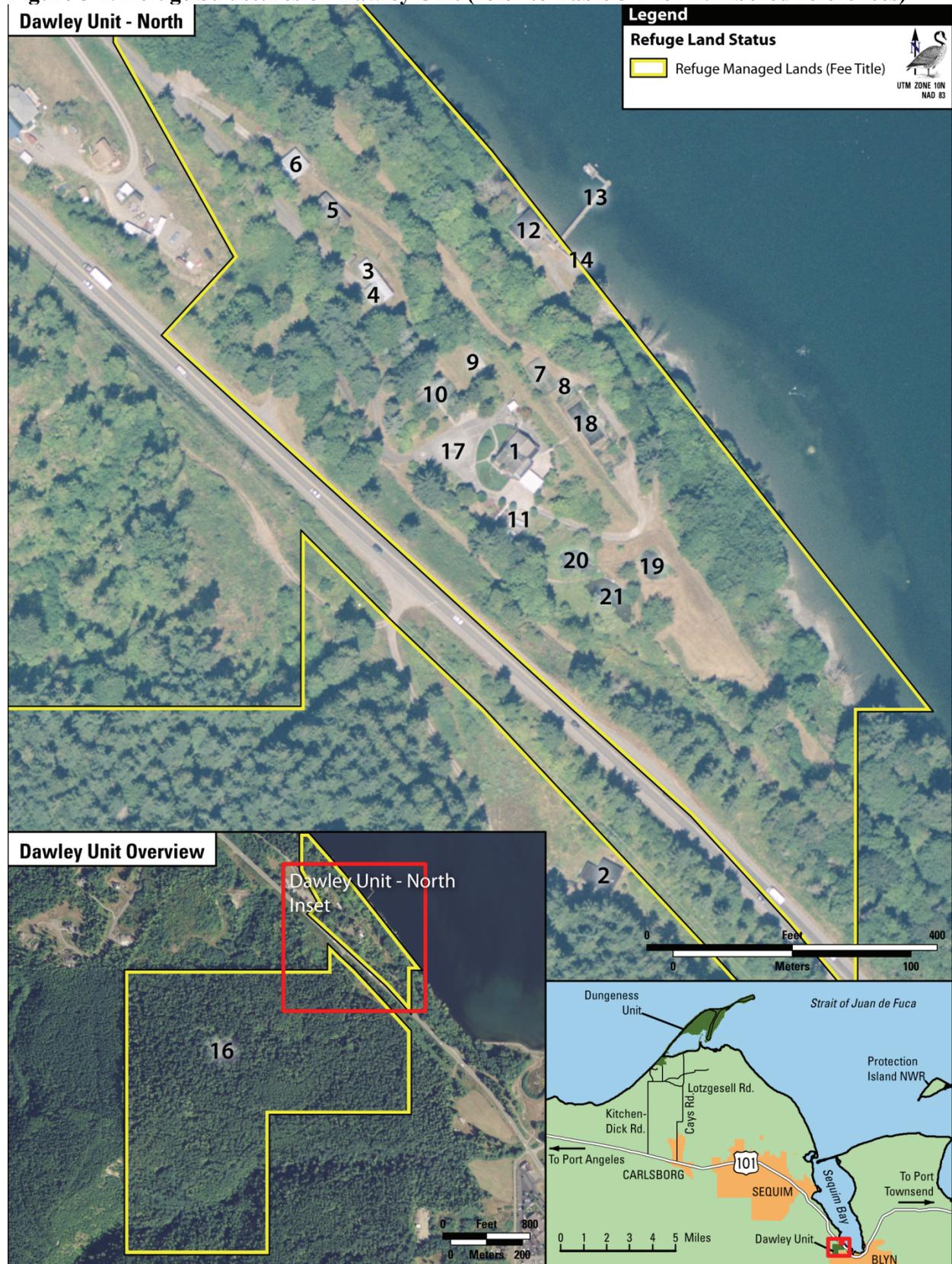
The Refuge currently maintains 13 plastic covered steel core pilings with regulatory signs demarcating the Refuge boundary in Dungeness Bay and Harbor.

Table 5-1. Refuge Structures on Dawley Unit (refer to Figure 5-1 for locations)

Structure	Size, sq. ft.	Septic syst.	Yr. Built	Condition	Removed	Tract
1 Main residence	4,393	yes	1935	Fair		North
2 Old rental house *	896	yes	1964	Poor		South
3 Mobile home *	808	yes	1974	Poor		North
4 & Small shed		no				
5 Large shed	720	no	1930	Poor		North
6 Metal garage	1,090	no	1990	Good		North
7 Aviary shed	990	no	1965	Foundation	2011	North
8 Small aviary	227	no	1963	Foundation	2011	North
9 Pentagon aviary	16	no	1975	Foundation	2011	North
10 Rectangle aviary	1,200	no	1975	Foundation	2011	North
11 Stone shed	288	no	1939	Fair		North
12 Beach house *	1,024	yes	1960	Poor		North
13 Wood dock *	59.44	-	1952	Fair		North
14 Concrete bulkhead *		-				
15 Pole barn *	Unknown	no	1964	Collapsed		South
16 Impoundment	Large	-	1964	Good		South
17 Brick “well”	Very small	-		Fair		North
18 Concrete pond	Small	-		Breached	2011	North
19 “Natural” pond 1	-	-				North
20 “Natural” pond 2	-	-				North
21 “Natural” pond 3	-	-				North

* The Service plans to evaluate the removal of structures 2, 3, 12, 13, 14, and 15 and decommission any associated septic systems. Note: Only the rental house removal may be associated with the Washington Department of Transportation’s upcoming highway project.

Figure 5-1. Refuge Structures on Dawley Unit (refer to Table 5-1 for numbered references)



Data Sources: Highways, State and Country Boundaries from ESRI; Cities from USGS; USFWS Refuge Boundaries from USFWS/R1; Imagery from 2009 NAIP and 2003 WSDOT

The back sides of maps are blank to improve readability.

5.2.4 Roads and Trails

Dungeness Unit Roads

The Refuge Complex Headquarters compacted gravel access road located at the northern end of Holgerson Road is 490 feet long and was completed and chip sealed in 2009. It provides access to all three buildings at the headquarters and includes a staff parking area with room for approximately 7 vehicles. The parking area also includes a 12 x 36-foot concrete RV pad with water and electrical hook-ups and a sewage discharge connection.

Refuge visitors can park in one of two parking lots leased from Clallam County at the north end of Voice of America Road in the Dungeness Recreation Area. The main lot is chip sealed and contains 63 vehicle spaces including two Americans with Disabilities Act (ADA) compliant parking spaces. The “overflow” lot is a mixture of compact gravel and chip seal and contains spaces for 12 additional vehicles including one concrete paver ADA compliant disabled parking space. There is an emergency and maintenance beach access road and right of way through private property at the end of West Anderson Drive. That access includes a locked gate and is not available to the public.

Dawley Unit Roads

There is no public access to the Dawley Unit and no public roads. There is 1,164 linear feet of concrete roadway, 5,856 linear feet of gravel road, and 52,545 linear feet of dirt “skid” roads within the unit providing access to various locations.

Dungeness Unit Trails

Public access to the Refuge Complex headquarters from the Refuge entrance station and parking area is via a 404 linear feet concrete paver walkway which incorporates an ABA/ADA compliant parking space. The main trail connects the entrance station to the Dungeness Spit and is 2,115 linear feet. It is constructed of compacted gravel and was resurfaced and modified in 2011. The bluff trail is a dirt trail measuring 740 linear feet extending from the Refuge entrance station to the western end of the public parking area. The primitive trail is also a dirt trail measuring 3,110 linear feet and connects to the Dungeness Recreation Area horse trail on the south end and to the Refuge main trail on the north end. In 2009, the entrance to primitive trail was relocated approximately 30 feet east to align with the County horse trail and to facilitate the installation of the brick paver path connecting the Refuge Office with the entrance station. The old trail entrance was rehabilitated.

Although they are not maintained hiking trails, Refuge visitors can also hike on the beach on the Strait of Juan de Fuca side from the western Refuge boundary to the lighthouse compound. The Dungeness Harbor side of the Spit from the base to the ½ mile marker is open to public hiking from May 15 through September 30.

5.2.5 Signs

The Service maintains informational, interpretive, and regulatory signage in accordance with standard Service policy; however, due to the maritime nature of the Dungeness National Wildlife Refuge, a series of nonstandard “large format” signs have been utilized on shoreline areas. These heavy duty signs measure approximately 5 feet wide by 4.5 feet tall. Such signs are used in particularly sensitive habitat areas susceptible to disturbance by watercraft and warn boaters to remain 200 yards from shore where possible to protect wildlife. The size allows for text large enough to be clearly legible from a distance. See Appendix H for a complete sign inventory.

5.3 Public Use Overview

Upon establishment, all national wildlife refuges in the lower 48 states are closed to public use unless specifically designated as open. The Refuge Recreation Act of 1962 authorizes recreational uses of refuges only when such uses do not interfere with the refuge's primary purposes and when funds are available for development, operation, and maintenance of those uses. The National Wildlife Refuge System Administration Act of 1966 further stipulates that all uses of a refuge must be compatible with the purpose(s) for which the refuge was established.

Dungeness NWR offers visitors a limited variety of recreation opportunities. The Refuge includes areas that are open for public use year-round and areas that are open only seasonally, depending on the needs of Refuge wildlife. Some portions of the Refuge are closed to visitors year-round for the benefit of wildlife. The Dungeness NWR is divided into five public use zones. Table 5-2 provides a description of the zones as well as a summary of the areas open and closed to public uses and the types of uses that are allowed in each zone. Figure 2-3 also depicts the five public use zones. Under the management direction described within this CCP, public use activities on the Refuge will include:

- Fishing (saltwater)
- Shellfishing (clams and crabs)
- Wildlife observation
- Wildlife photography
- Hiking
- Boating (no wake allowed)
- Jogging
- Horseback riding (should alternative access be obtained per compatibility determination)
- Beach use (wading, other recreational beach uses)
- Environmental education
- Environmental interpretation

While there is no hunting allowed on the Refuge, there is waterfowl hunting taking place on adjacent lands and waters (See Section 5.8, Regional Recreational Opportunities). There is also some waterfowl hunting occurring illegally on Refuge waters (See Section 5.6.1, Illegal Refuge Uses).

The 1997 Final Environmental Assessment (EA) for the Management of Public Use for Dungeness National Wildlife Refuge established that personal water craft (jet skiing) and wind surfing are incompatible with Refuge purposes (USFWS 1997a). Hiking, wildlife observation and photography, boating, recreational fishing, jogging, beach use and horseback riding were determined to be compatible with the modifications outlined in the EA. Environmental education, tribal fishing, research, and permitted special uses were also found compatible.

In July 2006 the Service published its Appropriate Refuge Use Policy (603 FW 1). Under this policy refuge managers are directed to determine if a new or existing public use is an appropriate refuge use. If an existing use is not appropriate, the refuge manager is directed to modify the use to make it appropriate or terminate it, as expeditiously as practicable. In the Draft CCP/EA, the Service made preliminary findings and determinations regarding the appropriateness and compatibility of each use included in each alternative (USFWS 2012a). Appropriateness findings and compatibility determinations have been revised and finalized for each use included in the management direction. Appropriateness and compatibility are further discussed in Chapter 2 and Appendices A and B.

Table 5-2. Refuge Areas Open and Closed to the Public and Allowed Uses by Zone

Zone	Description	Open	Closed	Allowed Activities
Zone 1	West beach below the bluffs, west of Dungeness Spit	Year-round	N/A	Saltwater fishing, wildlife observation and photography, hiking, and recreational beach use (including jogging)
		Weekdays only: 4/1 to 9/30 Daily: 10/1 to 3/31	Weekends: 4/1 to 9/30 and Memorial Day, the Fourth of July, and Labor Day	Horseback riding (reservations required) should an alternative access route be developed
	Bluffs above the west beach	N/A	Year-round	N/A
Zone 2	First ½ mile of beach on Dungeness Spit facing the Strait of Juan de Fuca	Year-round	N/A	Saltwater fishing, wildlife observation and photography, hiking, and recreational beach use
	First ½ mile of beach on Dungeness Spit facing Dungeness Harbor	5/15 to 9/30 (foot access only)	10/1 to 5/14	Clamming/crabbing, wildlife observation and photography, and hiking
Zone 3	Dungeness Spit beach facing the Strait of Juan de Fuca from ½ mile (the end of Zone 2) to the New Dungeness Light Station	Year-round	N/A	Saltwater fishing, wildlife observation and photography, and hiking
Zone 4	Dungeness Spit beach facing Dungeness Harbor and Bay from ½ mile (the end of Zone 2) to the New Dungeness Light Station, the tip of Dungeness Spit, and Graveyard Spit, including a 100 yard buffer below the mean high-tide line	N/A	Year-round	N/A
Zone 5	Refuge waters and tidelands in Dungeness Harbor and Dungeness Bay beyond the Zone 4 100 yard buffer area	5/15 to 9/30 (boat access only)	10/1 to 5/14	Clamming/crabbing, wildlife observation and photography, and boating (no wake)

5.4 Wildlife-Dependent Public Uses

Wildlife-dependent public uses are voluntary, leisure time pursuits which require the presence of, or proximity to: fish, wildlife, or wildlands. Wildlife-dependent uses in the National Wildlife Refuge System generally refer to hunting, fishing, wildlife observation and photography, and environmental education and interpretation. With the exception of hunting, all of these uses occur at Dungeness NWR.

Some uses are not wildlife-dependent but do facilitate the pursuit of wildlife-dependent activities. Examples of nonwildlife-dependent uses occurring at Dungeness NWR that may facilitate fishing or wildlife observation and photography include hiking, boating, and recreational beach uses such as wading, picnicking, or sunbathing. These uses are described in Section 5.5, Other Refuge Uses.

5.4.1 Fishing and Shellfishing

A limited amount of hook-and-line saltwater fishing occurs on the Strait of Juan de Fuca side of Zones 1, 2, and 3. These three zones are open year-round to fishing activities (except the harbor side of Zone 2 is closed October 1 through May 14). Shellfishing occurs on the tidelands in Dungeness Harbor and Dungeness Bay in Zones 2 and 5. Both Zones 2 and 5 are open to shellfishing from May 15 through September 30. Visitors are allowed to access Zone 2 by foot only and Zone 5 by boat only. In Zone 5, shellfishing is restricted to beyond 100 yards from the mean high tide line. Shellfishing in the Refuge does not include oyster harvesting; all oysters in the area are privately owned. All Washington State fishing regulations apply to fishing and shellfishing activities in the Refuge. Use of the Refuge for fishing and shellfishing is limited because there are areas in the local vicinity that offer higher quality opportunities for these experiences. No developed facilities exist to support fishing or shellfishing.

5.4.2 Wildlife Observation and Photography

Wildlife observation and wildlife photography are the primary wildlife-dependent activities occurring on the Refuge. Visitors to Dungeness NWR can enjoy wildlife observation and photography opportunities in any of the areas open to public use. Wildlife observation and photography can occur year-round along the upland trails and the beach in Zone 1; along the Strait of Juan de Fuca in Zones 2 and 3; and seasonally in Zones 2 and 5. Access restrictions dictate that wildlife observation and photography can only occur via foot access in Zones 1, 2, and 3; or by boat in Zone 5. There are two observation decks with viewing scopes at Dungeness NWR. The upper deck is equipped with two viewing scopes and the lower deck with one. The observation decks are located approximately 3/8 mile from the parking area and can be reached via the main and primitive trails.

5.4.3 Environmental Education and Interpretation

The Refuge is a popular outdoor classroom for a variety of organizations, including school groups from elementary to university level. Instructors arrange for educational field trips to the Refuge and these groups often assist the Refuge with service projects. Projects include removing Styrofoam, plastics, and other debris from Refuge lands. The Refuge does not offer formal education programs but supports instructors who use the Refuge as a classroom.

There are a number of interpretive panels and other informational sources at the Refuge. Interpretive panels are located in the kiosk area near the parking lot and along the trail. Subjects include wildlife and habitat, human history, citizen science, and marine debris. Additional panels are planned for both overlooks. The Refuge also offers visitors an interpretive brochure, wildlife checklist, and various other publications. In addition, the Refuge takes advantage of volunteer subject matter experts to present interpretive programs about the Refuge's habitat resources and geomorphologic processes (i.e., spit formation).

The New Dungeness Light Station Association volunteers provide interpretive information to lighthouse visitors about the light station and its role in local maritime history. There is also a Refuge interpretive exhibit in the lighthouse. A map panel with Refuge regulations is located at the light station boat landing zone. Regulatory information signs are located off-Refuge at the Dungeness Landing County Park and Cline Spit Community Beach boat launches.

Graveyard Spit has been a designated Resource Natural Area (RNA) since 1990. Activities are limited to research, study, observation, monitoring, and education; and must be nondestructive and nonmanipulative; and must maintain the area in an unmodified condition. The natural processes must be allowed to predominate without human intervention. Public access to Graveyard Spit is not allowed; research arrangements and permits must be specifically granted by the Service.

5.5 Other Refuge Uses

In addition to wildlife-dependent public uses, refuges can sometimes offer experiences that are nonwildlife-dependent. Examples of nonwildlife-dependent uses include swimming or wading, horseback riding, jogging, and hiking or recreational boating purely for the sake of hiking or boating, respectively. The nonwildlife-dependent uses allowed and occurring at Dungeness NWR are described below.

5.5.1 Hiking

Some nonwildlife-dependent uses on the Refuge enable visitors to enjoy wildlife-dependent activities. For example, hiking allows visitors to engage in wildlife observation and photography. Hiking is also enjoyed simply for the sake of hiking as an experience. Hiking occurs along designated upland trails and on Refuge beaches. The main and primitive upland trails begin at the parking area and meander through the forest to an overlook on the bluff above Dungeness Spit. They join and continue down a steep hill to the spit, emerging from the forest at the interface of public use Zones 1 and 2. Hikers may choose to head west on the beach adjacent to the bluffs or east onto Dungeness Spit where they can continue another five miles to the New Dungeness Light Station.

5.5.2 Boating

Boating is another example of a nonwildlife-dependent activity that can support wildlife-dependent recreation as well as be enjoyed for the sake of the activity itself. Parts of the Refuge are only accessible by boat and, like hiking, recreational boating can allow visitors to engage in wildlife observation and photography in those areas. Recreational boating also affords visitors seasonal opportunities to engage in shellfishing on the Refuge tidelands in Dungeness Harbor and Dungeness Bay.

Boats can be used to access the New Dungeness Light Station. There is a designated boat landing zone south of the lighthouse that is open year-round; reservations are required. The reservation system allows Refuge staff to document visitation and limit the number of boat landings in order to minimize wildlife disturbances, if necessary. Boat landings are limited to lighthouse hours, 9 am to 5 pm. The narrow landing zone on the bay side of Dungeness Spit is the only area on the bay and harbor side of the spit in which boats are allowed to land within the 100-yard buffer zone. It is an unimproved section of beach with no facilities. Visitors must remain on the trail from the landing area to the lighthouse to minimize disturbance to wildlife.

Kayaks are a popular means for visiting the area. Several kayak outfitters offer guided tours to Dungeness NWR and the New Dungeness Light Station. Kayaks launch from Dungeness Landing or Cline Spit and may travel through Refuge waters seasonally to reach the landing zone at the lighthouse. While most of the tours occur in summer, some are also offered in the winter.

Although they are popular activities nearby, jet skiing and windsurfing are not allowed in the Refuge. All waters within the Refuge boundary are designated as no-wake zones. To protect wildlife, the Refuge has established a buffer that extends out 100 yards from the mean high tide line.

5.5.3 Horseback Riding

Under the management direction described within this CCP, horseback riding will be allowed with stipulations in Zone 1 (the beach area west of Dungeness Spit, below the bluffs) if a safe and legal alternate access route from the west or east can be obtained. If access is obtained from the east, horseback use of a Refuge-owned service road to the beach will also be allowed. Horseback riding will require advanced reservations through the Refuge Office. Riding will be permitted daily from October 1 through March 31 and on weekdays from April 1 through September 30, excluding Memorial Day, the Fourth of July, and Labor Day. The reservation system will be used to document visitation and avoid overcrowding. For more information see Chapter 2, and Appendices A and B.

5.5.4 Jogging

Under the management direction of this CCP, jogging is allowed in Zone 1 and on the bluff trail adjacent to the Refuge parking lot. Jogging is not allowed in Zones 2 and 3. Organized running events are not allowed. Groups are limited to 3 people or less to minimize wildlife disturbance and conflicts with other Refuge visitors. For more information see Chapter 2, and Appendices A and B.

5.5.5 Other Recreational Beach Use

Other recreational beach use includes wading, picnicking, sunbathing, and other passive, nonconsumptive uses not described above. These beach uses are allowed in Zones 1 and 2, along the beach facing the Strait of Juan de Fuca. These zones are the most accessible areas via the trail from the parking area.

In order to protect migrating birds and other wildlife from disturbance, jet skis, windsurfing, pets, bicycles, kites, Frisbees, boomerangs, and balls are not allowed on the Refuge. More information about illegal uses is provided in the next section.

5.6 Illegal Uses

5.6.1 Illegal Refuge Uses

The most frequent illegal uses occurring on the Refuge include nonpayment of the required entrance fee, and after hours and closed area trespass. Occurring less frequently are dog walking, bicycle riding, littering, climbing on closed bluffs, beach combing and collecting (including drift wood collection), and unauthorized boat landings and entry into closed waters. Additional incidental illegal uses include fishing (shellfish and finfish) out of season, water fowl hunting, camping, fires, graffiti and other vandalism. Nonwildlife-dependent recreational activities that disturb wildlife such as jogging in areas closed to that activity, kite flying, and ball sports occasionally occur on the Refuge.

Illegal uses persist partly due to limited law enforcement presence and a lack of public awareness of the sensitivity of Refuge wildlife to human disturbance. There is currently one dual-function Federal Wildlife Officer assigned to cover all six refuges within the Washington Maritime National Wildlife Refuge Complex. Refuge staff coordinates with other Federal officers/agents and works with the U.S. Coast Guard as well as State, county, and local law enforcement offices.

5.7 Refuge Visitation

5.7.1 Visitation

The Refuge is a popular regional destination. However, determining actual visitation is problematic due the Refuge's "honor" system where visitors are required to enter the number of people in their party on their fee payment envelope and because there is no mechanism in place to count Refuge boaters, except those that make reservations to land at the historic lighthouse. Some visitors simply do not fill out the required information and others illegally bypass the fee station altogether. As such, Refuge visitation is estimated by adding an additional 15% to the total visitor count attained from fee envelopes to account for people who do not comply with the registration requirements and for boaters who do not land at the lighthouse and those that fail to make the required reservation.

It is estimated that visitation in 2011 approached 76,000 people and may have actually been significantly higher. Construction of the new entrance station during spring and summer of 2011 may have negatively impacted visitation which has ranged in the past five years from relative lows of about 76,000 visitors in 2009 and 2011 to a high of about 80,300 in 2010. Between 2007 and 2011, Refuge visitation remained fairly steady ($\pm 5\%$) despite the onset of a severe economic recession suggesting the sluggish economy has not significantly impacted Refuge recreation trends. This may be due, in part, to the relatively low user fee of \$3 per day or \$12 annually per 4 adults. By comparison, many other popular recreation site user fees in the region are significantly higher (See Table 5-3, Regional Recreation Site User Fees). The local area is also considered to be a retirement community and many of the regular visitors possess lifetime "Senior" or "Golden Age" passes which cover Refuge entrance fees.

The Refuge usually experiences the highest visitation in the summer months from June through August. On average, this three month period accounts for nearly half of annual visitation. It is not unusual to have 600 or more visitors per day during the summer and very busy days may have over

900 people. The highest single day visitation on record was Sunday, September 4th, 2011, when 1,037 people were tallied entering the Refuge (USFWS 2012b).

In July 2011, visitor surveys were distributed to Refuge visitors as part of a National Science Foundation funded research project involving Colorado State University, the National Park Service, the USFWS, and the National Parks Conservation Association. Of the 150 respondents who filled out demographic information, 11% were ages 66 and up. The two largest age groups were from 46-55 (20%) and 56-65 (29%) (Davis et al. 2012). Demographic information for visitors to the nearby Olympic National Park (NP) provides additional insight into Refuge visitation. Based on a visitor study conducted at Olympic NP in July 2000, most of the visitor groups (64%) were family groups. Seventy-seven percent of the park's visitor groups were groups of two to four people (Van Ormer et al. 2001). Anecdotally, Dungeness NWR sees similar visitor group sizes and, particularly during the summer, a similar proportion of family groups.

While it is apparent that most visitors are seeking an outdoor recreation experience, it is difficult to quantify the number of visitors participating in each category. The most popular activities are hiking and wildlife and/or landscape viewing. Many people just want to see the Dungeness Spit and enjoy the panoramic views. Aside from the trails, the majority of visitors tend to congregate in the first ½ mile of the spit making it the busiest part of the Refuge's beach area.

Visitor logs maintained at the New Dungeness Light Station suggest that approximately 10% of Refuge visitors make the 11-mile round trip hike to see the historic lighthouse. Due to the difficulty of tracking visits by boat, it is unknown how many recreational boaters use Refuge waters. However, it is estimated that an average of 275 boats visit the lighthouse each year, most of those being kayaks. By far the majority of visitors, at least 99%, access the Refuge via the upland trails. Of those, more than 98% enter on the main trail, while only about 1% enter the Refuge via the primitive trail. In past years, horse riders typically accounted for less than 12% of primitive trail users or just over 1% of all trail users, and averaged 164 rider reservations annually between 2008 and 2010 (USFWS 2012b).

Education is also an important activity. The Refuge is used as an outdoor classroom for environmental education by regional schools and various organizations. Between 2007 and 2011, 117 educational use permits were issued for the Refuge covering 879 adults and 3,496 youths. On average, 23 permits covering 176 adults and 699 youths are issued annually. While specific curriculums vary, permits require that the course of study focus on the wildlife, plants, geology, marine environment, or history of Dungeness National Wildlife Refuge.

5.8 Regional Recreational Opportunities

Dungeness NWR is located on the North Olympic Peninsula which encompasses two counties, Jefferson and Clallam, and is bordered by the Pacific Ocean to the west, the Strait of Juan de Fuca to the north, Puget Sound to the east, and Olympic National Park and National Forest to the south. The area boasts an incredible array of bays, estuaries, lakes, rivers, waterfalls, glaciers, beaches, mountains, forests, wetlands, farmlands, and alpine meadows. It has a great diversity of natural habitats and nature based recreational opportunities. The North Olympic Peninsula is well known for its extensive hiking, biking, camping, boating, wildlife viewing, mountaineering, snow sports, hunting, fishing and diving opportunities. With so much land in public ownership, the recreational opportunities are quite extensive. The following abbreviated synopsis is intended to provide a general overview of regional recreation opportunities including those available in Clallam County and in the

general vicinity of the Refuge. Furthermore, the North Olympic Peninsula is only a short drive and a ferry ride away from additional recreational opportunities available in the San Juan Islands; Victoria, British Columbia; and Canada's Vancouver Island.

The Olympic Peninsula encompasses more than 6,500 square miles (Richards 1984) with the Olympic National Forest (NF) and Olympic National Park (NP) comprising nearly one-third of the land area (Turner et al. 1996). See Table 5-4, Land ownership on the Olympic Peninsula, Washington. Currently Olympic NF includes 633,677 acres, and Olympic NP includes 922,650 acres. Of the more than two million acres of forests in Clallam and Jefferson counties, more than 50% is federally owned (RC&DC 2009). Both public and private lands are generally held in large blocks, and the majority of the nonfederal lands are managed for timber production by the state of Washington's Department of Natural Resources (WDNR) and by large private corporations. Most of that land is open for recreation including hunting. Small private ownerships comprise only 21% of the Olympic Peninsula (Turner et al 1996).

Wilderness

The United States Congress designated the Olympic Wilderness in 1988 (Washington Park Wilderness Act of 1988, Public Law 100-668 (11/16/1988)). The area, managed by the National Park Service, now totals 876,669 acres and is Washington's largest Wilderness area. It is also one of the most diverse wilderness areas in the U.S. The heart of the Olympic Wilderness is made up of the rugged Olympic Mountains and some of the most pristine forests left south of the 49th Parallel. The temperate rainforest valleys of the west and south flanks of the mountains receive 140 to 180 inches of precipitation annually with Mt. Olympus (7,980 feet), the highest peak in the Olympic Mountains, receiving over 100 feet of snow annually (Wilderness.net 2012).

Mt. Olympus has the third largest glacial system in the conterminous U.S. next to Mt. Rainier and Mt. Baker, also in Washington State. The Olympic Wilderness also contains 48 miles of wilderness coast including beaches, rugged headlands, tide pools, sea stacks, and coastal rainforests. Just over 600 miles of trails lead into the interior of the park. Olympic is one of the most popular wilderness destinations in North America, with nearly 40,000 overnight wilderness visitors each year (Wilderness.net 2012).

Recreation on Washington Department of Natural Resources (WDNR) Lands

WDNR seeks to provide outdoor recreation opportunities to the public throughout Washington State. Recreation on WDNR-managed lands includes hiking, hunting, fishing, horseback riding, camping, off-road vehicle (ORV) driving, mountain biking, and boating. The agency provides trails and campgrounds in a primitive, natural setting. Most recreation on these lands takes place in the 2.2 million acres of forests that WDNR manages as state trust lands. WDNR manages 1,100 miles of trails, 143 recreation sites, and a wide variety of landscapes across the state (WDNR 2012).

WDNR's Olympic Region, which surrounds the Olympic Peninsula, offers a variety of quality recreation experiences. The region has 10 campgrounds, 4 designated multi-use trails with approximately 40 miles of trails for hiking, horseback riding, mountain biking, motorcycling, and ORVs or 4x4s, as well as numerous other trails for nonmotorized activities. The majority of the campgrounds have river or lake access for boating, fishing, and other water activities. The region is located near the Olympic National Park, Hoh Rain Forest, Olympic National Forest, Olympic Experimental State Forest, as well as the many coastal beaches in the region. The region encompasses approximately 371,000 acres of state forest, agriculture, urban and conservation lands (WDNR 2012). See Table 5-5 North Olympic Peninsula Parks and Recreation Areas.

Clallam County Parks

Clallam County manages parks in various parts of the County, primarily oriented around water. Recreation opportunities in the agency's twenty parks include camping, fishing, boating, hunting, hiking, horse riding, picnicking, scuba diving, and beachcombing. The 216-acre Dungeness Recreation Area borders the Refuge and offers picnic sites (including a group picnic area), year-round camping, hiking, biking, horseback riding, and other recreation opportunities. Pets on leash are allowed in the park (Clallam County Parks 2012a).

There are two other County Parks, Cline Spit and Dungeness Landing, adjacent to the Refuge. Both offer public restrooms, tidelands, and free boat launches. Cline Spit is approximately 2 acres in size and has a boat ramp for boats 17 feet long and smaller that provides access to inner Dungeness Bay. The park includes 240 linear feet of public tidelands. Dungeness Landing is 5.6 acres with 13 additional acres of tidelands along the outer Dungeness Bay. Park features include a covered birding platform, a high water boat launch, and spectacular views of the historic New Dungeness Light Station and the Refuge (Clallam County Parks 2012b). See Table 5-5 North Olympic Peninsula Parks and Recreation Areas.

Birding

From ocean beaches to the Olympic Mountains, the north Olympic Peninsula offers some of the best birding opportunities in the Pacific Northwest. Mild winters support large numbers of ocean birds, including waterfowl. Spring and fall are migration times and offer great diversity in species. Due to diverse habitat, from rainforest to tidelands, many species remain as summer residents (OPAS 2012). In addition to the Refuge, the following viewing sites are recommended by the local Audubon Chapter.

- Gardiner Beach, Diamond Point and Discovery Bay
- South Sequim Bay/Blyn and Jimmycomelately Creek
- John Wayne Marina
- Washington Harbor, Schmuck Road, and Port Williams/Marlyn Nelson County Park
- Dungeness Bay and 3 Crabs
- Dungeness Recreation Area
- Sequim's Railroad Bridge Park and Dungeness River Audubon Center
- Olympic National Forest: Upper waters of the Dungeness and Gray Wolf Rivers
- Olympic National Park and Hurricane Ridge
- Ediz Hook and Port Angeles Harbor
- Elwha River Estuary
- Salt Creek County Park
- Neah Bay and Cape Flattery

Wildlife Viewing

Exceptional opportunities to view the region's rich wildlife abound. One of the newest is the Whale Trail, a network of marine mammal viewing sites in the Pacific Northwest (Figure 5-2). The Whale Trail is being developed by a core team of partners including NOAA Fisheries, the Washington Department of Fish and Wildlife, People for Puget Sound, the Seattle Aquarium, the Olympic Coast National Marine Sanctuary, the Whale Museum, and Coast Watch Society. Thus far it includes 8 sites on the Olympic Peninsula, 32 sites in total located in city, county, and state parks; Tribal lands; and the Washington State Ferries (Whale Trail 2012).



Figure 5-2. One of Four Whale Trail Signs along Highway 112 on the Olympic Peninsula Photo Credit: USFWS

Olympic Coast National Marine Sanctuary (OCNMS or Sanctuary)

The Sanctuary includes 2,408 square nautical miles of marine waters off the rugged Olympic Peninsula coastline. The Sanctuary extends 25 to 50 miles seaward, covering much of the continental shelf and several major submarine canyons. The Sanctuary protects a productive upwelling zone that is home to marine mammals and seabirds. Along its shores are thriving kelp and intertidal communities teeming with fishes and other sea life. Twenty nine species of marine mammals reside in, or migrate through the Sanctuary. Gray whales, sea otters, harbor seals, and Steller's and California sea lions can be spotted from land at many locations along the coast at some time during the year. Other whales including humpback whales can be seen from boats as they feed miles offshore. The Sanctuary receives more than three million visitors annually, many attracted by Olympic National Park and other natural and cultural amenities (NOAA 2012a). The Sanctuary surrounds all the islands comprising Flattery Rocks, Quillayute Needles, and Copalis NWRs.

Waterfowl Hunting

While there is no hunting allowed in the Refuge, there are public and private recreational hunting opportunities nearby. On October 16, 2010, the Washington Department of Fish and Wildlife (WDFW) opened a new public waterfowl hunting area on the Lower Dungeness Unit west of the mouth of the Dungeness River off of East Anderson Road near Sequim. The 140 acre unit is open for waterfowl hunting on Wednesdays, Saturdays, and Sundays throughout the hunting season under a three-year agreement with Dungeness Farms Inc. As part of that agreement WDFW granted exclusive public access to Dungeness Farms to a parcel off Three Crabs Road (WDFW 2010). In addition, WDFW allows waterfowl hunting on State owned waters adjacent to the Refuge.

Western Washington Pheasant Release Program

The major goal of the pheasant program in western Washington is to provide an upland bird hunting opportunity. The program also encourages participation from young and older-aged hunters. Because the cool, wet climate of western Washington combined with the lack of grain farming limits naturally sustained pheasant populations, 30,000 to 40,000 pheasants are released each year on about 25

release sites. The only release site in Clallam County is the Dungeness Recreation Area (DRA) which currently allows pheasant hunting between the first weekend in October and November 30 on Saturdays, Sundays, and holidays (WDFW 2012b). The DRA also allows waterfowl hunting Saturdays, Sundays, and holidays throughout the waterfowl season. However, after completion of Clallam County’s Master Plan for DRA, the hunting program has been determined to no longer be a compatible activity and will likely be phased out after 2013 (Clallam County Parks 2008).

Public Hunting on Private Lands

Since about 50% of Washington is in private ownership, many public hunting opportunities rely on landowners opening their lands. In Washington, hunters must obtain landowner permission to hunt on private land. Since 1948, WDFW has worked with private landowners across the state to provide public access through a negotiated agreement. Landowners participating in a WDFW cooperative agreement retain liability protection provided under state law (RCW 4.24.210). Landowners receive technical services, materials for posting (signs and posts), and in some cases monetary compensation. During the 2010-2011 hunting season, there was one Private Lands Program cooperator in Clallam County providing 216 acres of hunting area (WDFW 2012a).

Horse Riding

Low rainfall and mild winters in the Dungeness Valley make the area ideal for year-round equestrian activities and there are several popular places to ride horses near the Refuge. The Dungeness Recreation Area provides equestrian trails which are open daily except Saturdays, Sundays and holidays during the hunting season. Clallam County also offers equestrian trails at Robin Hill Farm County Park. The Park features 195 acres of wetlands, thick forests, and large grassy meadows. There are approximately 2.5 miles of horseback riding trails through forests and rolling grasslands. Riders can also access the Olympic Discovery Trail from the Park.

The Olympic Discovery Trail provides approximately 53 miles of hiking and biking trails in the lowlands between the Olympic Mountains and the Strait of Juan de Fuca. The trail will eventually span 126.2 miles from Port Townsend to the Pacific Ocean. Many parts of the trail have a horse track alongside; it may be a wide, dirt or packed gravel shoulder or a separated path. Between Sequim and Port Angeles horses are allowed from the west side of the Dungeness River Bridge to east side of the Morse Creek Bridge, although there is not an adequate horse track from Lake Farm Road to Morse Creek. Horse trailer parking and unloading is available at Robin Hill Farm County Park (PTC 2012).

Table 5-3. Regional Recreation Site User Fees

Site/Agency		Daily Fee	7 Day Fee	Annual Fee	# of Visitors Covered
Dungeness NWR		\$3		\$12	4 adults or immediate family
Clallam County Parks		Free *			
Jefferson County Parks		Free *			
Sequim/Port Angeles Parks		Free			
WDFW		\$10 (\$11.50**)		\$30 (\$35**)***	Occupants of Private Vehicle
WDNR		\$10 (\$11.50**)		\$30 (\$35**)	Occupants of Private Vehicle
WA State Parks		\$10 (\$11.50**)		\$30 (\$35**)	Occupants of Private Vehicle
Olympic NF		\$5		\$30	Occupants of Private Vehicle
Olympic NP	Vehicle		\$15	\$30	Occupants of Private Vehicle
	Individual		\$5	\$30	Per Person
Makah Recreation				\$10	Occupants of Private Vehicle

Site/Agency	Daily Fee	7 Day Fee	Annual Fee	# of Visitors Covered
Permit				
Olympic Game Farm	\$11/\$12			Per Person

* Fees charged for camping

** Price including dealer and transaction fees

*** Hunters, fishers, and trappers get a Vehicle Access Pass as part of their annual license fee, excluding annual shellfish license.

Table 5-4. Land Ownership on the Olympic Peninsula, Washington

Ownership	Mi ²	Km ²	%
Private	4,664	7,506	45
National Park Service	2,262	3,640	22
U.S. Forest Service	1,578	2,540	15
Washington State	1,267	2,039	12
Tribal	608	978	1
County	28	45	<1
U.S. Department of Defense	10	16	<1
U.S. Fish and Wildlife Service	1	2	<1
Bureau of Land Management	1	1	<1

Source: Ratti et al. 1999.

Table 5-5. North Olympic Peninsula Parks and Recreation Areas

Ownership	Size
Federal	
Olympic National Park	922,650 acres
Olympic National Forest	633,677 acres
Dungeness National Wildlife Refuge	772.5 acres, > 50% open to the public permanently or seasonally
WDNR Recreation Areas in Clallam County	
Bear Creek Campground	
Foothills ORV Trailhead and Trails	
Little River Trailhead and Trails	
Lyre River Campground	
Murdock Beach Access	
Sadie Creek Trailhead, Vista & Trail	
Striped Peak Vista, Trailhead and Trail	
WDNR Recreation Areas in Jefferson County	
Copper Mine Bottom Campground	
Cottonwood Campground	
Hoh Oxbow Campground	
Minnie Peterson Campground	
South Fork Hoh Campground	
Upper Clearwater Campground	
Willoughby Creek Day Use Area	
Yahoo Lake Campground	
WA Department of Fish and Wildlife Lands	
Bell Creek Unit	89 acres
Chimacum Unit	109 acres

Ownership	Size
Elwha Unit	62 acres
Lower Dungeness Unit	148 acres + 73 acres of easement
Morse Creek Unit	133 acres
Snow Creek-Salmon Creek Unit	156 acres
South Sequim Bay Unit	22 acres
Tarboo Unit	Not available
WA State Parks	
Anderson Lake SP	480 acres
Bogachiel SP	123 acres
Damon Point SP (WDNR Owned)	61 acres
Dosewallips SP	425 acres
Fort Flagler SP	784 acres
Fort Worden SP & Conference Center	433 acres
Grayland Beach SP	412 acres
Griffiths-Priday Ocean SP	364 acres
Mystery Bay SP	10 acres
Ocean City SP	170 acres
Old Fort Townsend SP	367 acres
Pacific Beach	10 acres
Pillar Point SP	4.3 acres
Sequim Bay SP	92 acres
Shine Tidelands SP	13 acres
Triton Cove SP	29 acres
Clallam County Parks	
Camp David Jr.	9.5 acres
Clallam Bay Spit Community Beach CP	33 acres
Cline Spit CP	2 acres
Dungeness Landing CP	5.6 acres + 13 acres of tidelands
Dungeness Recreation Area	216 acres
Freshwater Bay CP	21.07 acres
Jessie Cook Scriven CP	5 acres
Lake Pleasant Community Beach	< 2 acres
Mary Lukes Wheeler CP	10 acres
Panorama Vista (WDNR Owned)	3 miles of tidelands
Port Williams (Marlyn Nelson CP)	1 acre
Quillayute River CP	13 acres
Robin Hill Farm CP	195 acres
Salt Creek Recreation Area	196 acres
Three Waters CP	8.5 acres
Verne Samuelson Trail CP	1.5 mile trail
Olympic Discovery Trail	120 miles planned

5.9 Regional Recreation Rates and Trends

5.9.1 Outdoor Recreation Participation Rates Statewide

The Washington State Recreation and Conservation Office (RCO), formerly the Interagency Committee for Outdoor Recreation (IAC), advises the State on matters of outdoor recreation. The RCO conducts inventories of outdoor recreation sites and opportunities, conducts studies of recreational participation and preferences, and periodically releases documents related to overall state outdoor recreation. The most recent release is the 2006 Outdoor Recreation Survey (formerly, the State Comprehensive Outdoor Recreation Planning Report – SCORP Report).

The report identified 15 major categories of outdoor recreation, subdivided into 114 activity types or settings. Of these 15 major categories, walking/hiking is the number one activity with 74% of Washington residents participating in some type or setting of walking and/or hiking. Nature activity is the third most popular recreation, with 54% of residents enjoying some form of this activity. The report indicated observing/photographing nature and wildlife has a participation rate of 29% and that visiting interpretive centers has a participation rate of 15% among statewide residents (See Table 5-6, Major activity group participation in 2006).

The most frequently occurring recreational activities in 2006 included walking without a pet (3.5 million times), observing or photographing wildlife or nature (3.1 million times), walking with a pet (2.7 million times), jogging or running (2.3 million times), and playground recreation (2.2 million times). The most frequently mentioned activities that Washingtonians wanted to do more of in the 12 months following the survey interview included sightseeing (46.9%), picnicking or cooking outdoors (39.4%), hiking (33.5%), tent camping with a car or motorcycle (33.4%), and swimming or wading at a beach (28.4%) (RCO 2007).

Table 5-6. Major Activity Group Participation in 2006

Ranking of Major Activity Areas Activity Area	Population %
Walking/Hiking	73.8
Team/Individual Sports, Physical Activity	69.2
Nature Activity	53.9
Picnicking	46.8
Indoor Community Facility Activity	45.1
Water Activity	36.0
Sightseeing	35.4
Bicycle Riding	30.9
Off-road Vehicle Riding	17.9
Snow/Ice Activity	17.5
Camping	17.1
Fishing	15.2
Hunting/Shooting	7.3
Equestrian Activity	4.3
Air Activity	4.0

Source: RCO 2007.

5.9.2 Forecast for Regional Recreation Demand and Key Recreation Needs

Overall, outdoor recreation in most categories continues to increase at high growth rates. In their 2003 report, the IAC projected future participation in 13 of 14 major outdoor recreation use categories over periods of 10 and 20 years. Nine of these activities were projected to experience double digit growth (IAC 2003). These most recent estimates of recreation trends were based on the National Survey on Recreation and the Environment Projections for the Pacific Region (NSRE), which includes Washington State. The IAC adjusted the NRSE projections as necessary based on age group participation, estimates of resource and facility availability, user group organization and representation, land use and land designations, and “other factors,” including the economy and social factors. Table 5-7, Projected Participation Increases for Selected Outdoor Recreation Activities, shows the percent change expected for Washington State by activity as reported by IAC.

In an earlier assessment conducted by the IAC, trails and environmental education were identified as the two highest outdoor recreation needs in the state (IAC 1995). In their subsequent report in 2002, the IAC encouraged USFWS to find the resources with which to ensure that regulatory processes are as efficient as possible while protecting important natural resources, and to consider their findings in the development and implementation of management plans (IAC 2003). Many outdoor activities generally permitted on refuges are expected to show increases of 20 to 40 percent over the next 20 years. The exception is hunting, in which participation is expected to fall at about that same rate. This CCP considers the recommendations of the IAC and specifically addresses the increasing need for environmental education and maintaining access to trails.

Hiking/Walking

On average in 2006, of the various walking and hiking activities, Washington residents expressed the greatest interest in doing more hiking (34.2%) in the next 12 months. Of all age groups, parents of children under 10 expressed the highest level of interest in the child doing more walking and hiking in general (33.8%). Females showed higher levels of interest than males in doing more walking with pets (18.5%) or without pets (32.5%). Males were more likely than females to want to do more climbing or mountaineering (9.8%). Washingtonians 50 and older were the most likely to express an interest in doing more walking without a pet (30.4% of those 50 to 64 and 34.6% of those 65 or older) (RCO 2007).

Wildlife Observation and Photography

Washington State offers some of the most fantastic and unique opportunities to view and photograph wildlife in the U.S. In particular, the north Olympic Peninsula offers endless opportunities to experience wildlife including rare seabirds such as tufted puffins, rhinoceros auklets, and black oystercatchers. The region’s rich waters are home to large numbers of marine mammals, including seals, porpoises, and whales, as well as a myriad of other creatures. It is estimated that nearly 40 percent of Washington residents participated in nature and wildlife observation and photography in 2006 (RCO 2007), although the actual percentage may be well over that (IAC 2003).

The RCO’s 2006 Outdoor Recreation Survey reported such activity occurred more than 35 million times that year (RCO 2007). Participation in nature related activities is growing in popularity in Washington and is expected to increase significantly in coming years (IAC 2003). On average in 2006, just over a quarter of Washington residents wanted to do more observation or photography of wildlife or nature in the next 12 months (25.8%). Females wanted to visit nature or interpretive centers more and at higher rates than males. Parents of children under 10 indicated their children

would like to do more visiting of nature or interpretive centers, gathering or collecting things in nature settings, and nature activities in general at rates higher than older residents indicated for themselves (RCO 2007).

Sightseeing

On average in 2006, 47.7% Washington residents wanted to do more sightseeing in general in the next 12 months. Females expressed this desire more frequently (51.2%) than did males (44.1%). Residents 50 to 64 years old wanted to do more sightseeing (in general) at a significantly higher rate (35.0%) than did those under 20 (18%). More than one quarter of Washingtonians (27.3%) mentioned wanting to do more of a specific type of sightseeing (RCO 2007).

Fishing

Whether due to the perception, or actual declines in available fish, data showed a steady decline in the sale of state fishing licenses in the 10 years prior to the release of the Assessment of Outdoor Recreation in 2003 (IAC 2003). However, in 2006, about the same number of Washington residents wanted to do more fishing from a bank, dock, or jetty in the next 12 months (18.7%) as wanted to do more fishing from a private boat (18.5%). With the exceptions of fishing for shellfish and fishing from a bank, dock, or jetty, males showed greater levels of interest in doing more fishing than females. Compared to other regions, residents in the San Juan Islands and the Peninsulas (Olympic and Kitsap) showed the greatest interest in doing more fishing for shellfish (28.1% and 20.4%, respectively) (RCO 2007). Future participation in fishing will depend to a large degree on the success of habitat preservation and restoration efforts now underway statewide (IAC 2003).

Hunting

Hunting is overwhelmingly practiced by men with about 6 percent of state residents participating in peak season prior to the RCO’s 2008 report. License sales appear to be steady, but are shrinking as a percent of population. Consistent with national trends, increased participation is highly unlikely as the state’s population continues a general rural-to-urban migration (RCO 2008). Despite the trend, in 2006, Washington residents expressed interest in doing more firearms activity of any type (11.2%) and for more hunting and shooting in general (9.9%) in the next 12 months. Males were more likely than females to express an interest in doing more of all hunting or shooting activities (RCO 2007).

Equestrian Activity (horse riding)

On average in 2006, nearly one quarter of Washington residents wanted to do more horseback riding in general in the next 12 months (23.8%). This interest was more prevalent among females (27.1 %) than among males (20.4%). It was also more prevalent among children under 10 (30.7%) and tweens and teens (33.2%) than among older Washingtonians (50-64: 18.7 %, 65+: 7.7%) (RCO 2007).

Table 5-7. Projected Participation Increases for Selected Outdoor Recreation Activities

Activity	Estimated Change, 10 years (2003-2013)	Estimated Change, 20 Years (2003-2023)
Walking	23%	34%
Hiking	10%	20%
Nature Activities (photography, wildlife observation, gathering and collecting, gardening, and visiting interpretive centers)	23%	37%
Fishing	-5%	-10%
Hunting / Shooting	-15%	-21%

Activity	Estimated Change, 10 years (2003-2013)	Estimated Change, 20 Years (2003-2023)
Sightseeing (includes driving for pleasure)	10%	20%
Camping – developed (RV style)	10%	20%
Canoeing/kayaking	21%	30%
Motor Boating	10%	No Estimate
Equestrian	5%	8%
Nonpool swimming	19%	29%

Source: IAC 2003.

5.10 Socioeconomics

5.10.1 Population and Area Economy

Dungeness NWR is located in Clallam County on the northern coast of the Olympic Peninsula in the state of Washington. The nearest city is Sequim, which has a population of 6,273 (U.S. Census Bureau 2012). Table 5-8 shows the population and area economy. The county population increased (11 percent) from 2000 to 2010, compared with a 14 percent increase for Washington and a 10 percent increase for the United States as a whole. County employment increased by 11 percent from 2000 to 2010, compared to a smaller employment increase in Washington (8 percent) and the United States (5 percent). Per capita income in Clallam County increased by 16 percent between 2000 and 2010, while Washington and the United States both increased by 4 percent.

Table 5-8. Dungeness NWR: Summary of Area Economy, 2010

	Population*		Employment*		Per Capita Income*	
	2010	Percent change 2000-2010	2010	Percent change 2000-2010	2010	Percent change 2000-2010
Clallam County	71.5	11%	35.4	11%	\$37,614	16%
Washington	6,743.0	14%	3,793.6	8%	\$43,933	4%
United States	309,330.2	10%	173,767.4	5%	\$41,198	4%

Source: USDC 2012.

* Population and Employment in thousands; Per Capita Income in 2011 dollars.

The largest industry sectors for Clallam County are ranked below by employment (Table 5-9). The largest employer is the State and local government, followed by food services and drinking places.

Table 5-9. Industry Summary for Clallam County

Industry	Employment	Output	Employment Income*
State and Local Government	6,595	\$372,059	\$328,490
Food Services and Drinking Places	1,943	\$102,033	\$32,448
Health Practitioner Offices	1,021	\$96,458	\$37,634
Retail Stores - General Merchandise	862	\$64,504	\$29,199
Real Estate	862	\$101,261	\$6,424
Nonresidential Construction	807	\$115,562	\$26,454
Retail Stores - Food and Beverage	801	\$61,328	\$24,672

Industry	Employment	Output	Employment Income*
Nursing	799	\$31,168	\$21,344
Commercial Logging	770	\$187,995	\$18,734
Civic, Social, Professional, and Similar Organizations	661	\$27,812	\$11,817

Source: Implan 2008.

* Dollars in thousands.

5.10.2 Local Community

The Dungeness NWR is located approximately 6 miles northwest of Sequim, WA (pronounced “sequim”). The area is famous throughout the Pacific Northwest for its low rainfall and sunny skies. Known as “Sunny Sequim” or “the Blue Hole,” Sequim and the surrounding Dungeness Valley lie in the rainshadow of the Olympic Mountains, and boast an average annual rainfall of less than 17 inches. In recent years the Dungeness Valley’s consistently sunny weather, unusual for Western Washington, has drawn many new residents from across the U.S. that want to enjoy the benefits of a more temperate climate, less crowded landscape, and a welcoming community. The Sequim area has become an attractive retirement community, with the average age in Sequim rising to the near 60s during the past 20 years (MySequim 2012). Despite recent declines in job growth, -0.59 % from October 2010 to September 2011 and a comparatively high unemployment rate of 11.6% (Sperling’s 2011), Sequim continues to be an attractive place to retire and the fastest growing community in Clallam County (CLR 2010) ensuring an increasing demand for outdoor recreational opportunities.

5.10.3 Refuge Impact on the Local Economy

Visitors to Dungeness NWR spend money on food, lodging, equipment, transportation, and other expenses, which creates jobs within the local economy. Additionally, Refuge budget expenditures, including those provided through the Refuge Revenue Sharing Act, also result in economic impacts to the local community. The effects on the local economy associated with consumer expenditures on Refuge-related recreation and effects associated with Refuge budget expenditures are explored in detail in Chapter 6 of the Draft CCP/EA (USFWS 2012a).

