NATURAL RESOURCES

Woodard Bay Natural Resources Conservation Area Management Plan

March 2002

WASHINGTON STATE DEPARTMENT OF
Natural Resources
Doug Sutherland - Commissioner of Public Lands

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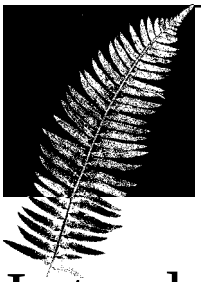


Introduction

Woodard Bay

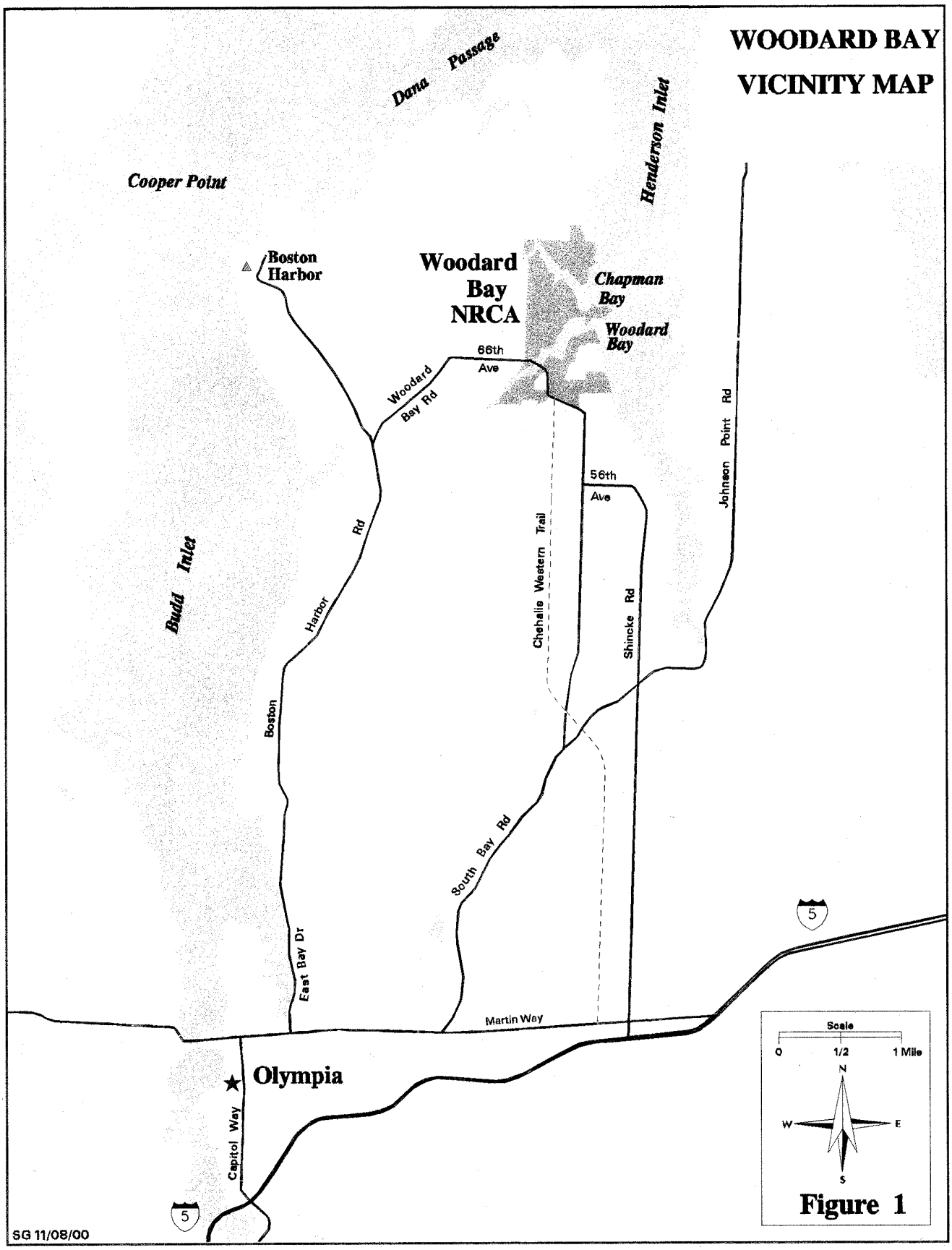
Located on Henderson Inlet in northern Thurston County, Woodard Bay NRCA currently encompasses portions of sections 7, 8,17,18,19, and 20, T19N, R1W, W. M. (Figure 1). Woodard Bay was selected as an NRCA under the Act because of its ecological values and opportunities for low impact public use. As of December 2000, approximately 588 acres have been acquired to protect this special area (Figure 2).

Woodard Bay NRCA is a relatively undeveloped environment in a landscape of small farms and low density residential lots. The site is a critical portion of the 29,000 acre Henderson Inlet Watershed, protecting over one-third (5 miles) of the shoreline of Henderson Inlet. As development in the area continues, Woodard Bay NRCA will be even more significant in southern Puget Sound.

Natural resources of the site include forested uplands, tidelands, freshwater wetlands and streams, as well as a variety of native habitats and sensitive wildlife species. The site also has human-created wildlife habitat utilized by several wildlife species. The site will be increasingly important as an area of forest and water that supports a variety of native ecosystems and as a critical refuge for maintaining viable populations of a variety of marine and terrestrial wildlife species.

In 1988 DNR purchased the uplands, tidelands, and all improvements of the former South Bay Log Dump from the Weyerhaeuser Foundation. After Woodard Bay was designated an NRCA, the historical and archeological significance of the site was determined and these historical and archeological resources will be managed by the Department.

There are opportunities for the public to study and enjoy the serenity and natural features the site has to offer. Currently, Woodard Bay NRCA is accessible at two locations via Woodard Bay Road. Parking is available at the junction of Woodard Bay and


WOODARD BAY
VICINITY MAP
Dana Passage
Henderson Inlet
Cooper Point
Boston Harbor
Woodard Bay NRCA
Chapman Bay
Woodard Bay
66th Ave
Woodard Bay Rd
56th Ave
Johnson Point Rd
Budd Inlet
Boston Harbor Rd
Chehalis Western Trail
Shincke Rd
South Bay Rd
East Bay Dr
Martin Way
Olympia
Capitol Way
5
Scale
0 1/2 1 Mile
N
W
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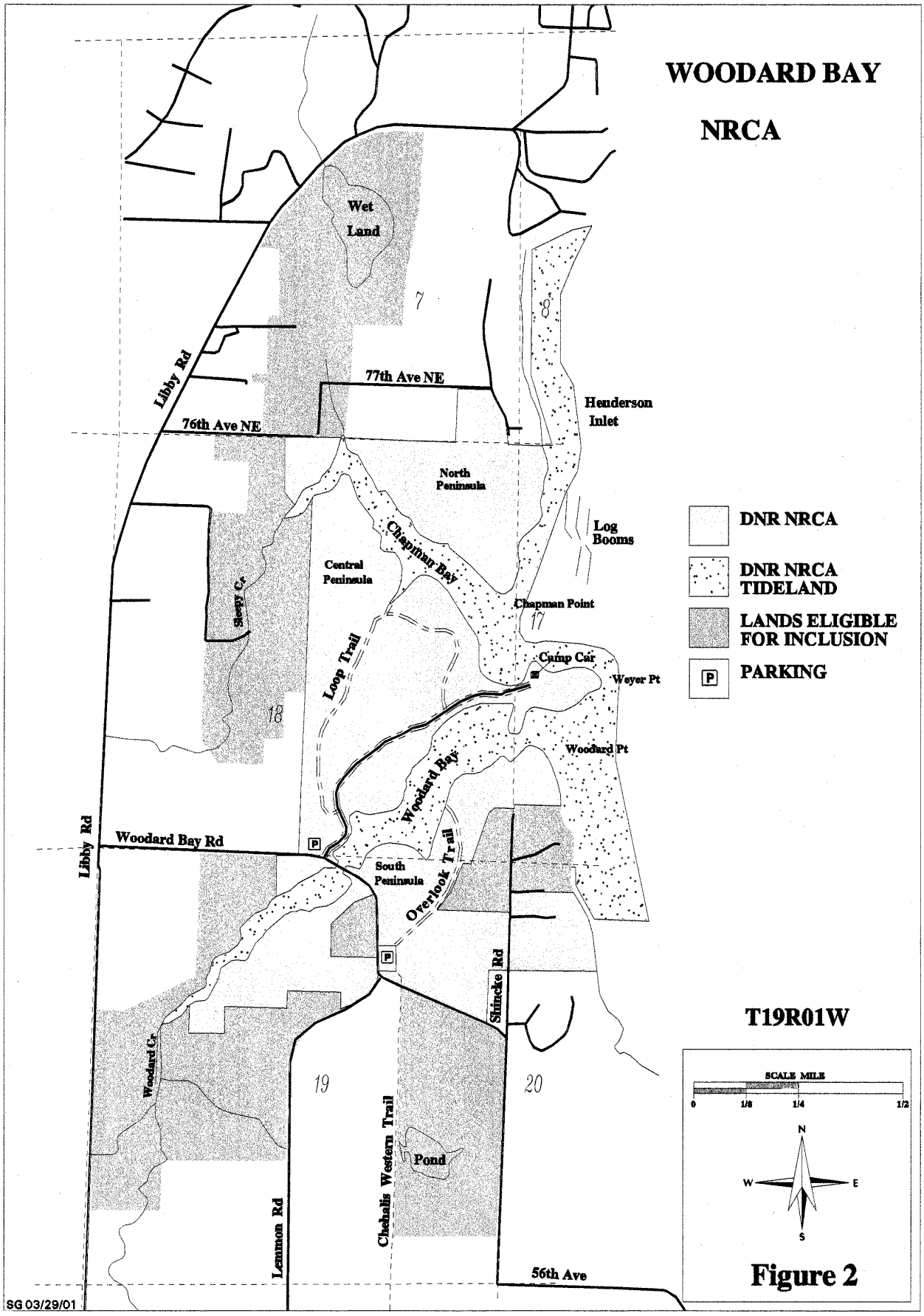
S
Figure 1
SG 11/08/00


WOODARD BAY
NRCA
Wet
Land
7
8
Libby Rd
77th Ave NE
76th Ave NE
Henderson
Inlet
North
Peninsula
Log
Booms
Chapman Bay
Central
Peninsula
Sleepy Cr
Chapman Point
17
Loop Trail
Camp Car
Weyer Pt
18
Woodard Pt
Woodard Bay
Libby Rd
Woodard Bay Rd
South
Peninsula
Overlook Trail
Shincke Rd
Woodard Cr
19
20
Chehalis Western Trail
Pond
Lemmon Rd
56th Ave
SG 03/29/01
DNR NRCA
DNR NRCA
TIDELAND
LANDS ELIGIBLE
FOR INCLUSION
PARKING
T19R01W
SCALE MILE
0
1/8
1/4
1/2
N
W
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S

Figure 2

Whitham Road, and at the Chehalis Western Trail north parking lot (see Figure 2).

The site has significant cultural and historic value. Many American Indian archaeological sites have been identified. Woodard Bay includes many structural improvements of the former South Bay Log Dump, which played a significant role in the logging history of Washington State. Many of these improvements are disintegrating and now provide artificial wildlife habitat for several sensitive wildlife species where suitable natural habitat is no longer available.

Program Purpose

The primary purpose of the NRCA program is to protect outstanding examples of native ecosystems, habitat for endangered, threatened, and sensitive plants and animals, and scenic landscapes.

At NRCAs, such as Woodard Bay, there will be opportunities for environmental education and low impact public use where such use does not adversely affect the resource values the area was intended to protect. Choices for management will place resource conservation as the priority when in conflict with human use.

The Act

The Washington Natural Resources Conservation Areas Act (RCW 79.71) finds that there is an increasing and continuing need by the people of Washington for certain areas of the state to be conserved for the benefit of present and future generations; and further directs the Department of Natural Resources (DNR) to acquire property to be designated as Natural Resources Conservation Areas (NRCA). Woodard Bay NRCA was one of the four original NRCA sites designated by the Legislature when the act was passed in 1987.

The Act defines the characteristics of an NRCA as:

- Lands with a high priority for conservation, natural systems, wildlife and low-impact public use.
- An area of land or water—or land and water—with flora, fauna, geological, archaeological, scenic or similar critically important features that retains, to some degree, or has re-established its natural character.

- Examples of native ecological communities.
- Environmentally significant sites threatened by incompatible or ecologically irreversible uses.

The Act further defines the purposes of a conservation area as:

- Maintaining, enhancing, or restoring ecological systems, including (but not limited to) aquatic, coastal, riparian, montane, and geological systems, whether such systems be unique or typical to the state of Washington.
- Maintaining habitat for threatened, endangered, and sensitive species.
- Maintaining exceptional scenic landscapes.
- Providing outdoor environmental education.
- Enhancing sites for low impact public use

Vision for the Twenty-first Century

As the Department moved forward to meet the intent of the NRCA Act and to follow the guidelines set forth in the NRCA Statewide Management Plan, a vision was developed:

In the year 2025, Woodard Bay NRCA appears to the casual observer to be nearly unchanged. The pressures of a burgeoning and increasingly urbanized population have been kept at bay. The more perceptive observer notes, however, that the quality of plant and animal life has improved in substantial, if almost imperceptible ways. Natural processes have restored the NRCA to a more natural condition. Active intervention has taken place to secure an environment favorable to priority species.

The historical and cultural resources of Woodard Bay NRCA have been preserved or appropriately documented. Evidence of Native American occupation has been preserved in situ or, where erosion control was not a practical solution, the material has been collected and curated in agreement with local Tribes.

With Department guidance, an educated and dedicated corps of volunteers monitors and conducts scientific study of the resources of Woodard Bay NRCA, and in turn furnishes the Department of Natural Resources with the information needed to make good management decisions.

The public has the opportunity to experience the natural features of Woodard Bay NRCA. It understands that the site is a place to be, not a place to do, and it is a willing partner in the stewardship process. Educational programs for children and adults ensure that the vision is carried over into the still more distant future.

Planning Process

The NRCA Statewide Management Plan provides guidance for developing site management plans for NRCAs, which are required by the Act. The statewide plan was adopted by the Commissioner of Public Lands in 1992 and was developed with the assistance of the NRCA Statewide Advisory Committee.

A citizens' local site advisory committee was appointed by the Commissioner of Public Lands to assist in developing a site management plan for Woodard Bay NRCA. The committee included representatives from the Thurston Regional Planning Council, the Thurston County Parks and Recreation Department, the cities of Lacey and Olympia parks and recreation departments, the Washington state departments of Fish and Wildlife and Natural Resources, the Black Hills Audubon Society, and neighboring property owners. Committee members provided information and recommendations, and reviewed draft plans. This plan was reviewed by the public as well as federal, state, tribal and local agencies. The plan was adopted by the Commissioner of Public Lands on January 5, 2001.

SEPA

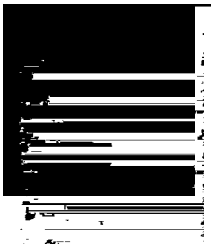
The State Environmental Policy Act (SEPA), Chapter 43.21 RCW, requires governmental agencies to consider the environmental impact of a proposal before making decisions.

This plan is consistent with guidelines adopted in the September 1992 NRCA Statewide Management Plan and reviewed through a SEPA Determination of Non-significance and public comment period. In preparing this plan, an environmental checklist and a supplemental sheet for non-project action were prepared, and a determination of non-significance was issued on May 1, 1995. This information, along with the plan, was submitted for public comment in compliance with SEPA. A subsequent supplemental sheet for non-project action was prepared and a determination of non-significance was issued on March 22, 2000 and also submitted for public comment.

Approval Process

A public meeting was held on this plan for the purpose of obtaining review and comments in Olympia, Washington, on May 22, 1995. In addition, this plan was distributed to federal, state, tribal and local agencies for review and comment prior to submission to the Commissioner of Public Lands for adoption.

After adoption, the Woodard Bay NRCA site management plan may be reviewed periodically by the Department and the public to enable the plan to be revised to address current management issues.



Executive Summary

In 1987 the Natural Resources Conservation Area designation was created by an act of the Washington State Legislature. Following the intent of the Natural Resources Conservation Areas Act (RCW 79.71) and following the guidance provided by the Natural Resources Conservation Areas Statewide Management Plan, the Woodard Bay NRCA Management Plan was created.

Resources at Woodard Bay NRCA were inventoried to better determine appropriate stewardship necessary to protect the resources. Management emphasis and purpose is clearly to put resource protection above all other management activity. Management goals and recommendations were developed for the ecological boundary, stewardship, research and monitoring, environmental education, public use, commodity based activity, and regulatory responsibility.

Boundary

Within the established boundary (Figure 2), the Department will continue to acquire additional land from willing sellers or seek conservation easements from willing parties. As of December 2000 Woodard Bay NRCA included approximately 588 acres in state ownership. Changes in the current boundary will require a public hearing.

Stewardship

Sensitive resources of the site will be protected and monitored to gauge ecological health as well as impacts of public use on the ecological and cultural resources. Natural processes will be allowed to continue to re-establish the natural character of the NRCA. Sensitive wildlife populations will be protected from public disturbance. DNR will cooperate with other wildlife agencies to monitor and manage wildlife of the site.

Historical and archaeological resources are recognized as important resources and will be managed to ensure reasonable protection and/or documentation of these resources. One historical structure, a camp car used as the boom foreman's office, will be retained for an interpretive structure. Other structures that have provided artificial habitat (pier for bats, booms and pilings for seal haul-out) will be evaluated with wildlife agencies and other experts to determine the necessity and feasibility of retaining those structures for habitat. Those structures that offer no habitat value will be evaluated for removal as time and resources allow, including the McDonald House.

Research and Monitoring

Research and monitoring activities will continue to be encouraged and will be guided by Department staff. Wildlife population trends will be monitored as habitat needs change and new species become listed. Public use patterns and impacts on natural resources of the site will continue to be monitored and managed as appropriate. Invasive weeds and control efforts for these species will be monitored. Research will be encouraged if it will provide important information useful for making management decisions.

Public Use

Low-impact public uses of hiking, nature study, photography, and wildlife observation will be allowed where appropriate. Public access to sensitive marine areas by watercraft will be strongly discouraged. Beaching and launching will be allowed seasonally at Woodard Creek launch site and prohibited elsewhere on uplands. Public use trends will be monitored for impacts and managed as necessary to ensure appropriate protection of NRCA resources.

Environmental Education

Environmental education and interpretation of the site will continue and be further developed, as funding allows, to encourage public stewardship for the site.

Commodity-based Activities

Commodity-based activities within Woodard Bay NRCA are not deemed compatible with resource protection and no such activities are planned at this time or are anticipated for the future.

Regulatory Responsibility

The Department will work cooperatively with Thurston County and other law enforcement officials to ensure adequate law enforcement, fire, and emergency response. The Department will comply with the Thurston County weed control regulations.

Resource Inventory

General

Woodard Bay NRCA has a wide range of relatively undisturbed native ecosystems including tidelands, scattered large trees and mature second growth forest, freshwater wetlands, and three small streams. Important components of these ecosystems are wildlife species including nesting bald eagles, a heron rookery, waterfowl (mergansers, cormorants, buffleheads, etc.) marine birds, song birds, river otters, deer, and shellfish. In addition, there are two significant human-made habitats used by large breeding populations of seals and bats. The site is further described by subarea in Appendix A.

In 1992 the Natural Heritage Program developed *Woodard Bay NRCA Natural Resources Inventory and Management Recommendations.* Excerpts from this inventory regarding the physical aspects and vegetation of the site follow.

No comprehensive survey has been done for the estuarine biota within the NRCA. Many estuarine species are important to wildlife that use the Woodard Bay NRCA. A baseline study of the estuarine biota should be a high priority.

Climate

The influence of the Pacific Ocean maintains a moderate climate with few periods of extreme weather in western Washington. Winters are cool and wet and summers are warm and relatively dry at the Woodard Bay NRCA. Winter in Olympia, 10 miles south of Woodard Bay, has average daily temperatures of 39 degrees F and an average daily low of 33 degrees. Cloud cover and rain are common features of Olympia's winters. Olympia is cloud-covered 70 percent of the time. Seventy-nine percent of Olympia's 51 inches of annual precipitation occurs during the period November

through March. Snowfall is about 15 inches in Olympia, but averages less than 5 days with more than 1 inch of snow on the ground. Daily summer temperatures average 62 degrees with average daily highs near 75 degrees.

Physical Geography

Woodard Bay NRCA consists of two small bays, Woodard Bay and Chapman Bay at the mouths of Woodard and Sleepy Creeks, and associated forested uplands. It is located midway up the western shore of Henderson Inlet in southern Puget Sound.

The upland topography is relatively flat to rolling and is dissected by a few ephemeral creeks. Most of the upland slopes are 0 to 15%. The headlands steeply drop (30-60% slope) to the bays. Elevations range from sea level to 100 feet.

Geology and Soils

Soils at Woodard Bay developed on glacial uplands from a variety of glacial deposits: till, lake deposits, drift and outwash. Secondary deposition of loess and volcanic ash on the glacial material, and secondary erosion and deposition have influenced the development of soil on site.

The U.S. Soil Conservation Service (1982) mapped six soil series at Woodard Bay:

Bellingham silty clay loam—This soil covers 8% of the area. It is deep but poorly drained and is derived from lacustrine or alluvial deposits. It percolates slowly and is associated with wetlands.

Hoogdal silt loam, 30-50% slopes—This soil covers 25% of the area. It is a moderately deep, moderately well drained soil derived from loess or glaciolacustrine sediments. It is found along the headlands above the bays in areas that are quite steep.

Indianola loamy sand, 3-30% slopes—This soil cover 4% of the area and is very deep and excessively well drained. It is derived from sandy glacial drift. This soil is prone to sloughing and is found at the mouth of Woodard Bay on the points of peninsulas.

Kapowsin silt loam 3-15% slopes—This soil covers 17% of the area, is moderately deep and moderately well drained and is derived from compact glacial till. This soil is found north of Chapman Bay.

Skipopa silt loam 0-15% slopes—This soil covers 45% of the area. It is moderately deep and somewhat well drained and is derived from volcanic ash and loess over glaciolacustrine sediments. It is found south of Chapman and Woodard Bay. It can be quite wet due to slow percolation.

Yelm fine sandy loam 3-15% slopes—This soil covers 1% of the area. It is a deep and moderately well drained soil, derived from volcanic ash and glacial outwash. There is a minor occurrence of this soil south of the mouth of Woodard Bay.

Hydrology

Most of the small portion of Henderson Inlet which falls within the NRCA is shallow estuarine intertidal. Depths in the inlet within the NRCA reach about 10 feet below mean lower low water (United States Geological Survey map). Chapman Bay and Woodard Bay are shallow estuarine bays. The tideflats of each are exposed at a + 2.0 or lower tide (Wright and Clifford, 1989). Chapman and Woodard Bays are fed by permanent streams and at low tides these stream channels with their freshwater flows can be seen winding through the tideflats.

Chapman Bay

Chapman Bay is fed by two permanent streams. A short stream, about 1,250 feet long, flows from the north where it originates at a small divide between Big Fish Trap and Woodard Bay drainage basins in Section 7. The stream appears to originate in a seep and wetland in a pasture. It receives surface water from a small wetland, pasture lands, farm lands, a road and forest lands. Water in the stream is cloudy, possibly from the clay soils in the area.

The largest stream (Sleepy Creek) which feeds into Chapman Bay originates in a large wetland system in Sections 12 and 13 of Township 19 North, Range 2 West. This wetland system also drains into Gull Harbor and minimally into Big Fish Trap. Water flows year round in the stream at 0.5 to 10 cfs (Thurston County Regional Planning Council 1988) and is cloudy. Tidal influence extends about 500 feet up this stream channel from where the channel is over-topped by adjacent woodlands.

Woodard Bay

Woodard Creek is the only perennial stream flowing into Woodard Bay. Woodard Creek originates in Olympia near I-5 and has a flow of 3 to 40 cfs (Thurston County Regional Planning Council 1988). It has several seasonal and possibly some perennial tributaries. The drainage basin has extensive development which has altered drainage patterns within the basin.

Impounded Wetlands

There are about 4 acres of impounded wetlands in the northern part of the NRCA, about .25 acres adjacent to the foot path west of Weyer Point, and a tiny basin at the south end of the NRCA north of Woodard Bay Road and west of the railroad grade. These wetlands are in basins with no channeled inflow or outflow. They appear to be fed by rain water and to receive some surface sheet flow. All appear to have perched water tables. Two wetlands at the north end of the NRCA and the .25 acre wetland near Weyer Point are in part permanently flooded. The others are seasonally flooded.

Vegetation

The core site was mapped for overstory and understory vegetation. (See *Woodard Bay NRCA Natural Resources Inventory and Management Recommendations*)

Forest Cover

Description

Almost all of the uplands are covered with a mixed forest canopy of tall conifers and deciduous trees. Areas not dominated by trees are associated with the old railroad and road rights-of-way, development, or small wetland areas. The five forest cover types present are described below.

Forest Overstory

Old-growth Douglas-fir

These stands are distinguished by frequent large Douglas-fir, grand fir or western red cedar trees mixed with a patchy lower canopy of Douglas-fir, western red cedar, or western hemlock. Large trees with trunks 3 to 4 feet in diameter are estimated to be 250 years old and originated following a fire. Evidence of past logging, such as stumps and skid roads, occurs throughout the stand. These disturbances have resulted in a forest with few snags and scant large woody debris on the forest floor. Inclusions of second-growth Douglas-fir and red alder-bigleaf maple cover types occupy drainages and disturbed areas.

Second-growth Douglas-fir

These stands are distinguished by a dense to moderately dense canopy of Douglas-fir with western red cedar and grand fir trees. Trees have trunks 1 to 2 feet in diameter, are estimated to be 80-90 years old and originated following logging and/or fire. Isolated large trees are present. Evidence of logging occurs throughout the stand. Inclusions of red alder-bigleaf maple and western red cedar-grand fir cover types occupy parts of these areas.

Western redcedar-grand fir

These stands are distinguished by an open, tall canopy composed of western red cedar, grand fir, Douglas-fir, and western hemlock, over a second canopy dominated by red alder and bigleaf maple. Conifers can have trunks 3 to 4 feet in diameter and range in age between 100 and over 250 years. Logging evidence is common.

Red alder-bigleaf maple

These stands are dominated by red alder, bigleaf maple or combinations of these broadleaf trees with clusters of 3 to 5 conifer trees. Trees are presumed to be 40 to 80 years old. Logging evidence is common.

Young Douglas-fir

These are small stands dominated by a dense canopy of Douglas-fir that are generally less than 1-foot in diameter. Old logged stumps are common although this stand may have originated after a fire.

Vegetation under the forest cover types follows a different pattern than that of the dominant trees. The understory is structurally diverse and varies with disturbance history, soil type and slope. Two broad understory types are described below.

Forest Understory

Swordfern

The understory vegetation areas have swordfern displaying more than 10% coverage. Variation in the Swordfern understory type is expressed in several communities: a) old growth Douglas-fir overstory with swordfern and many herbaceous species in the understory; b) second-growth Douglas-fir with an understory of swordfern co-dominant with either salal or Oregon grape; and c) western redcedar-grand fir or red alder-bigleaf maple with patches of swordfern in an understory dominated by stinging nettle, salmonberry, or elderberry.

Salal

Understory vegetation areas have a dense layer of salal with more than 10% cover and often more than 50% cover. The Salal understory type appears in several communities: a) old-growth Douglas-fir overstory with dense salal and scattered swordfern; b) second-growth Douglas-fir overstory with dense salal with scattered Oregon grape or scattered oceanspray; and c) a dense canopy of young Douglas-fir with scattered patches of salal and patches of Oregon grape.

No endangered, threatened or sensitive plants (Washington Natural Heritage Program 1990) are known to occur on the site. A partial checklist of vascular plants for the area is included in Appendix B.

Condition

Evidence of logging is seen throughout the NRCA. Old, faint skid trails are apparent in places particularly where a creek drainage was used for skidding. Stumps in varying stages of decay indicate that logs were removed over a series of years rather than by a few timber harvest operations. Stump frequency is inversely related to abundance of large diameter Douglas-fir. The removal of trees has subtracted the snag and large, woody debris component from the natural diversity of the forest.

Fire has played a part in the development of these forests. There is evidence of fire (charcoal on bark) in most stands at Woodard Bay. The timing and size of the fire or fires is not clear.

Condition of upland vegetation at the Woodard Bay NRCA differs by area. Generally, the forests in the best condition, judging from stump density, concentration of residual trees, and apparent soil disturbance, are the stands mapped as old-growth Douglas-fir. The area in the best condition is the peninsula on the north side of Chapman Bay. The combination of isolation and lack of any developed trails or roads and apparently only one tree removal operation (all the stumps look to be about the same age) make this the least disturbed area.

The area in the poorest condition is the peninsula on the south side of Woodard Bay and most of the central peninsula (Weyer Point). These areas appear to have been more heavily and more recently logged than other parts of the NRCA. Development, such as houses, landings, roads, trails, and railroad are common features in these areas.

Aggressive exotic plant species are concentrated in these areas. Since a developed forest canopy will exclude most of these species, the current distribution of exotics is focused on more open environments near development. Patches of introduced blackberries, Scot's broom, pasture grasses, and tansy ragwort are seen along the rights-of-way. More shade-tolerant exotics, English holly *(llex* sp.), periwinkle *(Vinca* sp.) and English ivy *(Hedera helix)* are present and will be a more difficult management issue. Currently, the English ivy and periwinkle are concentrated on Weyer Point and its transition to the mainland. Holly is found sporadically throughout the area.

Intermediate condition forests occupy the land between Chapman and Woodard Bays. Logging operations appear to have been varied but concentrated in areas near the water. The road to Weyer Peninsula is lined with the most altered forest vegetation. Old and new trail construction and crossing the area for percolation trench testing have influenced the developing forest community. These are localized effects and likely will have short-term impacts on vegetation. English holly is the most common exotic plant found primarily in the salal understory types.

Condition also varies by understory type. The salal understory appears to be in better condition than the swordfern areas. Salal areas are less productive and are more difficult to access because of the dense shrub layers. Consequently, salal areas appear to have had less disturbance than the swordfern areas. The swordfern understory areas which have had much or all of their original overstory removed, are now dominated by a broadleaf forest overstory. These areas have many understory plants indicative of soil disturbance: stinging nettle, miner's lettuce, chickweed, and bedstraw.

Wetland Vegetation

Description

The 4 acres of wetlands at the north end of the NRCA are in very good condition. Spirea is dominant in the center of the wetlands where there is permanently standing water and no overstory vegetation. Landward, the vegetation shifts to Oregon ash dominating the overstory and slough sedge dominating the understory. This zone is permanently to seasonally flooded. Salmonberry replaces slough sedge in some seasonally flooded places around the wetland margin. In two areas that have wet soils, Oregon ash dominates in the overstory and a wide variety of shrub and herb species, including false lily-of-the-valley, hazelnut, vanilla-leaf, stream violet and giant fawn-lily, characterize the understory.

The 0.25 acre wetland near Weyer Point has an area of open water covered with duckweed. Lines of willows cross the pond that are side shoots from fallen willow trees. Slough sedge, spirea, salmonberry and water parsley occur in the shallow water around the pond margin. Red alder and willow occur around the pond margin providing partial canopy cover. The south end of the wetland has shallower water and is dominated by spirea; it has very little overstory.

The small basin near the south end of the NRCA is probably seasonally flooded. It is dominated by spirea and water parsley. There are some willows and a clump of Oregon ash.

There is a small amount of salt marsh vegetation along the tidal margins of Woodard Bay, north of Woodard Bay Road. Marsh species include pickleweed, seaside arrow-grass, saltgrass and seaside plantain. Salt marsh is much more extensive south of the road where it is dominated by Lyngby's sedge.

Condition

All of the freshwater wetlands within the NRCA are in fairly good condition. The four acres of freshwater wetlands north of Chapman Bay are in very good condition. They make up a small system but have good hydrologic and species diversity and no signs of human disturbance. The freshwater wetlands and drainages elsewhere in the NRCA have been affected by past logging but appear to be recovering well. They are small and not very diverse, but are vegetated with native plant species.

The salt marsh is small and scattered along the shore of Woodard Bay. It appears to be in good condition and undisturbed except where it has been affected by road fill.

Although currently in good condition, the wetland vegetation within the NRCA is threatened by exotic species and disturbance beyond the NRCA boundaries. Aggressive, exotic plant species are located along the drainages and wetlands which feed into the NRCA and along some of the boundaries. Water quality and quantity within the NRCA are affected by activities along the drainages and wetlands which feed into the area. These threats from beyond the NRCA boundaries must be addressed if the health and viability of the NRCA wetlands are to be maintained. (See Weed Control).

Cultural Resources

The Department conducted an archaeological site survey (Stilson, 1991) and discovered 21 prehistoric sites within the Woodard Bay NRCA. Many of the sites were actively eroding into the water and several were in danger of disappearing altogether. Subsequently, the endangered sites were sampled and inventoried by the Pacific Lutheran University summer archeological class (Huelsbeck, 1991).

Wildlife

The information below provides a summary of significant wildlife associated with the Woodard Bay Natural Resources Conservation Area. [A partial checklist of birds is included in Appendix C, and a list of the Priority Habitat and Species can be found in Appendix D.]

Harbor Seals *(Phoca vitulina)*

The log booms in Woodard Bay provide one of the most important haul-out areas for harbor seals *(Phoca vitulina)* in Puget Sound. Harbor seals use haul-out areas to rest, give birth and nurse young. Seal numbers at Woodard Bay have been monitored since 1977 by the Washington Department of Fish & Wildlife (formerly the Department of Wildlife) and Cascadia Research Collective. Both aerial and ground censuses are conducted. Use of the log booms peaks from July, when females haul-out to give birth to their pups, through October, during the late pupping season and molt. During the summer, significantly more seals use the area on weekdays than on weekends, presumably because of increased use of the area by pleasure boaters on weekends.

There is considerable concern about the potential impact of human disturbances on harbor seals. In extreme cases disturbances may completely curtail use of an area by seals. However, even seemingly benign human activities such as observing seals or walking along beaches can cause subtle changes in behavior that may lead to significant population declines. At Woodard Bay, the primary activity of humans causing seal disturbances is seal observation. Disturbance rates are highest in summer, when costs of disturbance are likely highest for females giving birth and nursing young.

Bats (*Myotis* spp. and *Eptesicus fuscus*)

Bats represent the second most diverse group of mammals in Washington State. However, surprisingly little is known about the ecology and life history of this group. The older part of the 2,800-foot long pier provides roosting habitat for a nursery colony of bats. Species collected to date include *Myotis yumanensis* and *Eptesicus fuscus*. There appears to be a *Myotis* species present of two different sizes, suggesting a third species present, possibly *Myotis lucifugus* (Gaspari, 1994). Use of the pier by bats occurs between March and October, yearly. The population has fluctuated between 1,400 and 650 individuals between 1993 and 1999.

Portions of the pier have metal sheeting laid over the beams, roofing the crevices where the bats reside. The metal provides the optimal heat ratio for the maternity colony because during pregnancy and lactation, female bats need to maintain daytime body temperatures well above ambient to maximize fetal growth rates. Thus, the metal roof covering the older portion of the trestle is probably a critical habitat component for the colony, because of its heat absorbing properties. In addition, the rotting wood throughout the pier probably provides a food source for insects that are, in turn, food for lactating females. At Woodard Bay, bats have been observed foraging exclusively under the length of the pier for approximately thirty minutes after emerging from the roost. After this initial evening foraging bout, the bats appear to move into the forested area up Chapman Creek for further foraging.

Birds

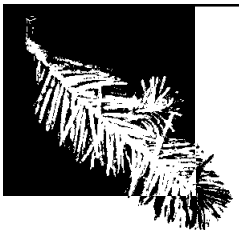
Southern Puget Sound, and Woodard Bay in particular, provide critical habitat for wintering waterfowl and sea birds A list of known bird species utilizing the NRCA is provided in Appendix C.

Several birds, listed by the Washington Department of Fish and Wildlife as Species of Special Concern, nest or feed within the NRCA (Appendix D). A pair of bald eagles *(Haliaeetus leucocephalus)* have alternately used two nesting sites at Woodard Bay, both currently north of Whitham Road. Previously, there was also a nesting site on Chapman Point which was destroyed in 1996 by winter storm activity. In addition, the eagles have a perch tree near the McDonald House that is utilized on a regular basis.

Chapman Point contains one of the largest Great Blue Heron *(Ardea herodias)* rookeries in southern Puget Sound. In 1991, the colony contained 93 nest platforms, with approximately 47 active nests in 53 trees. Storm activity since then has reduced the size of the rookery, but the colony continues to rebuild. In 2000 there was a total of 42 trees with a total of 88 nests (Lizee, 2000).

A population of Purple Martin *(Progne subis),* a state candidate species, utilizes nest boxes set up in the inlet just off of Weyer Point by the Black Hills Audubon Society.

A population of Pigeon Guillemot *(Cepphus columba)* nests in the banks of the south side of Weyer Point. Guillemot, as well as Belted Kingfisher, *(Ceryle alcyon)* nesting habitat also occurs on Chapman Point.



Management Goals and Recommendations

Management Emphasis and Purpose

The natural resource-oriented purposes—protecting ecological systems, habitat, and scenic landscapes—have priority over the public-oriented purposes—primitive recreation, and environmental education.

The primary purpose of Woodard Bay NRCA is to protect outstanding examples of native ecosystems and habitat for endangered, threatened and sensitive plants and animals, and scenic landscapes. There will be opportunities for environmental education and low-impact public uses where such use does not adversely affect the resource values the area was intended to protect. This will be accomplished by pursuing the five program goals and implementation strategies listed below.

Goals

Using the NRCA program guidance set forth in the NRCA Statewide Management Plan, the management emphasis and purpose for Woodard Bay was determined. This direction was used to develop site-specific management goals with implementation strategies and recommendations.

Goal One: Maintain, enhance, and restore ecological systems

Strategies:

- Emphasize protection of natural ecosystem processes within Woodard Bay NRCA, and work with public agencies and neighboring landowners to protect resources outside Woodard Bay NRCA which are part of the same region-wide ecosystem.
- Allow natural processes such as forest succession to re-establish the natural character of the land and water wherever possible.

- ◆Actively restore resources where disturbed areas are not recuperating through natural processes and where ecosystem quality is degrading, until such areas have become self-maintaining and self-replicating.
- ◆Pursue baseline studies for key plant and animal species not already studied, and provide for ongoing ecological monitoring of all species as resources permit.
- ◆Monitor public use impact and take appropriate action to ensure natural resource protection.

Goal Two: Maintain habitat for wildlife including threatened, endangered and sensitive species, other priority species, and for special populations

Strategies:

- ◆Give highest priority to the protection of listed and vulnerable species and associated habitat.
- ◆Survey Woodard Bay NRCA for potential and actual habitat for newly listed species.
- ◆Work cooperatively with other agencies and Tribes with expertise in species management.
- ◆Seek ways to provide alternative habitat where human-made habitat cannot be maintained practically.

Goal Three: Protect cultural resources

Strategies:

- ◆Continue to work with Tribes to identify and protect sites of tribal significance.
- ◆Coordinate protection efforts of cultural resources with Office of Archaeology and Historical Preservation (OAHP).
- ◆Involve OAHP and Tribes in any management activity that could impact known or potential sites of cultural significance.

Goal Four: Maintain exceptional scenic landscapes

Strategies:

- ◆Enhance on-site aesthetic qualities by designing facilities to complement and blend with the natural surroundings.
- ◆Create or maintain scenic vistas and viewing areas as appropriate.
- ◆Create or maintain a high level of scenic quality at trailheads, viewing areas and along public trails.

Goal Five: Enhance sites for outdoor environmental education

Strategies:

- Provide education facilities in areas identified as suitable for low-impact public use.
- Provide educational information using signs or other media for the public to increase understanding of natural and cultural history and inspire public stewardship.
- Cooperate with educators, wildlife agencies and Tribes to develop curriculum guides for Woodard Bay NRCA.

Goal Six: Provide opportunity for appropriate low-impact public use

Strategies

- Provide informational signs to explain the purpose of Woodard Bay NRCA and appropriate uses and behaviors while on site.
- Plan for public use areas and trails that are designed to protect natural and archaeological resources, prevent new or reduce existing site degradation, minimize disturbance to wildlife, and provide a high quality outdoor education experience.
- Provide informational signs at closed areas, explaining need for closure. An exception to this proviso is archaeological sites which will be off-limits to the public and their specific locations not disclosed. The public will be directed away from these sensitive resources, and the sites will be monitored for impacts from unauthorized public access.

Resource Analysis

RCW 79.71 requires that each NRCA plan identify the resources to be protected. Reconnaissance studies and natural resources inventories were conducted by the Department's Natural Heritage Program (NHP), Washington Department of Fish and Wildlife (WDFW), Office of Archaeological and Historic Preservation (OAHP), Thurston County Regional Planning Council, Cascadia Research, and others (see References). After review of these studies and with recommendations of experts, sensitive resources on Woodard Bay NRCA were identified.

Sensitive resources identified at Woodard Bay NRCA include forests, wetlands and streams, intertidal/estuarine areas, fisheries, and special wildlife populations. Other significant resources include archaeological and historic sites, and artificial wildlife habitat. (See Stewardship)

Baseline studies have been conducted for most of the known sensitive resources and special populations of Woodard Bay NRCA (see References and Suggested Reading). Additional study of priority wildlife species' feeding and habitat requirements is needed. Monitoring the impacts of public use on habitat quality and human presence on animal behavior will be critical to the long-term successful management of wildlife species designated as priority species by WDFW.

The management philosophy, goals, and resource analysis were evaluated to identify site management elements and to make specific recommendations for those elements including boundary, stewardship, research and monitoring, environmental education, public use, commodities, and regulatory responsibility.

Boundary

Background/Issues

The area of land originally purchased for the Woodard Bay NRCA was determined by the ownership of the previous landowner rather than based on ecological determinations. Woodard Bay NRCA contains diverse ecosystems, but is not a completely independent, self-sustaining biological system. In order to meet the goals of Woodard Bay NRCA, a boundary, which more nearly encompasses the area of ecological significance and buffers, was necessary to support the priority habitats and species and special wildlife populations of Woodard Bay NRCA. (Figure 2)

To protect the water quality of streams and drainages which flow into Chapman Bay, the ecological boundary includes upper Chapman Bay, part of Sleepy Creek, and part of the small creek which flows into Chapman Bay from the north. The ecological boundary also includes upper Woodard Bay and a part of Woodard Creek, including a shoreline buffer, a significant wetland to the north and a large area with mature forest and wetlands to the southeast.

The booms, walkways, and floats of the former South Bay log dump, which are used by the harbor seals as haul-out space, lie outside the boundary of the NRCA. This area will be managed by the Department to ensure that resource values are protected and impacts on the aquatic ecosystem are minimized.

A proposed boundary was approved after a public hearing was held on November 17, 1999. Changes in the ecological boundary will require a public hearing. The Department may purchase property from willing sellers within the established boundary. However, uses on private lands within the boundary are not restricted by this plan.

Management Recommendations

- Acquire full or partial ownership of land within the ecological boundary from willing sellers as funding is available, or pursue conservation easements with willing parties.
- Encourage other public entities or private individuals to protect lands which impact Woodard Bay NRCA, particularly wetlands to the north and west, and stream channels of Woodard and Sleepy Creek.

Stewardship

Overview

Stewardship describes management activities that are intended to **maintain, restore, or enhance** ecosystems, including critical habitat. The Department intends to further conserve other significant resources of the site as appropriate, including, but not limited to, natural and human-made wildlife habitats, culturally significant historic and prehistoric sites and artifacts, and scenic values.

Maintenance includes activities intended to preserve ecosystem processes and characteristics, such as controlling and preventing invasive non-native plants; re-directing and limiting public use that is detrimental to natural site characteristics and habitat quality; and retaining large standing and downed wood, minimizing habitat fragmentation that results from constructing trails.

Restoration describes those management activities aimed at re-establishing a fully functional natural ecosystem with all its components. Restoration activities may include reintroduction of native plants and/or animals and reduction of non-native plants and animals.

Enhancement describes alterations that improve the function of an existing ecosystem. Enhancement also describes ecosystem manipulation for native species, such as in forest stands to create canopy structure suitable for cavity nesting birds and mammals.

Woodard Bay NRCA-wide Management Recommendations

- Explore options to fund a permanent, year-round site manager to facilitate site protection through site management, inter-agency coordination, outreach, environmental education, and enforcement. Increase DNR presence on site, as resources permit, including Department staff, volunteer site stewards, and research students.
- Protect natural processes that have shaped the natural landscape features to the extent possible. Because both natural and human processes have shaped the landscape of Woodard Bay NRCA and provide habitat for special populations of animal species, both types of processes will be considered in making management decisions.
- Direct the public to designated trails or other developed public use areas to protect understory vegetation from disturbance, to reduce spread of exotic plant species, and to lessen wildlife disturbance.
- Organize a "Friends of Woodard Bay" group to garner support and volunteer involvement for stewardship activities.
- Continue to encourage volunteers to participate in the stewardship of Woodard Bay NRCA. Volunteer activities will be coordinated through the Department, and will be selected to help achieve the goals of the NRCA.
- Continue ongoing communication with neighbors to help achieve NRCA management objectives.

Forests

Background/Issues

Forests are regenerating naturally on the uplands of Woodard Bay NRCA. There are scattered remnants of old growth Douglas-fir on the Central Peninsula and larger concentrations on the North Peninsula (Figure 2). Maturing cedar trees are growing on the South Peninsula. These trees are important for their aesthetic value in a rapidly urbanizing environment, and also for their value as habitat. Nesting and perching trees for Bald Eagle have typically been mature old-growth trees. Large dead or dying trees are important habitat for cavity nesters.

Sensitivity of upland vegetation to disturbance is best reflected by understory vegetation. The salal understory areas are generally more resistant to environmental impact than the swordfern areas. Salal areas are less easily disturbed because they contain a greater number of evergreen and/or woody plants, are less accessible to people because of the dense shrub layer, and appear on better drained soil than the swordfern areas. While the salal areas are more resistant to change, they have a lower ability to recover from a major disturbance to the overstory than swordfern areas. Public use management will need to take into account the relative sensitivity of these vegetation types.

Management Recommendations

- ◆Allow forests to develop naturally as they approach mature forest characteristics.
- ◆Leave large dead or dying trees standing to provide wildlife habitat unless they pose a safety threat to humans using trails, roads, and other areas designated for human use.
- ◆Leave all downed wood on the ground to provide additional habitat and soil nutrients for recycling.
- ◆Minimize further forest habitat fragmentation by limiting public use to existing walking trails, Whitham Road, and other appropriate hardened areas for public access.
- ◆Monitor trends of holly, periwinkle, and ivy populations and control as necessary. Control English Ivy infestations which threaten to choke out native tree species. (See Weed Control).

Wetlands and Streams

Background/Issues

The freshwater wetland communities of Woodard Bay NRCA perform an array of ecological functions, including water purification, flood protection, shoreline stabilization, groundwater recharge, and stream flow maintenance, as well as wildlife habitat. The wetlands require adjacent upland area to protect the wetland hydrology, to serve as a habitat connector for wildlife, and to provide a visual and noise barrier. Wetland vegetation within Woodard Bay NRCA is currently in good condition, but is threatened by the spread of exotic plant species and disturbance from beyond the NRCA boundaries.

Sleepy Creek and a smaller, unnamed creek that flow into Chapman Bay, and Woodard Creek, which flows into Woodard Bay, are important sources of freshwater to the Woodard Bay NRCA ecosystem (Figure 2). Extensive development, which is occurring in the drainage basins of streams entering Woodard Bay NRCA, has altered drainage patterns within the basins. Freshwater quality

and quantity within Woodard Bay NRCA will continue to be affected by development activities along the drainages and wetlands which feed into the area.

Management Recommendations

- Allow natural processes to re-establish the natural character of the land; monitor progress.
- Direct the public to stay on designated trails to avoid vegetation disturbance and to reduce spread of exotic species.
- Prohibit public access to the North Peninsula to protect the sensitive wetlands.
- Remove exotic plant or animal species that negatively impact the health and viability of native ecosystems.
- Cooperate with neighboring landowners, public agencies and local Tribes to monitor water quality of the wetlands and streams of Woodard Bay NRCA. Endeavor to ensure that water quality is not compromised by activities occurring outside the NRCA boundary.
- Participate in appropriate basin-wide planning to protect water quality.

Intertidal/Estuarine Areas

Background/Issues

A small portion of Henderson Inlet falls within the boundaries of the NRCA. Henderson Inlet, Chapman Bay and Woodard Bay are estuarine and provide important wildlife habitat for a multitude of area wildlife. The bays and shorelines, particularly the small salt marsh community which occurs along the tidal margins of Woodard Bay and Henderson Inlet, are sensitive to alterations in water quality and quantity and the spread of exotic plant species.

In Henderson Inlet concentrations of fecal coliform bacteria are increasing steadily, indicating that the pressures of population growth and development could overwhelm existing water quality management efforts and that pollution control efforts should be intensified within the watershed (Puget Sound Water Quality Authority, 1998).

Management Recommendations

- Cooperate with neighboring landowners, public agencies and local Tribes to monitor water quality of the intertidal/estuarine areas of Woodard Bay NRCA.
- Prohibit construction of any new private docks on or over Woodard Bay NRCA tidelands. Existing docks may be maintained. Extensions or increases in the overall square footage

should not be approved. Notify current dock owners of any DNR actions at Woodard Bay NRCA that may affect their docks.

- ◆Control the spread of exotic plant species from outside the NRCA that threaten wetlands and streams within the NRCA.
- ◆Cooperate with DNR Aquatic Resources Division and Department of Fish and Wildlife (WDFW) to ensure that NRCA tidelands are not open to recreational or commercial shell fish harvest by non-Indians. Cooperate with DNR Aquatic Resources Division to determine appropriate administration of adjacent bedlands to ensure adequate protection of sensitive resources within the NRCA.
- ◆Cooperate with affected Tribes to ensure that their usual and accustomed use of Department managed tidelands has the least impact to protected resources.
- ◆Participate in Henderson Inlet watershed planning and management where appropriate. Stay informed of water quality monitoring efforts and results within Henderson Inlet.

Fisheries

Background/Issues

The foremost tributary draining into Henderson Inlet that currently sustains anadromous fish is Woodland Creek at the south end of the inlet. It supports significant populations of coho and chum salmon and cutthroat trout, as well as a few chinook salmon. Woodard Creek, which is within the NRCA, is the only other Henderson Inlet tributary that supports salmonids, primarily Coho and to a lesser degree, chinook and chum salmon.

The protection of the Woodard Creek watershed has direct and indirect benefits to the salmonids using Woodland Creek and Henderson Inlet. Minimized development moderates peak flow and low flow impacts by decreasing impervious surfaces. As more uplands are protected, water quality (turbidity, temperature, toxicants, etc.) will improve, which benefits fish both directly and indirectly (e.g. increased aquatic insect production). Maintaining riparian vegetation and canopy provides cover, shade, increased detritus contributions, and increased terrestrial insect input. Riparian vegetation also moderates summer water temperatures and provides inputs of woody debris, all of which benefit the fishery (Chuck Baranski, WDFW, personal communication, 2000).

WDFW reports that Sleepy Creek has very good potential for spawning and juvenile rearing of searun cutthroat, food potential for juvenile rearing of chum, and some potential for Coho spawning and juvenile rearing. It is quite possible that Sleepy Creek

and Woodard Creek will be able to support a variety of habitats ranging from muddy sub-strata for Olympic Mudminnow where the creek flow pools and is sluggish, to graveled salmonid habitat where the steam flow is more swift (Steve Jackson, WDFW, personal communication, 1998). Both Woodland and Woodard Creeks are within the range of the Olympic Mudminnow (Mongillo and Hallock, 1999).

Management Recommendations

- Monitor watershed management activities that could degrade water quality or decrease wetlands. Specific activities in the watershed that could eliminate mud substrate, aquatic vegetation or increase water flow are particular threats to Olympic Mudminnow. Report any concern to WDFW.

Special Wildlife Populations

Background/Issues

As development continues to encroach on area open space, Woodard Bay NRCA will become increasingly important as a sanctuary for wildlife in southern Puget Sound. Woodard Bay NRCA is an ideal location to view wildlife in a natural setting. There is, however, substantial evidence that for many species of wildlife even seemingly benign human activity such as walking along the beach in feeding and breeding areas can affect animal behavior. Subtle, almost undetectable, behavioral changes can lead to a decrease in reproductive success and ultimately to population decline.

A number of bird species listed as Priority Species by the Washington Department of Fish and Wildlife (WDFW) nest or feed within Woodard Bay NRCA, (see Appendix D) including Bald Eagle, Pileated Woodpecker, Great Blue Heron, Purple Martin, Common Loon and Pigeon Guillemot. In addition, Woodard Bay provides critical habitat for wintering waterfowl and sea birds. The steep sandy clay banks of the marine bluffs on the south side of Weyer Point are important burrow nesting habitat for pigeon guillemots. The trestle and broad area of Woodard Bay west of the trestle is an area protected from severe winter storms. This area provides critical protective cover for wintering waterfowl and is utilized for feeding, socializing, and breeding.

Harbor seals use the artificially-created environment of the log booms as haul out areas to rest, give birth, nurse young, and molt. Harbor seals are federally protected from disturbance by the Marine Mammal Protection Act of 1972 administered by the National Marine Fisheries Service (NMFS). The Washington Department of Fish and Wildlife (WDFW) works with NMFS to manage the

species under federal regulation in the State of Washington. As long as the haul-out is occupied by harbor seals, the Department is required to protect the seals from disturbance.

A maternity colony of bats, roosting under the deteriorating pier, has been identified as a special population because of their relatively high numbers, species diversity, and vulnerability to environmental change.

Wildlife-created trails which occur throughout the NRCA provide wildlife access to the varied habitats within Woodard Bay NRCA. Beaches, stream beds, and existing human-made trails and roads, also serve as wildlife corridors.

Current management of special wildlife populations includes:

- Prohibiting public access to the North Peninsula. Because of the sensitivity of the bald eagles, herons, and wetlands, as large an undisturbed area as possible is maintained around them. For this reason, public access to the North Peninsula is restricted.
- Prohibiting land access from Chapman Bay, which is an important year-round feeding area for numerous priority wildlife species. Marine access to Chapman Bay is strongly discouraged.
- Prohibiting public watercraft launching and beaching in Woodard Bay seasonally (day after Labor Day through March 31) to protect wintering waterfowl.
- Working with NMFS, WDFW, local Tribes, and other research organizations to monitor and develop a plan to manage harbor seal population.
- Consulting with WDFW, other wildlife agencies and local Tribes to ensure appropriate management of threatened, endangered and sensitive species which may be present on the site.
- Monitoring nesting sites of priority species and establishing buffers during nest occupation.
- Removing exotic plant or animal species that adversely affect the health and viability of native wildlife populations.
- Directing the public to designated trails to minimize impacts to wildlife activities.

Management Recommendations

- Continue current management.
- Prevent public access in an appropriate buffer area around the log booms used as a haul-out area by the harbor seals in compliance with the Marine Mammal Protection Act. Work with

permitting authorities and other agencies to explore the feasibility of placing a floating barrier around haul out to prevent boating access to sensitive wildlife areas of Chapman Bay. Seek funding if appropriate.

- ◆Pursue baseline studies of wildlife, including marine species, which have not already been surveyed.
- ◆Discourage public access to the pier from shore by removing a portion of the pier where it connects to Weyer Point. Discourage boating public from climbing on pier from adjacent waters by signing pier "no access" and "hazard".

Archaeological and Historical Sites

Background/Issues

Woodard Bay NRCA has documented 21 prehistoric sites. These sites are protected under RCW Title 27 administered by the Office of Archaeology and Historic Preservation (OAHP). Some of the identified archaeological sites located on Woodard Bay NRCA are typical of Native American use of shoreline for shellfish gathering. Many of the archaeological sites that have been identified on Woodard Bay NRCA are very sensitive to erosion and may require active intervention for their protection. Public access to the site will need to be controlled and directed to ensure that archaeological sites will not be degraded further.

Woodard Bay NRCA is listed on the National Register of Historic Places because of the role that logging in general, and the Weyerhaeuser Company in particular, played in the development of Washington State. Structures remaining from that period include the pier, the booms and pilings, the artesian well, and a camp car moved to site by rail and that was used as the boom foreman's office. A summary of the human occupation of Woodard Bay is included in Appendix F.

Current management includes directing the public away from identified archaeological sites until resource protection has been secured.

Management Recommendations

- ◆Continue current management.
- ◆Develop public use in a controlled manner that will not adversely impact sites.
- ◆Manage registered sites in consultation with local Tribes to emphasize on-site protection, using total excavation as a last resort.
- ◆Work closely with local Tribes and OAHP to identify unknown sites.

- Develop interpretive plan for archaeological and historic resources including proper documentation of historic structures.

Structures

Background/Issues

Although not part of Woodard Bay's designation as a historic site, the Department recognized the historical significance of the log unloader. The log unloader and boom foreman's house were deemed unsafe and required a standard of maintenance that could not be achieved with the limited resources available. The Department decided that the best option would be to remove both the log unloader and the boom foreman's house from the site.

The Department documented, in print and picture, the Weyerhaeuser occupation of Woodard Bay. Large and medium-large format photographs have been taken, oral histories collected, county records searched, histories copied, and vintage film of the South Bay operation obtained. These have been cataloged and archived with the Archives Division of the Secretary of State's Office, the University of Washington, the Office of Archaeology and Historical Preservation, and the Thurston County Historic Commission. A fifth set will be retained by the Department's Central Region for educational purposes (see Appendices E, and F).

Following historic documentation, several structures were removed from the site. The electrical transformers on the pier that once provided power to the log unloader operation were removed in 1996, followed by the removal of the log unloader in 1998. The boom foreman's house was demolished in 1999.

The McDonald house is a two-story single-family residence located on Weyer Point within Woodard Bay NRCA. The structure, once occupied by a caretaker for the site has been vacant since September 1999. The house is in need of costly repairs and further maintenance, including the septic system which failed in June 1999. The low banks to the north of Weyer Point are eroding from storm wave action, threatening the substrate under the McDonald House.

The NRCA program is not currently funded for the costs of maintaining this house, the access route to it, and the eroding banks on the north side of Weyer Point. In addition, the access route to the house goes through a significant portion of the NRCA. Continued vehicular access to the residence along this route and required

maintenance of the road creates disturbance to the sensitive wildlife nesting areas adjacent to the south bank and also conflicts with pedestrian use.

Management Recommendations

- Conduct archaeological assessment to evaluate potential impacts of McDonald house demolition and subsequent site restoration on the archaeological resources of Weyer Point.
- Demolish the McDonald house and associated outbuildings, abandon the septic system and underground storage tank. Consult with interested Tribes and OAHP to ensure that any disturbance of archaeological resources is avoided and that appropriate permits are obtained. In the event archaeological or historical materials are discovered during project activities, work will be discontinued and interested Tribes and OAHP will be consulted before doing any further project work.
- Undertake restoration of the point to a more natural setting. Develop a restoration plan and have it reviewed by interested Tribes, OAHP, and if necessary, archaeological experts to assess impacts of restoration activities on archaeological resources in the vicinity.
- As part of the restoration plan, evaluate whether or not the restored area will be a future destination for public access and environmental education. If it is, convert the access road to a primitive foot trail.
- Restore camp car (boom foreman's office) to historical period and use as an interpretive shelter.

Whitham Road

Background

Whitham Road is an old paved road which enters the site off the county road and terminates at the McDonald House. The road dates from the 1930's and is currently used as a pedestrian path and for administrative and emergency vehicle access. The road from the Chapman Bay viewing area up to the house is now gated and not currently accessed by vehicle.

Management recommendations

- Continue to use road for pedestrian access to the interpretive facilities along Whitham Road and at Weyer Point. Beyond the interpretive facilities prohibit pedestrian access along road leading up to the McDonald House and continue to keep that portion of the road gated and signed closed to the public.

- ◆Continue administrative and emergency vehicle access of road up to interpretive facilities on Weyer Point on a limited basis. Vehicle use should only be needed for those management activities that require carrying materials or equipment beyond the reasonable ability to pack in.
- ◆Explore option to reduce road bed width consistent with requirements for emergency response and DNR administrative vehicle access. Continue restoration of shoreline adjacent to road to provide overstory canopy cover.
- ◆Keep upper reach of road available for administrative vehicle access until such time as vehicle access is no longer required to this area. This would not occur until the McDonald house and associated structures are removed and the area is restored.

Artificial Habitat

Background/Issues

Since there is no naturally occurring seal haul-out area in the NRCA, the Woodard Bay NRCA harbor seal population has become dependent on the artificial environment of the log booms. The seals rely on the booms for haul out when females give birth, during lactation, and during molting. It is during these activities that seals are particularly susceptible to disturbance. Log booms are used by seals year round with the peak usage from June through October. These log booms also provide key resting habitat for a variety of other wildlife species. The log booms continue to disintegrate and the available haul out space on booms is reduced from the time of acquisition. Seals appear to be using what remaining haul out space is available.

The pier provides roosting habitat for a nursery colony of bats between March and October. The metal sheathing covering the older portion of the trestle provides the warmth needed for the nursery, while insects that inhabit the rotting wood throughout the pier provide a food source for lactating females.

At the time of purchase, the Department was aware of the deteriorated condition of the pier and log unloader. Dry rot of the pilings and decking collapse was apparent even then. Since that time, the log unloader and transformers have been removed from the pier to ensure public safety and to prevent environmental contamination of the bay should the pier collapse. A significant number of pilings have deteriorated further. In many places the pilings are hollow, stringers are sagging, and pile caps have sunk to the point they no

longer connect to stringers. A fire on the pier in August 1999 further degraded the platform area where the log unloader had been located, threatening the nearby bat roost.

During the permitting process to remove unloader and transformers, the Washington Department of Fish and Wildlife (WDFW) informed Department staff that the current condition of the pier violates state hydraulic code (Washington Administrative Code Title 220-110-270(6)). The concern is the effects of the creosoted pilings on water quality and fisheries, particularly salmonids. The portion of the pier that provides roosting habitat for a nursery colony of bats is also starting to deteriorate, decreasing available habitat for the bats. WDFW staff have indicated that a portion of pier could remain as "alternative use" until suitable substitute habitat can be fabricated, installed, and occupied.

Even though the pier is locked and signed no access, individuals continue to cut the wire mesh fencing and access the pier. Boaters tie up and climb onto the pier from various locations. Boaters continue to boat under the pier even in areas where stringers are sagging. As some portions of the pier fall into the bay, they may present floating navigation hazards within Henderson Inlet and beyond. In addition, a major seismic event would almost certainly result in the collapse of the pier into the bay, necessitating costly environmental mitigation.

Management Recommendations

- Work with NMFS, WDFW, local Tribes and authorized researchers to assess the importance of the seal colony at Woodard Bay NRCA, its significance in southern Puget Sound, the appropriate size colony to manage to ensure optimum sustainable population, and the adequate levels of artificial habitat to maintain. Continue to monitor seal population.
- Work cooperatively with the WDFW, other wildlife agencies, local Tribes, and authorized researchers to determine whether maintaining artificial wildlife habitat for priority wildlife species is feasible, and if so, determine approach and resources to do so.
- Remove the first 50 feet of pier to prevent unauthorized land access onto pier. In addition, any portion of the pier that is anticipated to become a nuisance or safety hazard will be removed.
- Erect additional signs on the pier visible from the water to warn boating public of the hazards of the pier.

- In the near term, and if funding allows, provide alternative roosting habitat for the bats in the vicinity of the current roost over the water, and/or on nearby uplands. Monitor to determine occupancy of new habitat versus deteriorating habitat.
- Within the 2001-03 biennium, make determination of whether Department will properly abandon the pier, including identifying funding source for removal. Work with WDFW, NMFS, and other permitting agencies to determine the approach. Assess impacts of removing pier on the resident wildlife including benthic species, bats, and seals in adjacent haul out.

Research and Monitoring

Research use continues to be necessary to answer many of the management questions. The Department manages Woodard Bay to protect native plant communities, wildlife habitat, and several priority wildlife populations. The site provides unique opportunities for research and education. The research conducted by colleges and universities contributes to the understanding of these resources and may enhance restoration and management of altered ecosystems.

Research proposals are submitted with required information (see Appendix G - Research Outline) and approved by the Department through the Central Region natural areas manager. Some proposals warrant a rigorous review process by DNR scientists. All proposals must state project objectives, desired location of project, time frame, address any potential for resource damage, and outline steps to prevent or mitigate disturbance to the site. The Department provides guidance to the researchers and monitors research projects as they are conducted. Upon completion of any study, copies of the data and findings must be submitted to the Natural Areas Program through DNR Central Region.

Ecological and public use monitoring, as well as research will be undertaken by DNR as resources are available. Some research and monitoring will be conducted by volunteers and other public and/or private organizations. The Department will encourage input from wildlife agencies, local Tribes, and expert researchers for research and monitoring efforts and will share results of such studies.

Monitoring includes the establishment of a baseline measurement of resource conditions and characteristics. Periodic remeasurement coupled with suitable historic data will show the extent and rate of

change taking place within Woodard Bay NRCA. Over an extended period, trends will become apparent, and agents causing change in those trends may be revealed.

Monitoring systems must be carefully designed to capture information that will be relevant for answering current and future questions about resource conditions and management goals on the site. The indicators measured during monitoring should give early warning of change, should be convenient to measure, and should distinguish between natural stress and human disturbance. The monitoring technique selected should respond to specific management questions in relationship to the program goals. Periodic reviews will confirm whether the monitoring system is an accurate gauge of site conditions and whether the data produced is relevant to management goals. Methods that can be used to monitor and quantify change include aerial photo analysis, historical data, photo points, rapid survey techniques, plots or transects, and visitor use surveys.

Woodard Bay has been utilized for several years by area universities, professional researchers, and other agencies to conduct research and monitoring studies. Cooperating entities include The Evergreen State College, Pacific Lutheran University, University of Washington, Cascadia Research Collective, Point Defiance Zoo, Washington Department of Fish and Wildlife, and U.S. Fish and Wildlife Service.

Baseline studies have been conducted or are ongoing for most of the identified sensitive resources and special populations of Woodard Bay NRCA, including Bald Eagles, Great Blue Herons, seals, bats, shoreline archaeological sites, wetlands, and marine bluffs. Continuing research will be necessary to answer many management questions.

Management Recommendations

- Develop a formal program for higher education support and involvement to assist with monitoring and research at Woodard Bay.
- Update vegetational cover maps (overstory and understory vegetational types) to include all the properties within the boundary in state ownership to date.
- Pursue studies of the habitat requirements of Pileated Woodpecker and Purple Martin, and additional studies and surveys of priority species.
- Continue study of bats to determine species present, feeding habits and habitat requirements, within the watershed.

- Pursue studies of terrestrial, marine and estuarine biota not already studied including invertebrates, reptiles and amphibians.
- Determine presence of and habitat use by migratory neotropical birds.
- Inventory waterfowl and shorebird populations.
- Monitor conditions and changes in water quality of wetlands, streams, and bays. Monitor results of ongoing water quality monitoring for Henderson Inlet Watershed from the Department of Ecology and the Puget Sound Water Quality Authority.
- Study impacts of exotic animal species on native species.
- Investigate possible use by Marbled Murrelet, and other listed species.
- Monitor impact of erosion on shoreline archaeological sites, particularly after storm season. Notify appropriate agencies and Tribes if items of interest are exposed.
- Monitor impact of public use on wildlife behavior and habitat, streams, and estuarine and marine areas.
- Monitor development and activities within the watershed outside Woodard Bay NRCA which may impact the quality of natural systems within Woodard Bay NRCA.
- Monitor results of control efforts for plant species listed under Thurston County weed control regulations including Japanese knotweed, gorse, tansy ragwort, Italian and slenderflower thistle. (See Weed Control.) Additional species to monitor include reed canarygrass, common rush, creeping buttercup, holly, English ivy, Scot's broom, Himalayan blackberry, periwinkle, and St. John's wort.
- Monitor impacts from any unauthorized public use or trespass.
- Monitor use levels and impacts on infrastructure developed for public use.

Environmental Education

Background/Issues

Environmental education is an essential tool in building a strong partnership with the public. Information can be offered to encourage respect, protection, and a sense of stewardship towards Woodard Bay NRCA. The public is invited to join the Department's efforts to protect the resources and provide opportunities for appropriate public uses that meet the Woodard Bay NRCA conservation goals.

Visitors to Woodard Bay NRCA are encouraged to take a proprietary interest in the site, and become willing partners in the restoration and protection of the site. Educators should be encouraged to use Woodard Bay NRCA for passive nature study and appreciation.

Environmental education is an inherently multi-disciplinary field, which includes, but is not limited to, natural science, social science, mathematics, and language arts. Educational topics at Woodard Bay NRCA could include:

- Local flora and fauna, food webs and nutrient cycling, wildlife habitat requirements, migrant and resident wildlife populations.
- Forest ecology and fire history, logging history and effects, influence of soils and aspect on vegetation, regeneration after disturbance, and forest succession.
- Human influence upon Woodard Bay NRCA, including Native American, pioneer settlement, oyster farming, timber industry, and current status as an NRCA.
- NRCA program education including the social and political implications of conservation land management.
- Estuarine, riparian, and freshwater wetland ecology and hydrology.

Current environmental education management includes:

- Signing: Areas closed to the public are signed and, if appropriate, the reason for closure is explained. Archaeological sites are specifically exempt from a general directive to identify and explain areas of closure (Archaeological and Historic Sites).
- Using signs and brochures, where appropriate, to inform the public of boundary lines and regulations. Environmentally sensitive areas and areas which receive high use such as trail heads and points of entry are, and will continue to be, particularly targeted. The delivery of interpretive information may include, but is not limited to, temporary and permanent signs, brochures, docent programs and web sites.
- Requiring group educational visits (group size 10 or more) to be scheduled and approved in advance by Region natural areas manager or designee. Adult/child ratios may be required for large groups for younger age children. Group size is limited as needed.
- Developing site specific information about Woodard Bay. This information will be made available to educators through school libraries and/or on future Central Region web site.
- Conducting educational group tours by DNR-approved guides in cooperation with local educators.

Management Recommendations

- Continue current environmental education management.
- Pursue funding for a permanent DNR presence on site to assist with the environmental education activities of the site as well as public outreach and protection of site.
- Develop educational facilities where appropriate.
- Consider environmental education when site enhancement projects are being planned.
- Encourage school districts and other interested organizations to use Woodard Bay NRCA for passive nature study and appreciation. Encourage use outside peak user periods.
- Work cooperatively with other agencies and local Tribes providing environmental and cultural education. Consult with local Tribes in developing interpretive materials that address culturally sensitive resources and topics.
- Involve local school, university and environmental education groups with monitoring efforts at Woodard Bay NRCA where appropriate. Monitoring efforts proposed must meet with program approval.

Public Use

Background/Issues

Woodard Bay NRCA offers exceptional opportunities for visitors to passively observe wildlife in a relatively natural environment. However, because the area within the NRCA is small, many of the sensitive wildlife species may already be vulnerable to activities taking place outside the NRCA boundaries. For this reason, the Department is taking a conservative approach in designating public uses within the area as a whole. Public use will be directed and ecological conditions will be monitored for public use impacts and maintained to meet conservation purposes.

With the assistance of the Woodard Bay NRCA Advisory Committee, DNR identified upland and marine geographic subareas within Woodard Bay NRCA and evaluated a range of appropriate public use activities for each subarea These subareas are shown on the Approved Public Uses map. (See Figure 3.)

Any use not specifically allowed in the Public Use Designations is prohibited. Future proposed activities will be evaluated for compatibility with the management goals for Woodard Bay NRCA and the proposed areas of use.

Upland Areas

Subarea	Description
North Peninsula	Sensitive wetlands and special bird population present.
Central Peninsula (excluding Weyer Point, Loop Trail, and Whitham Road)	Two Bald Eagle nests are present, used alternately by one nesting pair. Wildlife including eagles are monitored to determine if permitted public use on Loop Trail, Whitham Road, and Weyer Point will be subject to seasonal closures.
Weyer Point (excluding south bank)	Includes beach on north side, Whitham Road, the Loop Trail, and the parking area. These areas have previous and established public pedestrian use in close proximity to areas of sensitive wildlife habitat.
Weyer Point south bank	High steep bank on the south side of Weyer Point provides nesting and perching habitat for seabirds and kingfishers.
South Peninsula-Woodard Point excluding Overlook Trail and Chehalis Western Trail parking lot	Large area of forest adjacent to Woodard Bay provides habitat for many wildlife species including a night roost for cormorants.
South Peninsula-Overlook Trail	Barrier free trail adjacent to highly sensitive forested wildlife habitat. Trail terminates at viewpoint of Woodard Bay.
South Peninsula-Chehalis Western Trail parking lot	Active uses allowed on the Chehalis Western Trail are allowed in the parking lot, ***but are NOT allowed within the remainder of the site including the Overlook Trail.***

Marine Areas

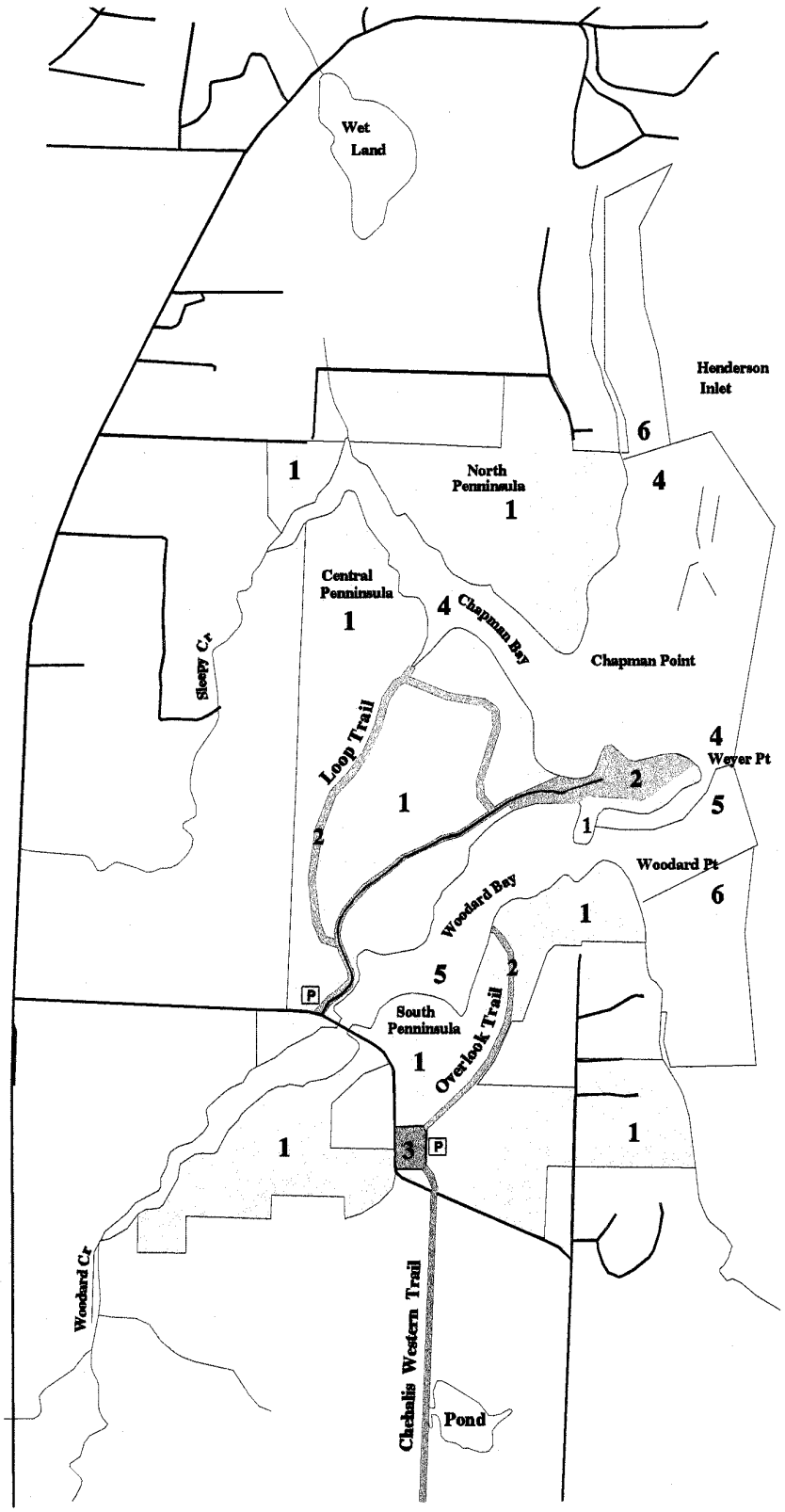
Subarea	Description
Chapman Bay	Area is identified in the ***Shoreline Master Program for Thurston Region*** as Conservancy Shoreline Environment.
Sleepy Creek	Type 3 stream requiring a buffer under the ***Critical Areas Ordinance for Thurston County.***
Woodard Bay (excluding nesting area on south bank of Weyer Point)	Critical refuge for wintering waterfowl. Woodard Bay is identified in the ***Shoreline Master Program for the Thurston Region*** as Conservancy Shore line Environment east of Woodard Bay Road, and as Natural Shoreline Environment west of Woodard Bay Road.
Woodard Bay-nesting area on south bank of Weyer Point	Sensitive bank nesting area for Pigeon Guillemot and kingfisher.
Woodard Creek (west of county bridge)	Type 3 stream requiring a buffer under the ***Critical Areas Ordinance for Thurston County***
Henderson Inlet tidelands	Tidelands within boundary of the NRCA area protected for shorebirds. Portion of Henderson Inlet in DNR ownership outside Woodard Bay NRCA tidelands includes the harbor seal habitat, a 150-meter buffer around the seal haul out, and a portion of the pier. Area is managed in cooperation with DNR Aquatic Resources Division.

Upland Areas continued

Public Use Designation	Approved Uses
Highly Sensitive	◆DNR administrative uses ◆Approved scientific uses ◆Public use prohibited
Highly Sensitive	◆DNR administrative uses ◆Approved scientific uses ◆Public use prohibited
Moderately Sensitive	◆DNR administrative uses ◆Approved scientific uses ◆Wildlife observation ◆Photography ◆Hiking
Highly Sensitive	◆DNR administrative uses ◆Approved scientific uses ◆Public use prohibited
Highly Sensitive	◆DNR administrative uses ◆Approved scientific uses ◆Public use prohibited
Moderately Sensitive	◆DNR administrative uses ◆Approved scientific uses ◆Wildlife observation ◆Photography ◆Hiking
Mixed Use/Transitional	◆DNR administrative uses ◆Passive uses such as hiking, wildlife observation ◆Active uses such as running/jobbing, bicycle riding, and leashed pet walking ◆Equestrian use (horse ramp provided)

Marine Areas continued

Public Use Designation	Approved Uses
Highly Sensitive	◆DNR administrative uses ◆Approved scientific uses ◆Public use *strongly discouraged* ◆Beaching and launching prohibited
Highly Sensitive	◆DNR administrative uses ◆Approved scientific uses ◆Public use *strongly discouraged* ◆Beaching and launching prohibited
Moderately Sensitive	◆DNR administrative uses ◆Approved scientific uses ◆Open April 1 through Labor Day weekend to human powered watercraft
Highly Sensitive	◆DNR administrative uses ◆Approved scientific uses ◆50 foot marine buffer along bank-marine use strongly discouraged ◆Public use prohibited on adjacent south bank (See Weyer Point, South Bank)
Highly Sensitive	◆DNR administrative uses ◆Approved scientific uses ◆Beaching and launching prohibited year round
Highly Sensitive	◆DNR administrative uses ◆Approved scientific uses ◆Beaching and launching prohibited along NRCA tidelands ◆Public use prohibited in seal haul out area as per the ***Marine Mammal Protection Act of 1972***



WOODARD BAY NRCA

Public Use Map

LEGEND

UPLANDS:

1. Highly sensitive, public use prohibited

2. Moderately sensitive, public use permitted

3. Mixed use transitional

MARINE AREAS:

4. Highly sensitive, beaching & launching prohibited. Marine access discouraged

5. Moderately sensitive Non-motorized only (canoe,kayak) beaching & launching seasonally permitted

6. Tidelands (see intertidal estuarine area

P *Parking*

T19R01W

SCALE MILE

0 1/8 1/4 1/2

N W E S

FIGURE 3

SG 03/29/01

Tribal Use

The Department will continue to consult with local Tribes to identify traditional uses.

Inappropriate activity/risk management

The site is subject to illegal activity in the absence of consistent site presence. In 1999 and 2000, the site was subject to theft, vandalism, and arson. Department staff are also concerned about the liability associated with the pier and trestle.

Current public use management includes:

- Maintaining all gates, fencing, signs and structures to ensure public safety; regularly inspecting trails for safety hazards.
- Monitoring wildlife sensitivities to public use along Loop Trail. Seasonal trail closures are implemented as necessary to protect nesting bald eagles. Signs are posted that explain the reason for closure. Trail maintenance activities are limited during sensitive wildlife periods.
- Maintaining signs that identify appropriate uses and/or activity restrictions. Use restrictions include exclusion of bicycles, horses, and pets except in mixed used/transitional area where these uses are allowed.
- Fencing or otherwise closing all upland areas designated as highly sensitive. Public access to these areas is prohibited.
- Allowing beaching and launching seasonally (April 1 - Labor Day) in Woodard Bay to protect waterfowl that overwinter in the bay.
- Discouraging boating in Chapman Bay to protect the public from hazards of the pier and to protect sensitive wildlife using the area. Through outreach the boating public is discouraged from disturbing seal haul out. The appropriate agencies are notified when necessary to enforce the rules and regulations that apply to protected species.
- Prohibiting public access to the trestle across Woodard Bay to ensure public safety, to minimize impacts to wildlife and to minimize overuse of the site. The railroad grade leading up to the trestle will be restored with native vegetation. The public has been redirected along Overlook Trail which leads to a viewing area over Woodard Bay.
- Maintaining Whitham Road for public pedestrian access into Woodard Bay NRCA, for motorized access for persons with disabilities, and for administrative or scientific uses.
- Prohibiting bicycle riding within the NRCA. Signs direct bicyclists to bicycle security racks located at the Overlook Trailhead and 100 feet inside the Whitham Road entrance.
- Maintaining the Overlook Trail as a gravel-surfaced barrier-free trail.

- Working with user groups and tour guides to continue to reduce impacts and conflicts arising from group use. Group use requires prior notification and approval by the site manager or designee. Group size is limited as appropriate.
- Directing pack animals (horses, llamas etc.) to the Chehalis/ Western Trail outside the Olympia City limits and the parking lot on the South Peninsula.
- Prohibiting all pets within the NRCA. Leashed pets are permitted on the Chehalis Western Trail.

Management Recommendations

- Pursue funding for a permanent DNR presence on site to ensure appropriate level of site protection, to monitor public use effects on sensitive resources, to conduct public outreach and education, to conduct site maintenance, and to deal with enforcement issues as necessary.
- Monitor visitor use on a continuing basis and gauge impact of use upon the resources.
- Recruit and manage volunteer stewards to assist with site monitoring.
- Provide barrier free facilities and viewing opportunities, where feasible, as Weyer Point is developed for public access.
- Design and erect additional signs to inform boating public about sensitive wildlife using marine areas of Woodard Bay and to discourage boating in sensitive areas.
- Design any public use structures to blend with the environment and cluster structures in least sensitive areas to minimize impacts.
- Modify trail facilities as necessary to provide needed resource protection as new sensitive resources are detected and as public use patterns change.

Commodity-based Activities

Commodity-based activities may be allowed within Woodard Bay NRCA if they are determined to be consistent with the goals of Woodard Bay NRCA and compatible with resource protection. Commodity-based activities will not be allowed if they compromise the site's integrity or its ecological, geological, scenic, historic or archaeological values. The burden of proof shall be on the user to show that a proposed activity will not negatively impact the environment. At this time, no commodity-based activity is deemed compatible with resource protection and none is anticipated in the future.

The mineral rights on the majority of the uplands of Woodard Bay NRCA were retained by the previous owner and are beyond the direct control of the NRCA. DNR will closely monitor any assertion or exercise of those rights.

No mining activities will be allowed in those areas where DNR possesses the mining rights, including the tidelands.

Management Recommendation

- Secure the mineral rights to the uplands if they become available and if resources allow.

Regulatory Responsibilities

Fire Prevention and Management

Background/Issues

Since almost all fires in DNR's Central Region are caused by human activity, the primary focus for fire prevention will be to prohibit all open flames in Woodard Bay NRCA except as an operational tool which may be necessary to achieve management goals.

Fires within Woodard Bay NRCA will be extinguished. Suppression of wildfires in Woodard Bay NRCA is the responsibility of DNR. DNR will consider the primary goals and most sensitive resources of Woodard Bay NRCA in choosing fire suppression actions including: location of control lines, role of heavy equipment and explosives, use of chemical retardants, type of mop-up activity, and extent of mop-up. DNR may use whatever means necessary to prevent fires on Woodard Bay NRCA from spreading to adjacent lands.

Fire protection for facilities at Woodard Bay are contracted with the local Fire Protection District.

Current fire suppression guidelines include:

- Working cooperatively with local fire districts.
- Protecting lives first, then property, then resources.
- Informing DNR staff and/or contractors of proper procedures during fire suppression including placement of fire retardant devices, fire exits and water sources.
- Making an NRCA program representative available during fire suppression to advise the incident commander regarding the protection of sensitive resources.

- Using the lowest-impact fire fighting tactics that will successfully control the fire. Fire suppression activities should make use of plain water, "wet water," or "foam" except where human-made structures are involved.
- Restricting mop-up activities for wildland fires to the use of water and hand tools. Any activity that could produce slumping or increased sedimentation into wetland or shore areas should be avoided. Any activity that would alter flow of water into or out of the wetlands, streams or bays should be avoided.
- Using natural processes to rehabilitate a site after wildland fires unless erosion or non-native species invasion is a concern. Water bars and revegetation with native species will be the preferred approach. Controlling non-native invasive species will be a priority.

Management Recommendations

- Continue current fire suppression management.
- Evaluate the current fire suppression priorities of protecting property before resources. As site improvements increase, critical habitats are identified, and natural resources and processes change over time, it may become appropriate *within state ownership* to place resource protection (understood to be flora, fauna, archaeological resources) at a higher priority than property (understood to be structures, vehicles, etc). Protecting lives will continue to be the first priority.

Law Enforcement/Emergency Response

Background/Issues

DNR is responsible for implementation of fire regulations, trespass, and public use regulations on Woodard Bay NRCA.

Current law enforcement/emergency response includes:

- Working cooperatively with Thurston County to provide adequate emergency response. Law enforcement, fire and emergency response personnel are provided access to the gates on the Whitham Road and Chehalis/Western Trail.
- Seeking cooperative assistance from Washington State Department of Fish and Wildlife, the Thurston County Sheriff or other law enforcement agencies for violations of game laws or other serious crimes.
- Emphasizing non-confrontational enforcement techniques and voluntary compliance with rules and regulations.

Management Recommendations

- ◆Continue current law enforcement/emergency response.

Insect Control

Background/Issues

When insects are declared a public nuisance per Chapter 76.06 RCW or Chapter 15.58 RCW, conservation areas may be designated as part of an infestation control district and suppression activities may be required.

Management Recommendations

- ◆Employ integrated pest management techniques using mechanical and biological methods first and chemical methods only as a last resort.
- ◆Work closely with local Tribes to avoid adverse affects to cultural resources.

Weed Control

Background/Issues

A weed inventory was conducted in 1998 on Weyer and Woodard Points (Davis and Rivard, 1998). Further inventory on Chapman Point and on any new acquisitions will need to be conducted and weed control strategies developed.

Woodard Bay NRCA will comply with Thurston County weed control regulations. Special efforts will be made to eradicate any gorse (*Ulex europaeus*), purple and wand loosestrife (*Lythrum salicaria*), Italian and slenderflower thistle (*Carduus pycnocephalus* and *Carduus tenuiflorous*), and Tansy ragwort (*Senecio jacobaea)* as well as any other species which may be identified by Thurston County.

English Ivy (*Hedera helix),* English Holly (*Ilex sp.),* Scot's broom (*Cytisus scoparius),* and Japanese knotweed (*Polygonum cuspidatum*), pose a significant ecological threat to natural communities. Although not classified by Thurston County as requiring special control, these species should be controlled.

Management Recommendations

- ◆Emphasize biological and mechanical control methods. Use chemical treatments only as a last resort.
- ◆Ensure proper disposal of vegetation to avoid reinfestation.
- ◆Work closely with local Tribes to avoid adverse affects to cultural resources.
- ◆Develop and update weed control plan.
- ◆Maintain weed control data/records and maps.

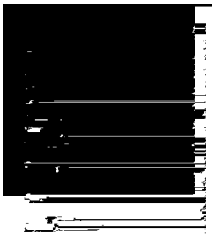
Wildlife Control

Background/Issues

Optimum sustainable populations of wildlife are desired at Woodard Bay NRCA to ensure the health of the ecosystem. Wildlife populations may need to be controlled based on the carrying capacity of the habitat.

Management Recommendations

- Control fish and wildlife populations based on WDFW recommendations and with Tribal input to ensure an optimum sustainable population.
- Control exotic animal species by the most humane methods available. Red fox at Woodard Bay NRCA originated from fur farm stock and are not the native Washington red fox. Red fox, however, will not be targeted for control unless their presence results in an appreciable impact on native species.



Glossary

Act: Revised Code of Washington statutes governing establishment, acquisition and management of NRCAs (RCW 79.71).

buffer: area between a resource needing protection and adjacent areas intended to lessen the impacts of adjacent area on sensitive resource.

cultural resources: archaeological and historic sites and artifacts.

Department: Washington Department of Natural Resources

detritus: fresh to partly decomposed plant and animal matter.

DNR: Washington Department of Natural Resources

drainage: a region or area drained by a river system.

ecosystem: all components of a biological system and its physical environment, together with the natural processes and interrelationships involved.

endangered: federally, a species which is in danger of extinction throughout all or a significant portion if its range. Under state statutes, a species, native to the state of Washington that is seriously threatened with extirpation throughout all or a significant portion of its range within the state of Washington.

enhancement: to intentionally re-create one or more characteristics that existed naturally on a site before alteration.

estuary: waters that are semi-enclosed by land but have open, partly obstructed, or sporadic access to the ocean, and in which seawater is at least occasionally diluted by freshwater runoff from land.

exotic: any species of plant or animal that does not occur naturally in the South Puget Sound region.

habitat: the combination of components of the ecosystem upon which a plant or animal species relies for its life cycle.

intertidal area or zone: Area between extreme low water of spring tides and the upper limit of spray or influence of ocean-derived salts.

low-impact public use: public recreation uses that do not adversely affect the resource values, are appropriate to the maintenance of the site in a relatively unmodified natural setting, and do not detract from long-term ecological processes (RCW 79.71.030). Specifically, activities shall not compromise a site's integrity, ecological, geological, scenic, historic and archaeological values. Such activities should leave vegetation, animal behavior, soil and water relatively unaltered; and should minimize adverse impacts on visitor experience.

maintain: to protect existing natural site characteristics and ecosystem processes, such as wildlife habitat, soil conservation and succession of native plant communities.

Marine Mammal Protection Act of 1972: federal legislation protecting and conserving marine mammals which prohibits the "take" of any marine mammal except by permit or exception. The term "take" means to harass, hunt, capture, collect or kill any marine mammal or attempt to engage in any such conduct. Any conduct that results in substantial disruption of the normal behavior pattern of a marine mammal is in violation of the MMPA.

marsh: a wetland dominated by non-woody plant species.

monitor: to collect and analyze data by various methods for the purpose of understanding and documenting changes both favorable and unfavorable to natural ecosystems and features.

native: indigenous to, or originating naturally in, Washington.

NMFS: National Marine Fisheries Service, a branch of the U.S. Fish and Wildlife Service, responsible for enforcing the Marine Mammal Protection Act of 1972.

NRCA: Natural Resources Conservation Area

OAHP: Washington State Office of Archaeology and Historic Preservation

priority wildlife species: As defined by the Washington Department of Fish and Wildlife those species that require protective measures for their perpetuation due to their population status, their sensitivity to habitat alteration, and/or their recreational importance.

RCW: Revised Code of Washington codifying state law.

restore: to recover natural site features and processes that existed on site prior to disturbance.

sensitive: federally, a species that is informally considered to be a sensitive species by the U.S. Fish and Wildlife Service. Under state statutes, a species, native to the state of Washington, that is likely to become endangered in the foreseeable future throughout a significant portion of its range within the state without cooperative management or the removal of threats.

SEPA: State Environmental Policy Act

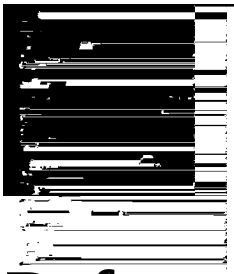
stewardship: management activities that are intended to maintain, restore, or enhance resources.

threatened: federally, a species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Under state statutes, a species, native to the state of Washington, that is likely to become endangered in the foreseeable future throughout a significant portion of its range within the state without cooperative management or the removal of threats.

WDFW: Washington Department of Fish and Wildlife

WNHP: Washington Natural Heritage Program, established under the Department of Natural Resources responsible for identifying elements of natural diversity in the state. Staff develop and recommend strategies for protecting native communities and species most in need of protection, including those sensitive resources protected within statewide systems of natural areas.

wetland: land where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface.



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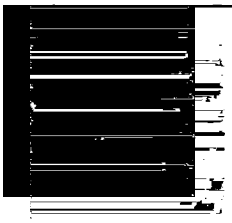

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Appendix A- Site Description

Woodard Bay NRCA consists of three peninsulas separated by two bays (see Figure 2).

North Peninsula

The North Peninsula (Chapman Point) is the least disturbed area of Woodard Bay NRCA. It is comparatively isolated and lacks any developed trails or roads. Native flora and fauna are present; hydrologic cycling, nutrient and soil conservation and development, and micro climatic conditions are generally intact and represent a "natural" or relatively unaltered ecosystem for that locality.

The four acres of wetlands on the North Peninsula are in very good condition. They make up a small system with good species diversity and no obvious signs of human activity. Spirea is dominant in the center of the wetlands where there is permanently standing water and no overstory vegetation. Landward, the vegetation shifts to Oregon ash dominating the overstory and slough sedge dominating the understory. This zone is permanently to seasonally flooded.

Bald eagles, a state threatened bird species, have nested on the North Peninsula where most of the trees are in the 70-80-year range, with a few in the 125-year range, and scattered remnants of true old growth Douglas-fir in the 200-year+ range. Suitable perch trees are present.

Great blue herons (state monitored species) maintain a rookery on Chapman Point. The nest trees periodically are impacted by storm activity. However, the colony continues to rebuild.

There are known and potential areas of archaeological significance on the North Peninsula.

Central Peninsula (excluding Weyer Point)

Intermediate forests occupy most of the land on the Central Peninsula. Periodic fires, logging operations, trail construction, (old and new) and a percolation trench, crossing the area, have influenced the developing forest community. The effects are localized and likely will have short-term impacts on vegetation. Native flora and fauna are present. English holly and English ivy are the most significant commonly found exotic plants.

Currently, a pair of bald eagles (state and federally threatened) alternately use two nest sites on the Central Peninsula close to Chapman Bay. Some of the old-growth trees are 6-7 feet in diameter and may be as old as 500 years. A nearby area of what appears to be young second growth Douglas-fir is actually 55-60 years old, representing relatively poor growing conditions. On other parts of the Central Peninsula, much larger trees are only

10-15 years old. On the bluff above Chapman Bay, bigleaf maple trees are dominant, fruit-bearing shrubs are abundant, and plants used by Native Americans for food and medicine are present. Nearby alder trees are approximately 60 years old.

The Central Peninsula includes a one-quarter-acre wetland. This wetland, although artificially created by logging activities that dammed a natural drainage area, is in good condition and provides habitat for a variety of native plant and animal species.

The south-facing Woodard Bay shoreline provides important refuge for birds of many species during periods of severe weather.

Whitham Road runs from Woodard Bay Road to Weyer Point. Normal road grading and filling is evident along the road; vegetation along the road is varied and much of it is non-native.

There are known and potential areas of archaeological significance on all of the Central Peninsula.

Weyer Point

Weyer Point is a viewshed boundary for both Chapman and Woodard Bays, separating natural from human-influenced areas. It is the most disturbed and, from an ecological viewpoint, the most degraded area of Woodard Bay NRCA.

The topography of the Central Peninsula was extensively altered in the process of constructing the railroad and log dumping facilities in the 1920s. A large quantity of earth was removed from the central ridge and deposited on adjacent tidelands to the north and south to create railroad access and yardspace. Additional grading and filling occurred during the construction of the McDonald house on the east end of Weyer Point in the late 1930s or early 1940s. In 1988 a depression was created on top of Weyer Point when fuel contaminated soil was excavated and removed from the site.

There are several structures on the property, including the McDonald house, the boom forman's office (camp car) and several outbuildings. The orchard adjacent to the McDonald House is older than the house and part of an earlier habitation site. Many of the bluffs near the McDonald house are experiencing serious erosion problems.

The high, sandy clay banks on the south side of Weyer Point, east of the Woodard Creek trestle, provide nesting habitat. Nearby perching areas on the adjoining beach are also important habitat. The madrone and tall Douglas-fir above these banks provide refuge for great blue herons during heavy weather.

Many exotic plants have become established on Weyer Point. There are known and potential areas of archaeological significance on Weyer Point.

South Peninsula (Woodard Point)

Only a small part of the South Peninsula falls within the boundary of Woodard Bay NRCA. The topography was extensively altered in the process of constructing the railroad and the trestle approach. The South Peninsula is transected by the Chehalis/Western Trail. The area west of the trail, near the shoreline of Woodard Bay was the site of a railroad wye ("y") and was the deposit area for dredged materials. Weyerhaeuser removed contaminated soils from the area prior to State acquisition. Second growth Douglas-fir grows on the west side of the Point, and maturing cedar grows near the shoreline of Woodard Bay.

Chapman Bay

Chapman Bay is a shallow estuary situated between the North and Central Peninsulas. The headwaters of the northern drainage into Chapman Bay are in a cleared pasture dominated by exotic plant species. The unnamed stream that drains into Chapman Bay from the north receives run-off from a farm and a pasture.

The primary drainage into Chapman Bay is Sleepy Creek, which originates in a large wetland system to the west. This wetland system is being encroached upon by houses and pastures. Sleepy Creek traverses this area past houses, fields, and under a road to drain into Chapman Bay.

The shore and shallows of Chapman Bay are a year-round feeding area for priority bird species, and a seasonally important feeding area for overwintering shorebirds and waterfowl. The harbor seals feed here and ghost shrimp inhabit the soft muddy sediment.

Chapman Bay is identified as a Conservancy Shoreline Environment in the *Shoreline Master Program for the Thurston Region*.

Chapman Bay has areas of potential archaeological significance.

Woodard Bay

Woodard Bay is a shallow estuary situated between the Central and South Peninsulas. It is a drowned drainage system resulting from marine incursion into Woodard Creek.

The broad area of Woodard Bay west of the trestle is a seasonal gathering place for hundreds of diving birds. The area is rich in mussels and barnacles. The trestle itself provides a perch and nesting site for numerous bird species. The waters on either side of the Woodard Bay Road bridge are an important feeding area for both fish- and mollusk-eating waterfowl. The shoreline on the south side of Weyer Point is sensitive due to its proximity to nesting areas on the adjacent marine bluffs.

As recently as 1998, Thurston County and the Puget Sound Water Quality Authority determined that Henderson Inlet's concentration of fecal coliform bacteria is increasing steadily, indicating that the pressures of population growth and development could overwhelm existing water quality management efforts and that pollution control efforts should be intensified. The waters of Woodard Bay have fecal coliform counts which exceed the standards for commercial shellfish harvesting, possibly due to improper animal-keeping practices and failing septic systems upstream on Woodard Creek or due to the large waterfowl population.

There is a small amount of salt marsh vegetation scattered along the tidal margins of Woodard Bay. It appears to be in good condition and undisturbed except where it has been affected by road fill.

Woodard Bay, except that portion lying west of Woodard Bay Road, is identified as a Conservancy Shoreline Environment in the *Shoreline Master Program for the Thurston Region*. The excepted portion is identified as a Natural Shoreline Environment.

Woodard Bay contains areas of potential archaeological significance.

Woodard Creek

At low tide, the stream channel of Woodard Creek winds through the tideflats of Woodard Bay. Originating in Olympia near I-5, it is the only perennial stream flowing into Woodard Bay. It has several seasonal and possibly some perennial tributaries. The drainage basin has extensive development which has altered drainage patterns within the basin. The urban origins and urban and rural development around Woodard Creek are significant threats to water quality and quantity in Woodard Bay. Siltation, biocides, and petrochemicals are threats to the plants and animals in the area.

Woodard Creek provides habitat to a small number of anadromous fish. It is a Type 3 stream, which requires a 75-foot buffer under the proposed Critical Areas Ordinance for Thurston County.

Henderson Inlet

Only a small part of Henderson Inlet falls within Woodard Bay NRCA. The area outside the NRCA, including harbor seal habitat and a portion of the pier, will be managed in cooperation with the Department's Aquatic Resources Division.

Human-made structures which are partly or entirely outside of Woodard Bay NRCA have become important to wildlife. The pier provides habitat for 18 species of marine animals, and a bat roost is found under a section of the pier. Harbor seals haul out on the booms.

Tidelands, which are part of Woodard Bay NRCA, extend north and south of the upland ownership and provide foraging habitat. Private docks on the north end extend into Woodard Bay NRCA.

Appendix B

Partial list of vascular plants from open/disturbed areas of Woodard Bay

Compiled by G. Blum and L. Durham, Washington State Department of Natural Resources

Road	Trail	Parking	Common name	Scientific name	Comments
			Trees - Native		
X	X	X	bigleaf maple	*Acer macrophyllum*	
X			bitter cherry	*Prunus emarginata*	
X	X	X	cascara	*Rhamnus purshiana*	
X	X	X	Douglas-fir	*Pseudotsuga menziesii*	
X	X	X	grand fir	*Abies grandis*	
			Pacific dogwood	*Cornus nuttallii*	
X			Pacific madrone	*Arbutus menziesii*	
	X	X	Pacific yew	*Taxus brevifolia*	
X	X	X	red alder	*Alnus rubra*	
X	X	X	western hemlock	*Tsuga heterophylla*	
X	X	X	western redcedar	*Thuja plicata*	
X	X		willow	*Salix sp.*	
			Trees - Exotic		
X			lodgepole pine	*Pinus contorta*	pine/spruce are native species but introduced to Woodard Bay
X			Sitka spruce	*Picea sitchensis*	
X		X	western white pine	*Pinus monticola*	
X			apple, plum, cherry	*Pyrus sp., Prunus sp.*	
X			atlas cedar	*Cedrus atlantica*	
X			black locust	*Robinia pseudo-acacia*	
		X	common hawthorn	*Crategus monogyna*	
X	X		European holly	*Ilex aquafolium*	
			Shrubs - Native		
X	X	X	baldhip rose	*Rosa gymnocarpa*	
X	X		swamp rose	*Rosa pisocarpa*	
X	X		baneberry	*Actaea rubra*	
	X	X	blackcap	*Rubus leucodermis*	
	X		evergreen huckleberry	*Vaccinium ovatum*	
X	X	X	hazelnut	*Corylus cornuta*	
X	X		hairy honeysuckle	*Lonicera hispidula*	
X	X		orange honeysuckle	*Lonicera ciliosa*	
X	X	X	Indian-plum	*Oemlaria cerasiformis*	
X	X		ocean spray, creambush	*Holodiscus discolor*	
X	X	X	Oregongrape	*Berberis nervosa*	
	X		poison oak	*Toxicodendron diversilobum (Rhus diversiloba)*	
X	X	X	red elderberry	*Sambucus racemosa*	
X	X	X	red huckleberry	*Vaccinium parvifolium*	
X	X	X	salal	*Gaultheria shallon*	
X	X	X	salmonberry	*Rubus spectabilis*	
X	X		serviceberry, saskatoon	*Amelanchier alnifolia*	

Partial list of vascular plants from open/disturbed areas of Woodard Bay - 1995

Road	Trail	Parking	Common name	Scientific name	Comments
X	X	X	snowberry	*Symphoricarpos albus*	
			Shrubs - Native		
X	X	X	thimbleberry	*Rubus parviflorus*	
X	X	X	trailing blackberry	*Rubus ursinus*	
			Shrubs - Exotic		
X			evergreen blackberry	*Rubus laciniatus*	
		X	gorse	*Ulex europaeus*	
X		X	Himalayan blackberry	*Rubus discolor*	
X			Japanese Knotweed	*Polygonum cuspidatum*	
X		X	Scot's broom	*Cytisus scoparius*	
			Ferns and Fern Allies		
X	X	X	brachen fern	*Pteridium aquilinum*	
	X		deer fern	*Blechnum spicant*	
X	X	X	lady fern	*Athyrium filix-femina*	
X	X		licorice fern	*Polypodium glycyrrhiza*	
X			maidenhair fern	*Adianteum pedatum*	
	X	X	shield fern	*Dryopteris austraica*	
X	X	X	sword fern	*Polystichum munitum*	
X		X	common horsetail	*Equisetum arvense*	
			Herbs - Native		
X	X	X	American brooklime	*Veronica beccabunga*	
X	X	X	bedstraw	*Galium sp.*	(some native, some exotic)
X		X	coltsfoot	*Petasites sp.*	
X	X	X	foamflower	*Tiarella trifoliata*	
	X		Douglas's spirea	*Spirea douglasii*	
X	X		enchanter's nightshade	*Circaea alpina*	
	X		false lily-of-the-valley	*Maianthemum dilatatum*	
X			false solomon-seal	*Smilacina racemosa*	
X		X	fireweed	*Epilobium angustifolium*	(may be an indigenous or exotic variety)
X	X	X	fringecup	*Tellima grandiflora*	
X			giant vetch	*Vicia gigantea*	
X	X		Cooley's hedge-nettle	*Stachys cooleyae*	
	X		Indian pipe	*Monotropa uniflora*	
X	X	X	large leaved avens	*Geum macrophyllum*	
X	X		Pacific sanicle	*Sanicula crassicaulis*	
X	X	X	Pacific waterleaf	*Hydrophyllum tenuipes*	
X		X	pearly everlasting	*Anaphalis margaritacea*	
X			pickleweed (glasswort)	*Salicornia virginica*	
X		X	willowherb	*Epilobium ciliatum*	
X			red columbine	*Aquilegia formosa*	
	X		Scouler's harebell, bellflower	*Campanula scouleri*	
X			seashore lupine	*Lupinus littoralis*	

Partial list of vascular plants from open/disturbed areas of Woodard Bay - 1995

Road	Trail	Parking	Common name	Scientific name	Comments
			Herbs - Native (Continued)		
X			seaside arrowgrass	*Tryglochin maritimum*	
X			seaside plantain	*Plantago maritima*	
X	X		Siberian miner's lettuce western spring beauty	*Claytonia sibirca*	
X			skunkweed	*Naverettia squarrosa*	
X			small-flowered lotus	*Lotus micranthus*	
	X	X	western starflower broad-leaved starflower	*Trientalis latifolia*	
X	X	X	stinging nettle	*Urtica dioica*	
X	X	X	sweet-cicely	*Osmorhiza chilensis*	
X	X		thyme-leaved speedwell	*Veronica serpyllifolia*	
X	X		tiger lily	*Lilium columbianum*	
	X		trail plant	*Adenocaulon bicolor*	
X	X	X	trillium	*Trillium ovatum*	
X	X		twistedstalk	*Streptopus amplexifolius*	
	X		vanillaleaf, deerfoot	*Achlys triphyllus*	
X	X	X	vetch	*Vicia sp.*	
X	X		water parsley	*Oenanthe sarmentosa*	
X			western mountain aster	*Aster occidentalis*	
	X		western coralroot	*Corallorhiza maculata ssp. mertensiana*	
	X		white fawn lily, giant fawn lily	*Erythronium oregonum*	
	X	X	wild ginger	*Asarum caudatum*	
X			yarrow	*Achillea millifolium*	
	X		yellow wood violet stream violet	*Viola glabella*	
X	X		yerba buena	*Satureja douglasii*	
X	X	X	youth-on-age	*Tolmiea menziesii*	
			Herbs - Exotics		
X			common sow-thistle	*Sonchus oleraceus*	
		X	bird's foot trefoil	*Lotus corniculatus*	
X		X	black mustard	*Brassica nigra*	
X	X	X	broad-leaved dock	*Rumex obtusifolius*	
X		X	bull thistle	*Cirsium vulgare*	
X			burdock, common burdock	*Arctium minus*	
X		X	Canada thistle	*Cirsium arvense*	
X		X	common chickweed	*Stellaria media*	
X		X	common plantain	*Plantago major*	
X			cut-leaf geranium	*Geranium dissectum*	
X	X	X	creeping buttercup	*Ranunculus repens*	
X		X	curly dock, yellow dock	*Rumex crispus*	
X			common dandelion	*Taraxacun officinale*	
X			stinking chamomile, mayweed	*Anthemus cotula*	
X			dovefoot geranium	*Geranium molle*	
X			English daisy	*Bellis perennis*	
X			English ivy	*Hedera helix*	

Partial list of vascular plants from open/disturbed areas of Woodard Bay - 1995

Road	Trail	Parking	Common name	Scientific name	Comments
			Herbs - Exotics (Continued)		
X X	X		English plantain	*Plantago lanceolata*	
X			everlasting peavine	*Lathyrus latifolius*	
X			forget-me-not	*Myosotis sylvatica*	
X		X	foxglove	*Digitalis purpureum*	
X			ground ivy	*Glecoma hederacea*	
X	X	X	hairy cat's ear	*Hypochaeris radicata*	
X	X	X	heal-all, self-heal	Prunella vulgaris	
X	X		hedge bindweed	*Convolvulus sepium*	
X			saltbush, spearscale	*Atriplex petula*	
X	X	X	nipplewort	*Lapsana communis*	
X		X	oxeye daisy	*Chrysanthemum leucanthemum*	
X			periwinkle	*Vinca major*	
X			pineapple weed	*Matricaria matricarioides*	
X		X	prickly lettuce	*Lactuca serriola*	
X			prickly sow-thistle	*Sonchus asper*	
X		X	Queen Anne's lace	*Daucus carota*	
X		X	red clover	*Trifolium pratense*	
X			red dead-nettle, henbit	*Lamium purpureum*	
X		X	red sorrel	*Rumex acetosella*	
	X		Robert geranium	*Geranium robertianum*	
X		X	small hop clover least hop clover	*Trifolium dubium*	
X		X	smooth hawksbeard	*Crepis capillaris*	
X		X	St. John's-wort	*Hypericum perforatum*	
X	X	X	tansy ragwort	*Senecio jacobaea*	
X	X	X	vetch sp.	Vicia sp.	
X	X	X	wall lettuce	*Lactuca muralis*	
X		X	white clover	*Trifolium repens*	
	X		white-flowered hawkweed	*Hieracium albiflorum*	
X		X	wood groundsel	*Senecio sylvaticus*	
			Grasses	**Incomplete List**	
X	X	X	brome sp.	*Bromus sp.*	
X		X	orchard grass	*Dactylis glomerata*	
X		X	silver hairgrass	*Aira caryophyllea*	
X		X	velvet grass	*Holcus lanatus*	

Additional species from Woodard Bay NRCA Natural Resources Inventory (WNHP 1992)

	Trees	
	Oregon ash	*Fraxinus latifolia*
	Shrubs - Native	
	vine maple	*Acer circinatum*
	tall Oregon grape	*Berberis aquifolium*
	black twinberry	*Lonicera involcrata*
	ninebark	*Physocarpus capitatus*

Partial list of vascular plants from open/disturbed areas of Woodard Bay - 1995

Road	Trail	Parking	Common name	Scientific name	Comments
			Shrubs - Native (Continued)		
			western crabapple	*Pyrus fusca*	
			currant	*Ribes sp.*	
			sitka willow	*Salix sitchensis*	
			Herbs		
			wild cress, slender toothwort	*Cardamine pulcherrima*	
			twinflower	*Linnaea borealis*	
			small-flowered nemophila	*Nemophila parviflora*	
			western buttercup	*Ranunculus occidentalis*	
			Graminoids		
			sedge	*Carex of canescens*	
			Dewey's sedge	*Carex deweyana*	
			Lyngby's sedge	*Carex lyngbyei*	
			saltgrass	*Distichlis spicata*	
			small flowered woodrush	*Luzula parviflora*	
			seaside arrow-grass	*Triglochin maritimum*	

Plant List References

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Appendix C

Partial list of birds from Woodard Bay NRCA

The following list compiled by Jack Davis, Black Hills Audubon Society, 1993

Explanation of Symbols:

Relative Abundance		Seasonal Occurrence	
c	**c**ommon	**W**	**w**inter
u	**u**ncommon	**Sp**	**sp**ring migrant
r	**r**are	**S**	**s**ummer
i	**i**rregular	**F**	**f**all migrant
R	**r**esident	**M**	spring and fall **m**igrant

Common Name	Relative Abundance/ Seasonal Occurrence	Scientific Name
Terrestrial Birds		
Vultures, Eagles, Hawks, Falcons		
turkey vulture	(uS)	*Cathartes aura*
osprey	(uSrW)	*Pandion haliaetus*
black shouldered kite	(rR)	*Elanus caeruleus*
bald eagle	(R)	*Haliaeetus leucocephalus*
northern harrier, marsh hawk	(cWrS)	*Circus cyaneus*
sharp-shinned hawk	(cWuS)	*Accipiter striatus*
Cooper's hawk	(uR)	*Accipiter cooperii*
northern goshawk	(rR)	*Accipiter gentilis*
red-tailed hawk	(cR)	*Buteo jamaicensis*
rough-legged hawk	(uW)	*Buteo lagopus*
American kestrel	(uR)	*Falco sparverius*
merlin	(uW)	*Falco columbarius*
peregrine falcon	(rW)	*Falco peregrinus*
Grouse, Quail		
blue grouse	(uR)	*Dendragapus obscurus*
ruffed grouse	(cR)	*Bonasa umbellus*
California quail	(uR)	*Callipepla californica*
Pigeons, Doves		
rock dove	(cR)	*Columba livia*
band-tailed pigeon	(uSrW)	*Columba fasciata*
mourning dove	(uSrW)	*Zenaida macroura*
Owls		
barn owl	(uR)	*Tyto alba*
western screech-owl	(cR)	*Otus kennicottii*
great horned owl	(cR)	*Bubo virginianus*
snowy owl	(iW)	*Nyctea scandiaca*
northern pygmy-owl	(rR)	*Glaucidium gnoma*
short-eared owl	(cWrS)	*Asio flammeus*
northern saw-whet owl	(rR)	*Aegolius acadicus*
Goatsuckers		
common nighthawk	(uS)	*Chordeiles minor*

Partial list of birds from Woodard Bay NRCA

Common Name	Relative Abundance/ Seasonal Occurrence	Scientific Name
Swift		
Vaux's swift	(uS)	*Chaetura vauxi*
Hummingbird		
rufous hummingbird	(cS)	*Selasphorus rufus*
Kingfisher		
belted kingfisher	(cR)	*Ceryle alcyon*
Woodpeckers		
red-breasted sapsucker	(cSuW)	*Sphyrapicus ruber*
downy woodpecker	(cR)	*Picoides pubescens*
hairy woodpecker	(cR)	*Picoides villosus*
northern flicker	(cR)	*Colaptes auratus*
pileated woodpecker	(cR)	*Dryocopus pileatus*
Flycatchers		
olive-sided flycatcher	(uS)	*Nuttallornis borealis*
western wood-pewee	(uS)	*Contupus sordidulus*
willow flycatcher	(cS)	*Empidonax traillii*
Hammond's flycatcher	(uS)	*Empidonax hammondii*
Pacific-slope flycatcher	(cS)	*Empidonax difficilis*
Swallows		
purple martin	(cS)	*Progne subis*
tree swallow	(cS)	*Iridoprocne bicolor*
violet-green swallow	(cS)	*Tachycineta thalassina*
northern rough-winged swallow	(cS)	*Stelgidopteryx ruficollis*
cliff swallow	(cS)	*Petrochelidon pyrrhonota*
barn swallow	(cS)	*Hirundo rustica*
Jay, Crows		
steller's jay	(cR)	*Cyanocitta stelleri*
American crow	(cR)	*Corvus brachyrhynchos*
common raven	(rR)	*Corvus corax*
Chickadees, Bushtit, Nuthatch, Creeper		
black-capped chickadee	(cR)	*Parus atricapillus*
chestnut-backed chickadee	(cR)	*Parus rufescens*
bushtit	(cR)	*Psaltriparus minimus*
red-breasted nuthatch	(cR)	*Sitta canadensis*
brown creeper	(cR)	*Certhia americana*
Wrens		
Bewick's wren	(cR)	*Thyromanes bewickii*
winter wren	(cR)	*Troglodytes troglodytes*
marsh wren	(cR)	*Cistothorus palustris*

Partial list of birds from Woodard Bay NRCA

Common Name	Relative Abundance/ Seasonal Occurrence	Scientific Name
Kinglets, Thrushes, etc.		
golden-crowned kinglet	(cR)	*Regulus satrapa*
ruby-crowned kinglet	(cWrS)	*Regulus calendula*
Swainson's thrush	(cS)	*Catharus ustulatus*
hermit thrush	(uMrW)	*Catharus guttatus*
American robin	(cR)	*Turdus migratorius*
varied thrush	(cWuS)	*Ixoreas naevius*
Waxwing, Shrike, Starling		
cedar waxwing	(cSuW)	*Bombycilla cedrorum*
northern shrike	(uW)	*Lanius excubitor*
European starling	(cR)	*Sturnus vulgaris*
Vireos		
solitary vireo	(cS)	*Vireo solitarius*
hutton's vireo	(uR)	*Vireo huttoni*
warbling Vireo	(cS)	*Vireo gilvus*
red-eyed Vireo	(uS)	*Vireo olivaceus*
Wood Warblers		
orange-crowned warbler	(cSrW)	*Vermivora celata*
yellow warbler	(cS)	*Dendroica petechia*
yellow-rumped warbler	(cMuW)	*Dendroica coronata*
black-throated gray warbler	(cS)	*Dendroica nigrescens*
Townesend's warbler	(uM)	*Dendroica townsendi*
MacGillivray's warbler	(cS)	*Oporornis tolmiei*
common yellowthroat	(cS)	*Geothlypis trichas*
Wilson's warbler	(cS)	*Wilsonia pusilla*
Tanager		
western tanager	(cS)	*Piranga ludoviciana*
Grosbeak		
black-headed grosbeak	(cS)	*Pheucticus melanocephalus*
Towhee, Sparrows		
rufous-sided towhee	(cR)	*Pipilo erythrophthalmus*
fox sparrow	(cW)	*Passerella iliaca*
song sparrow	(cR)	*Melospiza melodia*
Lincoln's sparrow	(uM)	*Melospiza lincolnii*
golden-crowned sparrow	(cW)	*Zonotrichia atricapilla*
white-crowned sparrow	(cSuW)	*Zonotrichia leucophrys*
dark-eyed junco	(cR)	*Junco hyemalis*
Blackbirds, Orioles		
red-winged blackbird	(cR)	*Agelaius phoeniceus*
Brewer's blackbird	(cR)	*Euphagus cyanocephalus*
brown-headed cowbird	(cSrW)	*Molothrus ater*
northern oriole	(uS)	*Icterus galbula bulockii*

Partial list of birds from Woodard Bay NRCA

Common Name	Relative Abundance/ Seasonal Occurrence	Scientific Name
Finches		
purple finch	(cR)	*Carpodacus purpureus*
house finch	(cR)	*Carpodacus mexicanas*
red crossbill	(iR)	*Loxia curvirostra*
pine siskin	(cWiS)	*Carduelis pinus*
American goldfinch	(cSuW)	*Carduelis tristis*
evening grosbeak	(cSuWiS)	*Coccothraustes vespertina*
Aquatic and Marine Birds		
Loons		
red-throated loon	(cW)	*Gavia stellata*
Pacific loon	(uW)	*Gavia pacifica*
common loon	(cW)	*Gavia immer*
Grebes		
pied-billed grebe	(cWuS)	*Podilymbus podiceps*
horned grebe	(cW)	*Podiceps auritus*
red-necked grebe	(cW)	*Podiceps grisegena*
eared grebe	(uW)	*Podiceps nigricollis*
western grebe	(cW)	*Aechmophorus occidentalis*
Cormorants		
double-crested cormorant	(cWuS)	*Phalacrocorax auritus*
Brandt's cormorant	(uW)	*Phalacrocorax penicillatus*
pelagic cormorant	(cWrS)	*Phalacrocorax pelagicus*
Bittern, Herons		
American bittern	(uR)	*Botaurus lentiginosus*
great blue heron	(cR)	*Ardea herodias*
green-backed heron	(uSrW)	*Butorides striatus*
Waterfowl		
tundra swan	(uM)	*Cygnus columbianus*
trumpeter swan	(uW)	*Cygnus buccinator*
brant	(cSp)	*Branta bernicla*
Canada goose	(cR)	*Branta canadensis*
wood duck	(cSuW)	*Aix sponsa*
green-winged teal	(cWrS)	*Anas crecca*
mallard	(cR)	*Anas platyrhynchos*
northern pintail	(cWrS)	*Anas acuta*
blue-winged teal	(uSrW)	*Anas discors*
cinnamon teal	(uSrW)	*Anas cyanoptera*
northern shoveler	(cWuS)	*Anas clypeata*
gadwall	(uScW)	*Anas strepera*
Eurasian wigeon	(uW)	*Anas penelope*
American wigeon	(cW)	*Anas americana*
canvasback	(cW)	*Aythya valisineria*
ring-necked duck	(rScW)	*Aythya collaris*
greater scaup	(cWrS)	*Aythya marila*

Partial list of birds from Woodard Bay NRCA

Common Name	Relative Abundance/ Seasonal Occurrence	Scientific Name
lesser scaup	(uWrS)	*Aythya affinis*
oldsquaw	(rW)	*Clangula hyemalis*
black scoter	(uW)	*Melanitta nigra*
surf scoter	(cWuS)	*Melanitta perspicillata*
white-winged scoter	(cWuS)	*Melanitta fusca*
common goldeneye	(cW)	*Bucephala clangula*
Barrow's goldeneye	(cW)	*Bucephala islandica*
bufflehead	(cW)	*Bucephala albeola*
hooded merganser	(cWuS)	*Lophodytes cucullatus*
common merganser	(cWrS)	*Mergus merganser*
red-breasted merganser	(cW)	*Mergus serrator*
ruddy duck	(cWrS)	*Oxyura jamaicensis*
Rails, Coot		
Virginia rail	(uSrW)	*Rallus limicola*
sora	(uS)	*Porzana carolina*
American coot	(cWrS)	*Fulica americana*
Plovers		
black-bellied plover	(uM)	*Pluvialis squatarola*
Pacific golden-plover	(rM)	*Pluvialis fulva*
semipalmated plover	(cM)	*Charadrius semipalmatus*
killdeer	(cR)	*Charadrius vociferas*
Sandpipers		
greater yellowlegs	(cM)	*Tringa melanoleuca*
lesser yellowlegs	(uF)	*Tringa flavipes*
spotted sandpiper	(uR)	*Actitus macularia*
whimbrel	(uM)	*Numenius phaeopus*
sanderling	(uW)	*Calidris alba*
western sandpiper	(cM)	*Calidris mauri*
least sandpiper	(cM)	*Calidris minutilla*
dunlin	(cW)	*Calidris alpina*
short-billed dowitcher	(cM)	*Limnodromus griseus*
long-billed dowitcher	(cMrW)	*Limnodromus scolopaceus*
common snipe	(cWrS)	*Gallinago gallinago*
Gulls, Terns		
Bonaparte's gull	(cW)	*Larus philadelphia*
mew gull	(cW)	*Larus canus*
ring-billed gull	(cR)	*Larus delawarensis*
California gull	(cM)	*Larus californicus*
herring gull	(rW)	*Larus argentatus*
Thayer's gull	(uW)	*Larus thayeri*
western gull	(uW)	*Larus occidentalis*
glaucous-winged gull	(cR)	*Laras glaucescens*
common tern	(uM)	*Sterna hirundo*
Caspian tern	(uS)	*Sterna caspia*

Common Name	Relative Abundance/ Seasonal Occurrence	Scientific Name
Murre, Guillemot, Murrelets, Auklet		
common murre	(uW)	*Uria aalge*
pigeon guillemot	(cR)	*Cepphus columba*
marbled murrelet	(uWrS)	*Brachyramphus marmoratus*
ancient murrelet	(rW)	*Synthliboramphus antiquus*
rhinoceros auklet	(uW)	*Cerorhinca monocerata*

Bird List References

Peterson, R.T. 1990. The Peterson Field Guide to Western Birds. Houghton Mifflin Company, publisher. Boston, MA. 432 pp.

Udvardy, M.D.F. 1977. The Audubon Society Field Guide to North American Birds, Western Region. Alfred A. Knopf, Inc., publisher. New York, NY. 854 pp.

Appendix D

Woodard Bay NRCA Species and Status List– January 2000

Common Name	Scientific Name	Listing
bald eagle (nesting)	*Haliaeetus leucocephalus*	Fed. and State Threatened
Chinook salmon	*Oncorhynchus tshawytscha*	Fed. Threatened/ State Candidate
marbled murrelet	*Brachyramphus marmoratus*	Fed. and State Threatened
Yuma myotis	*Myotis yumanensis*	Federal Species of Concern
Olympic mudminnow	*Novumbra hubbsi*	State Sensitive
purple martin	*Progne subis*	State Candidate
Brandt's cormorant	*Phalacrocorax penicillatus*	State Candidate
pileated woodpecker	*Dryocopus pileatus*	State Candidate
eulachon	*Thaleichthys pacificus*	State Candidate
Olympia oyster	*Ostrea lurida*	State Candidate
great blue heron	*Ardea herodias*	State Monitor
harbor seal	*Phoca vitulina*	State Monitor
Coho salmon	*Oncorhynchus kisutch*	Priority 2
grebes	*Podicipedidae spp.*	Priority 2
loons	*Gaviidae spp.*	Priority 2
cormorants	*Phalacrocoracidae spp.*	Priority 2
Barrow's goldeneye	*Bucephala islandica*	Priority 2
common goldeneye	*Bucephala clangula*	Priority 2
bufflehead	*Bucephala albeola*	Priority 2
alcids	*Alcidae spp.*	Priority 2
plovers	*Charadriidae spp.*	Priority 2
sandpipers	*Scolopacidae spp.*	Priority 2
chum salmon	*Oncorhynchus keta*	Priority 2
butter clam	*Saxidomus giganteus*	Priority 2
littleneck clam	*Protothaca staminea*	Priority 2
Pacific oyster	*Crassostrea gigas*	Priority 2
big brown bat	*Eptesicus fuscus*	Priority 2
myotis bats	*Myotis spp.*	Priority 2
surfsmelt	*Hypomesus pretiosus*	Priority 2
brant	*Branta bernicla*	Priority 3
band-tailed pigeon	*Columba fasciata*	Priority 3
steelhead salmon	*Oncorhynchus mykiss*	Priority 3
searun cutthroat	*Oncorhynchus clarki clarki*	Priority 3
mink	*Mustela vison*	Priority 3

Douglas squirrels (*Tamiasciurus douglasi*) and Townsend chipmunks *(Tamius townsendii)* receive protection under WAC 232-12-011.

Species and Status List References

Washington Department of Fish and Wildlife. 1999. Priority Habitat and Species List. Available from Washington Department of Fish and Wildlife. Olympia, Washington. 32 pp.

Washington Department of Fish and Wildlife. 2000. State Listed Species. Available from Washington Department of Fish and Wildlife. 1 p.

Washington Department of Fish and Wildlife. 2000. State Candidate Species. Available from Washington Department of Fish and Wildlife. 1 p.

Appendix E
Historical Occupation of Woodard Bay

Archaeology

It is possible that the prehistoric sites at Woodard Bay NRCA range from first (post-glacial) human settlement of the south Puget Sound to first contact with Euro-Americans (8,000-250 years ago). Oldest sites may be underwater.

In 1991, all shoreline portions of the property, all flat areas within 60 meters of the shore, existing trails inland from the shore, and the property boundaries were the subject of an archaeological reconnaissance (Stilson, 1991). This systematic survey of the shoreline and non-systematic survey of the interior yielded a total of 21 prehistoric archaeological sites, and it is likely that additional, undiscovered sites exist. Partial to complete excavation of 10 of the sites was carried out in the summer of 1991. The results suggested that many of the sites are virtually identical. More fieldwork will need to be done to determine whether or not this picture is accurate; if not, the erosion of the sites takes on a new significance, and steps will need to be taken to preserve examples of the variation (Huelsbeck, '91).

American Indian

During the historic period, Lushootseed speaking people, known as the Nusehtsatl had a permanent winter village near the head of Henderson Inlet on Dobbs Creek. There are Lushootseed place names for at least two Woodard Bay locations including Su'pEke "blowing promontory" for Weyer Point, and TaElE'xgwiL "squeezing one's canoe" for the head of Woodard Bay (Waterman, 1920-See archive index reference Appendix F).

It is unknown if there was a winter village on the site of the NRCA. None were observed by Charles Wilkes when he explored the area in 1842. If, as it has been postulated, up to 90% of the Indian population had died from smallpox and other diseases by the time of contact, many villages would have been left with an insufficient number of people to support a community and some sites would have been abandoned in favor of consolidation. Many elements of a desirable habitation were present at Woodard Bay. Salish villages were often located either at the juncture of two streams, or where a stream emptied into Puget Sound.

European American

In 1853, on the advice of his physician, Harvey Rice Woodard, originally of Chenango County, New York, left Michigan to seek a new home and a more temperate climate in Washington Territory (Washington Pioneer Project-See archive index reference Appendix F). Accompanying him were his wife Salome, mother Betsy, and sons Alonzo, Adelbert, and Theodore. He chose as his claim, the land surrounding the bay that now bears his name. He cleared enough land to fulfill his obligations under the Donation Land Claim Act, and then immediately went to work building sawmills, first for Owen Bush and Andrew Simmons at the head of Henderson Inlet on Woodland Creek, and then for Ira Ward on the Deschutes (The Coast 1906-See archive index reference Appendix F). He was made a Justice of the Peace and an election judge (South Bay Historical Association

1986-See archive index reference Appendix F), and was one of the gentlemen on hand to greet the newly appointed Governor Stevens upon his arrival in Olympia on November 25, 1853.

Mr. Woodard and his neighbors protested the placement of a proposed Indian reservation on Johnson Point. Governor Stevens ignored their entreaties and offered the Nisqually Indians a portion of Johnson Point under the Medicine Creek treaty. Rumors following the signing of the treaties were rife in both the Indian and white communities. Owen Bush brought word to the Woodards that James McCallister had been shot and killed on October 27, 1855, and that the Indian war was on. Mr. Woodard had already decided to take up farming on Olympia's west side but this news made the family's move most timely. Indians living on Henderson Inlet were sent to internment camps on Squaxin Island. It is believed that this marked the end of any permanent settlement of Indians on Henderson Inlet with the exception of the wife of Andrew Simmons and their children. Mrs Simmons, whose English name was Martha Williams, had been born at South Bay and counted herself a member of the Nisqually Tribe (Carver 1967-See archive index reference Appendix F).

The war lasted for approximately 8 months, but the Woodard family never permanently returned to Woodard Bay. The family built a home on what is now West Bay Drive in Olympia. They were granted their claim to Woodard Bay despite their lack of ongoing habitation, citing fear of Indians as their reason for being unable to again take up full time residence.

No remains of the pioneer period have been discovered at the NRCA. The site of the pioneer cabin is believed be outside the NRCA ownership, on property purchased from the Woodards by the Turner family.

Woodard Point was purchased by the Ben Turner family from the Woodard estate in 1878. Part of this land was sold to an agent of the Weyerhaeuser Timber Company in 1924. Mr. Turner built a logging camp and later a home on Woodard Point. The Turner family lives there still.

Chapman Point was first claimed by Anthony W. McLaughlin in 1866. He sold it to an agent of Philo Remington, the gun and typewriter manufacturer, who speculated that the terminus of the Northern Pacific Railroad would be located nearby. The land was sold and sold again to land speculators until purchased by The Weyerhaeuser Timber Company in 1940.

Weyer Point, and the land to the west of it were also purchased from the Woodard estate by Philo Remington. In 1902, it was sold to the Capital City Oyster Company, which held it until 1914 at which time Robert Whitham, manager of the company, purchased the property for his own use.

Whitham sold out to the Weyerhaeuser Timber Company in 1924. The most exciting event of this period of ownership was the appearance of "Bad Man Tracy, the Last Desperado of the West" on July 2, 1902. Notorious outlaw Tracy, had escaped from prison in

Oregon and was pursued by one of the largest bands of lawmen and bounty hunters ever to be seen in Washington. He commandeered a boat at Woodard Bay and took the new crew hostage for his escape to Seattle.

Weyerhaeuser Timber Company: South Bay Log Dump

In 1915, Weyerhaeuser opened Mill "B" in Everett. It was state-of-the art and could handle 400,000 board feet per 8 hour shift. The Weyerhaeuser Company first cut in Cherry Valley in King County, while looking for a way to get logs from Thurston and Lewis Counties to the mills in Everett. Woodard Bay was selected to be the transshipment point. Land acquisition commenced in 1924 for the booming site, tidelands, adjacent uplands and railroad right-of-way. A 26-mile railroad was built from Vail to Woodard Bay where the logs were dumped and rafted to Weyerhaeuser mills in Everett, 99 miles to the north. After shipping over a billion board feet of logs through the facility, the South Bay dump was permanently closed in 1984. The land was first deeded to the Weyerhaeuser Foundation, a non-profit charitable organization, and then sold to the State of Washington to be managed as a Natural Resources Conservation Area by the Department of Natural Resources in 1987.

National Register of Historic Places

The Woodard Bay NRCA was nominated and accepted for registration in the National Register of Historic Places as the "*WEYERHAEUSER SOUTH BAY LOG DUMP RURAL HISTORIC LANDSCAPE*". A rural historic landscape is a geographical area that has been used, shaped, or modified over time by human activity, occupancy, or intervention and that possesses a significant concentration, linkage, or continuity of historic landscape features, including areas of land use, buildings, vegetation, roads and waterways and natural features. The period of significance on which designation as a national historic site was based was 1928 to 1940.

Appendix F

Woodard Bay Natural Resources Conservation Area
Historical Documentation - Archive Index

Compiled by G. Blum, Washington Department of Natural Resources, 1999

The following index represents a documentation project undertaken at the request of the Washington State Office of Archaeology and Historic Preservation (OAHP) and the Thurston County Office of Advance Planning and Historic Preservation. The entire collection, including photographs, negatives, video tapes and audio tapes, has been archived with the Office of the Secretary of State, Division of Archives & Records Management. Significant portions of the collection have also been archived with the Department of Natural Resources - Central Region, OAHP, and Thurston County. The OAHP collection was divided and part of it sent to University of Washington Special Collections. Additional information, collected after the close of this project, is archived in a miscellaneous file with the DNR collection, archived with the Office of the Secretary of State, Division of Archives and Records Management under accession number 99-A-181.

Item	Location Finder			
	DNR	State Archives	OAHP	Thurston County
Ownership History by Lot Number	x	x	x	x
Short biographies of owners	x	x	x	x
Corporate Ownership	x	x	x	x
Deed and Mortgage Records	x	x	x	x
Assessors Records	x	x	x	x
Excerpts from "South Bay, Its History and Its People 1840-1940" re Woodard Family	x	x	x	x
Excerpt from "An Archaeological Reconnaissance of the Department of Natural Resources Woodard Bay NRCA	x	x	x	x
Excerpts from Donation Land Claim Records	x	x	x	x
Excerpt from "The Coast" re: H.R. Woodard	x	x	x	x
1872 Assessors map of South Bay area	x	x	x	x
DLC map from "South Bay, Its History and Its People, 1840-1940"	x	x	x	x
Chronology of Puget Sound Indian War	x	x	x	x
Editor's notes re: Woodard Family Documents	x	x	x	x
Farming Agreement signed by Harvey Woodard on October 28, 1855	x	x	x	
"Daily Olympian" story about Betsey Woodard's Bible	x	x	x	x
Obituary of Harvey Woodard	x	x	x	x
Photocopy of Harvey and Salome Woodard's Tombstones	x	x	x	x
Excerpt from "An Illustrated History of the State of Washington" re Alonzo B. Woodard	x	x	x	x
Editors notes & Thurston Pioneer Project Interview with Alonzo Woodard	x	x	x	x

Woodard Bay Natural Resources Conservation Area
Historical Documentation - Archive Index

Item	Location Finder			
	DNR	State Archives	OAHP	Thurston County
Editor's notes & excerpt from "Early History of Thurston County, Washington" re: Alonzo Woodard	x	x	x	x
Editor's notes & Thurston Pioneer Project Interview of Roxie Woodard about her husband, Alonzo	x	x	x	x
Obituary of Alonzo B. Woodard	x	x	x	x
Photocopy of tombstones of Alonzo, Roxie and Betsey Woodard	x	x	x	x
Editor's notes & Washington Pioneer Project Interview with Adelbert Woodard	x	x	x	x
Letter written by Adelbert Woodard re: Pioneer History	x	x	x	x
Diary & Account Book of Adelbert Woodard	x	x	x	x
"Morning Olympian" article re: Ezra Meeker mentioning Harvey & Adelbert Woodard	x	x	x	x
Photocopy of tombstones of Adelbert & Cora Annie Woodard	x	x	x	x
Photocopy of Adelbert's family at Woodard Family Home	x	x	x	x
Editor's note re: Theodore Woodard	x	x	x	x
Photocopy of tombstones of Theodore Woodard, son Adelbert and wife Matilda	x	x	x	x
Editor's notes re: Eliza Woodard	x	x	x	x
Excerpt from Donation Land Claims Records for James Hurd	x	x	x	x
Excerpts from 1862 newspaper accounts of Eliza's "marriage"	x	x	x	x
May 15, 1862 letter written to Henry Cummins by Mr. DeWolfe	x	x	x	x
Excerpt from "Lights and Shades of Pioneer Life on Puget Sound" re: Eliza's marriage	x	x	x	x
Excerpt from "Early History of Thurston County, Washington" re: Eliza's marriage	x	x	x	x
Excerpt from "Rogues, Buffoons & Statesmen" re: Eliza's marriage	x	x	x	x
Excerpt from "Early History of Thurston County, Washington" re: Eliza's marriage	x	x	x	x
Excerpt from "Cultural Beginnings of Olympia, Washington 1850-1865" re: Eliza's marriage	x	x	x	x
Oregon Trail Diary of Chloe Ann Terry	x	x	x	x
Excerpt from "Illustrated History of the State of Washington" re: Anthony Laughlin	x	x	x	x
Excerpt from "Illustrated History of the State of Washington" re: A.W. Moore	x	x	x	x
Excerpt from "Early School Education in Washington" re: A.W. Moore	x	x	x	x

Woodard Bay Natural Resources Conservation Area
Historical Documentation - Archive Index

Item	Location Finder			
	DNR	State Archives	OAHP	Thurston County
Excerpt from "History of Early Common School Education" re: A.W. Moore	x	x	x	x
Excerpt from "South Bay, Its History and Its People, 1840-1940" re: Ben Turner	x	x	x	x
Obituaries for Ben Turner	x	x	x	x
Photocopy of Ben Turner taken by Alonzo B. Woodard	x	x	x	x
Letter of Recommendation for Ben Turner written by Governor Ferry	x	x	x	x
Turner/Woodard Quit Claim Deed	x	x	x	x
Pages from Minnie Turner's Account Book re: lodging & meals for Weyerhaeuser employees	x	x	x	x
Pages from Minnie Turner's Account Book re: gathering and selling of fruit and berries	x	x	x	x
Weyerhaeuser magazine article re: Charles "Pet" Turner	x	x	x	x
Editor's Notes re: Inclusion of Simmons material	x	x	x	x
Short biography of Andrew Jackson Simmons	x	x	x	x
Excerpt from "A History of the State of Washington" re: W. H. Avery	x	x	x	x
Editor's notes re: Avery letters	x	x	x	x
Tompkins letter re: Avery letters	x	x	x	x
Avery letter, October 18, 1870	x	x	x	x
Avery letter, July 6, 1871	x	x	x	x
Avery letter, July 27, 1871	x	x	x	x
Avery letter, August 4, 1871	x	x	x	x
Avery letter, January 31, 1897	x	x	x	x
Osgood v. Thomas, Supreme Court of Herkimer County, New York, #A9051 including the Remington/Thomas employment contract, and the Thomas/Avery Real Estate Contracts	x	x	x	x
Excerpt from "Streetcar Man" re: Remington & King	x	x	x	x
Letter to Gina Blum from Kurt E. Armbruster re: William S. King	x	x	x	x
Obituaries of Ira B. Thomas	x	x	x	x
Excerpt from "A History of Thurston County" re: Thomas	x	x	x	x
Excerpt from "National Cyclopedia of American Biography" re: Philo Remington	x	x	x	x
Patric Carney Autobiography including information re: Philo Remington Family	x	x	x	x
Excerpt from "Historical Highlights of Washington State" re: Squire Watson	x	x	x	x
Letter to Gina Blum from Herkimer County Historical Society re: Remington, Osgood, Richardson	x	x	x	x

Woodard Bay Natural Resources Conservation Area
Historical Documentation - Archive Index

Item	Location Finder			
	DNR	State Archives	OAHP	Thurston County
1865 Census for Town of German Flatts in Herkimer County	x	x	x	x
Excerpt from "An Illustrated History of the State of Washington" re: General T. I. McKenny	x	x	x	x
Excerpt from "Tacoma, Its History and Its Builder, Vol. III" re: George Milton Savage	x	x	x	x
Excerpt from "Puget Sound Country" re: Robert Frost	x	x	x	x
Excerpt from "Puget Sound Country" re: Bradford Hill	x	x	x	x
Excerpt from "Puget Sound Country" re: Henry Drum	x	x	x	x
"Seattle Times" Headline re: Harry Tracy	x	x	x	x
"Morning Olympian" July 3, 1902 re: Harry Tracy	x	x	x	x
"Morning Olympian" July 8, 1902 re: Harry Tracy	x	x	x	x
Excerpt from "Dreams of Glory: Boston Harbor" re: C.D. Hillman	x	x	x	x
Photo of prospective buyers arriving at Boston Harbor	x	x	x	x
Excerpt from "Rogues, Buffoons & Statesmen" re: J.L. Peters	x	x	x	x
Excerpt from C.D. Weyerhaeuser/E.H. Heacox oral history transcript re: R. A. McDonald	x	x	x	x
Letter to R. A. McDonald from Charles Ingram	x	x	x	x
"Boomtime" a History of Woodard Bay by Andrew Pouldtridge	x	x	x	x
Editor's Notes re: "Boomtime"	x	x	x	x
Application to National Register of Historic Places	x	x	x	x
Editor's Notes re: Application	x	x	x	x
Harold Wright Oral Interview Transcript	x	x	x	x
Harold Wright Oral Interview with Jana Dean Transcript	x	x	x	x
Harold Wright Release Document	x	x	x	x
Harold Wright Personal Data Record	x	x	x	x
Verna Esterly Oral Interview Transcript	x	x	x	x
Verna Esterly Release Document	x	x	x	x
Verna Esterly Personal Data Record	x	x	x	x
Jim Barrett Oral Interview Transcript	x	x	x	x
Jim Barrett Release Document	x	x	x	x
Scott Barrett Release Document	x	x	x	x
Frank Wright Oral Interview Transcript	x	x	x	x
Frank Ensign Release Document	x	x	x	x
Frank Ensign Personal Data Record	x	x	x	x
Kathleen Turner Oral Interview Transcript	x	x	x	x
Kathleen Turner Pre-Interview Notes	x	x	x	x

Woodard Bay Natural Resources Conservation Area
Historical Documentation - Archive Index

Item	Location Finder			
	DNR	State Archives	OAHP	Thurston County
Kathleen Turner Release Document	x	x	x	x
Kathleen Turner Personal Data Record	x	x	x	x
Tom Turner Telephone Conversation Notes	x	x	x	x
Robert Koontz Oral Interview with Scott Barrett Transcript	x	x	x	x
Robert Grayless Oral Interview Transcript (DNR and ARCHIVES copies to be found in photo albums)	x	x	x	x
Robert Grayless Release document	x	x	x	x
Department of Natural Resources Facility Condition Survey - Boom Foreman's Office	x	x	x	x
Department of Natural Resources Facility Condition Survey - McDonald House	x	x	x	x
Department of Natural Resources Facility Condition Survey - Boom Foreman's House	x	x	x	x
List of Occupants: Boom Foreman's House	x	x	x	x
Unloader and Tug Boat Operators	x	x	x	x
Woodard Bay Log Unloader	x	x	x	x
Justus Fisher Report, Woodard Bay Log Unloader, selected pages	x	x	x	x
History of South Bay Log Dump Trestles (Weyerhaeuser)	x	x	x	x
Photocopy of log unloader removal, November 1998	x	x	x	x
Excerpt from "South Bay, Its History and Its People 1840-1949" re: South Bay Log Dump	x	x	x	x
"History Drops the Vail on Northwest Logging Era" from "Daily Olympian" Oct. 30, 1969	x	x	x	x
Editor's Notes from Weyerhaeuser Archives	x	x	x	x
Glossary of Logging Terms	x	x	x	x
Photocopy, "Baldwin Mikado"	x	x	x	x
Photocopy, "Baldwin Mikado" #211	x	x	x	x
Photocopy of Page from Weyerhaeuser South Bay Time Book, December 1936	x	x	x	x
Photocopy of Notes on Meals and Lodging Charged to South Bay Employees, 1936	x	x	x	x
Thurston County Regional Planning Council Preliminary Report for Woodard Bay	x	x	x	x
Dept. of Natural Resources Natural Heritage Report for Woodard Bay	x	x	x	x
Inventory of Plants at Woodard Bay	x	x		
Inventory of Birds at Woodard Bay	x	x		
Bat Research	x	x		
Survey of Birds and Wildlife Responses to Human Activity	x	x		
Censuses and Disturbance of Harbor Seals at Woodard Bay & Recommendations for Protection		x	x	

Item	Location Finder			
	DNR	State Archives	OAHP	Thurston County
Periodicals				
"Diesel Locomotive Operations at South Bay", from TALL TIMBER MAGAZINE	x	x	x	x
"A Look Back At Vail" from TALL TIMBER MAGAZINE	x	x	x	x
"Vail, Washington - The Early Years", from TALL TIMBER MAGAZINE	x	x		
"Vail, Washington Part II", from TALL TIMBER MAGAZINE	x	x		
Photos to be archived with the Washington State Department of Natural Resources and the Washington State Archives will be separately filed in a binder				
B-1, Jim Barrett	x	x	x	x
B-2, Kathleen Turner	x	x	x	x
B-3, Verna Esterly	x	x	x	x
B-4, Frank Ensign	x	x	x	x
B-5, Harold Wright	x	x	x	x
B-6, Barracks in Section 8 left from Landing Craft Operations north of Woodard Bay	x	x	x	x
B-7, Barracks close-up	x	x	x	x
B-8, Officer's Quarters	x	x	x	x
B-9, Landing Craft landing looking west	x	x	x	x
B-10, Landing Craft landing looking east	x	x	x	x
B-11, Boom Shack relocated from Woodard Bay	x	x	x	x
B-12, View of Woodard Bay Looking South	x	x	x	x
Photos C-1 through C-12 were taken with a large format camera				
C-1, McDonald House looking north	x	x	x	x
C-2, McDonald House, close-up of Entrance	x	x	x	x
C-3, McDonald House, looking northwest	x	x	x	x
C-4, McDonald House, back view	x	x	x	x
C-5, McDonald House looking northeast	x	x	x	x
C-6, Boom Foreman's House, looking south	x	x	x	x
C-7, Boom Foreman's House, close-up of Entrance	x	x	x	x
C-8, Boom Foreman's House, looking southwest	x	x	x	x
C-9, Boom Foreman's House, looking northwest	x	x	x	x
C-10, Boom Foreman's House, distance shot	x	x	x	x
C-11, Boom Foreman's Office, Weyerhaeuser Camp Car	x	x	x	x
C-12, Pier and Unloader	x	x	x	x
Negatives, C-1 to C-12		x		

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Historical Documentation - Archive Index

Item	Location Finder			
	DNR	State Archives	OAHP	Thurston County
D-1, Boom Foreman's House, Thurston County Assessor's Photo	x	x	x	x
D-2, Woodard Family Portrait, Harvey, Salome, Alonzo & Adelbert	x	x	x	x
D-3, Turner Family Portrait taken at Woodard Point, Ben, Oretta, Charles & niece and grand-niece (Courtesy Lacey Historical Museum)	x	x	x	x
D-4, D-5, slides of Woodard and Turner Family Portraits	x	x	x	x
D-6, Negative of Woodard Family Portrait		x		
E-1 to E-4, Electrical undergrounding		x		
E-5 to E-16, 1956 snapshots of the pier		x		
E-19 to E22, 1956 snapshots of pier re-decking		x		
E-23 to E34, 1959 snapshots of the pier		x		
E-35 to E-36, 1956 snapshots of pier re-decking		x		
Photos U-1 through U-45 were taken in July, 1998 with a medium format camera				
U-1, body of the unloader, main power source pole on the left, pilot house on right	x	x		
U-2, Grapples, bundling shack in the rear	x	x		
U-3, Bundler's shack for comfort of two workmen	x	x		
U-4, Bundlers shack and unloader	x	x		
U-5, Main generator and motor coupled together for conversion to DC power	x	x		
U-6, main gear box (speed reducer), four main drums, main motor, blower motor	x	x		
U-7, Body of unloader, pilot car on right, squirrel cage is behind pilot car	x	x		
U-8, Grapples on right, pilot car on left	x	x		
U-9, Sheave	x	x		
U-10, Main drive gear box center, blower (squirrel cage fan) upper right, drums left	x	x		
U-11, Drums	x	x		
U-12, Reduction gear box	x	x		
U-13, Drums left, main power source entry right	x	x		
U-14, DC motor, blower, brake & drums	x	x		
U-15, DC motor and squirrel cage blower	x	x		
U-16, truck underneath the main unloader and travel shaft	x	x		
U-17, Steps to get into back right corner of the unloader (main motor house)	x	x		
U-18, Truck with walkway to the right of it	x	x		
U-19, Decking	x	x		
U-20, Reduction gear box, main motor, blower, drums, electrical cabinets	x	x		

Item	Location Finder			
	DNR	State Archives	OAHP	Thurston County
U-21, Speed reducer on gear box	x	x		
U-22, Main DC motor and brake drum	x	x		
U-23, Axle and wheels under truck (there were 8 sets)	x	x		
U-24, right hand truck and journal box (4 on each truck)	x	x		
U-25, Wheels and axle under truck	x	x		
U-26, Drive & long shaft that moved the unloader back and forth (made in Vail)	x	x		
U-27, Truck shaft between trucks on unloader,	x	x		
U-28, Journal box (houses journal, the part of a shaft that turns in a bearing)	x	x		
U-29, Unloader looking west	x	x		
U-30, Pilot car, logging truck turnaround in near background	x	x		
U-31, Frog for the switching	x	x		
U-32, Switch and track	x	x		
U-33, Pier and unloader	x	x		
U-34, Box over main drive motor (removable lid)	x	x		
U-35, Inside of pilot house, gauges on right, grapple controls in the middle, toggle switch to control first 24 cars on left, unseen are foot controls to open and close grapples	x	x		
U-36, Motor house showing door for access to motors (The door was unhinged and removed when necessary)	x	x		
U-37, Truck shaft and wheel behind pilot house	x	x		
U-38, DC engine box	x	x		
U-39, Pilot house, main toggle switch	x	x		
U-40, Logging truck turn-around	x	x		
U-41, Top of grapples (new section added after 1982 to contain oil spills)	x	x		
U-42, Unloader, pilot house	x	x		
U-43, Grapples	x	x		
U-44, Unloader, power boxes and poles	x	x		
U-45, Hydraulic tank and motor on top of grapples, catwalk	x	x		
U-46 through U-54, contact prints	x			
U-55 through U-62, Negatives		x		
The following photographs are courtesy of the Weyerhaeuser Archives and may not be copied without permission				
KV-136, Camp 2, "dressed for town"	x	x		
KV-177, Ed Hendrickson (Vail Dispatcher) and wife in front of their home in Vail	x	x		
V-1, Town of Vail, café on right, fire hall on left		x		

Woodard Bay Natural Resources Conservation Area
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Item	Location Finder			
	DNR	State Archives	OAHP	Thurston County
V-2, Steam unloader		x		
VO5-0251, Fairbanks-Morris H10-44 1000hp diesel locomotive #492	x	x	x	x
VO5-0329, Tail track	x	x	x	x
VO5-0332, Bundling machine	x	x	x	x
VO5-0324, Diesel jammer	x	x	x	x
VO5-0308, Steam jammer	x	x	x	x
VO5-0334, '64 unloader	x	x	x	x
VO5-0335, Grapples	x	x	x	x
VO5-310, Boommen	x	x	x	x
VO5-311, Pikes	x	x	x	x
VO5-320, Early boom boat breaking a "jackpot"	x	x	x	x
VO5-0327, boom boat	x	x	x	x
VO5-0326, log bronc	x	x	x	x
VO5-0328, log bronc	x	x	x	x
VO5-0248, Baldwin Mikado steam locomotive #211 manufactured in 1914 and purchased by Weyerhaeuser in 1938 to add mainline muscle to the Chehalis Western operation.	x	x		
VO5-0024, Hotel McDonald	x	x		
WY-1, Aerial of log booms and Weyer Point	x	x	x	x
WY-2, Aerial of log booms	x	x	x	x
Miscellaneous snapshots	x			
Audio tape - oral history, Harold Wright		x		
Audio tape - oral history, Verna Esterly		x		
Audio tape - oral history, Jim Barrett		x		
Audio tape - oral history, Frank Ensign		x		
Audio tape - oral history, Kathleen Turner		x		
Audio tape - oral history, Robert Grayless	x	x		
Video tape - Weyerhaeuser South Bay Log Dump, 1948-1984	x			
Video tape - Logging & Steam Railroad History	x			
Tube Storage, Over-size documents	x	x	x	x
T-1, Early Weyerhaeuser sketch of unloader	x	x	x	x
T-2, Preliminary drawing of log unloader, November 19, 1963	x	x	x	x
T-3, Preliminary drawing of log unloader, Scheme IV, December 12, 1963	x	x	x	x
T-4, General Arrangement of log unloader, Link-Belt Company July 1, 1964	x	x	x	x
T-5, "Weyerhaeuser World" article South Bay Crew Keeps Everett in Logs, September 1956, pages 6-9	x	x	x	x
T-6, "Weyerhaeuser News" article The Vail-McDonald Tree Farm, June 1956 page 20-21	x	x	x	x

Woodard Bay Natural Resources Conservation Area
Historical Documentation - Archive Index

Item	Location Finder			
	DNR	State Archives	OAHP	Thurston County
T-7, Undated map of Donation Land Claims surrounding Budd Inlet - Moses Hurd DLC	x	x	x	x
T-8, 1998 map showing ownership of land surrounding the Woodard Bay NRCA	x	x	x	x
T-9, 1872 Assessor's map, Township 19N, Range 1 W	x	x	x	x
Archaeology Box				
Archaeological Research at Woodard Bay, Interim Report by David R. Huelsbeck	x	x	x	
Student lab report - Michael Ober	x	x	x	
Student lab report - Melissa Webb	x	x	x	
Student lab report - site 45TN217, Allison Sullivan	x	x	x	
Student lab report - sites 45TN206, 207, Sheryl Moore	x	x	x	
Student lab report - site 45TN209, Celeste Nichols	x	x	x	
Student report - Barbara Wood	x	x	x	
Student lab report - sites 45TN212, 216, 221, Kurt Peterson	x	x	x	
Student report - Sara Hanan	x	x	x	
Student lab report - 45TN209, Trisha Reed	x	x	x	
Student lab report - 45TN208, Sonja Ellinson	x	x	x	
Geoarchaeological Activities at Meyer's Point (Henderson Inlet) Gary Huckleberry	x	x	x	
An Archaeological Reconnaissance of Woodard Bay, M. Leland Stilson	x	x	x	

Archive Index References

Carver, Fred E. and Margaret R. 1967. The Ancestors and descendants of Michael Troutman Simmons and Andrew Jackson Simmons, self published, Yakima, WA.

The Coast. 1976 (republished). Olympia and Thurston County, Washington. A photo reproduction of "The Coast", 1906, vol. 17, no. 3.

South Bay Historical Association. 1986. South Bay, Its History and Its People, 1840-1940. Published by South Bay Historical Association, Olympia, WA.

Washington Pioneer Project. 19__. Unpublished interviews with Adelbert Woodard from 1936-1938. Sponsored by Federal Project No. 5841. Available on microfiche from Washington State Library, Olympia, WA.

Waterman, T.T. 1920. Geographic Names on Puget Sound. Microfilm collection available from University of Washington, Seattle, WA.

Appendix G - Research Outline

Washington State DNR Natural Areas Program
Requests to Conduct Scientific Research or Monitoring on
Natural Area Preserves or Natural Resources Conservation Areas

Please include the following information as appropriate with your research:

1. **Project description**
   a. Introduction and purpose
   b. Demonstration of need for research, including literature review
   c. Hypotheses
   d. Rationale for selecting natural area(s) rather than alternative site(s)
   e. Benefits of research to Natural Areas Program
   f. Project length

2. **Research activity**
   a. Type of sampling, if any (e.g., plots, transects, excavation, clipping, coring, collecting, trap ping, live or dead capture, banding, marking, radio transmitters)
   b. Other activity associated with research (e.g., entry points, access routes, mode of access, need for equipment or materials storage, flagging or other field identification procedures)
   c. Size and location of research sites (attach a detailed map or aerial photograph)
   d. Number of researchers, size of groups, frequency of site visits
   e. Expected duration of project
   f. Frequency of sampling/recording/visitation

3. **Instrumentation**
   a. Describe field sampling instruments
   b. Show location of instruments or other structures
   c. Method of field marking instruments (if any)
   d. Length of time instruments will be in the field

4. **Impacts**
   a. List and discuss all potential direct and indirect impacts of the proposed research on ecological processes, natural features, habitat conditions and animal behavior within the natural area
   b. Provide details pertaining to all destructive sampling methods (e.g. specific locations(s), how often, how long) and rationale for use of destructive methods
   c. For each impact, describe in detail the methods that will be used to restore pre-research conditions or processes

5. **Final products of research**
   a. Type of product(s) anticipated (e.g., thesis, journal, monograph, unpublished manuscript)
   b. Time line for each product

Submit all written scientific research proposals to:

Department of Natural Resources
Central Region, Natural Areas Program
1405 Rush Road,
Chehalis, WA 98532.

Please submit proposals at least *30 days in advance* to allow for appropriate review by Department staff.