

Final Supplemental Environmental Impact Statement

Maury Island Aquatic Reserve

**Lead Agency: Washington State Department of Natural Resources
Aquatic Resources Program**

October 29, 2004



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



October 29, 2004

Dear Interested Stakeholder:

In compliance with the State Environmental Policy Act (SEPA), the Washington State Department of Natural Resources (DNR) has developed this Final Supplemental Environmental Impact Statement (FSEIS) for the proposed Maury Island Aquatic Reserve Management Plan. The FSEIS supplements the Aquatic Reserves Program Guidance programmatic EIS issued on September 6, 2002. The proposed action establishes a management strategy for the Maury Island site, which includes Quartermaster Harbor and the eastern shoreline of Maury Island. Digital versions of the FSEIS and management plan are available on the DNR website: www.dnr.wa.gov.

The purpose of this action is for the DNR to establish an appropriate management strategy for the state-owned aquatic lands at the Maury Island site. The FSEIS analyzes the proposed management plan and two other reasonable alternatives for managing the site (a no-action alternative, and rescinding the site as a marine reserve), the probable significant adverse and beneficial environmental impacts of the alternatives, and their relation to existing policies, rules, and regulations. Establishing management strategies for the Maury Island site would help to protect the biological uniqueness of the site, including the extensive eelgrass beds that provide prime herring spawning areas. It may require more conditions placed on industries that lease on state lands, but these would be implemented in a cooperative manner and over time.

If you have any questions or need assistance, please contact David Palazzi, Environmental Planner, at DNR's Aquatic Resources Division, at (360) 902-1069 or david.palazzi@wadnr.gov. For additional copies of the FSEIS, contact the DNR SEPA Center at sepacenter@wadnr.gov.

Sincerely,

Franca L. McNair,
Aquatic Lands Steward

Fact sheet –

Project Title: Maury Island Aquatic Reserve Final Supplemental Environmental Impact Statement (SEIS) for the Department of Natural Resources Aquatic Reserves Program

Project Description: The purpose of this action is to adopt and implement appropriate management strategies for state-owned aquatic lands at the Maury Island site, which includes Quartermaster Harbor and the eastern shoreline of Maury Island. Maury Island is in King County, Township 21 North, Range 02 East and 03 East, and Township 22 North, Range 02 East and 03 East. This non-project Final Supplemental Environmental Impact Statement provides an opportunity for the public and private sector, affected tribes, and agencies with jurisdiction, expertise, and interest to review and comment on the proposed action by the Washington State Department of Natural Resources (DNR) to implement appropriate management strategies for the Maury Island site. This document analyzes reasonable alternatives, the probable significant adverse and beneficial environmental impacts of the alternatives, and their relation to existing policies, rules, and regulations.

The Aquatic Reserves Program Guidance Final Programmatic Environmental Impact Statement (FEIS) was issued on September 6, 2002 to define criteria for establishing an aquatic reserve. The Maury Island Aquatic Reserve SEIS implements the guidance. Copies of the programmatic FEIS are available for review through either the SEPA Center or the Aquatic Resources Division, Washington Department of Natural Resources, 1111 St. SE, Olympia, Washington, or the State Library.

The alternatives evaluated under this Final SEIS include:

Alternative 1 – Environmental Aquatic Reserve at the Maury Island Site. The preferred alternative is to establish boundaries for the Maury Island site and manage the area as an environmental aquatic reserve. This would include the development of the following site-specific components:

- a. Management plan
- b. Reserve boundary

Alternative 2 – Repeal the Reserve at the Maury Island Site. This alternative would repeal the existing reserve designation at the Maury Island site and return the state-owned aquatic lands to general leasing status.

Alternative 3 – No Action. This alternative would continue to manage the Maury Island site as a withdrawn area and aquatic reserve as established in 2000. Management of the area would be based on the general management strategies presented in the Non-Project Final Environmental Impact Statement (FEIS): Aquatic Reserve Program Guidance (DNR 2002).

Project Proponent: Washington Department of Natural Resources, Aquatic Resources Program.

Lead Agency: Washington Department of Natural Resources
Aquatic Resources Program
1111 Washington Street SE
P.O. Box 47027
Olympia, WA 98504-7027

Responsible Official: Loren Stern, Manager
Aquatic Resources Division
1111 Washington Street SE
P.O. Box 47027
Olympia, WA 98504-7027

Technical Contact Person: David Palazzi, Environmental Planner
Aquatic Resources Division
1111 Washington Street SE
P.O. Box 47027
Olympia, WA 98504-7027

SEPA Contact Person: Jenifer Gitchell
SEPA Center
1111 Washington Street SE
P.O. Box 47015
Olympia, WA 98504-7015
sepacenter@wadnr.gov

Licenses Required: Licenses are not required for this proposal.

Authors and Principal Contributors:

Principle Authors: David Palazzi, Marc Daily, Jay Udelhoven, and Philip Bloch
Contributors: Carol Cloen and Aquatic Region staff

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9329 SW Cemetery Road - Vashon Island, WA 98070-6105

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Location of Reference Material: Natural Resources Building at address below:

Aquatic Resources Division
1111 Washington Street, SE
P.O. Box 47027
Olympia, WA 98504-7027

Availability:

Digital copies of the Final SEIS are available at the Washington Department of Natural Resources' web site at: <http://www.dnr.wa.gov/htdocs/aqr/reserves/home.htm>. Single copies, CD ROM versions, and supporting documentation are available from the Department.

Hardcopies of the Final SEIS are provided free to the public until the initially printed copies run out. After that, charges will be assessed for the costs of copying. Free copies and color versions of the maps are also available on-line at: <http://www.dnr.wa.gov/htdocs/aqr/reserves/home.htm>

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List of Acronyms

BMP -	Best Management Practice
cfs -	cubic feet per second
Corps -	United States Army Corps of Engineers
CWA -	Clean Water Act
DDT -	Dichloro Diphenyl Trichloroethane
DNR -	Washington Department of Natural Resources
DO -	Dissolved Oxygen
Ecology -	Washington Department of Ecology
EIS –	Environmental Impact Statement
ESA –	Endangered Species Act
ESU -	Evolutionarily Significant Unit
FDA -	Food and Drug Administration
FEIS –	Final Environmental Impact Statement
HPA –	Hydraulic Project Approval
IBA -	Important Bird Area
NOAA-Fisheries -	National Oceanic and Atmospheric Administration-Fisheries
NPDES –	National Pollution Discharge Elimination System
PCBs -	Polychlorinated Biphenyls
PSP -	Paralytic Shellfish Poisoning
RCW –	Revised Code of Washington
SEIS –	Supplemental Environmental Impact Statement
SEPA –	State Environmental Policy Act
TAC -	Technical Advisory Committee
TMDL -	Total Maximum Daily Load
USFWS -	United States Fish and Wildlife Service
WAC –	Washington Administrative Code
WDFW –	Washington Department of Fish and Wildlife
WDOH –	Washington Department of Health

1.0 Summary

The Washington Department of Natural Resources (DNR) is the steward for approximately 2.4 million acres of state-owned aquatic bedlands, tidelands, and shorelands. The DNR is charged with managing these lands for a balance of public benefits, as dictated by state statutes and rules. The state-owned aquatic lands of Quartermaster Harbor and the eastern shoreline of Maury Island support important biological and physical characteristics that may warrant specific management provisions.

The proposed action would establish a specific management strategy for the Maury Island site, which includes state-owned aquatic lands within Quartermaster Harbor and along the eastern shoreline of Maury Island. This document identifies three reasonable alternatives for implementing a management strategy and evaluates the probable significant adverse and beneficial environmental impacts of the alternatives.

1.1 Organization of the Supplemental Environmental Impact Statement

The document begins with an overview of the Supplemental Environmental Impact Statement (SEIS) document (Section 1.0).

Section 2.0 of the document provides background information pertaining to DNR's aquatic reserve program, with an emphasis on planning that has occurred at the Maury Island site, to date. This section also discusses the purpose and need for the proposed action and briefly discusses the legislative authority and mandates that are driving this process.

Section 3.0 explains how DNR formulated the three action alternatives evaluated in this SEIS, including scoping that was conducted. The three alternatives identified and discussed include: the Preferred Alternative, Repeal the Reserve, and No Action. Sections 3.2 through 3.4 outline the objectives, specific management provisions, boundaries, and implementation procedures for each of the three alternatives.

Section 4.0 describes the existing conditions at the Maury Island site for the elements of the environment that may be impacted by the three action alternatives. The elements of the environment include: earth, air, water resources, plants and animals, energy and natural resources, environmental health, land and shoreline uses, transportation, and public services and utilities. Following the description of existing conditions, the potential environmental impacts of the alternatives are evaluated for each of these elements of the environment.

Section 5.0 evaluates the potential cumulative impacts that may result from each of the action alternatives, and Section 6.0 discusses mitigating activities for all three of the alternatives.

Section 7.0 details the distribution process for the document, while Section 8.0 includes the references for the SEIS. Appendix A provides a brief summary of comments received during the scoping process and how DNR considered these comments. The remaining appendices C through M include figures referenced in the SEIS, with Appendix N providing the complete distribution list for the document. Appendix O provides comments received during the draft SEIS comment period and DNR's responses to those comments.

1.2 Proposed Action – Purpose, Objectives, and Need

The purpose of the proposed action is to establish an appropriate management framework for the state-owned aquatic lands within Quartermaster Harbor and along the eastern shoreline of Maury Island. The objective is to formalize specific management directives to provide for environmental protection. The need for this action arises from the nearshore habitat degradation that has occurred in the central Puget Sound basin. Puget Sound has experienced significant physical changes to its nearshore habitat as well as population declines in some of its best-known, important plant and animal species. The Maury Island site represents one of the remaining areas in the central Puget Sound basin that supports relatively high quality aquatic habitat and species assemblages (Williams et al. 2001).

1.3 Alternatives

Through scoping and research conducted by DNR staff, three action alternatives were identified and have been evaluated in the following SEIS. Alternative 1 (Preferred Alternative) identifies a proposed boundary that is approximately 336 acres smaller than the original reserve designation (5,530 acres) and proposes a site-specific final management plan to direct DNR activities at the Maury Island Environmental Aquatic Reserve site.

Alternative 2 (Repeal the Reserve Alternative) would rescind the existing reserve designation for the Maury Island site and make the state-owned aquatic lands available for general leasing opportunities.

Alternative 3 (No Action Alternative) would maintain the existing environmental aquatic reserve designation for the area (5,866 acres) while future management would be guided by existing Revised Code of Washington (RCW), Washington Administrative Code (WAC), and the general management actions presented in the programmatic FEIS (DNR 2002).

An overview of the three action alternatives is provided in Table 1.

Table 1: Overview of Program Administration for the Three Alternatives

Management Elements	Alternative 1 (Preferred)	Alternative 2 (Repeal)	Alternative 3 (No Action)
Area included in the site (acres)	5,530	5,866 (removed from reserve designation)	5,866
Management Provisions	Site specific management provisions related to: existing uses, reauthorizations and new authorizations, including identifying areas of appropriate uses and specific design/operation requirements. Identifies DNR led and partnering activities to benefit reserve conditions and voluntary activities that could be undertaken on lands adjacent to the reserve.	Management of the site would be similar to other state-owned aquatic lands in accordance with existing RCWs and WACs.	Management of the site would be in accordance with existing RCWs, WACs, and general management actions presented in the final programmatic environmental impact statement (September 6, 2002).
Commissioner’s Order	After completion of SEPA, a new Commissioner’s Order would be issued, which would detail the decision made.	After completion of SEPA, a Commissioner’s Order would be issued to rescind the aquatic reserve designation.	No new Commissioner’s Order would be required under this alternative.
Program Implementation	Negotiated through use authorizations and through seeking cooperative relationships with other government entities, interest groups, and the local community. Emphasis would be on protection, preservation, and enhancement of the primary species and habitats identified in the management plan. The plan would be reviewed every 10 years.	No special implementation measures would be needed. Implementation would be through evaluation of use authorizations/ reauthorizations under existing RCWs and WACs. Emphasis would be on balancing the DNR mandates established in RCW 79.90.455.	Land managers would implement the program through evaluation of use authorizations/ reauthorizations based upon the RCWs, WACs, and the programmatic FEIS. Emphasis would be on protection, preservation, and enhancement of the site, although no site-specific management plan would guide this objective.

1.4 Affected Environment

The following provides a brief summary of the elements of the affected environment described and evaluated in the SEIS. Following the affected environment summaries, Table 2 provides a summary of the potential effects of the three action alternatives.

1.4.1 Earth

The Maury Island site is underlain by glacial till, sand, and gravel. Approximately 88 percent of the Vashon-Maury Island shoreline contains bluffs or banks. Erosion of these landforms is an integral process in maintaining sandy beaches in the area. The site

contains a number of nearshore drift cells¹, including a single, continuous cell along the eastern shoreline of Maury Island. Existing evidence suggests that few contaminants resulting from human activities are affecting aquatic sediments in the area.

1.4.2 Air

There is no recent site-specific air quality data available, although monitoring conducted in the late 1970s through the 1980s demonstrated that ambient air quality was within current standards. Between 1890 and 1985 air quality throughout the reserve area was negatively impacted by a copper and arsenic smelter located in Tacoma. Closure of the smelter in 1985 resulted in measurable declines in sulfates and arsenic as far away as the Canadian border (Faulkner 1987).

1.4.3 Water Resources

Quartermaster Harbor is a rather shallow embayment (generally 5 to 30 feet). Water quality in the harbor has been adversely impacted by human-induced activities, with existing data demonstrating that water in the area does not comply with state water quality standards relating to dissolved oxygen and dieldrin (an insecticide). Fecal coliform pollution and paralytic shellfish poisoning are also a concern in the harbor. No water quality information was found for the eastern shoreline of Maury Island.

The major freshwater inputs to Quartermaster Harbor include Judd and Fisher creeks, with a number of lower order streams and tideland seeps. Streams along the eastern shoreline of the island all have low or intermittent flows.

1.4.4 Plant and Animal Resources

Quartermaster Harbor and the eastern shoreline of Maury Island support a number of fish species including rearing and migrating Chinook, chum, and coho salmon and steelhead, cutthroat, and bull trout. Chinook salmon and bull trout are protected as threatened species under the Endangered Species Act. The Maury Island site also supports a relatively high abundance of forage fish such as herring, surf smelt, and sand lance. A variety of groundfish and rockfish species are also found in the area. Geoducks, crabs, and other macroinvertebrates are distributed throughout the Maury Island site.

One of the reasons for the abundance of fish and invertebrate life is the distribution of eelgrass and kelp throughout the site. These aquatic plant habitats provide food and refuge for many aquatic species. *Spartina*, an invasive aquatic plant species, has also been found in the area in the past, but is not currently thought to be present within the Maury Island site.

Marine mammals are frequently observed in the area. River otters, harbor seals, California sea lions, humpback whales, Northern sea lions, harbor porpoise, Dalls porpoise, and killer whales, may all periodically inhabit the Maury Island site.

¹ Drift cells are systems in which sediment is suspended by waves or currents and transported along the shoreline in a cycle of suspension and deposition.

The area is also considered an Important Bird Area (IBA) by Audubon Washington, primarily due to a wintering western grebe population. Great blue heron, bald eagle, possibly marbled murrelet, and many other bird species, especially waterfowl, also inhabit the Maury Island site.

1.4.5 Energy and Natural Resources

There are several Puget Sound Energy utility easements along the northeastern shoreline of Maury Island, which provide electricity and natural gas to Vashon and Maury islands. In addition, commercial and recreational geoduck harvest occurs in many locations of the Maury Island site. Harvest of other shellfish (e.g., hardshell clams), herring, and smelt also occurs in the area.

1.4.6 Environmental Health

The Glacier NW gravel and sand mining operations on the eastern shoreline of Maury Island pose a potential threat to environmental health in the form of noise, hazardous spills, shading, prop wash, and/or material spills. Docks and marinas in the area may also introduce creosote, waste, fuels, and/or hydraulic fluids. Residential septic systems and stormwater outfalls may impact water and sediment quality.

1.4.7 Land and Shoreline Use

King County comprehensive and shoreline plans dictate uses in the area, which are predominantly rural residential. Development in the area has led to levels of shoreline modification (57.6 percent of the shorelines) similar to the rest of the Puget Sound. The few commercial uses in the area are mostly related to recreation (e.g., marinas). The area is an important water recreation area.

Existing uses of state-owned aquatic lands in the area include such activities as marinas, utility crossings, and a resource-use dock for the gravel mine on the eastern shore of Maury Island. These uses are either currently authorized by DNR, or require reauthorization.

1.4.8 Transportation

The Maury Island area is utilized extensively for waterborne transportation, although DNR has no management authority over such transportation.

1.4.9 Public Services and Utilities

Public services and utilities in the area consist of a number of public parks including: Dockton Park, Maury Island Marine Park, Burton Acres Park, and Point Robinson Park. There are several utility easements in the area that provide power, natural gas, and telecommunications to the island.

1.5 Impact Analysis

Table 2 presents a summary of the potential impacts of the proposed action alternatives on the elements of the environment described above (Section 1.4). As the proposed action is a non-project action, it is difficult to fully address and quantify the magnitude of potential negative and beneficial impacts. Instead, Table 2 summarizes the probability that some level

of beneficial or adverse impacts may occur. The effects analyses in Section 4.0 should be reviewed for further detail and clarification pertaining to the nature of the positive and negative impacts summarized in the following table.

Table 2: Potential Impact of the Three Alternatives on the Affected Environment

Element of the Environment	Preferred Alternative (Alt. 1)			Repeal the Reserve (Alt. 2)			No Action (Alt. 3)		
	Probability of Impact Occurrence	Type of Anticipated Impact		Probability of Impact Occurrence	Type of Anticipated Impact		Probability of Impact Occurrence	Type of Anticipated Impact	
Earth	Moderate	Positive	Direct	Low	Negative	Direct	Low	Positive	Direct
Air	Low	Positive	Indirect, Cum.	Low	Negative	Indirect, Cum.	Low	Positive	Indirect, Cum.
	Low	Negative	Indirect, Cum.				Low	Negative	Indirect, Cum.
Water	Moderate	Positive	Direct, Indirect, Cum.	Moderate	Negative	Direct, Indirect, Cum.	Low	Positive	Direct, Indirect, Cum.
Plants and Animals	Moderate	Positive	Direct, Indirect, Cum.	Moderate	Negative	Direct, Indirect, Cum.	Low	Positive	Direct, Indirect, Cum.
Energy	None	None	None	None	None	None	None	None	None
Natural Resource Use	Moderate	Positive: renewable resources	Direct, Indirect, Cum.	Moderate	Negative: renewable resources	Indirect, Cum.	Low	Positive: renewable resources	Direct, Indirect, Cum.
	Low	Negative: commercial shellfish harvest	Direct				Low	Negative: commercial shellfish harvest	Direct
	Moderate to High	Negative: non-renewable resource extraction	Direct, Indirect				Moderate to High	Negative: non-renewable resource extraction	Direct, Indirect
Environmental Health	Moderate to High	Positive	Direct, Indirect, Cum.	Moderate	Negative	Direct, Indirect	Moderate	Positive	Direct, Indirect, Cum.
							Moderate	Negative	Indirect
Land and Shoreline Use	Moderate	Negative	Direct	None	None	None	Moderate	Negative	Direct
	Moderate	Positive	Direct, Indirect				Low	Positive	Direct, Indirect
Transportation	Low	Negative	Direct	None	None	None	Moderate	Negative	Direct
Public Services and Utilities	Moderate	Negative	Direct	None	None	None	Moderate	Negative	Direct
	Moderate	Positive	Indirect				Low	Positive	Indirect

2.0 Introduction

Washington State's aquatic lands are extensive and diverse, including marine, estuary, river, and lake environments. The Washington Department of Natural Resources (DNR) is the steward for approximately 2.4 million acres of aquatic lands, which are owned by the citizens of the state and managed in trust by DNR. As directed by the Washington State Legislature, DNR manages state-owned aquatic lands to provide a balance of public benefits. According to the Aquatic Lands Statutes (RCW 79.90 – 79.100), commonly referred to as the Aquatic Lands Act, those benefits include encouraging public access, fostering water-dependent use, ensuring environmental protection, and utilizing renewable resources (79.90.455). When consistent with other mandates, DNR also generates revenue from these lands to fund important state agency natural resource programs such as grants to local governments, environmental management efforts, and salmon recovery. In total, there are approximately 3,000 miles of saltwater shoreline (Nearshore Habitat Program 2001), 2.2 million acres of marine bedlands, and 230,000 acres of tidelands (Lanzer 1999). The DNR manages almost all of the marine bedlands and approximately 30 percent of the tidelands. In addition, DNR manages approximately 120,000 acres of freshwater bedlands and 30,000 acres of freshwater shorelands (from the line of navigability up to the ordinary high water mark) (Lanzer 1999).

Washington's aquatic lands have inherent biodiversity value and also support a wide range of species with economic, ecologic, and aesthetic value. Many state and federal endangered, threatened, sensitive, and candidate species depend on state-owned aquatic habitats.

Aquatic lands have been considerably degraded by historic and current human activities. For example:

- Nearly 60 percent of the lakes, streams, and estuaries, for which there is data, fail to meet water quality standards (Ecology 1998);
- There are more than 1,000 dams obstructing freshwater flow (Johnson 2000);
- More than 5,700 acres, approximately 1/3 of the total area surveyed for sediment quality, exceed sediment quality standards (Ecology 2003);
- More than one-third of all saltwater shorelines have undergone human-caused modification (Ecology 1998; Nearshore Habitat Program 2001).

In an effort to balance the elements of the Aquatic Lands Statutes (RCW 79.90 – 79.100), the DNR adopted WAC 332-30-151, which directs DNR to consider lands with educational, scientific, and environmental values for aquatic reserve status. The designation and management of aquatic reserves can be used as a tool to ensure environmental protection of the state's aquatic resources. The statutes that authorize DNR to withdraw lands from leasing activities and make the aquatic reserve program possible are RCW 79.90.460(3) and 79.10.210, as discussed in Section 2.3.

The state-owned aquatic lands within Quartermaster Harbor and on the east side of Maury Island (hereafter collectively referred to as the Maury Island site) were initially designated by DNR as an aquatic reserve in 2000. This original designation was done in the absence of clear guidance on the distinctions between the different types of reserve classifications or what activities should

be allowed in a reserve and how these areas would be managed. Therefore, to fully define and implement the aquatic reserve program, DNR issued the Non-Project Final Environmental Impact Statement: Aquatic Reserve Program Guidance on September 6, 2002. The programmatic Final Environmental Impact Statement (FEIS) provides a framework that: defines the three types of aquatic reserves (Environmental, Scientific, and Educational) and the measurable objectives for each; describes program administration, including the reserve application, review, and designation processes; and outlines general management actions for each of the three types of aquatic reserves.

Following completion of the aquatic reserve program FEIS, DNR began to implement the framework by first re-examining the six sites originally withdrawn from leasing by DNR in 2000. For the Maury Island site, DNR staff first researched the biotic and abiotic characteristics of the site and prepared a formal reserve application. Then a technical advisory committee (TAC), comprised of six scientists from agencies and academia, was created to evaluate the site based upon the criteria outlined in the aquatic reserve programmatic FEIS. After analyzing the site-specific characteristics, the TAC unanimously recommended that the Maury Island site be designated as an environmental aquatic reserve. The draft management plan and Supplemental Environmental Impact Statement (SEIS) for the Maury Island site were prepared and issued on July 13, 2004. A public hearing on the plan and SEIS was held on August 10, 2004 and written comments were accepted through August 27, 2004. Comments received and DNR's responses are included in Appendix O. Based on the input on the draft plan and SEIS, DNR drafted the following Final SEIS. This Final SEIS examines whether the Maury Island site would meet the purpose, objectives, and need for an environmental aquatic reserve, evaluates potential environmental impacts of the proposed management strategies for the site, and determines whether management of a site can be effectively accomplished by DNR.

2.1 Purpose and Objectives of the Proposed Action

The purpose of the proposed action is to establish an appropriate management framework for the state-owned aquatic lands within Quartermaster Harbor and along the east side of Maury Island that are currently designated as an environmental aquatic reserve. The objective is to formalize specific management directives as a means to help achieve one of DNR's mandates under the Aquatic Lands Statutes (RCW 79.90 through 79.100) - ensure environmental protection. The Maury Island site was identified by DNR, and confirmed by the TAC, as a potentially suitable location for designation as an environmental aquatic reserve. In addition to environmental protection, DNR must consider its other proprietary mandates which include: encouraging direct public use and access, fostering water dependent uses, utilizing renewable resources, and generating revenue when consistent with the other objectives.

The following SEIS details the Preferred Alternative (Alternative 1), which includes designating a formal boundary for the aquatic reserve and a proposed management plan and then evaluates the potential environmental consequences for this alternative. The SEIS also analyzes the potential effects of repealing the reserve designation (Alternative 2), and the No Action Alternative (Alternative 3).

2.2 Need for the Proposed Action

This proposed action is needed to address the growing pressures on aquatic lands and the increasing demand for aquatic resource use in Washington State. Development has contributed to the declining health of Puget Sound and the state's other aquatic resources, including coastal and freshwater systems. Species that are dependent upon those resources are impacted by the changes in the state's landscape and are declining in health and numbers.

In particular, the central Puget Sound basin, in which the Maury Island site is located, is the most heavily urbanized area in the Puget Sound (King County 2004). There is a decreasing amount of habitat in the central Puget Sound that exhibits historical functions and processes (Williams et al. 2001). The Maury Island site is highly productive, and provides important spawning habitat for a number of fish species including herring, surf smelt, and sand lance. The site contains a great deal of continuous eelgrass beds, which are a crucial aquatic habitat component. Juvenile Chinook salmon, protected under the federal Endangered Species Act (ESA), utilize Quartermaster Harbor for rearing and migration. These characteristics, and many others, of the Maury Island site make it an integral component of the central Puget Sound aquatic ecosystem and make it important to ensure protection of these resources through sound management practices.

However, DNR recognizes that a management framework for the Maury Island site must consider the public benefits of existing uses of the area. In addition, DNR must take into account its other statutory mandates, aside from environmental protection, as explained above in Section 2.1.

2.3 Legislative Authority and Mandate

State statute (RCW Title 79, Public Lands) vests authority for management of state-owned aquatic lands to DNR. This includes the authority to lease and sell aquatic lands in certain circumstances and under management guidelines imposed by the Legislature (see RCW 79.90 - 79.100). The specific statutes that give DNR the authority to protect state-owned aquatic lands include:

- RCW 79.10.210 authorizes DNR "... to identify and to withdraw from all conflicting use at such times and for such periods as it shall determine appropriate, limited acreage of public lands under their jurisdiction."
- RCW 79.90.460(3) authorizes DNR to "... consider the natural values of state-owned aquatic lands as wildlife habitat, natural area preserve, representative ecosystem or spawning area prior to issuing any initial lease or authorizing any changes in use. The department may withhold from leasing lands that it finds to have significant natural values, or may provide within any lease for the protection of such values."

Aquatic reserve status would not preclude all use authorizations, but only those inconsistent with the purpose of the reserve, as is described in further detail in Section 3.0 and in the Maury Island Aquatic Reserve Management Plan. Proposed uses that are consistent with the purpose of the Maury Island Aquatic Reserve (i.e., protect, restore, or enhance the aquatic environment) and which meet DNR's other management guidelines may be authorized. State law contemplates that DNR may administratively decide that commercial enterprises should

not be allowed to use certain lands that have a significant natural value. The DNR manages uses of state-owned aquatic lands that physically encumber the site, as well as other proprietary issues regarding these lands, such as removal of valuable materials and trespass, but does not regulate boating, fishing, recreation, or similar transitory uses that may cross over state-owned aquatic lands. Further, DNR does not have management authority over any private lands adjacent to the Maury Island site.

2.4 Relationship to Tribal Authorities

The Maury Island site is located within the Puyallup Tribe’s exclusive usual and accustomed area. As such, it is essential that conservation goals and management activities be established in cooperation with the Puyallup Tribe. Under any of the alternatives evaluated in the following SEIS, DNR would engage in a government-to-government dialog with the Puyallup Tribe to ensure that their treaty right and trust responsibilities are upheld and not infringed upon in any way.

3.0 Alternatives

Under this section, alternatives for achieving the primary objective are discussed. First, the objectives for the alternatives and how DNR staff determined reasonable alternatives are reviewed under Section 3.1, followed by definitions of the three action alternatives (Sections 3.2 through 3.4). Section 4.0 describes the elements of the affected environment and evaluates the potential impacts of each alternative on specific elements of the natural and built environments.

3.1 Alternative Formulation and Objectives

The purpose of this proposed agency action is to determine an appropriate management framework for the state-owned aquatic lands at the Maury Island site, which is currently designated as an environmental aquatic reserve. The Washington State Environmental Policy Act (SEPA) process calls for an evaluation of reasonable alternatives for meeting the purpose of the action. To aid in formulating alternatives for this SEIS, DNR representatives have consulted with public and private interests in a variety of forums. Public meetings were held at Vashon Island on May 14, 2003, October 28, 2003, and January 22, 2004, with a public hearing on August 10, 2004. In addition, DNR staff conducted numerous individual meetings, as requested by specific stakeholders. Public comments in the form of e-mail messages and letters were also considered in drafting the action alternatives. A summary of scoping comments, comments from the August 10 public hearing, and written comments on the draft SEIS and management plan and DNR's responses are provided in Appendix O.

Based on public comment and research conducted pertaining to the environmental conditions of the Maury Island site, DNR staff identified three action alternatives for analysis in this final SEIS. The first alternative, which is also the Preferred Alternative, proposes to formalize a boundary for the Maury Island Environmental Aquatic Reserve and presents a management plan for the site. The second alternative evaluates rescinding the aquatic reserve designation for the site and returning the lands to the general state-owned land base, which would be available for leasing. The third alternative (No Action) evaluates the existing management strategy for the area with the site maintaining its reserve designation.

Under WAC 197-11-440(5)(vii), public agencies must consider the benefits and disadvantages of delaying the implementation of the proposed action as opposed to immediate approval. Because of the lag between the present time and when the Maury Island site was first designated as an aquatic reserve in 2000, this alternative is no longer a viable option and was rejected. Additional delay in evaluation of this site as a reserve would compromise the environmental value of the area under the guidance established in the programmatic FEIS. Further, the programmatic FEIS places potential DNR use authorizations/reauthorizations at the Maury Island site on hold until a decision is made regarding the management framework. Additional delays would burden existing users of the state-owned aquatic lands in the area or proponents of proposed uses.

3.2 Alternative 1 (Preferred Alternative)

This alternative proposes to establish a formal boundary and management plan for an environmental aquatic reserve comprised of approximately 5,530 acres of state-owned aquatic tidelands and bedlands within Quartermaster Harbor and along the east shoreline of Maury Island. The reserve would include about 23 linear miles of shoreline extending from

Neill Point to Point Robinson, in King County. No private lands are included within the reserve boundary. A complete legal description is presented in Appendix B.

To aid in determining whether the Maury Island site should be designated as an aquatic reserve, DNR assembled the TAC to review the site and the reserve proposal. The TAC consisted of a group of six scientists from agencies and academia who were recruited in the spring of 2003. TAC members were selected based upon their education and professional expertise in marine, aquatic, and/or ecosystem sciences.

Upon review of the Maury Island proposal and a visit to the site, the TAC unanimously recommended that the Maury Island site be managed as an environmental aquatic reserve. Environmental aquatic reserves are designated to conserve (preserve, restore, and enhance) areas of environmental importance, maintain sites used for environmental baseline monitoring, and/or provide protective management for sites of particular historical, geological, or biological interest (WAC 332-30-106). The programmatic FEIS established 12 primary criteria for identifying appropriate locations for environmental aquatic reserves. These criteria are presented in Table 3.

Table 3: Environmental Reserve Designation Criteria

1. Viable and manageable site able to support rare, special, and unique features.
2. Habitat type is locally or regionally rare or of particular significance.
3. Site has the ability to persist over time.
4. Area has a high degree of natural biodiversity.
5. Site contains valuable or environmentally sensitive habitats.
6. Habitat is used by rare, listed, or valued aquatic species.
7. Habitat is essential for life stages of valued species (such as spawning and nursery areas for threatened and endangered species, including salmon, herring, smelt, and sand lance).
8. Current physical, chemical and biological processes that maintain habitat are intact or restorable.
9. Habitat could support critical life stages of valued or protected species if restored.
10. Restoration of area will result in an ecologically functioning habitat.
11. Site contains valuable geological, cultural, and/or archeological resources.
12. A history of monitoring or an opportunity for long-term monitoring of the site.

In their review of the Maury Island site, the TAC noted a variety of characteristics that prompted their recommendation for environmental aquatic reserve designation, including:

- The site supports significant spawning areas for a major herring stock;
- Quartermaster Harbor is identified by the Audubon Society as an Important Bird Area (IBA) and in particular an important area for wintering marine birds, especially western grebes;

- There are extensive eelgrass flats throughout the site;
- The eastern shore of Maury Island is a unique continuous drift cell that converges with another drift cell at Point Robinson;
- The habitat and species found in the area make it a good site for conservation in the central Puget Sound region;
- There is high biodiversity at the site in comparison to other areas in the ecoregion; and
- Reserve status would encourage local government and citizens to promote conservation planning and management in the area.

Based upon the TAC recommendations, additional research, and public input, DNR formulated a draft management plan for Maury Island site in July 2004 (DNR 2004). Based on public comments received on the draft management plan and the Draft SEIS, the management plan has been revised. The final plan would guide DNR management of the site over the proposed 90-year term of the aquatic reserve. The purpose of the management plan is to proactively identify conservation needs, issues and threats, management goals and actions, and inventory and monitoring mechanisms for the Maury Island site. The management plan is intended to emphasize environmental protection in the area and include actions flexible enough to respond to environmental changes within and adjacent to the reserve. The plan is also meant to be prescriptive enough to provide guidance for existing and proposed future uses of state-owned aquatic lands.

3.2.1 Aquatic Reserve Boundary

The proposed boundary under the Preferred Alternative includes the state-owned tidelands from Neill Point along the southeastern shoreline of Vashon Island, all of Quartermaster Harbor, and the eastern shoreline of Maury Island up to the furthest extent of state-owned tidelands immediately north of Point Robinson (Figure 1). The boundary would extend waterward from the landward extent of state ownership to a water depth of 70 feet (21.4 meters) below mean lower low water (MLLW) or one-half mile from the line of extreme low tide, whichever line is further waterward. The boundary was selected because it captures the ecosystem and primary resources that support the reserve designation. The boundary also includes those areas where threats to the natural resources are most likely to arise. A full legal description of the lands that would be contained in the proposed reserve boundary is included in Appendix B.

Figure 1: Maury Island Aquatic Reserve Boundary: Preferred Alternative



For a color version of this figure see <http://www.dnr.wa.gov/htdocs/aqr/reserves/home.htm>.

In determining the proposed boundary for the Preferred Alternative, DNR staff originally considered three possible options for the reserve boundary, options A, B, and C (Appendix C). Option B is the proposed boundary under the Preferred Alternative. Option A was the smallest boundary considered in terms of geographic area and included lands from Neill Point to the furthest extent of surveyed herring spawning area along the eastern shore of Maury Island. As stated above, the proposed boundary under the Preferred Alternative is comprised of all of the lands in option A and also includes the entire eastern shore of Maury Island to the furthest extent of state-owned tidelands at Point Robinson. The third option was the boundary originally established for the reserve site in 2000 and is the boundary for the No Action Alternative, which includes options A, B, and an additional tract of land to the west of Point Robinson (Appendix C). Boundary options A, B, and C encompass 4,376, 5,530, and 5,866 acres of state-owned aquatic lands, respectively (Table 4).

Table 4: Maury Island Aquatic Reserve Boundary Option Characteristics

Boundary Option	Boundary Option Area (acres) ^a	Miles of Shoreline ^b	Area of Adjacent Private Tidelands ^a
A	4,376	20.9	579
B^c	5,530	23.4	691
C	5,866	24.4	717

a: areas are estimates and are ± 100 acres

b: shoreline length is ± 0.1 miles

c: bold denotes that Option B is the boundary used in the Preferred Alternative

Through public scoping and internal DNR review, boundary option B was established as the preferred option and is the proposed boundary under the Preferred Alternative. The reasoning for this determination is that this boundary would:

- Include all of the surveyed herring spawning areas;
- Capture the entire drift cell along the east shore of Maury Island (from Piner Point to Point Robinson);
- Encompass the entire convergence zone of the east shore drift cell and the drift cell along the north shore of Maury Island; and
- Provide opportunities for public recreation and possibly education at Point Robinson and the Maury Island Marine Park.

In addition, the tidelands (those aquatic lands from mean high tide to extreme low tide) adjacent to Point Robinson are in state ownership and included within the boundary of the aquatic reserve, and therefore can be more consistently managed with subtidal aquatic lands. Tidelands to the north of the proposed boundary for the Preferred Alternative are not in state ownership.

Boundary option A is not being carried forward by DNR, as it does not include the drift cell and other aquatic habitat features along the eastern shoreline of Maury Island.

Boundary option C was not chosen for the Preferred Alternative as it encompasses only a small portion of a larger drift cell that extends along the northern shoreline of Maury Island. The aquatic reserve program places emphasis on including whole ecosystem and habitat components versus fragmented conservation of ecological features, and the current configuration of boundary option C does not meet this objective.

Furthermore, WAC 197-11-440(5)(b) states that “reasonable alternatives shall include actions that could feasibly attain or approximate a proposal’s objectives but at a lower environmental cost or decreased level of environmental degradation.” The proposed boundary maximizes protection of the key elements of the natural environment identified for protection at the Maury Island site, while not further encumbering lands along the northern shoreline that do not meet the environmental management objectives for the Preferred Alternative.

It is important to emphasize, that the proposed reserve boundary is only comprised of state-owned aquatic lands, which includes a relatively small portion (12 percent) of the existing intertidal area of Quartermaster Harbor and the east side of Maury Island. In addition, DNR’s Aquatic Resources Program does not have jurisdiction over any of the uplands adjacent to the reserve boundary.

3.2.2 Goals and Objectives

The reserve was designated to conserve (preserve, restore, and/or enhance) the habitats and species that make the site desirable for conservation. The proposed Maury Island Aquatic Reserve goals are broad statements of desired future condition. The DNR has formulated the following goals to conserve the critical habitats and associated species identified in the management plan, including:

- I. Preserve, or restore and enhance where there are opportunities, native habitats and associated plant and wildlife species, with a special emphasis on forage fish, salmonids, and migratory birds.
- II. Preserve, or restore and enhance where there are opportunities the functions and natural processes of nearshore ecosystems, with a special emphasis on support of the natural resources of the reserve.
- III. Promote stewardship of riparian and aquatic habitats and species by providing education and outreach opportunities and promoting coordination with other resource managers.
- IV. Support traditional recreational (i.e., boating, water skiing, fishing), commercial (i.e., marinas), and cultural uses in and adjacent to the site and promote responsible management of these uses in a manner consistent with the other goals for the reserve.

Aquatic Reserve objectives reflect what should be achieved to meet particular goals. When possible, reserve objectives are intended to be specific, measurable, achievable, and results oriented. The proposed objectives are listed below as they apply to each of the reserve goals.

I. Preserve, or enhance where there are opportunities, native habitats and associated plant and wildlife species, with a special emphasis on forage fish, salmonids, and migratory birds.

This goal may be achieved by:

- *Protecting fish spawning and rearing habitat and movement corridors.* Protect documented spawning and rearing areas from impacts associated with new developments on state-owned aquatic lands. Over time, reduce or eliminate the impacts associated with existing developments on state-owned aquatic lands that affect ecological functions that support spawning and rearing habitat. Desired future conditions for forage fish habitat and salmon spawning, rearing, and migratory habitats are described in sections 4.5.8 and 4.5.9 of the management plan.
- *Identifying and minimizing sources of fish mortality resulting from human activities.* Continue monitoring efforts to identify interactions between fish and toxic materials, low dissolved oxygen conditions, and nutrients within the reserve. Wherever possible, eliminate sources of mortality resulting from human activities as they are identified.
- *Maintaining Clean Water Act standards for water and sediment quality.* Maintain water and sediment quality such that listing of waterbodies or segments within the reserve as impaired under the Clean Water Act is unnecessary. Desired future conditions for water and sediment quality are described in section 4.5.2 of the management plan.
- *Sustaining or increasing the documented extent and species composition of native aquatic vegetation.* A biomass index comprised of bed area and bed density may be established to reflect native kelp and eelgrass bed conditions at reserve establishment. The biomass index of eelgrass and kelp beds may not decrease due to human-induced impacts from the baseline level that reflect the area and density at reserve establishment. Desired future conditions for kelp and eelgrass beds are described in sections 4.5.6 and 4.5.7 of the management plan.
- *Protecting and restoring intertidal sand and mudflats.* Maintain the total area of sand and mudflats documented to exist at the time the reserve is established. Desired future conditions for intertidal sand and mudflats are described in section 4.5.5 of the management plan.
- *Preventing non-indigenous organisms from invading or disrupting the ecosystem.* Prevent non-indigenous species not already found within the reserve from establishing populations within the reserve. For those established non-indigenous species that have the capacity to disrupt the ecosystem, undertake appropriate management actions to reduce the abundance and threat to the ecosystem posed by the non-indigenous organisms.
- *Protecting nearshore migratory bird habitat.* Maintain undisturbed shoreline habitats where birds can rest and feed during their annual winter migration. Desired future conditions for marine bird habitat are described in section 4.5.10 of the management plan.

- *Supporting the recovery and protection efforts for Federal and State threatened and endangered species, species of special concern and their habitats.* Identify, monitor and protect all special-status plant and animal species found in the reserve, focusing on species that are state or federally listed, proposed for listing, or candidates for listing. DNR may work with WDFW, NOAA and USFWS to support recovery of Chinook salmon and bull trout, if present, by protecting and restoring suitable habitats within the reserve.

II. Protect and restore the functions and natural processes of nearshore ecosystems in support of the natural resources of the reserve.

This goal may be achieved by:

- *Maintaining the integrity and function of nearshore drift cell processes.* Support voluntary efforts by private landowners to reduce impacts of shoreline modification on nearshore drift cell processes. Target a reduction of shoreline hardening to less than 30 percent of the shorelines throughout the reserve. Support restoration projects that demonstrate ecological benefits and feasibility of shoreline softening to shoreline landowners. Desired future conditions for nearshore drift cells are described in section 4.5.3 of the management plan.
- *Protecting and restoring hydrologic functions and water quality of stream mouth estuaries.* Support efforts to maintain natural flow regimes in streams and seeps entering the reserve. Desired future conditions for stream mouth estuaries are described in section 4.5.4 of the management plan.
- *Working cooperatively to identify and minimize existing and potential future impacts on the nearshore environment resulting from outfalls and runoff discharging to the reserve.* Monitor nearshore water quality for signs of impairment resulting from outfalls or runoff discharging to the reserve. Support local efforts to manage and treat stormwater, sewage, and gray water discharging to the reserve.

III. Promote stewardship of riparian and aquatic habitats and species by providing education and outreach opportunities and promoting coordination with other resource managers.

This goal may be achieved by:

- *Promoting voluntary habitat conservation efforts within and adjacent to the reserve.* Provide trainings and educational materials to shoreline owners describing conservation benefits, best practices, and conservation incentive programs. Establish relationships with local stakeholders to support the reserve's function in providing ecosystem services to the local community.
- *Creating opportunities for public involvement in the management of the reserve.* Create and distribute annual summaries of reserve related activities, achievements and programs. Form and support diverse, stakeholder-based groups to give meaningful, timely input to the DNR regarding the Maury Island Aquatic Reserve.

- *Supporting scientific research and education related to management of the reserve through identifying and prioritizing research needs in relation to the goals identified in this section.* The DNR may work with other agencies and organizations to provide assistance to other programs by designing, conducting, or hosting at least one regionally based environmental education field trip, workshop, seminar, or study course each year. Partner with educational groups to develop and post interpretative materials describing natural resources found within the reserve.

IV. Support traditional recreational (i.e., boating, water skiing, fishing), commercial (i.e., marinas), and cultural uses in and adjacent to the site and promote responsible management of these uses in a manner consistent with the other goals for the reserve.

This goal may be achieved by:

- *Working in cooperation with lessees and recreational user groups to minimize and reduce identified impacts of human activities on the species and habitats within the reserve.* The DNR may take a leadership role in developing and strengthening partnerships, including working with volunteers, and may conduct a variety of outreach efforts to more effectively achieve reserve goals and contribution to the protection and enhancement of the aquatic ecosystems of Vashon and Maury islands.
- *Fostering public access to state-owned aquatic lands within the reserve in a manner consistent with the other management goals for the site.* Work with partners to provide safe and attractive opportunities to access public lands within and adjacent to the reserve. The reserve may provide a variety of quality boat and shoreline interactions with aquatic resources that are safe, consistent with state regulations, and compatible with reserve resources and purposes.
- *Supporting the integrity of adjacent archaeological, cultural, or historical sites.* The reserve may promote a deeper appreciation and understanding of the archaeological, cultural, and historical sites adjacent to the reserve. Desired future conditions for archaeological, cultural, and historical resources are described in section 4.5.11 of the management plan.

3.2.3 Management Plan Provisions

The following section provides a brief summary of the management provisions included in the management plan for the Maury Island site, which is the basis of the Preferred Alternative. The following summary is provided to aid in comparing the Preferred Alternative to the other two action alternatives and to facilitate assessment of potential environmental impacts. The final management plan (DNR 2004) should be carefully reviewed for specific details and clarification pertaining to proposed management provisions.

The proposed management plan would serve as a tool to help DNR ensure environmental conservation (preservation, restoration, and enhancement) of state-owned aquatic lands. While the DNR manages for a balance of public benefits (including environmental

protection, public use and access, water dependent navigation and commerce, natural resource use, and revenue generation), on all state-owned aquatic lands, the emphasis within the reserve would be on ensuring environmental protection. The other benefits may take place within the reserve, but must meet the criteria established in the management plan for the site.

The primary habitats and species at the site that the management plan is designed to conserve include: aquatic vegetation (i.e., eelgrass and kelp); nearshore drift cells; water and sediment quality, intertidal sand and mudflats; estuarine habitat; forage fish (i.e., pacific herring, sand lance, and surf smelt) and their habitats; salmonid rearing and migratory habitat; and marine bird habitat. In addition, the management plan would help to ensure the protection of archeological, cultural, and historical resources within and adjacent to the site.

3.2.3.1 Research and Monitoring

Since most of the long-term goals and management strategies for the proposed reserve depend upon understanding the baseline ecological conditions within the site, a major emphasis during the first ten years of reserve designation would be placed on establishing these baseline conditions.

The DNR would utilize existing information as the starting point for establishing baseline conditions. Where data or information gaps exist, a thorough inventory of the resources within the reserve would be undertaken. The DNR may seek to partner with the Washington Department of Ecology, WDFW, the King County Department of Natural Resources, and local community groups to coordinate baseline inventory efforts.

After baseline ecological conditions are identified, specific management objectives and actions would be refined following an adaptive management process. In addition, effectiveness monitoring would be conducted on regular intervals to aid in the assessment of the success of reserve management strategies in meeting the goals and objectives of the reserve.

The DNR would also seek partnerships with Ecology, WDFW, King County, academic scientists, and local community groups to identify and develop research projects within the reserve, which would increase understanding of the physical and biological conditions of the area and could ultimately lead to better management of the site.

3.2.3.2 Management Guidance for Existing and Future Use Authorizations

General Programmatic Principles: The following provisions apply only to activities that require a use authorization (e.g., lease, license, easement, right of entry) from DNR to use state-owned aquatic lands within the proposed reserve boundary.

- Activities must primarily serve the objective of the reserve designation. An activity would be considered to primarily serve the objective of the reserve if it would not create additional temporal or spatial impacts to the reserve

habitats and species. Proposed uses of the area would need to fully demonstrate that additional impacts to the species and habitats targeted for conservation within the reserve would not be degraded (no net loss) over existing conditions. Any compensatory mitigation required for a project to meet this condition must occur within the reserve or provide direct benefits to the reserve. Mitigation must be fully constructed prior to construction of the impacting use.

- Project proponents must also implement conservation activities (i.e., monitoring, research, habitat improvement, land acquisition, education and outreach) in support of the reserve. Factors for determining the level of conservation activities to be implemented by a project proponent would include the size of the area, intensity and frequency of use, location of activity in relation to specific habitat and species use, and exclusivity of use.
- In addition, existing uses must develop a site management plan in consultation with DNR to identify measures that would be implemented to reduce site-specific environmental impacts from existing facilities and uses over the 90-year period of the reserve. The reduction of impacts of a facility would be implemented as the remaining economic life of the existing structure is realized or there are proposed expansions or upgrades to the facility.
- Plans must be developed and implemented by project proponents to monitor impacts to reserve habitats and species from existing and proposed activities.
- Adaptive management strategies must be developed and implemented by project proponents to ensure improved operations and reduced impacts to reserve habitats and species over time.

General Management Strategies for Uses: Activities within the reserve would be evaluated based on their potential environmental impacts and intensity of use relative to the management unit in which the activity is proposed. The management plan outlines over twenty possible uses that could be proposed to occur within the reserve and discusses the general management strategies and permissibility of such activities within the three management zones of the reserve. Table 5 contains a matrix that lists the types of uses that may be proposed and the general management strategies for each. Again, the final management plan (DNR 2004) should be consulted for a complete description of this information.

Table 5: Overview of General Management Strategies for Potential Activity Proposals

MANAGEMENT ACTIVITY	MANAGEMENT ACTIONS		PRIMARY IMPACTED RESOURCE	GOAL
	Inner Quartermaster	Outer Quartermaster		
Stormwater and Process water Outfalls	No direct discharge from formal stormwater infrastructure or process water to the reserve area. Upland treatment and infiltration to groundwater, streams, or wetlands to be re-introduced to marine waters through natural hydrologic processes if feasible.	No direct discharge from formal stormwater infrastructure or process water to the reserve area. Upland treatment and infiltration to groundwater, streams, or wetlands to be re-introduced to marine waters through natural hydrologic processes if feasible – OR – might consider discharge area of impact to extend beyond the boundary of influence or habitat of concern (eelgrass, herring holding area, salmon migratory habitat, near shore zone).	Water quality, nutrient input, toxics, sediment input, flow rate, mixing, temperature, dissolved oxygen, salinity.	No shellfish closures due to water quality concerns. Meet Clean Water Act standards. Maintain sediment quality.
Sewage Outfalls	No direct discharge to reserve area. Upland treatment and infiltration to groundwater, streams, or wetlands to be re-introduced to marine waters through natural hydrologic processes.	No direct discharge to reserve area. Upland treatment and infiltration to groundwater, streams, or wetlands to be re-introduced to marine waters through natural hydrologic processes – OR – might consider discharge area of impact to extend beyond the boundary of influence or habitat of concern (eelgrass, herring holding area, salmon migratory habitat, near shore zone).	Water quality, nutrient input, toxics, sediment input, flow rate, mixing, temperature, dissolved oxygen, salinity.	No shellfish closures due to water quality concerns. Meet Clean Water Act standards. Maintain sediment quality.
Water Intakes	No intakes near fish spawning, migratory, or rearing areas. Intakes should generally be placed deeper than –30 ft. MLLW. All intakes must adhere to WDFW screening criteria.		Removal or destruction of habitat and disruption of fish larval dispersal. Direct entrainment of marine species.	No loss of juvenile fish or adult crustaceans related to intakes. No destruction of aquatic habitat related to intakes.

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MANAGEMENT ACTIVITY	MANAGEMENT ACTIONS		PRIMARY IMPACTED RESOURCE	GOAL
	Inner Quartermaster	Outer Quartermaster		
Desalinization Facilities	Same as “intake” above. No discharge of desalinization wastewater or concentrated minerals to marine waters.	Same as “intake” above. No discharge of concentrated minerals to marine waters. Prefer no direct discharge of wastewater to reserve area – OR – might consider discharge area of impact to extend beyond the boundary of influence or habitat of concern (eelgrass, herring holding area, salmon migratory habitat, near shore zone).	Water quality, habitat disruption, and direct entrainment of marine organisms.	No loss of juvenile fish or adult crustaceans related to desalinization intakes or outfalls. No destruction of aquatic habitat related to desalinization intakes or outfalls. Maintain existing ambient salinity levels.
Cable Crossings	Permissible. Required to route cable around or drilling below critical habitat. Must avoid all surface and sub-surface impacts to critical aquatic habitat and species. Proponents must survey and video seabed to show proposed installation site is free of vegetation. Installation period must comply with WDFW in-water work periods. Cables should be buried, preferably using directional drilling, from the uplands to waterward of the deepest documented occurrence of native aquatic vegetation. In addition, the methods proposed for installing cable must utilize the best available technology to ensure the minimum impact from installation to the habitat identified for conservation at the site.		Aquatic vegetation, other aquatic rearing and migratory habitat, disruption of near shore drift, localized habitat degradation.	No disturbance of vegetated areas during construction. No post construction project footprint on surface within euphotic zone.
Oil, gas, water, and other pipelines	Same as cable crossings. Additionally, pipelines must be directionally drilled below the reserve to depths of minus 70 feet at MLLW or ½ mile from the MHW line. For pipelines carrying potentially toxic substances (fluid or gas), the project proponent must work with DNR staff, Utilities and Transportation Commission - Pipeline Safety staff, federal regulators, and the Pipeline Safety Trust to define conditions for the pipeline’s operation and maintenance. This should include, at a minimum, leak detection, a comprehensive value study, and maintenance requirements. Operation and maintenance standards must utilize the best available technology.		Aquatic vegetation, other aquatic rearing and migratory habitat, disruption of near shore drift, localized habitat degradation.	No disturbance of vegetated areas during construction. No post construction project footprint on surface within euphotic zone. Protect reserve resources from leaks of toxic chemicals.
Fish Pens	Not permissible.	Conditional – Herring holding in pens is not permitted during periods of herring spawning (Jan. through mid-April). In addition, pens being utilized to hold herring may only be sited in areas of adequate flushing to ensure there are no water quality impacts. No floating aquaculture facility may be located over aquatic vegetation or documented spawning habitat and shall not be located in the intertidal zone.	Aquatic vegetation, other rearing and migratory habitat, water quality, euphotic zone, herring spawning habitat.	Herring disease levels consistent with pre-project baseline conditions. No disturbance to aquatic vegetation or euphotic zone.

Final Supplemental Environmental Impact Statement – Proposed Maury Island Aquatic Reserve

MANAGEMENT ACTIVITY	MANAGEMENT ACTIONS		PRIMARY IMPACTED RESOURCE	GOAL
	Inner Quartermaster	Outer Quartermaster		
State Commercial Geoduck Harvest	Only on commercial tracts and performed with no impacts to aquatic habitat and species identified in the management plan. Harvest must be consistent with the guidance established in the FSEIS for the state commercial geoduck fishery and associated management plan.		Aquatic vegetation, fish migration, spawning and rearing habitat, intertidal substrate.	No disturbance of aquatic vegetation. No long-term turbidity increases. No disruption of fish spawning or rearing.
Shellfish Aquaculture	Permissible with no impacts to conservation features of aquatic habitat and species identified in the management plan. Use of herbicides and pesticides, cutting, tilling, or otherwise disturbing native aquatic vegetation is not permissible.		Aquatic vegetation, fish migration, spawning and rearing habitat, intertidal substrate.	No disturbance of aquatic vegetation. No long-term turbidity increases. No disruption of fish spawning or rearing.
Marinas and Public Docks	Existing marinas permissible with long-term management plan that outlines time frames for upgrades to reduce impacts. New Marinas – Contingent on siting study to be conducted for the reserve in coordination with local user groups and applicable local, state, and federal government agencies. . . King County shorelines regulations do not currently allow marinas in Conservancy environments. New marinas must provide pump-out facilities and no covered slips.	Contingent on siting study to be conducted for the reserve in coordination with local user groups and applicable local, state, and federal government agencies. . . King County shorelines regulations do not currently allow marinas in Conservancy environments. New marinas must provide pump-out facilities and no covered slips.	Euphotic zone, aquatic vegetation, water quality, sediment contamination, hydrologic alterations, and fish predation.	No disturbance of aquatic vegetation. Meet Clean Water Act standards. Maintain sediment quality. No disruption of fish spawning or rearing.
Breakwaters on State Land	Not permitted. King County Shoreline regulations do not currently allow breakwaters to be permitted in Rural and Conservancy zones, which encompass the entire reserve area.		Hydrologic alterations, drift cells, aquatic vegetation, and fish predation.	No disturbance of aquatic vegetation. Promote natural hydrologic regime. Avoid drift cell disruptions. No disruption of fish spawning, rearing, or migration.
Boat repair facilities on state land	Not permissible.		Water quality and contaminated sediment.	Meet Clean Water Act standards. Maintain sediment quality.

MANAGEMENT ACTIVITY	MANAGEMENT ACTIONS		PRIMARY IMPACTED RESOURCE	GOAL
	Inner Quartermaster	Outer Quartermaster		
Resource Use and Industrial Wharves and Piers	New structures permissible only if they meet all provisions of the management plan. New resource use and industrial wharves and piers will only be considered in areas adjacent to the upland facility they are needed to support and consistent with adjacent upland zoning.	Limited to area adjacent to upland mineral zoning in King County Comprehensive Plan. New structures permissible only if they meet all provisions of the management plan. Existing facilities must upgrade their facility to reduce impacts over time.	Water quality, hydrologic alterations, drift cells, aquatic vegetation, and adverse species interactions.	No disturbance of aquatic vegetation. Promote natural hydrologic regime. Avoid drift cell disruptions. No disruption of fish spawning, rearing, or migration.
Mooring Areas, Recreational Mooring Buoys, and Private Recreational Docks on State-Owned Aquatic Lands	DNR may inventory existing buoys and establish ownership; cooperate with owners to identify appropriate installation methods, locations, and maintenance practices; and authorize buoys on state-owned aquatic lands (adjacent landowners may install and maintain a recreational dock or mooring buoy at no fee). Until the inventory actions are completed, existing mooring areas would be allowed to remain. In the future, DNR would remove abandoned buoys, ensure proper installation, and promote public awareness of location of eelgrass and forage fish spawning locations.		Aquatic vegetation, forage fish spawning and rearing habitat, water quality.	No disturbance of aquatic vegetation. Meet Clean Water Act standards and maintain sediment quality. No disruption of fish spawning, rearing, or migration.
Residential Use (Live Aboards)	Limited to existing marinas and according to the limitations of DNR regulations in WAC 332-30-171 and King County Shoreline Master Program.	Reference marinas and public docks section above.	Water quality, hydrologic alterations, drift cells, aquatic vegetation, and adverse species interactions.	No disturbance of aquatic vegetation. Meet Clean Water Act standards and maintain sediment quality. No disruption of fish spawning, rearing, or migration.
Log Storage/Booming	Not permissible.		Euphotic zone, substrate, aquatic vegetation, sediment quality.	No disturbance of aquatic vegetation. Meet Clean Water Act standards. Maintain sediment quality.

Final Supplemental Environmental Impact Statement – Proposed Maury Island Aquatic Reserve

MANAGEMENT ACTIVITY	MANAGEMENT ACTIONS		PRIMARY IMPACTED RESOURCE	GOAL
	Inner Quartermaster	Outer Quartermaster		
Dredging	Not permissible, unless for federal transportation projects.		Substrate, water quality, aquatic vegetation, fish spawning, rearing, and migration.	No disturbance of aquatic vegetation. Meet Clean Water Act standards. Maintain sediment quality. No disruption of fish spawning, rearing, or migration.
MTCA/CERCLA Sites	Support reserve conservation goals and manages uses within the reserve to prevent future sediment contamination.		Sediment quality, water quality.	Meet Clean Water Act standards. Maintain sediment quality.
Voluntary Restoration and Enhancement	Encouraged throughout the reserve based on recognized priorities. DNR would review existing inventories of potential restoration activities and in voluntary cooperation with interested parties would develop a site-specific prioritization; secure funding for habitat improvement projects; and implement projects within the reserve.		Euphotic zone, aquatic vegetation, water quality, sediment quality, hydrologic alterations, drift cells, fish populations and habitat.	Maintain and improve aquatic habitat conditions within the reserve.
Mitigation and Mitigation Banking	Projects within reserve must be fully mitigated and compensatory mitigation must be installed prior to project-related impacts occurring. Mitigation activities for projects adjacent to the reserve must improve aquatic habitat conditions within the reserve. Mitigation banks that meet the mitigation requirements above would be encouraged throughout the reserve based on priorities identified in the management plan or other documented publications.		Euphotic zone, aquatic vegetation, water quality, sediment quality, hydrologic alterations, drift cells, fish populations and habitat.	Maintain and improve aquatic habitat conditions within the reserve.

Specific Management Strategies for Authorized and Pending Uses: Under the management plan, existing authorized uses and those currently negotiating authorizations within the reserve would be subject to the same general programmatic requirements and the management strategies described for each use type (Table 5). As existing uses may already have caused or currently cause impacts to the species and habitats targeted for conservation within the reserve, these authorized uses would also be required to develop site plans that would identify measures to reduce any ongoing site-specific environmental impacts related to existing facilities and implement these over the course of the 90-year term of the reserve.

In the management plan, DNR has identified specific issues related to the existing or pending authorized uses that the proponents would be required to consider when acquiring authorization, upgrading, or expanding an existing use. These specific activities would be designed to reduce existing and continuing impacts associated with the authorized use.

For example, to reduce existing and continuing impacts of the facilities, the Quartermaster Yacht Club, Quartermaster Harbor Marina, and the Dockton County Marina would need to consider implementation of actions such as, but not limited to:

- Upgrade piers to enhance water circulation;
- Limit shading;
- Employ “soft” armoring erosion control measures;
- Maintain a pump-out facility;
- Provide shoreside restrooms;
- Expand landward;
- Monitor potential impacts; and
- Other actions as outlined in the management plan (DNR 2004).

Glacier Northwest’s Maury Island gravel barge loading facility would need to consider measures to reduce the impacts of the existing structure over time, which may include:

- Remove existing chemically treated pilings;
- Utilize environmentally neutral materials in new construction;
- Adequately treat and infiltrate stormwater or settling pond water collected on site from upland facilities in upland locations to eliminate direct discharges to marine waters. Stormwater facilities should be designed to mimic the natural hydrology of subsurface water and natural surface water flows to receiving waters.

- Construct the upgraded facility as to not increase existing levels of overwater shading;
- Design facility to minimize hydrologic alterations and disruption to nearshore drift;
- Minimize noise and light impacts associated with construction and operation of the facility;
- Monitor potential impacts; and
- Other actions as outlined in the management plan (DNR 2004).

The Puget Sound Energy Utility cable crossings would not be required to implement additional measures to reduce environmental impacts, as they do not require active management and do not impact the habitats and species identified for conservation within the reserve. However, repair or maintenance activities would be required to consider impacts to habitats and species identified for conservation. Puget Sound Energy would not be required to implement actions to primarily serve the objectives of the reserve unless upgrades or additional construction were proposed in the area, as the current use authorizations are valid in perpetuity.

Comcast's proposed fiber optic cable crossing would be required to ensure that it will not degrade any of the habitats and species within the reserve and adhere to all other provisions of the management plan, including the general requirements for cable crossings presented in Table 5.

The purpose of the specific actions described for existing uses within the reserve is to reduce existing and continuing impacts of these facilities over time. The final management plan (DNR 2004) should be reviewed for the complete description of suggested improvements to existing facilities.

3.2.3.3 DNR Led and Partnering Activities

The management plan identifies a number of activities to be implemented within the reserve that may not require a use authorization but could be implemented by DNR or in partnership with other entities. These activities (i.e., derelict vessel removal, aquatic nuisance species management) would be conducted in an effort to better meet the goals and objectives for the reserve.

Derelict Vessels: The DNR would inventory existing derelict or abandoned vessels throughout the reserve, regularly identify the arrival of new derelict or abandoned vessels, and remove vessels, as practicable, per the DNR Derelict Vessel Removal Program guidelines.

Land Acquisition for Habitat: The DNR would work with King County, the Vashon-Maury Island Land Trust, and other interested parties to establish priorities for habitat acquisition; identify opportunities and secure funding to acquire habitat; and work cooperatively with owners of adjacent lands (on a voluntary basis) to

identify habitat conservation activities that could be implemented when acquisition is not an option. If intertidal areas directly adjacent to the reserve are acquired by the state, then DNR can choose to include these lands in the aquatic reserve.

Aquatic Nuisance Species Management: Aquatic nuisance species that were identified in the reserve would be managed in cooperation with the Washington Department of Agriculture, WDFW, and the King County Noxious Weed Board. Priorities for aquatic nuisance management would be developed through implementation of the management plan.

Transient Public Recreational Use: The DNR does not have regulatory authority to manage transient public recreational activities on state-owned aquatic lands (i.e., boating, fishing, shellfishing, swimming, beach walking, etc.). Under the management plan, DNR would promote and encourage appropriate, legal transient public recreational activities within the reserve conducted in a manner that conserves the habitats and species of the reserve. To accomplish this, DNR would inventory existing recreational uses and determine if activities are causing impacts to the habitats and species targeted for conservation within the reserve. If it is determined that impacts are occurring, DNR would work cooperatively with user groups and appropriate regulatory agencies to identify opportunities for voluntary efforts that would avoid and minimize impacts.

Outreach and Education: The DNR would work with user groups, local environmental groups, local clubs, and other interested citizens to implement a number of education and outreach actions such as:

- Placement of signs and boundary markers in and adjacent to the reserve;
- Dissemination of information on BMPs related to bulkheads, riparian management, septic tanks/fields, docks, and mooring buoys to local residents;
- Dissemination of information on BMPs for commercial activities (e.g., docks and marinas) to businesses;
- General education activities such as school visits, shoreline stewardship walks, and interpretive signage;
- Identification of opportunities (such as locating funding sources) to interface voluntary management of private aquatic lands with the aquatic reserve management; and
- Development of a process for working with local jurisdictions, regulatory agencies, and adjoining landowners to identify and minimize off-site impacts.

3.2.3.4 Private and Public Lands Adjacent to the Aquatic Reserve

Approximately 88 percent of the tidelands in Quartermaster Harbor and the east shore of Maury Island are not state-owned aquatic lands under DNR management. Tidelands not managed by DNR may be owned and managed by other public agencies including King County, WDFW, U.S. Coast Guard, or may be in private

ownership. DNR has identified activities that occur on aquatic lands and uplands that may impact habitats and species identified for conservation in the reserve. The management plan provides strategies for DNR to potentially address some of these issues, as discussed below. However, the DNR has no direct management authority over activities occurring on private lands.

Shoreline Modification: In areas not owned by the state, DNR would work in cooperation with local landowners on a voluntary basis on efforts to reduce the impacts of shoreline hardening. The DNR would also seek funding sources and incentive programs to facilitate the improvement of shoreline conditions.

Non-Point Source Pollution: The DNR would review past and present non-point source pollution programs; identify sources of non-point pollution within the Maury Island site; and work cooperatively with King County and local entities to address these concerns. The DNR would also seek funding sources to assist in these efforts.

Docks, Floats, and Mooring Buoys on Private Property: To help address potential impacts that may be associated with docks, floats, and mooring buoys located on private property, DNR would work cooperatively with landowners (on a voluntary basis) to identify ways to reduce possible impacts from these structures and would also seek funding to facilitate these efforts.

3.2.4 Commissioner's Order

After the SEPA process has been completed and if the Public Benefits Evaluation suggests that the proposed management plan best serves the public benefit, then the Commissioner of Public Lands would proceed to formalize the reserve. The Commissioner would repeal the existing Commissioner's Order and would issue a new Commissioner's Order re-designating the Maury Island site as an aquatic reserve and adopting the management plan. The language in the Commissioner's Order would identify the boundaries of the reserve and include reference to the habitats and species identified for conservation, the management plan, and any specific lease limitations that may be imposed at the site. Additionally, the Commissioner's Order would state that the aquatic reserve designation would be valid for a period of 90 years, at which time the site would be re-evaluated to determine if its reserve status should continue for an additional 90-year period.

3.2.5 Program Implementation

Initially, DNR land managers would implement the management plan through the negotiation of existing and proposed use authorizations within the reserve boundary. Over time, DNR would seek reserve management funding for the site for the implementation of the more proactive provisions contained in the management plan. The plan would be reviewed and updated every ten years throughout the 90-year term of the reserve designation. Among other issues, changes in scientific knowledge, condition of habitats and species, and existing uses would be reviewed and revised as part of the update. Additionally, data and reports generated from research and monitoring activities

would be evaluated in an attempt to determine whether management actions were meeting the goals and objectives of the reserve.

3.3 Alternative 2 (Repeal the Reserve)

This alternative would repeal the existing withdrawal order and reserve designation that was established for the Maury Island site in 2000 by a Commissioner’s Order. All aquatic reserve boundaries would be removed and the interim reserve management guidelines would no longer apply to the site. The 5,866 acres of state-owned aquatic tidelands and bedlands at the site currently designated as a reserve would be available for general leasing opportunities under RCW 79.90 through 79.100. This alternative would return approximately 24.4 linear miles of shoreline, extending from Neill Point to as far as the shores between Point Robinson and Luana Beach, to potential leasing “status.” All future applications for use of state-owned aquatic lands at the site would still be required to comply with local, state, and federal laws as well as applicable landowner preference rights.

3.3.1 Aquatic Reserve Boundary

No lands at the Maury Island site would be designated as a reserve under Alternative 2. The area that would no longer be withdrawn or considered a reserve encompasses all of Quartermaster Harbor and the eastern shores of Maury Island up to Luana Beach, extending from the landward boundary of state ownership to a water depth of 70 feet below mean lower low water or one-half mile from the line of extreme low tide, whichever is further waterward.

3.3.2 Goals and Objectives

DNR would not adopt any site-specific goals or objectives with regards to this site. Therefore these lands would be managed following the aquatic land management guidelines that state:

The management of state-owned aquatic lands shall be in conformance with constitutional and statutory requirements. The manager of state-owned aquatic lands shall strive to provide a balance of public benefits for all citizens of the state. The public benefits provided by aquatic lands are varied and include: 1) Encouraging direct public use and access; 2) Fostering water-dependent uses; 3) Ensuring environmental protection; and 4) Utilizing renewable resources. Generating revenue in a manner consistent with subsections (1) through (4) of this section is a public benefit (RCW 79.90.455).

3.3.3 Management Plan Provisions

In general, management of the Maury Island site under the Repeal the Reserve Alternative would be more passive in that DNR would primarily rely on the regulatory agencies to guide environmental protective measures for uses in the area. Management would also be reactive in the sense that DNR would likely review uses in the area primarily when evaluating applications for use authorizations and reauthorizations and little proactive management efforts would be undertaken (i.e., mooring buoy and recreational dock inventory, baseline monitoring). Further, DNR management of the

Maury Island site would seek to balance public use and access, fostering water-dependent uses, utilizing renewable resources, and ensuring environmental protection, whereas with aquatic reserve designation in place, the primary emphasis would be upon environmental protection.

3.3.3.1 Research and Monitoring

The DNR would continue to require monitoring by lessees in accordance with existing use authorization guidance and polices. Proactive research activities would not be implemented by DNR under this alternative.

3.3.3.2 Management Guidance for Existing and Future Use Authorizations

Under Alternative 2, the Maury Island site would not be managed as an aquatic reserve and no site-specific management plan would be implemented. Instead, RCWs, WACs, and existing DNR guidance and procedures for use authorizations would guide management of uses at the site.

Evaluation of existing and proposed uses would be based upon the mandates for DNR management of state-owned aquatic lands, which include: encouraging direct public use and access; fostering water-dependent uses; ensuring environmental protection; utilizing renewable resources; and generating revenue in a manner consistent with the other directives (RCW 79.90.455). The DNR would encourage water-dependent uses over non-water dependent uses in accordance with RCW 79.90.460.

In general, DNR would defer to the regulatory agencies (i.e., Ecology, WDFW, Corps, and King County) in regards to facility and structure design for existing and proposed uses. However, DNR land managers would have the ability to impose additional requirements for use authorizations if deemed necessary to protect aquatic resources.

3.3.3.3 DNR Led and Partnering Activities

Under the Repeal the Reserve Alternative, DNR would not be explicitly directed to lead activities aside from those normally performed for all state-owned aquatic lands. DNR would also not be directed to partner with other entities in relation to management activities at the Maury Island site.

Derelict Vessels: The DNR would manage derelict vessels in accordance with RCW 79.100 and internal DNR guidance for the Derelict Vessel Removal Program. The DNR would not likely proactively inventory and manage derelict vessels under the Repeal the Reserve Alternative. The DNR staff would, however, respond to requests to attend to derelict vessels in the Maury Island site as time and staffing levels allowed.

Land Acquisition for Habitat: Under the Repeal the Reserve Alternative, DNR would not proactively work with local entities to identify and pursue habitat acquisition opportunities and funding sources. The DNR would respond to inquiries from external entities regarding such activities as staffing and time allowed.

Aquatic Nuisance Species Management: Under the Repeal the Reserve Alternative, DNR would utilize existing guidance and policies in the management of aquatic nuisance species on state-owned aquatic lands. Under this alternative, DNR would not plan to focus aquatic nuisance species eradication efforts in the Maury Island site, as the area is not presently thought to support large populations of aquatic nuisance species.

Transient Public Recreational Use: The DNR would promote and encourage responsible public recreational activities at the Maury Island site, as on all state-owned aquatic lands. There would be no proactive efforts to inventory uses or work with user groups to minimize potential adverse impacts of public use or to identify increased needs for access to the Maury Island site.

Outreach and Education: Under the Repeal the Reserve Alternative, DNR would not implement outreach and education activities at the Maury Island site above and beyond what is done in other areas of the state. Most often, outreach and education activities are conducted in response to specific issues. Under this alternative there would be no effort to assist local landowners with projects on their lands or to distribute BMPs for shoreline activities.

3.3.3.4 Private and Public Land Adjacent to the Aquatic Reserve

Under this alternative, DNR would not actively engage government entities or local residents regarding minimization of impacts on adjacent lands related to such issues as shoreline modification, non-point source pollution, and docks, floats, and mooring buoys on private lands. The DNR would respond to local community issues that affect state-owned aquatic lands as time and staffing allowed.

3.3.4 Commissioner’s Order

After the SEPA process has been completed and if the Public Benefits Evaluation suggests that repealing aquatic reserve status would best serve the public benefit, then the Commissioner of Public Lands would proceed to issue a Commissioner’s Order repealing aquatic reserve designation for the Maury Island site and making the land available for general leasing activities.

3.3.5 Program Implementation

Aside from the Commissioner’s Order, Alternative 2 would not require special implementation measures. The Shoreline District of DNR’s Aquatic Resources Program would evaluate existing and proposed uses at the Maury Island site in the same manner as all other state-owned aquatic lands.

3.4 Alternative 3 (No Action)

Under the No Action Alternative, the Maury Island site would continue to be designated as an environmental aquatic reserve, although a site-specific management plan for the reserve would not be implemented. The No Action Alternative maintains the status quo (i.e., maintains the status of the site before the current action was considered). The objectives of

the reserve would be those defined in WAC 332-30-106, which explains that environmental reserves are meant to conserve areas of environmental importance, maintain sites established for continuing environmental baseline monitoring, and/or protect areas of particular historic, geologic, or biologic interest.

3.4.1 Aquatic Reserve Boundary

The boundary for the reserve would remain the same as was originally designated in 2000, which includes state-owned aquatic lands in Quartermaster Harbor (starting at Neill Point) and the eastern shore of Maury Island, Point Robinson, and the northern shoreline toward Luana Beach ([Appendix C](#)). The site encompasses 5,866 acres of state-owned aquatic lands and extends over approximately 24.4 linear miles of shoreline.

3.4.2 Goals and Objectives

Under this alternative the goals and objectives would be those adopted for the Aquatic Reserve Program in the programmatic FEIS (DNR 2002). DNR would use aquatic reserves as a tool to help ensure environmental protection, preservation and enhancement of state-owned aquatic lands that would provide direct and indirect benefits to aquatic resources in Washington State.

DNR would utilize different types of reserves to accomplish the program goal. The three types of reserves, as currently defined by WAC 332-30-151 are: environmental reserves, scientific reserves, and educational reserves. Measurable objectives for environmental reserves such as Maury Island are as follows:

- Conservation (i.e., no net loss of elements of biodiversity), ecological function and services, or historical significance; and
- Restoration (i.e., improve ecosystem function and services) and return degraded systems to better functioning conditions.
- *Associated measures to ensure environmental protection -*
 - Conduct baseline monitoring to determine if resource protection measures of designation are successful.
 - Use a checklist of key or indicator species, community and function types to measure success.

3.4.3 Management Plan Provisions

Management of the Maury Island Reserve under the No Action Alternative would be through use authorizations administered by DNR, or “by assignment to another governmental agency or institution” (WAC 332-30-151 (4)(c)).

The 2002 programmatic FEIS outlined general management actions for environmental aquatic reserves that would be used by DNR land managers in conjunction with existing RCWs and WACs to aid in determining appropriate and undesirable uses within the reserve.

However, there would be no site-specific management plan implemented under the No Action Alternative; therefore, it is uncertain whether DNR would proactively address issues relating to mooring buoys, recreational docks, trespass structures, and other

components contained in the proposed management plan under the Preferred Alternative. Given time and staffing resources, proactive efforts on behalf of DNR could be undertaken, although the focus and timing of such efforts would be uncertain and subject to available resources and changing priorities over the 90-year period.

3.4.3.1 Research and Monitoring

The DNR would continue to require monitoring by lessees in accordance with existing use authorization guidance and polices. Proactive research activities would not be implemented by DNR under this alternative.

3.4.3.2 Management Guidance for Existing and Future Use Authorizations

As per the programmatic FEIS (DNR 2002), in general, no future use authorizations would be granted that alter, remove, and/or otherwise change any existing environmental or cultural characteristic of an established reserve, except for those use authorizations that primarily serve the objectives of the reserve designation.

All uses allowed in aquatic reserves must be implemented in such a manner that would avoid, minimize, and compensate for all environmental impacts. Use authorizations that were granted prior to establishment of the reserve would be honored throughout the duration of the current leasing period.

To provide for the purpose of the reserve, the existing WAC requires “a critical review of lease applications in the reserve area to insure proposed activities will not conflict with the basis for reserve designation” (WAC 332-30-151 (6)).

In general, DNR would defer to the regulatory agencies (i.e., Ecology, WDFW, Corps, and King County) in regards to facility and structure design for existing and proposed uses. However, DNR would support maintenance and facility upgrades (for existing use authorizations within a reserve) that serve to implement the objectives of the reserve.

3.4.3.3 DNR Led and Partnering Activities

The programmatic FEIS directs DNR to work with other entities to reduce environmental impacts within the reserve but does not provide specific guidance pertaining to what types of activities should be undertaken (DNR 2002).

Derelict Vessels: The DNR would manage derelict vessels in accordance with RCW 79.100 and internal DNR guidance for the Derelict Vessel Removal Program. The Derelict Vessel Removal Program gives higher priority to derelict vessels impacting a marine protected area, such as an aquatic reserve. Therefore, assuming other variables are equal, there would be a higher likelihood that derelict vessels within the Maury Island site would be removed if the area is designated as a reserve than if it were not. However, under this alternative, there would be no specific directive for DNR to proactively inventory potential derelict vessels within the Maury Island site. The DNR staff would respond to requests to attend to derelict vessels in the Maury Island site as time and staffing levels allowed.

Land Acquisition for Habitat: Under the No Action Alternative, DNR would not proactively work with local entities to identify and pursue habitat acquisition opportunities and funding sources. The DNR would respond to inquiries from external entities regarding such activities as staffing and time allowed.

Aquatic Nuisance Species Management: Under the No Action Alternative, DNR would utilize existing guidance and policies in the management of aquatic nuisance species on state-owned aquatic lands. Under this alternative, DNR would not plan to focus aquatic nuisance species eradication efforts in the Maury Island site, as the area is not presently thought to support large populations of aquatic nuisance species. Further, the programmatic FEIS does not include provisions specifically related to aquatic nuisance species eradication.

Transient Public Recreational Use: Transient recreational use of state-owned aquatic lands would continue in accordance with existing RCWs, WACs, and DNR guidance and policies. Access (beyond transient uses) would be limited to those individuals engaged in conservation and restoration activities at the site.

Outreach and Education: Under the No Action Alternative, DNR would not implement outreach and education activities at the Maury Island site above and beyond what is done in any other area of the state. Most often, outreach and education activities are conducted in response to specific issues. Under this alternative there would be no effort to assist local landowners with projects on their lands or to distribute BMPs for shoreline activities.

3.4.3.4 Private and Public Lands Adjacent to the Aquatic Reserve

The programmatic FEIS directs DNR to work with adjacent landowners and regulatory agencies to minimize off-site impacts but does not directly state that efforts should be made pertaining to such issues as shoreline modification, non-point source pollution, and docks, floats, and mooring buoys on private lands. Under this alternative, DNR would respond to local community issues that affect state-owned aquatic lands as time and staffing allowed.

3.4.4 Commissioner’s Order

The No Action Alternative would simply maintain the status quo. Therefore, the existing Commissioner’s Order would remain in effect and a new Commissioner’s Order would not be required for implementation of this alternative.

3.4.5 Program Implementation

The Shoreline District of DNR’s Aquatic Resources Program would evaluate existing and proposed uses at the Maury Island site based upon the programmatic FEIS, in addition to RCWs, WACs, and internal DNR guidance. No additional implementation measures would be required.

3.5 Alternatives Considered But Eliminated From Detailed Evaluation

In addition to the three action alternatives presented above, DNR also considered an alternative that would maintain reserve status for the Maury Island site and would not permit any new use authorizations in the area. Under this alternative DNR would have honored existing use authorizations but would not have re-authorized existing uses and would not consider proposals for new activities in the area. The DNR also considered an alternative that would repeal reserve designation for the site, but would withdraw the lands at the Maury Island site from leasing activities. Under this alternative new uses would not be allowed at the site, but existing uses may be allowed to continue and no management plan would be adopted for the site. These two additional alternatives were not carried forward as they were not thought to adequately meet the purpose and need for action (Sections 2.1 and 2.2) and were not suggested by entities during public scoping or widely supported in comments on the draft management plan and SEIS.

4.0 Affected Environment and Impact Analysis

WAC 197-11-444 outlines the general components to be included in an Environmental Impact Statement (EIS) and states that some or all of the identified elements may be combined to simplify the EIS format, improve readability, and focus on the significant issues. Therefore, the subsequent sections of this SEIS will address the affected environment and potential effects of the proposed action alternatives on the following resource categories:

Natural Environment: The marine environment along Maury Island is extremely complex, productive, and provides important habitat structures and ecosystem functions for a wide variety of aquatic flora and fauna. While urbanization and human development have altered much of the nearshore and marine environments in the central Puget Sound, the habitat along Maury Island remains relatively healthy, which makes it a crucial component of the area's aquatic environment. The primary components of the natural environment addressed in this SEIS include:

- Earth
- Air
- Water Resources
- Plants and Animals
- Energy and Natural Resources

Built Environment: The Maury Island site is a relatively rural area characterized by its proximity to marine waters and the natural resource, recreation, and low-density residential uses that predominate the built environment of the site. The primary components of the built environment evaluated in this SEIS include:

- Environmental Health
- Land and Shoreline Uses
- Transportation
- Public Services and Utilities

Following each description of the affected environment is a description of the potential impacts on that element of the environment. Assessing the impacts to the environment for this SEIS was constrained by four factors:

- Current information about site-specific resources is limited.
- The state of scientific knowledge relating to the relationships between uses managed by Washington DNR and their associated environmental impacts is currently limited and continues to expand.
- Under the management plan, DNR would seek voluntary cooperation on behalf of adjacent landowners, recreational users, and other governmental entities to implement many proposed actions. In general, if these efforts were successful, then positive impacts to the natural environment would be increased, although participation in voluntary activities is uncertain.

- Under the management plan, DNR would work with existing and proposed authorized uses within the site to apply certain protective criteria (which are identified within the management plan) to the activities. If the criteria were met by existing and proposed authorized uses within the site, then positive impacts to the natural environment would be increased and the negative impacts to the built environment would be decreased.

Given the recognized uncertainty with these four issues, the impacts analysis attempts to determine the probability (low, moderate, or high) that the impacts would take place and whether the impacts would be:

- Positive or negative;
- Direct, indirect, or cumulative; and
- Isolated to specific locations within the reserve or dispersed throughout the reserve at-large.

The severity of the positive or negative effects of the alternatives is difficult to determine at this time, as it would greatly depend upon the degree to which the voluntary efforts are implemented and the uncertain level of future development that could be proposed at the site. Table 2 provides a summary of potential impacts from all three of the alternatives.

4.1 Earth

4.1.1 Affected Environment

4.1.1.1 Regional Overview

The Puget Sound is part of a series of interconnected, glacially scoured basins along the Pacific Coast of the northwest. Glaciers have repeatedly occupied the Puget Lowland over thousands of years. At least three, and possibly as many as six, glacial episodes have shaped the Puget Sound landscape. The most recent glaciation, called the Fraser, extended from Canada to as far south as Olympia. The Puget Lobe of the Fraser episode created the north-south orientation of the Puget Sound topography and deposited the glacial till that covers much of the region (Williams et al. 2001).

The Maury Island site is located in what is generally considered the central Puget Sound basin, which encompasses the area from south of Whidbey Island down to Commencement Bay. The central basin is the largest of the Puget Sound sub-basins covering an area of approximately 290 mi² (Williams et al. 2001).

The reserve can be sub-divided into three distinct ecological management zones (Figure 2), each with substantial differences in the associated natural resources, ecological processes, and management needs. The following management units have been established for the reserve:

1. Inner Quartermaster Harbor: Inner Quartermaster Harbor is the most sheltered portion of the harbor with very weak or indeterminate currents created by tide and wind conditions (Turnbeaugh 1975). The subtidal sediments in this area are classified as mud, but the mud is much deeper than areas in outer Quartermaster Harbor (Blau 1975).

2. Outer Quartermaster Harbor: The delineation between inner and outer Quartermaster Harbor is the transition area between Burton Peninsula and Raab’s Lagoon (Figure 2). With the exception of the area around Dockton, outer Quartermaster Harbor experiences much higher wave exposure, currents, and circulation. The waters in inner and outer Quartermaster Harbor are warmer, less saline, and have a higher residency time than waters offshore of Maury Island’s east shore.

3. Piner Point – Point Robinson Nearshore (also referred to as the east shore of Maury Island): The east shoreline of Maury Island from Piner Point to Point Robinson is much more exposed and transitions to deeper offshore waters. Nearshore currents direct sediment movement toward the northeast, supporting the sand spit known as Point Robinson.

Figure 2: Ecological Management Zones



4.1.1.2 Geology and Soils

The Maury Island site is underlain by glacial till, sand, and gravel. Glacial till is a relatively unsorted mixture of clay, sand, gravel, and rocks (ranging in size from pebbles to boulders) left by receding glaciers. The source of the till in the area is from the Vashon age glacier that occupied the Puget Sound basin approximately 13,000 to 16,000 years ago. Till in the Puget Sound is often thick, sometimes 100 feet in depth or deeper (King County 2000).

The soil and sediments near the surface of the nearshore and bedland areas of Maury Island are most likely derived from submarine erosion and glacial bluff erosion along the shoreline. In Quartermaster Harbor, tributary streams such as Judd and Fisher creeks also deliver sediments (Appendix E). While the upper intertidal substrates include mud, sand, gravel, and cobble, the lower intertidal is predominantly sandy and more than 90 percent of the subtidal areas within Quartermaster Harbor are classified as mud (Blau 1975). For the central Puget Sound basin as a whole, Lavelle et al. (1986) found marine sediment accumulation rates of 0.003 to 0.001 grams per square foot per year (as referenced in Williams et al. 2001). These accumulations of material, primarily from bluffs, supply fine substrates to the intertidal zone, maintaining the structure and profile typical of central Puget Sound beaches (Bloch et al. 2002).

An inventory describing parts of the Vashon and Maury Island shorelines found that approximately 88 percent of the shoreline contained bluffs or banks, with an average height of about 44 feet. The highest banks were along the southeast side of Maury Island, where the elevation at the top of the bluff is more than 300 feet at some locations (Bloch et al. 2002). The bluffs in this area are composed primarily of glacial till and are important sources of sediments for surrounding beaches (Mumford et al. 2000). The shoreline inventory found that un-vegetated scars, usually an indication of a recent landslide and potential supply of sand to beaches, were present along 41 percent of inventoried shoreline segments, and 36 percent had at least some undercutting at the base of the bluff or bank (Bloch et al. 2002).

After sediments enter the marine environment, shore drift is the process for material transport along shorelines. A drift cell, or littoral cell, is a partially compartmentalized zone along the coast that acts as a somewhat closed system with respect to shore drift. Drift cells are systems in which sediment is suspended by waves or currents and transported along the shoreline in a cycle of suspension and deposition. The direction of shore drift is determined by the prevailing direction of the waves and currents in the drift cell. Direction of wave approach, and the resulting shore drift, may change frequently (e.g., daily, weekly, or seasonally), but over a long period of time one of the two directions along the coast will be the primary direction of net shore drift (Schwartz et al. 1991).

Drift cells are important because they are the mechanism that supplies the sediments needed to maintain nearshore habitat quality. Drift cells nourish sand and gravel

beaches, provide fine sediments to tideflats, and maintain sand spits and other coastal landforms.

The Maury Island site contains a number of individual drift cells. Along the northern shore of Maury Island, drift occurs in a southeasterly direction toward Point Robinson (Appendix D). The eastern shore of Maury Island is a continuous drift cell from Piner Point to Point Robinson, where it converges with the drift cell along the northern shoreline. The drift cell alongside the eastern shore of Maury Island is mostly uninterrupted, although sediment transport may be somewhat disturbed by existing bulkheads and fill associated with upland development. The drift of sediments within Quartermaster Harbor is primarily to the north, although there are local reversals of transport and convergence zones within the harbor where fine sediments are deposited in coves and embayments (Schwartz et al. 1991).

Sediment quality is degraded in portions of Washington's waters as evidenced by chemical contamination, toxicity, and adverse alterations to benthic infauna. In studies of sediments from the central Puget Sound, approximately 4.9 percent of the area sampled exhibited degraded or partially degraded sediment quality (Long et al. 2003). The majority of these contaminated sediments were found in highly urbanized areas such as Elliott Bay. Sediment quality has been assessed for Quartermaster Harbor at a coarse scale as part of a regional assessment (Newton et al. 2002). None of the three samples within Quartermaster Harbor showed high chemical concentrations, and one of the three stations showed no toxicity or chemical contamination and abundant and diverse infaunal assemblages. The other two stations were impaired for one of the three parameters – toxicity (Newton et al. 2002).

Examinations of groundfish tissue samples from Quartermaster Harbor found little contamination, suggesting that sediments in the area are relatively clean. Elevated concentrations of mercury and Polychlorinated Biphenyls (PCBs) were found in flounder samples, although the concentrations were similar to other non-urban bays in the central Puget Sound basin (Crecelius et al. 1989). Upland soils on Vashon and Maury Islands are contaminated with arsenic, lead, and other metals in the area downwind from the former Tacoma Copper Smelter (Glass 2000). It is unclear what, if any, impacts this contamination has on the freshwater or saltwater sediments associated with the aquatic reserve.

4.1.2 Impact Analysis

4.1.2.1 Alternative 1 (Preferred Alternative)

The Preferred Alternative would have a moderate probability of causing positive direct impacts to geology and soil resources at discrete locations throughout the site.

The reserve may affect: a) sediment dredging or disturbance; b) sediment contamination; and c) sediment erosion and movement rates. Apart from federal navigation projects, dredging would not be allowed within the Aquatic Reserve for navigation or beneficial use projects. Additionally, sediment disturbance would be minimized or eliminated through best management practices adopted in the

management plan including the practice of drilling beneath the surface to install pipelines or cables within the nearshore zone.

This alternative has the potential to maintain and restore natural sediment erosion and movement rates. The natural process of shoreline drift, which re-deposits sediments along the shoreline, will benefit from public education and best management practice development that will affect the presence of, and construction methodology used in, shoreline armoring. Traditional “hard” structures such as riprap or concrete walls disrupt drift cell processes by increasing wave energy and preventing the deposition of finer grained materials used for forage fish spawning and macro-invertebrate habitat (Williams and Thom 2001). Over time the increased wave energy may actually heighten erosion rates by undercutting the bulkhead and removing finer grained particles at the base of the embankment. In contrast, “soft” armoring techniques that DNR would promote such as beach nourishment², riparian plantings, and the use of anchored drift logs mimic natural processes improving bank stability while enhancing habitat processes (Menashe 2001; Williams and Thom 2001).

While the DNR has no direct control over armoring processes, in section E-102a of the 2004 proposed amendments to the King County Comprehensive Plan, the County states that it “...should protect and enhance the natural environment in those areas recommended as Aquatic Reserves by Washington State Department of Natural Resources.” (King County 2003; S. Nelson, King County, personal communication, July 29, 2004). Upon adoption of the 2004 amendments, King County and DNR could work cooperatively with interested landowners to voluntarily develop, fund, and implement soft armoring solutions within the Maury Island site.

Finally, DNR would avoid future contamination to soils by requiring the use of construction materials that will not leach hazardous chemicals into the water for construction and repair activities on state-owned aquatic lands in the reserve.

4.1.2.2 Alternative 2 (Repeal the Reserve)

Alternative 2 would have a low probability of causing negative direct impacts to geology and soil resources at discrete locations throughout the reserve. As in Alternative 1, however, repealing the proposed reserve would have no impact on the underlying structure or composition of the site’s overall geology.

By repealing the proposed reserve there would be no comprehensive effort to prevent alteration of drift cell processes through bulkheading unless undertaken by King County in association with their shoreline management regulations. It can be expected that as shoreline residential development increases, the number of bulkheads may also increase, leading to a loss of the finer grained sediments utilized for spawning habitat by forage fish, which could lead to population decreases. In addition, King County

² Beach nourishment is a technique used to restore an eroding or lost beach or to create a new sandy shoreline. The technique involves the placement of sand fill with or without supporting structures along the shoreline to widen the beach. This management tool serves the dual purpose of protecting adjacent upland and preserving beach resources.

would be solely responsible for the development and implementation of less destructive armoring solutions.

4.1.2.3 Alternative 3 (No Action)

Alternative 3 would have a low probability of causing positive direct impacts to geology and soil resources at discrete locations throughout the reserve. As is in the previous two alternatives, leaving the reserve status in place without developing a proactive management plan would have no impact on the underlying structure or composition of the site's overall geology.

As in Alternative 2, under Alternative 3 there would be no comprehensive effort to prevent alteration of drift cell processes from bulkheading unless undertaken by King County in association with their shoreline management regulations. It can be expected that as shoreline residential development increases, the number of bulkheads may also increase, leading to a loss of the finer grained sediments utilized for spawning habitat by forage fish, which could lead to population decreases. In addition, fewer entities would be responsible for the development, funding and implementation of less destructive armoring solutions. Given that the reserve designation would remain intact and more scrutiny would be placed on proposed uses within the reserve (under the programmatic FEIS, existing RCWs, and WACs), restrictions that DNR may include in use authorizations could protect nearshore drift cells and tidelands that are owned by the state. Unlike Alternative 1, no effort would be undertaken to reduce impacts to nearshore drift by existing structures located on state-owned aquatic lands within the reserve.

4.2 Air

4.2.1 Affected Environment

The topography of the Puget Sound constrains air movement and primarily directs wind in a north-south orientation. From October through March the flow is predominantly from the southwest. Through the spring, wind flow gradually reverses direction until it is generally from the north. Highest monthly wind speeds normally occur when the wind is coming from the south, with velocities ranging from 13 mph (6 m/sec) to 20 mph (9 m/sec). When wind is directed from the north, wind velocities are generally lower in the range of 11mph (5 m/sec) to 16 mph (7 m/sec). Winds in the Puget Sound do not tend to show a significant sea breeze effect (Williams et al. 2001).

There is no recent site-specific air quality data for the Maury Island site. Between 1890 and 1985 air quality throughout the reserve area was negatively impacted by a copper and arsenic smelter located in Tacoma. Closure of the smelter in 1985 resulted in measurable declines in sulfates and arsenic as far away as the Canadian border (Faulkner 1987). Monitoring conducted in the late 1970s through the 1980s demonstrated that ambient air quality was within the current standards for particulates, sulfur dioxide, and lead. No information was available for carbon monoxide, ozone, or nitrogen dioxide (Puget Sound Clean Air Agency 2004).

4.2.2 Impact Analysis

4.2.2.1 Alternative 1 (Preferred Alternative)

The Preferred Alternative would have a low probability of causing positive or negative indirect and cumulative impacts to air quality in and around the site. Neither designation of an aquatic reserve boundary nor implementation of a reserve management plan for the Maury Island site would directly impact air quality at the location.

Air quality may improve as a result of fewer commercial vessel visits to the reserve area and a decreased likelihood that water-dependent industrial enterprises would locate adjacent to the reserve. Use authorizations issued by DNR for certain activities could result in localized changes in air quality. For example, the issuance of a lease for a marina could indirectly lead to localized increased emissions from burning fossil fuels associated with boat motors. DNR may impose some restrictions or request that BMPs be implemented for activities, such as marinas, that may indirectly cause positive impacts to air quality in the area. However, the magnitude of such impacts would be small and would not be expected to significantly contribute to regional air quality. Furthermore, the management of air quality is not within the jurisdiction of DNR.

There is also a low probability of causing negative indirect and cumulative impacts to air quality beyond the site. Projects that are not allowed to occur within the aquatic reserve may be forced to locate at alternative locations that could increase the transportation distance for raw materials or finished products. In the case of the Glacier NW gravel mine, it is estimated that one 4,000 ton barges hauls as much material as approximately 115 trucks. This increased transit distance would likely result in adverse air quality impacts due to increased emissions. However, the King County EIS for the Glacier project assumes that if the proposed dock development were not permitted, then mining would continue on site similarly to existing conditions, as trucking is not likely a viable option for the level of increase proposed for the new facility (King County 2000). Therefore, truck traffic from the Glacier facility would not likely increase.

4.2.2.2 Alternative 2 (Repeal the Reserve)

Alternative 2 would have a low probability of causing negative indirect and cumulative impacts to air quality in and around the site, although repealing the reserve designation would not directly impact air quality in the area.

As discussed above for the Preferred Alternative, DNR use authorizations could indirectly impact air quality through emissions from permitted activities. If there were no greater scrutiny placed on DNR use authorizations under a reserve management program, uses taking place on the site could cause some negative impacts to air quality in specific locations.

4.2.2.3 Alternative 3 (No Action)

The No Action Alternative would have a low probability of causing both positive and negative indirect and cumulative impacts to air quality in and around the site. Maintaining the reserve designation without formulating a site-specific management plan would not directly impact air quality in the area.

As discussed above for the Preferred Alternative, DNR use authorizations could indirectly impact air quality through emissions from permitted activities. Given that the reserve designation would remain in tact and more scrutiny would be placed on proposed uses within the reserve (under the programmatic FEIS, existing RCWs, and WACs), DNR may include provisions within use authorizations that could indirectly benefit air quality. Since there would be no standardized provisions, these positive impacts would be less likely, and may be less profound, than under the Preferred Alternative.

There is also a low probability of causing negative indirect and cumulative impacts to air quality beyond the site. Projects that are not allowed to occur within the aquatic reserve may be forced to locate at alternative locations that could increase the transportation distance for raw materials or finished products. This increased transit distance would likely result in adverse air quality impacts due to increased emissions.

4.3 Water Resources

4.3.1 Affected Environment

4.3.1.1 Marine Water Resources

The Puget Sound is a large estuary, where fresh and marine waters mix. Estuarine waters function as a partially blended, two-layer system, with less saline surface waters flowing seaward and denser, more saline ocean water returning landward at lower depths. Surface water flows can be augmented by inflow from any number of rivers and streams throughout the estuary. While there are several large rivers and a multitude of smaller streams in the general region, the bulk of the freshwater flowing into the central Puget Sound basin comes from the Puyallup and Duwamish Rivers, which account for 20 percent of the total drainage area. Tidal energies in the central basin are relatively strong and the water mixes freely throughout most of the year. However, during summertime dry seasons, stratification increases as freshwater inputs decrease (Williams et al. 2001).

The accumulated data indicate that Quartermaster Harbor is subject to wide seasonal fluctuations of most water quality parameters and is typical of a shallow Puget Sound embayment with a relatively high ratio of drainage area to receiving water (NORTEC 1984). An estimated 61 streams and outfalls empty into the Maury Island site with the majority draining into Quartermaster Harbor (Anchor Environmental 2004). Seasonal variations are driven primarily by rainy winters and dry summers common to the Pacific Northwest. The wetter winter period causes marked declines in salinity, pH and temperature, while coliform bacteria levels increase (NORTEC 1984; Turnbeaugh 1975). While vertical salinity gradients are generally present within

Quartermaster Harbor, observations vary in how pronounced these gradients are with Turnbeaugh (1975) noting more pronounced gradients than NORTEC (1984).

Quartermaster Harbor is a rather shallow embayment that covers approximately 3,050 surface acres with water depths in the inner harbor averaging about 16 feet, while in the outer harbor water depth averages approximately 72 feet and reaches maximum depths of about 100 feet (Nortec 1984). Circulation within the harbor may be reduced due to the closure of a historic opening at Portage, however circulation appears to be adequate to flush Quartermaster Harbor (Turnbeaugh 1975). An area of “less active” circulation is located between Judd Creek and Burton Peninsula. Historically, water flowed freely in and out of the harbor during high tides through an inlet known locally as portage, located between Maury and Vashon Islands. Portage, is an isthmus connecting Vashon and Maury Islands. While George Vancouver’s initial observations of the islands in 1792 indicate only one island, Captain Charles Wilkes charted two islands in 1841 (Lynn 1974). The opening was closed by the construction of two roads, one from Portage to Ellisport in 1916 and another from portage to Dockton in 1925 (Van Olinda 1935). Current water movement is primarily northward into the harbor. While water quality impacts resulting from the complete enclosure of Quartermaster Harbor are not fully understood, the decrease in flushing may have led to an increase in the harbor’s water temperature regime and may be contributing to eutrophication (Williams et al. 2001).

Water quality within the harbor has been adversely impacted by a number of human-related sources, including: residential septic systems; residential landscaping; gray water discharges from residences and/or boats; historic industrial activity; and both current and historic agricultural practices in watersheds surrounding the Maury Island site. In addition, elevated fecal coliform pollution and episodes of paralytic shellfish poisoning (PSP) have led to the decertification of several shellfish harvest areas within Quartermaster Harbor (Determan 2003b; WDOH 2004).

The Washington State Department of Health (WDOH) monitors Quartermaster Harbor for fecal coliform to assess whether fecal waste is reaching the water and to determine whether pollution levels could be pathogenic. Recent reports suggest that shellfish growing areas in Quartermaster Harbor are not being impacted by fecal coliform pollution (Determan 2003a).

However, in both 2001 and 2002 Quartermaster Harbor had one of the highest index scores for PSP. Index scores are based upon the number of days PSP levels at the site exceed the Food and Drug Administration (FDA) action criteria as well as the magnitude by which PSP levels exceed FDA action criteria (Determan 2003b). PSP is the result of a toxin that accumulates in marine animals that feed either directly on toxic phytoplankton or on consumers of toxic phytoplankton. As there is considerable uncertainty associated with the causative agent of PSP, it is not possible to determine whether its presence in Quartermaster Harbor is brought about by disturbed nutrient cycles in the area or by regional phenomena outside of the harbor. Although shellfish health is unaffected by the presence of the toxin, PSP is capable of causing mass

mortalities among shellfish-eating animals such as birds, fur seals, foxes, sea otters, and humpback whales (Kvitek and Beitler 1988; Geraci et al. 1989). In addition, PSP can be harmful to humans that consume toxic shellfish. Due to concerns regarding fecal coliform levels and PSP, commercial geoduck tracts along the western shoreline of Quartermaster Harbor have been decommissioned (Appendix I).

Based upon uses in the area, the Department of Ecology (Ecology) considers the waters within the Maury Island site as “extraordinary” (WAC 173-201A-210). Such waters have the most stringent water quality standards. There is limited water quality data for Quartermaster Harbor, although sampling conducted in the area was sufficient to prompt Ecology to include the embayment on the 1998 Washington State 303(d) list for violating state water quality standards for dissolved oxygen (DO), which can lead to eutrophication, and dieldrin, which is an insecticide (Ecology 1998).

Infrequent water quality sampling indicates that low DO conditions may be widespread and persistent within Quartermaster Harbor. In 1975, October observations found DO levels varied between a low of 3.80 mg/L at 16 feet deep within inner Quartermaster Harbor to a high of 6.30 mg/L at 25 feet deep near the mouth of Quartermaster Harbor (Turnbeaugh 1975). All fifteen Quartermaster Harbor observations from 1975 were below the extraordinary standard of 7.0 mg/L. Sampling in September 1982 found low DO levels (5.6 mg/L at 4 meters and 3.5 mg/L at 5 meters) at only one sampling station located between Judd Creek and Portage. February 1983 observations found that in addition to low DO at this sampling station (6.7 mg/L at 5.5 meters depth), one additional station, located near the Quartermaster Harbor Marina, also had low DO levels (6.6 mg/L at 4.5 meters). September 1983 observations found that low DO conditions were widespread within Quartermaster Harbor at depths of 5 meters or more with all sampling stations showing low DO conditions at or deeper than 5 meters (NORTEC 1984). As a result of chronic low DO levels, the harbor was placed on the 303(d) list in 1998. However, Ecology recognizes that the low DO levels observed were likely due to natural conditions. Under state water quality standards, in waters where low DO is a natural occurrence, human – induced activities must not degrade waters by more 0.2 mg dissolved oxygen/L (WAC 173-201A-320).

Dieldrin is an insecticide that bioconcentrates in aquatic organisms and causes permanent hormonal changes in fish. While acute exposure in humans can lead to neurological effects such as headache, dizziness, and convulsions, the effects have not been shown to be permanent (GPA 2001). However, chronic exposure will lead to dieldrin bioaccumulation in humans and may be fatal (GPA 2001). Dieldrin readily binds to soil particles and as a result is persistent and widespread in the environment. Tissue samples from fish in Quartermaster Harbor displayed dieldrin levels that prompted Ecology to include the harbor on the 1998 303(d) list for dieldrin.

Section 303(d) of the federal Clean Water Act (CWA) requires that states keep an inventory of water bodies that violate water quality standards and that total maximum

daily loads (TMDLs) be established for each parameter that is in violation of the standards. Ecology is currently updating the 303(d) list. Ecology's recent draft 303(d) update for 2004 suggests that Quartermaster Harbor will not be included on the list (Ecology 2004). However, the site conditions have not necessarily improved and the site is being removed from the 303(d) list because no recent monitoring has taken place.

Along the eastern shore of Maury Island, water depth increases rapidly across moderate to steep slopes to approximately 540 feet (152 meters) in the main channel of southern central Puget Sound (Williams et al. 2001). This reach of shoreline is considered semi-protected, with lower wave energy than other locations in the Puget Sound region. The northerly transport of surface waters along the shoreline is believed to concentrate plankton and nutrients along the beach, providing relatively high levels of primary production (Williams et al. 2001).

No information was found pertaining to water quality sampling along the eastern shore of Maury Island, although the waters in the area are considered "extraordinary" and are therefore subject to the most stringent state standards (WAC 173-201A-210).

4.3.1.2 Freshwater Inputs

An estimated 61 streams and outfalls empty into the Maury Island site with the majority draining into Quartermaster Harbor (Anchor Environmental 2004). Larger, perennial streams on Vashon and Maury islands generally originate from groundwater seeps in higher elevation areas (300 to 500 feet above sea level). In these higher elevation reaches, the streams are typically low gradient and meander across the landscape. Streams approaching marine shorelines change elevations rapidly as they flow through a network of high-gradient ravines before entering Quartermaster Harbor. Streams with lower flows and smaller watershed areas generally originate in steeper gradient reaches (10 to 15 percent) and flow rapidly to marine waters (Kerwin and Nelson 2000).

Maury Island is not completely divisible into distinct watersheds, and it appears that the majority of freshwater flow from the island enters Quartermaster Harbor through intermittent creeks and freshwater seeps. Two stream basins flow into Quartermaster Harbor from Vashon Island through Judd and Fisher Creeks (Appendix E). Judd Creek has an annual base flow of approximately 2.0 cubic feet per second (cfs) at the mouth and drains about 3,149 acres. Fisher Creek has an annual base flow of approximately 1.0 cfs, with a drainage area of about 1,549 acres (Kerwin and Nelson 2000). Limited water quality monitoring was undertaken in these tributaries in the early 1990s and Judd Creek was found to comply with all state standards. Although several samples from Fisher Creek exceeded the acute standard for lead, the creek was within limits for all other parameters (Kerwin and Nelson 2000). The Burton Water Company withdraws water from Fisher Creek for domestic use, which may limit base flows during low flow periods.

Upland land use and vegetation adjacent to marine shorelines affect the habitat quality of marine systems by affecting food sources such as the insect assemblages and freshwater hydrology. Perhaps the single most dramatic and pervasive impact of urbanization on the functions and values of a watershed is the replacement of the natural landscape with pavement and other water-impervious (impenetrable) material such as roads, parking lots, driveways, sidewalks, and rooftops. Increased levels of impervious surfaces interrupt the hydrologic cycle, alter stream structure, and degrade the chemical profile of the water that flows through streams. These changes affect fish and wildlife in various ways, and are cumulative within watersheds. Research indicates that when the total impervious area (TIA) in a watershed reaches 10 percent, stream ecosystems begin to show evidence of degradation (Booth and Jackson 1997). Only one of the four distinct watersheds adjacent to the Maury Island site approaches 10 percent total impervious area - East Vashon (King County 2003). A total of approximately 1,460 acres within these four watersheds has been converted into impervious surfaces. The concentration of houses and roads near marine shorelines has resulted in a higher proportion of lands converted into impervious surfaces near the marine shorelines. Adjacent to the aquatic reserve, 16.9 percent of the lands within 200 feet of the marine shoreline are classified as impervious. It is generally recognized that ecological effects become severe as total impervious area approaches 30 percent in stream systems (Schueler 1994; Arnold and Gibbons 1996; Booth and Jackson 1997), but the impacts on marine systems are poorly understood.

Freshwater seeps along the marine shoreline are known to exist, but the number of seeps and the amount of water entering the reserve through freshwater seeps is unknown.

4.3.2 Impact Analysis

4.3.2.1 Alternative 1 (Preferred Alternative)

The Preferred Alternative would have a moderate probability of causing positive direct, indirect, and cumulative impacts to water quality in and around the site. While DNR does not regulate the water column, benefits may accrue through management of marine outfalls and structures that impact water circulation. Therefore, the Preferred Alternative would benefit both marine and freshwater resources.

The final management plan identifies four mechanisms that are likely to improve water resources. These mechanisms include: a) increased monitoring and scrutiny of water quality measurements; b) enhanced monitoring and focus on maintaining natural freshwater flow and hydrology; c) prohibition of new stormwater or sewage outfalls on state-owned aquatic lands within Quartermaster Harbor; and d) cooperative efforts to minimize existing and future impacts from outfalls and runoff discharging into the reserve. Regular monitoring and improved understanding of natural hydrologic cycles within the reserve may help prevent extremely low DO and toxic events from occurring. Partnerships developed with King County and Ecology in support of the reserve could prevent further degradation of water and sediment quality by limiting chemical nutrient and other chemical inputs from terrestrial development. In addition, implementation of best management practices for marinas,

recreational docks, and mooring buoys would improve water quality by limiting the types of open water discharges that occur.

4.3.2.2 Alternative 2 (Repeal the Reserve)

Alternative 2 would have a moderate probability of causing negative direct, indirect, and cumulative impacts to water quality in and around the site. Repealing the reserve would likely reduce DNR's activities aimed at improving the quality of water resources of the site through the implementation of best management practices for marinas, recreational docks, and mooring buoys, among other activities. Since DNR has no direct control over water quality or quantity, any improvement would be the result of increased regulation by either King County or Ecology. In light of limited financial resources for both King County and Ecology, along with increased development pressures, it is likely that water resources would degrade over existing conditions.

4.3.2.3 Alternative 3 (No Action)

Alternative 3 would have a low probability of causing positive direct, indirect, and cumulative impacts to water quality in and around the site.

Without a management plan, there would be no specific guidance for DNR land managers to help to ensure that uses such as marinas, recreational docks, and mooring buoys utilized best management practices to protect water quality in the area. Instead the prevention of degradation to either water quality or quantity would be limited to efforts undertaken by King County or the Department of Ecology. Given, however, that the reserve designation would remain intact and more scrutiny would be placed on proposed uses within the reserve (under the programmatic FEIS, existing RCWs, and WACs), restrictions that DNR may include in use authorizations could protect water quality, but not in a predictable and consistent manner.

4.4 Plant and Animal Resources

Washington's SEPA rules (WAC 197.11) define plant and animal resources in a manner that includes habitat, unique species, and fish or wildlife migration routes. Within its authority to authorize uses on state-owned aquatic lands, DNR can allow uses that may impact these plant and animal resources. Before addressing possible impacts caused by a Maury Island Aquatic Reserve, it is important to state that DNR does not have complete control over all activities that take place on state-owned aquatic lands. As such, activities may take place within and outside of reserves that DNR cannot control. These activities may contribute to the degradation of plant and animal resources regardless of DNR's management efforts. The significant adverse impacts that may result from the three alternatives are described under Impacts Analysis at the end of this section.

4.4.1 Affected Environment

4.4.1.1 Fisheries

A large diversity of recreationally, and commercially important fish species rear and spawn within the Maury Island site (Miller and Borton 1980). However, it is important to note that most of these fish species do not occur continuously or even

frequently within the reserve (Blau 1975). Quartermaster Harbor has supported a limited commercial fishery for Pacific herring (*Clupea harengus pallasii*), pile perch (*Rhacochilus vacca*), and surf smelt (*Hypomesus pretiosus*) (NORTEC 1984). While these fisheries appear to have declined from their historic highs, commercial fishing still occurs in the vicinity of Quartermaster Harbor. Records indicate that the largest pile perch (3 pounds, 9 ounces) and striped surfperch (*Embiotoca lateralis*) (2 pounds, 1 ounce) caught in Washington State were caught in Quartermaster Harbor in 1980 and 1981, respectively.

Several studies assessing the health of Commencement and Elliott bays have sampled Quartermaster Harbor to serve as control samples (e.g., Malins et al. 1997; Gibson et al. 2000). Compared to the urban bays, samples from Quartermaster Harbor contained a lower abundance of fish, however these samples contained significantly more species and more biomass (Gibson et al. 2000). Thus, although fewer fish are observed, individual fish tend to be larger. Additionally, almost every fish species found in both urban bays and Quartermaster Harbor were significantly larger within Quartermaster Harbor. These studies identified sensitive species that are more common or significantly larger in the reference areas (Quartermaster Harbor) than in the urban bays. These species include: Spiny dogfish, spotted ratfish, longnose skate, rock sole, starry flounder, speckled sanddab, pile surfperch, striped surfperch, bay goby, blackbelly eelpout, bay pipefish, and plainfin midshipman (Gibson et al. 2000).

Salmonids: Adult and juvenile salmonids, particularly Chinook (*Oncorhynchus tshawytscha*), chum (*Oncorhynchus keta*), and the anadromous form of cutthroat (*Oncorhynchus clarki*) and rainbow trout (known as steelhead - *Oncorhynchus mykiss*), have all been documented as occurring in, and dependent upon areas within the Maury Island site. The nearshore environment is also vital to the plant and animal communities upon which salmonids depend. While salmonids exhibit a wide range of specific life histories, there are several requirements that are common to all salmon and trout.

Common Life History Requirements: Although anadromous Pacific Northwest salmonids spend the majority of their life maturing in the open ocean, estuaries (such as Puget Sound) and freshwater systems are critical for adults and juveniles. Spawning adults utilize cold water streams and rivers (7° to 18° Celsius) with substrates comprised of loose, silt-free gravel for redds (nests). Substrate size is important not just for spawning, but as shelter for fry and as a diverse source of food from aquatic invertebrates. Spawning substrates generally range from about one half inch in diameter up to about six inches in diameter (Raleigh et al. 1986). Complex, meandering channels with stable flows provide a network of riffles, pools, and side channels for shelter and juvenile rearing. Juveniles are also dependent upon relatively high dissolved oxygen content (≥ 7.0 mg/L).

All salmonid life stages benefit from native riparian vegetation that provides shading and cooler water temperatures, as well as a source of food from terrestrial insects, and shelter under/in large woody debris. Washington DNR classified approximately 28

percent of the shorelines adjacent to the Maury Island site as containing ‘riparian vegetation’ during the ShoreZone Inventory (Nearshore Habitat Program 2001). These data suggest that urban land pressures exist adjacent to the Maury Island site and have affected up to 72 percent of the shoreline habitats. Due to the concentration of activities near the marine shoreline these developments may be adversely impacting habitats and natural ecological processes that support the local aquatic ecosystem and salmonid populations.

There are four diverse life histories among salmonids – adfluvial (spawn in streams, rear and mature in lakes); fluvial (spawn in natal streams but migrate to larger rivers for rearing and maturation); resident (remain in natal stream through all life stages); and anadromous (spawn and rear in streams, rear and mature in saltwater). The majority of Puget Sound salmonids exhibit the anadromous life history pattern (Wydoski and Whitney 2003). In addition to this variation in life history, salmonids also display a great deal of diversity in terms of juvenile freshwater residency and age at sexual maturity. Juvenile freshwater residency can range from a few days up to several years, while the age at sexual maturity generally ranges from about two to six years (Wydoski and Whitney 2003).

Chinook Salmon (Oncorhynchus tshawytscha): Chinook, or king salmon, are anadromous and the largest of the Pacific salmon species (Myers et al. 1998). The species’ eastern historic range extends from the Ventura River in California, to Point Hope in Alaska, and westward to northeastern Asia and northern Russia (Healey 1991). The Puget Sound Chinook evolutionarily significant unit (ESU) was listed as threatened under the federal Endangered Species Act (ESA) by the National Oceanographic and Atmospheric Administration – Fisheries (NOAA – Fisheries) in March of 1999 and includes runs from the North Fork Nooksack River in northeast Puget Sound to the southern Puget Sound watersheds, Hood Canal, and the Strait of Juan de Fuca.

Chinook salmon display two distinct races (ocean and stream-type), with ocean-type fish spending a lesser amount of time in freshwater (Myers et al. 1998). Generally, ocean-type Chinook juveniles outmigrate either as fry during their first spring or fall, or as yearling juveniles during their second spring depending on environmental conditions and local adaptations, while stream-type Chinook spend one to two years in freshwater (NMFS 2003). Ocean-type Chinook also tend to remain nearer the coastline throughout their marine residence, with return timing varying from spring to winter depending upon local adaptations, but concentrated in the fall. Stream-type Chinook exhibit extensive offshore ocean migration and usually return to freshwater to spawn in spring or summer (NMFS 2003; Myers et al. 1998).

The Puget Sound Chinook salmon ESU is thought to be primarily comprised of ocean-type fish displaying a fall run timing. Fall run Puget Sound Chinook normally return to freshwater in July and August and spawn from September through January, while spring Chinook return to freshwater in April and May and spawn from August through September (Myers et al. 1998). Chinook spawning can occur in streams as small as seven feet wide, although they generally prefer to spawn in larger mainstem

habitats. Spring Chinook spawn in middle and upper mainstem reaches, while fall run fish tend to spawn in lower mainstem areas (Cramer et al. 1999).

Both spring and fall run Chinook fry emerge from the gravel during February and March, with the majority of the fall run progeny outmigrating within 60 to 150 days after emergence (Cramer et al. 1999). Chinook fry prefer the lower velocity margins of streams, with fall Chinook moving steadily downstream to the estuary, where they normally spend several months rearing. Streamside and marine riparian habitat provides important cover in the form of wood, root wads, overhanging vegetation, and undercut banks (Healey 1991).

After moving into salt water, Puget Sound Chinook generally migrate north along the Canadian coast, but some fall Chinook spend their entire marine residence within Puget Sound. Ocean-type Chinook generally remain at sea from one to six years before they mature, with most spending two to four years in the ocean before returning to their natal streams to spawn (Wydoski and Whitney 2003).

Myers et al. (1998) estimated an approximate run size of 690,000 Chinook in Puget Sound at the beginning of the 20th century³ when hatchery production was negligible, compared to a recent average run size of approximately 240,000, the majority of which is from hatchery production. An estimated two billion hatchery Chinook have been released into Puget Sound tributaries since the 1950s (Myers et al. 1998) and hatchery returns account for approximately 57 percent of the total spawning escapement (NMFS 2003).

Sampling has documented juvenile Chinook salmon along the shorelines of Maury Island and within Quartermaster Harbor. Data from these samples suggest that fish found in this area arise from one of several watersheds with Chinook salmon caught from the following hatcheries: Wallace River Hatchery (WRIA 7), Soos Creek Hatchery (WRIA 9), White River Hatchery (WRIA 10), Hupp Springs Rearing Facility (WRIA 15) (Brennan and Higgins 2004). The presence of Chinook salmon from a number of different areas rearing along the shorelines of Vashon and Maury Islands suggest that that juvenile Chinook readily cross open water to reach the island.

While there are suggestions that Chinook may have been observed in the lower reaches of Judd Creek, Brennan and Higgins (2004) suggest that there are no Chinook producing streams or hatchery releases of Chinook on Vashon or Maury islands. Juvenile and adult Chinook have been documented as using the shallow water habitats of Quartermaster Harbor for rearing. These fish prey on the forage fish that inhabit Quartermaster Harbor and the surrounding areas. The eastern shoreline of Maury Island is also an important migration corridor, as Chinook smolts tend to remain in the nearshore environment as they migrate out of the Puget Sound. Brennan

³ This estimate, as with other historical estimates, should be viewed with caution. Fish landings used in this calculation included a portion of fish landed at Puget Sound ports but originating in Canada and other areas outside Puget Sound, and the estimates of exploitation rates used in run-size expansion calculations may not be based on precise data (Myers et al. 1998).

and Higgins (2004) found that vegetated shoreline habitats are an important source of food for juvenile salmon, with juvenile diets numerically dominated by insects characteristic of terrestrial vegetated habitats such as Psocoptera (bark lice), Homoptera (aphids, plant hoppers), and Hymenoptera (ants).

Puget Sound Chum Salmon (Oncorhynchus keta): The majority of chum stocks in the Puget Sound are fall runs, although summer and winter stocks also exist. In 1993, the Washington Department of Fisheries identified forty-five fall chum populations in Puget Sound, including nine in the northern area (Canada-Washington border to the Stillaguamish River), thirty in the southern area (Snohomish River watershed south and Hood Canal), and six in the Strait of Juan de Fuca (Washington Department of Fisheries et al. 1993). The status was *unknown* for thirteen of these populations and *healthy* for all others. Hood Canal populations of summer chum were listed as threatened in 1999 under the federal ESA by the NOAA – Fisheries.

Although fall chum runs fluctuated between roughly 156,000 to more than 2.4 million fish from 1968 to 1999, the average runs for the period were between one and almost 1.5 million fish. Unlike other salmonid stocks, chum populations have exhibited a positive trend since the late 1960s. Approximately 37 percent of the total Puget Sound run originates in the Hood Canal, 33 percent in South Puget Sound, 29 percent in North Puget Sound, and just one percent in the Strait of Juan de Fuca (WDFW 2003a).

Chum are anadromous and generally mature between three and five years of age, with a high proportion of Washington stocks maturing at age three. Spawning of fall chum primarily occurs from October through January, while winter chum generally spawn from mid-December through early March (Johnson et al. 1997).

Young-of-year emerge between February and June and migrate quickly to the estuary where they rear for several months before migrating out of the Puget Sound. Eelgrass beds are extremely important for rearing chum salmon, with two species of copepods that make up a large portion of the juvenile's diets found only in eelgrass (Simenstad et al. 1988). Upon leaving Puget Sound, Washington chum generally migrate northward along the coast with their path being closer to shore than coho, Chinook, or steelhead. Chum rear at sea for two to four years before returning to their natal streams to spawn.

While there is no data regarding total abundance of chum at the Maury Island site, both juveniles and adults have been documented in the area. In addition to juveniles using the nearshore for rearing habitat, the WDFW Spawning Ground Survey Database indicates that fall chum spawn in the lower reaches of Judd Creek (Kerwin and Nelson 2000). It is not known whether these fish originated from these streams, or whether they are the progeny of strays from other systems or hatchery plants.

Puget Sound Coho Salmon (Oncorhynchus kisutch): Coho salmon were historically distributed along the Pacific coast from Mexico to Alaska and from Russia to Japan (Scott and Crossman 1973). The NOAA – Fisheries designated the Puget Sound coho

salmon ESU as an ESA candidate species in 1995 although listing as a threatened or endangered species is not considered prudent at this time.

Most coho in Washington, Oregon, and California spend the first year of their lives in freshwater and return to spawn in their third year, although some precocious males return to spawn at age two (Wydoski and Whitney 2003). The Puget Sound spawning migration begins in August, with spawning generally occurring from September through January (Weitkamp et al. 1995). Wild coho tend to spawn in smaller rivers and tributaries or side channels of larger systems, with fry emerging within six to eight weeks (Wydoski and Whitney 2003).

Weitkamp et al. (1995) noted that while populations of the Puget Sound coho ESU are abundant and that runs and natural spawning escapements are generally stable, there are substantial risks to the remaining native stocks. Although coho are remarkably adaptable and can be found spawning in significantly degraded streams, wild populations continue to decline as a result of habitat loss from human development (Wydoski and Whitney 2003).

Coho salmon occur in both Judd and Fisher creeks, however there is no information regarding the overall abundance of coho in the Vashon-Maury Island area. Hatchery and wild coho smolts feed along the shorelines of Vashon and Maury Islands between May and September of each year with most activity in May and June. Juvenile coho captured within the Maury Island site were found to be from wild stocks, Wallace River Hatchery (WRIA 7), Soos Creek Hatchery (WRIA 9), or Voights Creek Hatchery (WRIA 10). Juvenile coho caught along marine shorelines in King County appear to feed mainly on zooplankton before switching to fish at larger sizes (Brennan and Higgins 2004).

Coastal Cutthroat Trout (Oncorhynchus clarki): Coastal cutthroat trout exhibit all four salmonid life histories – adfluvial, fluvial, resident, and anadromous (Wydoski and Whitney 2003). Different individuals from the same population can exhibit different life history patterns. Cutthroat trout are capable of repeat spawning and some individuals have been noted to spawn each year for as many as six years.

Anadromous, or sea-run, coastal cutthroat from smaller systems such as the streams on Vashon-Maury Island generally return to freshwater from December through March and spawn from February through late April. Cutthroat fry emerge from March through June, with a peak in mid-April. Anadromous forms of cutthroat rear in freshwater for one to six years before migrating to sea. Outmigration occurs from March through June, with a peak in mid-May.

Cutthroat are known to rear extensively in estuarine and nearshore habitats and many do not venture far from their natal streams. In general, sea-run cutthroat do not make long ocean migrations and they rarely overwinter at sea, instead they return to nearby streams to spend the winter.

Nonmigratory coastal cutthroat include fish generally found in small streams and headwater tributaries near spawning and rearing sites. They typically grow more slowly than the other life history forms of cutthroat, are smaller when they reach maturity, and normally do not live longer than two to three years.

Several streams on Vashon and Maury Islands have been documented to support cutthroat trout including Judd, Fisher, Shawnee, Tahlequah, and Mileta Creeks (King County 2000). An impassible barrier in the form of a culvert currently precludes anadromous forms of cutthroat from inhabiting Shawnee Creek. Both resident and sea-run cutthroat are thought to inhabit Mileta, Judd, and Fisher creeks (EVS 2000). Cutthroat trout of all age classes are thought to use Quartermaster Harbor as a rearing area.

*Puget Sound Rainbow Trout or Steelhead (*Oncorhynchus mykiss*):* Like cutthroat, rainbow trout exhibit great diversity in their life history patterns and are capable of repeated spawning across years, although most individuals are not repeat spawners. The anadromous form of rainbow trout, referred to as steelhead, can be divided into summer (stream-type) or winter (ocean-type) stocks. In Puget Sound, the majority of steelhead populations are winter-run, meaning adults normally return to freshwater from November to December, and the peak of spawning occurs between March and May of the following year (Busby et al. 1997).

Steelhead eggs incubate for approximately four to seven weeks, with fry emerging from June through mid-August. After hatching, steelhead typically spend from two to four years in their natal stream before migrating to sea, with smolts outmigrating from April to June. Steelhead are thought to move more directly out to sea than other salmonids, although some steelhead rear for short periods in estuarine environments. They spend up to three years in the ocean before returning to spawn and typically live from six to eight years (Wydoski and Whitney 2003).

Total runs for Puget Sound steelhead in the early 1980s were estimated by Light (1987) as approximately 100,000 winter steelhead and 20,000 summer steelhead. Light provided no estimate of hatchery proportions for specific streams, but for Puget Sound and coastal Washington combined, he estimated that 70 percent of steelhead in ocean runs were of hatchery origin.

The only stream in the Maury Island area known to support steelhead is Judd Creek, but it is not known if the population is self sustaining or whether they are strays from other Puget Sound systems (Kerwin and Nelson 2000). There is no data pertaining to the abundance of steelhead in Judd Creek.

*Bull Trout (*Salvelinus confluentus*):* Puget Sound and Washington coastal bull trout populations were listed as threatened in November 1999 by the U.S. Fish and Wildlife Service (USFWS). Critical habitat for Puget Sound bull trout populations has yet to be designated.

Bull trout are a char species endemic to western North America that exhibits all four salmonid life history forms – resident, fluvial, adfluvial, and anadromous. They require colder water than most Washington salmonids (2° to 10° Celsius), are heavily dependent on instream cover, and prefer low gradient stream reaches with clean, gravel substrates (Goetz 1989; WDFW 1998). These specific habitat requirements are normally found in more pristine environments, thus bull trout are quite vulnerable to habitat modifications.

The 1998 bull trout/Dolly Varden population inventory, conducted by WDFW, identified 80 distinct stocks in Washington State. Bull trout are genetically distinct from Dolly Varden, although the species are managed together as they are difficult to differentiate without genetic analyses. All bull trout/Dolly Varden populations in Washington are maintained by wild production. Of the populations identified, 18 percent are considered healthy, three percent depressed, eight percent critical, and the status of the remaining 58 stocks is unknown (WDFW 1998).

There are no bull trout found in the streams of Vashon or Maury islands, and Quartermaster Harbor is generally too warm to be utilized by rearing, anadromous bull trout. Migrating anadromous bull trout could periodically inhabit the eastern shoreline of Maury Island, although no observations of the species in this area have been documented.

Forage Fish: The Maury Island site supports an abundance of forage fish stocks including Pacific herring, surf smelt, and sand lance.

Pacific Herring (Clupea harengus): Pacific herring is a pelagic (lives in open sea) marine species that depends heavily upon the nearshore environment for spawning. Herring spawning grounds are well defined and stocks of the fish show strong fidelity to particular spawning areas. Herring spawning timing is also very specific, seldom varying more than seven days from year to year (WDFW 2000). Most Puget Sound herring spawn from mid-January through March. Herring utilize a variety of marine vegetation in the intertidal and shallow subtidal zones for spawning, primarily in semi-exposed and semi-protected areas. The substantial eelgrass beds and semi-protected environment of Quartermaster Harbor makes for an ideal spawning location ([Appendix G](#)). The Quartermaster Harbor herring stock is one of 18 in the Puget Sound. This stock is the largest spawning population in the southern/central Puget Sound and among the largest in the entire Puget Sound region. Surveys conducted from 1994 through 2003 found an average biomass of the Quartermaster Harbor herring stock of 1,123 short tons (Table 6).

Table 6. Pacific herring biomass in Quartermaster Harbor 1994-2003

Year	Herring Biomass (short tons)		Herring Biomass (short tons)
1994	1,412	1999	1,257
1995	2,001	2000	743
1996	805	2001	1,320
1997	1,402	2002	416
1998	947	2003	930
Average from 1994-2003			1,123

Source: WDFW 2004

Herring spawning usually occurs on aquatic vegetation from 0 to minus 10 feet (0 to 3 meters) in tidal elevation. The documented herring spawning area for the Quartermaster Harbor stock includes more than 962 acres of habitat (WDFW, unpublished data). While spawning has been documented in vegetated areas throughout Quartermaster Harbor and along the eastern shore of Maury Island, spawning activity is variable and typically concentrated within this larger area. The eggs incubate for 10 to 14 days prior to hatching. Following hatching, the larvae drift in the currents. When they are approximately 25 to 40 mm in length, juvenile herring begin to form schools and remain in the nearshore environment until they migrate to the open ocean in early fall, although some herring spend their entire lives in the Puget Sound (McCrae 1994; WDFW 2000). Highly productive areas such as eelgrass beds are important habitats for herring of all age classes, which is another reason herring are rather abundant in Quartermaster Harbor. After reaching sexual maturity at age two to four, herring return to their natal spawning grounds. At maturity, herring can reach a maximum size of about 18 inches.

In addition to herring spawning sites along the shoreline of Quartermaster Harbor and the southeast shoreline of Maury Island, there are also two pre-spawning holding locations near Neill and Piner Points ([Appendix G](#)). Herring congregate in these deeper water areas prior to migrating to nearshore habitat to spawn.

Surf Smelt (Hypomesus pretiosus): Surf smelt are a pelagic species, although many individuals remain in nearshore environments throughout the year. They feed on a variety of zooplankton and epibenthic organisms, including planktonic crustaceans and fish larvae. Spawning occurs during much of the year on mixed sand-gravel beaches at a tidal elevation between approximately plus 6.5 feet and the mean higher-high water line, or higher (Lemberg et al. 1997). Adults school offshore and may return to the same spawning ground each year. Surf smelt are relatively short-lived, with most spawning populations comprised of one and two-year old fish (Lemberg et al. 1997). Due to the species dependence on relatively undisturbed sandy beaches, surf smelt populations are vulnerable to shoreline modifications that may reduce or eliminate spawning habitat.

Surf smelt spawning locations have been documented in a number of places within Quartermaster Harbor ([Appendix G](#)). In addition, spawning activity has been noted

along the southeastern shoreline and near Point Robinson. These documented spawning beaches represent 5.71 miles of shoreline habitat (WDFW, Unpublished Data). These fish are important food sources for salmonids, birds, and other wildlife in the area.

Sand Lance (Ammodytes hexapterus): Little is known about the life history of sand lance in Puget Sound. These fish spawn in the upper intertidal zone of sand-gravel or sand beaches, normally higher than plus 5 feet in tidal elevation. Spawning occurs from November through February. Eggs incubate for approximately 30 days and then sand lance larvae enter the nearshore environment. These fish are an important food source for salmonids, other marine aquatic species, and terrestrial wildlife.

There is only one documented area of sand lance spawning, just north of Piner Point, representing approximately 0.3 miles of shoreline habitat at the Maury Island site ([Appendix G](#)) and their abundance is unknown. Like surf smelt, sand lance are dependent upon sandy beaches and are therefore vulnerable to shoreline modification. The sand lance spawning area along the southeastern shore of Maury Island is one of the few sandy-beach areas in which the state has ownership of the intertidal zone.

Groundfish: Groundfish is a broad term used for fish that spend all or significant portions of their lives on or near the sea bottom (e.g., flatfish, rockfish). They are a diverse group that includes species such as spiny dogfish (*Squalus acanthias*), skates (*Raja sp.*), Pacific cod (*Gadus macrocephalus*), rockfish (*Sebastes sp.*), and lingcod (*Ophiodon elongates*). Of the more than two hundred species classified as groundfish in Puget Sound, only twenty-one are actively managed as commercial or recreational fisheries (Palsson et al. 1998).

While predator-prey interactions are not well understood, groundfish are an important prey item for marine mammals and piscivorous birds. Groundfish are carnivorous, preying upon benthic and epibenthic macroinvertebrates such as shrimp and crabs, as well as small fish, and likely compete with salmon and other fish stocks for habitat and food. Although groundfish populations within Puget Sound are not always well documented, it is known that they are vulnerable to reductions of kelp beds, habitat destruction from fishing gear, as well as decreased recruitment from the harvest of large and sexually mature individuals.

Flatfish: Most species of flatfish spawn during winter months on soft mud bottoms at depths of about minus 40 feet (12 meters) or greater. Fertilized eggs hatch within a few weeks, with the larvae slowly sinking as they mature. As juveniles, flatfish are physically similar to other round shaped fish, with a perpendicular orientation and a single eye on each side of their body. As the eye moves to a particular side, the fish swim oriented toward that side and eventually settle on the bottom in the nearshore. It is not until the fish reach adulthood, between two and four years of age, that they sever their relationship with the nearshore and move to deeper water. Flatfish can live as long as fifty years and reach sexual maturity at three to seven years of age.

In 2002, a WDFW bottom trawl of Quartermaster Harbor found a high diversity and concentration of flatfish including English sole (*Parophrys vetulus*), speckled sanddab (*Citharichthys stigmaeus*), Pacific sanddab (*Citharichthys sordidus*), and southern rock sole (*Lepidopsetta bilineata*).

Rockfish (*Sebastes* sp.): Sebastes bear live young and release them into the environment as larvae. Although males transfer sperm to females in the fall, actual fertilization can be delayed by as much as two to four months. Depending on species and size, each female releases between 200,000 and 800,000 larvae from January through May. Larvae are planktonic, floating near the surface and serving as a food supply for plankton eating animals. After a few months, the juveniles begin to inhabit their preferred habitat of kelp forests and rocky reefs.

Fishing has taken a significant toll on rockfish numbers and reproductive success. Since the 1970s, recreational catches have declined by 50 to 60 percent (Puget Sound Water Quality Action Team 2002), with fishers targeting larger individuals. As *Sebastes* is a long-lived species (55 years or greater) and does not reach sexual maturity until 10 years of age or greater, the loss of larger fish may also be having a negative impact on recruitment. The Puget Sound Action Team (2002) estimates that rockfish spawning potential has declined 75 percent since the 1970s.

The eastern shore of Maury Island has several rocky reefs and submerged wrecks that are capable of supporting rockfish. Divers from WDFW have documented the presence of several species including lingcod (*Ophiodon elongatus*), copper (*Sebastes caurinus*) and brown (*Sebastes auriculatus*) rockfishes, as well as red Irish lord (*Hemilepidotus hemilepidotus*) (W. Palsson, Research Scientists, Washington Department of Fish and Wildlife, personal communication, July 7, 2003).

Geoduck (*Panopea abrupta*): Geoduck clams are found from California to Alaska, although they are most abundant in the Puget Sound and coastal waters of British Columbia. Geoducks are found from the low intertidal zone to at least 360 feet (110 meters) in water depth and are most abundant in sand and silt substrates. The species is the largest of the burrowing clams, and grows rapidly with individuals in Puget Sound averaging 1.5 pounds within four or five years. They attain their maximum size and weight of approximately 2 pounds within 15 to 25 years (Hoffmann et al. 2000). Geoducks are very long-lived with some individuals reaching ages of over 160 years, with an average age at commercial tracts of about 46 years (Bradbury et al. 2000). Average density in the south and central areas of Puget Sound is approximately 0.18 geoducks/ft² (1.9 geoducks/m²) (Goodwin and Pease 1991).

There are six commercial geoduck tracts located at the Maury Island site. Harvest tract 10300 (62 acres) along the western shoreline of Quartermaster Harbor is currently unavailable for commercial harvest due to pollution concerns associated with failing septic systems in the vicinity (Sizemore and Ulrich 2002) (Appendix I).

The other five geoduck tracts include more than 433 acres and 6.6 million pounds of geoducks (Sizemore and Ulrich 2002). The state is not harvesting at these five tracts,

nor is there any plan to do so in the immediate future. The Puyallup Tribe is harvesting at the Maury Island site along the eastern shoreline of Maury Island (harvest tract 10150) (Appendix I). Tract 10150 includes 130 acres along the entire eastern shoreline of Maury Island, with an estimated population of 1,371,000 geoducks weighing a total of about 3,702,000 pounds. Harvest in this area is restricted from January 1 through April 15 to areas deeper than minus 35 feet (10 meters) MLLW to protect herring spawning. There is also a recommended harvest boundary of minus 25 feet (7 meters) MLLW or deeper from April 16 through December 31 to protect herring habitat (WDFW 2003b). In 2002, tribal harvest took approximately 142,086 pounds of geoducks from the southern portion of this tract.

In recent years, the Puyallup Tribe also conducted geoduck harvest within tract 10100, along the northern shoreline of Maury Island (Appendix I). This tract is comprised of 43 acres and is estimated to support approximately 124,000 geoducks with a total biomass of about 334,000 pounds. Tribal harvest through 2002 accounted for approximately 423,950 pounds of geoducks (WDFW 2003b). The Puyallup Tribe now believes that the tract has been depleted to the point that commercial harvest is not economically feasible and the tract is in recovery, although the post-harvest survey has not been completed. The time required for recovery of a commercial geoduck tract generally averages about 40 years in Puget Sound.

To protect eelgrass, WDFW mandates surveys prior to state harvest and a two-foot vertical buffer must be established around occurrences of rooted eelgrass. In areas with very shallow slopes, a 180-foot horizontal buffer (seaward and deeper than the deepest eelgrass) may be used instead of the vertical buffer (Bradbury et al. 2000).

Other Epifauna/Infauna: In addition to geoduck, species documented within the Maury Island site include: barnacles; mussels; nudibranch; hairy shore crab; heart cockle; chiton; cockle; Dungeness crab; flat worm; tube worm; red rock crab; sand dollar, sea anemone; sea star; sea urchin, and shrimp (Bloch et al. 2002). More than 80 percent of the infaunal bivalves in Quartermaster Harbor are suspension feeders and Manila clams (*Tapes philippinarum*), bent-nosed clams (*Macoma inquinata*), and macoma clams (*Macoma balthica*) were the most common species comprising 75, 11, and 5 percent of observations, respectively (Landhal 1985). Compared to urban bays, samples from Quartermaster Harbor contain larger abundances or sizes of ‘sensitive species’ including sea cucumbers (*Cucumaria miniata*), spotted sea cucumber (*Cucumaria piperata*), crescent sea cucumber (*Pentamera populifera*), edible sea cucumber (*Parastichopus californica*), sunstars (*Solaster stimpsoni*), hermit crabs (*Pagurus spp.*) and snails (*Nassarius mendicus*) (Gibson et al. 2000). A 2002 WDFW bottom trawl in Quartermaster Harbor revealed a high abundance of macroinvertebrates including Dungeness crab, red rock crab, red sea cucumber, and sea stars. In addition, there may be aquatic nuisance species present in the Maury Island site, as listed in Table 7 in the Aquatic Vegetation Section (Section 4.4.1.2).

4.4.1.2 Aquatic Vegetation

Native Vegetation Species: There is a variety of native aquatic vegetation at the Maury Island site that provides important habitat structure and function, with the most abundant being eelgrass and kelp.

The euphotic zone is the uppermost portion of the water column where light levels are high enough for photosynthesis to occur. Overall light transmission rates are affected by latitude, seasons, water quality, and suspended particulate matter (i.e., sediments and phytoplankton). In nutrient rich areas, the depth of the euphotic zone decreases as the incidence of algal blooms increases.

The depths at which aquatic vegetation can, or does, occur generally defines nearshore ecosystem boundaries within Puget Sound (Battelle 2003), although substrate and water current are also factors for vegetative growth. As a result, in some regional literature the outer limit of the nearshore and euphotic zones are defined similarly and placed at approximately minus 66 feet (- 20 meters) below mean low low water (MLLW) (Williams et al. 2001).

A wide diversity of aquatic vegetation is found within and adjacent to the site. In the intertidal zone common species include pickleweed (*Salicornia virginica*), eelgrass (*Zostera marina* and *Zostera japonica*), sea lettuce (*Ulva lactuca*), rockweed (*Enteromorpha flexilis*), and link confetti (*Enteromorpha intestinalis*). The subtidal areas are also vegetated with alga and eelgrass species. Common alga and kelps in the area include red algae (*Agardhiella tenera*, *Gracilariopsis sjoestedt*, *Callophyllis* sp., *Ceramium* sp.), Turkish towel (*Gigartina exasperate*), sugar wrack (*Laminaria sacchirina*), bull kelp (*Nerocystis luetkeana*), a Japanese weed (*Sargassum muticum*), and Whip tube (*Scytosiphon lomentaria*). An unknown quantity and diversity of phytoplankton also occur within the water column. The specific distribution of these species is governed by local habitat conditions including the sediment type (e.g., the presence of rock or sandy sediments), light transmittance, and current.

Eelgrass (Zostera marina): Eelgrass is a subtidal grass that spreads by rhizomes and prefers sandy/silt substrates. It can be found as individual plants, small patches, or large meadows in the low intertidal and shallow subtidal zones. Central Puget Sound eelgrass beds have been found at depths ranging from +5.25 feet (1.6 meters) to -24 feet (7.3 meters) relative to MLLW (Berry et al. 2003). The primary factor controlling distribution at the upper boundary is desiccation stress, and at the lower boundary is light penetration (Thom et al. 1998). Like terrestrial grasses, eelgrass meadows are most dense in the spring and summer, going dormant, and decaying during the fall and winter. In addition to protecting shorelines from wave and current driven erosion, eelgrass roots help anchor sediments and keep shallow subtidal environments moist and cool during low tides. Eelgrass is a key element in Puget Sound food webs and supports a variety of organisms, including zooplankton, juvenile salmonids, small crabs (e.g., spider crab), nudibranch, larval forage fish (e.g., herring), and a variety of small fish such as pipefish and gunnels.

Shoreline surveys found continuous or patchy eelgrass beds offshore of 78 percent (18.65 of 23.88 miles) of the shoreline within the Maury Island site (Nearshore Habitat Program 2001). Eelgrass observations in Quartermaster Harbor suggest that while the abundance of eelgrass may have changed within or between beds, the distribution of eelgrass has changed little over the past thirty years (WDFW, unpublished data). There are significant eelgrass beds scattered throughout the Maury Islands site, both within Quartermaster Harbor and along the eastern shore of Maury Island, making it an important area for salmonids, forage fish, and a variety of piscivorous birds and mammals (Appendix F).

Kelp (sp.): Kelp is a common macroalgae that occurs in water depths of 50 to 100 feet (15 to 30 meters) throughout the Puget Sound. Unlike eelgrass, which actually roots in the sediments, kelp is held in place by structures called holdfasts that anchor the macroalgae to rocky substrates (Nybakken 1997). Similar to eelgrass, kelp serves to decrease erosional impacts from waves and currents on nearshore environments. Growth rates for kelp can exceed 2.4 inches (6.0 centimeters) a day and at maturity, individual kelp may be 65 to 100 feet (20 to 30 meters) in length. Kelp is an important component of nearshore primary production rates (Nybakken 1997) and in Puget Sound it provides important habitat for a number of grazers (e.g., snails and sea urchins), filter feeders (e.g., anemones), scavengers (e.g., crabs), and predators (e.g., rockfish, starfish, and salmonids), as well as a variety of smaller algae. Bladder kelp forests are located in areas where the seafloor is covered by rocky outcrops and boulders near the mouth of Quartermaster Harbor, south of Rosehilla and northeast of Neill Point (Blau 1975). There is no evidence of continuous kelp beds within the Maury Island site, but patchy distributions have been reported along the western and eastern shorelines of the island (Appendix F). Observations by Icard Consulting Services in 2003 found kelp at depths below minus 6 feet where appropriate attachment substrate was available (Icard Consulting Services 2003).

Invasive Nuisance Species: There is also evidence of invasive nuisance species (e.g., *Spartina*) that occur in the area, although these species have not been fully inventoried.

Spartina (Spartina sp.): *Spartina* is a highly aggressive and invasive aquatic plant species that can degrade the quality of tideflats. *Spartina* grows on tideflats and traps sediment from the water column, causing increased elevation and vegetation changes. These physical alterations can reduce productivity and habitat suitability for many native plant and animal species (Williams et al. 2001).

Spartina was first discovered on Vashon Island in 1993 at Fern Cove on the northwest side of Vashon Island. Since then, *Spartina* has been found near the Maury Island site in Raab's Lagoon, Point Heyer, and Tramp Harbor. Populations found to date near the Maury Island site are small and have responded well to management (Eisenberg et al. 2001). In recent years, local organizations have surveyed the island

by boat and reported findings to Washington Department of Agriculture for management.

While several other invasive species have been detected within or near the aquatic reserve, no systematic survey has attempted to assess which species are present. Table 7 describes non-native and species of unknown origin (cryptogenic) that have been detected in Puget Sound and several species on this list are likely to occur within the aquatic reserve. The information in this table on native regions, transport mechanisms and collections is based on Carlton 1979, Cohen and Carlton 1995, Cohen *et al.* 1998 and Mills *et al.* 2000 unless otherwise noted.

Table 7 Exotic and Cryptogenic Species in Puget Sound	
Organism	Records
Phaeophyceae	
<i>Sargassum muticum</i> (Yendo, 1907) Fensholt, 1955	Native to Japan and introduced with oyster aquaculture. First recorded on Pacific Coast in 1944 and in Puget Sound in 1948; present throughout Puget Sound by the early 1960s (Scagel 1956; Thom and Hallum 1991).
Anthophyta	
<i>Cotula coronopifolia</i> Linnaeus, 1753	Native to South Africa and probably introduced in solid ballast. First recorded on the Pacific Coast at San Francisco in 1878 and now spread from southern California to British Columbia, including Puget Sound. Often occurs as an ephemeral colonizer in newly restored salt marshes (Frenkel 1991).
<i>Spartina alterniflora</i> Loiseleur-Deslongchamps	Native to the northwestern Atlantic and first reported on the Pacific Coast in Puget Sound, where it was planted in the 1930s for duck habitat. It probably arrived earlier in Willapa Bay, where it may have been introduced in solid ballast, as seeds accidentally transported with oysters imported for culturing, or possibly as packing material for ship-transported goods.
<i>Spartina anglica</i> C.E. Hubbard, 1968	A new species derived from accidental hybridization in southern England and northern France in the 1800s, Introduced to Puget Sound in Susan Bay for shoreline stabilization and cattle forage in 1961 (Frenkel 1987).
<i>Spartina patens</i> (Aiton)	Native to the northwestern Atlantic. Probably introduced as packing material for ship-transported goods, or possibly in solid ballast or as seeds accidentally transported with oysters imported for culturing.
<i>Zostera japonica</i> Ascherson and Graebner, 1907	Native to the western Pacific and introduced with oyster aquaculture. First recorded on the Pacific Coast in 1957 and in Puget Sound in 1974 (Harrison and Bigley 1982).
Foraminifera	
<i>Trochammina hadai</i> Uchio 1962	Native to Japan, and probably introduced either in ballast water, in hull fouling or with oyster aquaculture. First recorded on the Pacific Coast in Puget Sound in 1971 (McGann <i>et al.</i> 2000).
Cnidaria: Hydrozoa	
<i>Cladonema radiatum</i> Dujardin, 1843	Native to the Northwestern Atlantic. First collected on the Pacific Coast in Puget Sound in 1988 (Mills 1998).
<i>Cordylophora caspia</i> (Pallas, 1771)	Native to the Black and Caspian Seas. Either an early introduction with ballast water or possibly introduced in hull fouling. First recorded on the Pacific Coast in Puget Sound around 1920. Reported in some literature as <i>Cordylophora lacustris</i> .
Cnidaria: Anthozoa	
<i>Diadumene lineata</i> (Verrill, 1869)	Native to Asia. First recorded on the Pacific Coast in San Francisco Bay in 1906, and in Puget Sound in 1939. Either introduced in hull fouling from Asia, or with shipments of oysters from the Atlantic, where it had been introduced (probably in hull fouling) in the late 1880s. Reported in some earlier literature as <i>Haliplanella luciae</i> .

Platyhelminthes	
<i>Pseudostylochus ostreophagus</i> Hyman, 1955	An oyster pest native to Japan and introduced in oyster aquaculture. First recorded on the Pacific Coast in Puget Sound in 1953.
Annelida: Polychaeta	
<i>Hobsonia florida</i> (Hartman, 1951)	Native to the northwestern Atlantic, and first recorded on the Pacific Coast in Puget Sound in 1940.
<i>Neanthes succinea</i> (Frey and Leuckart, 1847)	Native to the Atlantic and introduced by oyster aquaculture to San Francisco Bay by 1896. First recorded in Puget Sound around 1995.
<i>Pseudopolydora kemp</i> (Southern, 1921)	Native to Japan and probably introduced with oyster aquaculture, or possibly in hull fouling or ballast water. First recorded on the Pacific Coast at Nanaimo on the east coast of Vancouver Island in 1951, and in Puget Sound on San Juan Island in 1968. Has generally been listed as exotic on the Pacific Coast (Carlton 1979; Cohen and Carlton 1995; T N and Associates 2002); but was reported as cryptogenic in the Columbia River (Draheim et al. 2003).
<i>Pseudopolydora paucibranchiata</i> (Okuda, 1937)	Native to Japan and introduced with oysters, in hull fouling or in ballast water. First recorded on the Pacific Coast in southern California in 1950, and in Puget Sound in 1993.
Mollusca: Gastropoda	
<i>Batillaria attramentaria</i> (Sowerby, 1855)	A Japanese oyster pest introduced with oyster aquaculture. First recorded on the Pacific Coast in Puget Sound in 1924, or possibly 1918-19. Reported in some Pacific Coast literature as <i>B. zonalis</i> or <i>B. cumingi</i> .
<i>Crepidula fornicata</i> Linnaeus, 1758	An oyster pest native to the northwestern Atlantic and introduced with oyster aquaculture. First recorded on the Pacific Coast in Puget Sound in 1905.
<i>Crepidula plana</i> Say, 1822	Native to the northwestern Atlantic and introduced with oyster aquaculture. First recorded on the Pacific Coast in San Francisco Bay in 1901, and in Puget Sound in 1949.
<i>Myosotella myosotis</i> (Draparnaud, 1801)	Occurs on both coasts of the North Atlantic, but may be native only to Europe. First reported on the Pacific Coast in San Francisco Bay in 1871, where it was probably introduced with oyster aquaculture, although possibly carried in solid ballast or hull fouling. The first record in Puget Sound is from 1936, or possibly a 1927 specimen labeled “Juan de Fuca.” It has since been reported from many locations in the Sound.
<i>Nassarius fraterculus</i> (Dunker, 1860)	Native to Japan and introduced with oyster aquaculture. First collected on the Pacific Coast in Puget Sound, in Padilla Bay in 1960 and Samish Bay in 1963 (Carlton 1979: 412).
<i>Ocenebrellus inornatus</i> (Recluz, 1851)	An oyster pest native to Japan and introduced with oyster aquaculture. First recorded on the Pacific Coast in Puget Sound in 1924. Reported in some literature as <i>Ocenebra japonica</i> or <i>Ceratostoma inornatum</i> .
<i>Urosalpinx cinerea</i> (Say, 1822)	An oyster pest native to the northwestern Atlantic and introduced with oyster aquaculture. First recorded on the Pacific Coast in San Francisco Bay in 1890-91 and in Puget Sound in 1929.

Mollusca: Bivalvia	
<i>Crassostrea gigas</i> (Thunberg, 1793)	Native to Japan and introduced for aquaculture. First planted on the Pacific Coast in Puget Sound in 1875. It is cultured extensively in South Puget Sound and reproduces successfully in Dabob Bay (Emmett <i>et al.</i> 1991).
<i>Musculista senhousia</i> (Benson, 1842)	Native to Asia and introduced with oyster aquaculture. First recorded on the Pacific Coast in Samish Bay on planted Japanese oysters, and found in the wild in central California in 1941 and in Puget Sound at Olympia in 1959. Reported in some literature as <i>Musculus senhousia</i> .
<i>Mya arenaria</i> Linnaeus, 1758	Native to the northwestern Atlantic and introduced with oyster aquaculture. First recorded on the Pacific Coast in 1874, and in Puget Sound in 1888-89, where it is widely established (Emmett <i>et al.</i> 1991).
<i>Nuttallia obscurata</i> (Reeve, 1857)	Native to the northwestern Pacific and probably introduced in ballast water. First recorded on the Pacific Coast in 1991 and in Puget Sound in 1993 (Forsyth 1993).
<i>Venerupis philippinarum</i> (Adams and Reeve, 1850)	Native to the northwestern Pacific, accidentally introduced with oyster aquaculture. First recorded on the Pacific Coast in Puget Sound in 1924, where it is both widely cultivated and established in the wild (Emmett <i>et al.</i> 1991). Reported in some earlier literature as <i>Ruditapes philippinarum</i> , <i>Tapes japonica</i> or <i>Venerupis japonica</i> .
Arthropoda: Crustacea: Copepoda	
<i>Mytilicola orientalis</i> Mori, 1935	Native to Asia and introduced in oyster aquaculture. First recorded on the Pacific Coast in Willapa Bay in 1938, and in Puget Sound in 1943.
Arthropoda: Crustacea: Cumacea	
<i>Nippoleucon hinumensis</i> (Gamo, 1967)	Native to Japan and introduced in ballast water. First recorded on the Pacific Coast in 1979, and in Puget Sound in the mid-1990s. Reported in some earlier literature as <i>Hemileucon hinumensis</i> .
Arthropoda: Crustacea: Tanaidacea	
<i>Sinelobus stanfordi</i> (Richardson, 1905)	Origin unknown. Possibly introduced in ship fouling or ballast water. First recorded on the Pacific Coast in 1943, and in Puget Sound since the mid-1990s.
Arthropoda: Crustacea: Isopoda	
<i>Caecidotea racovitzai</i> (Williams, 1970)	Native to the northwestern Atlantic and possibly introduced in ballast water or with aquarium or ornamental pond plants. Primarily occurs in fresh water, but has been collected in brackish water including the Snohomish River Estuary in 1997 (Toft <i>et al.</i> 2002).
<i>Limnoria tripunctata</i> Menzies, 1951	Origin unknown. Introduced in hull fouling. First recorded on the Pacific Coast in California in the 1870s and in Puget Sound in 1962.

Arthropoda: Crustacea: Amphipoda	
<i>Ampithoe valida</i> Smith, 1873	Native to the northwestern Atlantic, and introduced by ballast water, oyster aquaculture or hull fouling. First recorded on the Pacific Coast in 1941, and in Puget Sound in 1966.
<i>Caprella mutica</i> Schurin, 1935	Native to the Sea of Japan and introduced by ballast water or oyster aquaculture. First recorded on the Pacific Coast in 1973-77, and in Puget Sound in 1998. Reported in some literature as <i>Caprella acanthogaster</i> .
<i>Eochelidium</i> sp.	Probably native to Japan or Korea, and introduced in ballast water. First recorded on the Pacific Coast around 1993, and in Puget Sound in 1997.
<i>Grandidierella japonica</i> Stephensen, 1938	Native to Japan, and introduced by ballast water, oyster aquaculture or hull fouling. First recorded on the Pacific Coast in 1966, and in Puget Sound in 1977.
<i>Jassa marmorata</i> Holmes, 1903	Native to the northwestern Atlantic and introduced in ballast water or hull fouling. First recorded on the Pacific Coast in 1938, and in Puget Sound around 1995.
<i>Melita nitida</i> Smith, 1873	Native to the northwestern Atlantic, and introduced by ballast water, oyster aquaculture, solid ballast or hull fouling. First recorded on the Pacific Coast in 1938.
<i>Monocorophium acherusicum</i> Costa, 1857	Native to the northern Atlantic, and introduced by oyster aquaculture or hull fouling. First recorded on the Pacific Coast in 1905, and in Puget Sound in 1974-75. Reported in the literature as <i>Corophium acherusicum</i> until recently.
<i>Monocorophium insidiosum</i> Crawford, 1937	Native to the northern Atlantic, and introduced by oyster aquaculture or hull fouling. First recorded on the Pacific Coast in 1915 and in Puget Sound in 1949. Reported in the literature as <i>Corophium insidiosum</i> until recently.
<i>Parapleustes derzhavini</i> (Gurjanova, 1938)	Native to the western Pacific and introduced in hull fouling. First recorded on the Pacific Coast in 1904, and in Puget Sound in 1998.
Kamptozoa	
<i>Barentsia benedeni</i> (Foettinger, 1887)	Native to Europe, and introduced by oyster aquaculture or hull fouling. First recorded on the Pacific Coast in 1929, and in Puget Sound in 1998.
Bryozoa	
<i>Bowerbankia gracilis</i> Leidy, 1855	Probably native to the western Atlantic, and introduced by oyster aquaculture or hull fouling. First recorded on the Pacific Coast by 1923, and in Puget Sound by 1953.
<i>Bugula</i> sp. A	First recorded on the Pacific Coast in Puget Sound in 1993.
<i>Bugula</i> sp. B	First recorded on the Pacific Coast in Puget Sound in 1998.
<i>Bugula stolonifera</i> Ryland, 1960	Native to the northwestern Atlantic and introduced in hull fouling. First recorded on the Pacific Coast by 1978, and in Puget Sound in 1998.
<i>Cryptosula pallasiana</i> (Moll, 1803)	Native to the northern Atlantic, and introduced with oyster aquaculture or in hull fouling. First recorded on the Pacific Coast in 1943-44 and, in Puget Sound in 1998.
<i>Schizoporella unicornis</i> (Johnston, 1847)	Native to the northwestern Pacific, and introduced by oyster aquaculture or hull fouling. First recorded on the Pacific Coast in Puget Sound in 1927.

Urochordata: Tunicata

<i>Botrylloides violaceus</i> Oka, 1927	Native to Japan, and introduced by oyster aquaculture or hull fouling. First recorded on the Pacific Coast in 1973, and in Puget Sound in 1977.
<i>Botryllus schlosseri</i> (Pallas, 1766)	Native to the northeastern Atlantic, and introduced by oyster aquaculture or hull fouling. First recorded on the Pacific Coast in 1944-47, and in Puget Sound in the 1970s.
<i>Ciona savignyi</i> Herdman, 1882	Native to Japan, and introduced in ballast water or hull fouling. First recorded on the Pacific Coast in 1985, and in Puget Sound in 1998.
<i>Molgula manhattensis</i> (DeKay, 1843)	Native to the northwestern Atlantic, and introduced by ballast water, oyster aquaculture or hull fouling. First recorded on the Pacific Coast in 1949, and in Puget Sound in 1998.
<i>Styela clava</i> Herdman, 1881	Native to the region from China to the Sea of Okhotsk, and introduced by ballast water, oyster aquaculture or hull fouling. First recorded on the Pacific Coast in 1932-33, and in Puget Sound in 1998.

Chordata: Pisces

<i>Alosa sapidissima</i> (Wilson, 1811)	Native to the northwestern Atlantic, and intentionally introduced to the San Francisco Bay watershed in 1871. Collected in the Columbia River in 1876 (Smith 1896), and fry were stocked there in 1906 (Draheim 2002: 11). Adults and juveniles are common in Skagit Bay, and rare in other parts of Puget Sound (Emmett <i>et al.</i> 1991).
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4.4.1.3 Marine Mammals

River Otter (Lontra anadensis): River otters are fairly common throughout Puget Sound and occur within the Maury Island site. Although river otters hunt and den on land, they also rely heavily on a diet of fish and shellfish and can be expected to feed in the shallow inter- and sub-tidal areas throughout the Vashon and Maury Island areas, as well as at small estuaries such as the mouth of Judd Creek. They require deep and fairly clean water to remain healthy, and their position near the top of the aquatic food web makes them extremely susceptible to bioaccumulation of contaminants such as mercury, PCBs, Dichloro Diphenyl Trichloroethane (DDT), dieldrin, and other pesticides.

Females reach sexual maturity at about two years of age, while males are mature at about five years. Breeding occurs in late winter to early spring, and litters of between one and four are born within nine to twelve months. Pups are weaned within four months, but spend several months with their mothers learning to hunt. Otters can live as long as 13 years in the wild and have few natural predators that would occur within the Maury Island site.

Harbor Seals (Phoca vitulina): Harbor seals are rather common throughout the central Puget Sound area and are likely to be present at the Maury Island site. They reach about four to six feet in length and weigh between 176 and 300 pounds. They tend to favor nearshore coastal waters and are often seen at sandy beaches, mudflats, bays, and estuaries. They spend about half their time on land and half in water, and they sometimes sleep in water. They are opportunistic feeders, eating herring, sole, sculpin, flounder, salmonids, and other available fish (Marine Mammal Center 2000).

There are no harbor seal haul-out sites in the vicinity of the Maury Island site and abundance of the species in the area is not known.

California Sea Lion (Zalophus californianus): California sea lions are occasionally observed resting on buoy markers “TC” off southeastern Maury Island and “TB” off Point Robinson. They are extremely social creatures and hunt throughout the day and night, feeding on salmon, octopus, and other pelagic fish. Their sizes vary with gender and age. Females weigh about 200 pounds at maturity, whereas males weigh about 600 pounds or greater.

Killer Whale (Orcinus orca): The Puget Sound Orca population is listed as endangered by WDFW and a review of its listing under the federal Endangered Species Act was ordered in late fall of 2003. A decision is scheduled for December 2004. Killer whales frequent a variety of marine habitats with adequate prey resources and do not appear to be constrained by water depth, temperature, or salinity (Baird 2000). During early autumn, southern resident pods expand their routine movements to include Puget Sound in addition to Georgia Strait, San Juan Islands, and Strait of Juan de Fuca. During this annual range expansion Orca are regularly observed in the vicinity of the Maury Island site and may occasionally feed along the outer shoreline of Vashon and Maury Islands, and less frequently, may enter Quartermaster Harbor. This expansion of range is believed to be in response to chum and Chinook salmon runs (Osborne 1999). Similar to otter and sea lions, Orca are top predators and extremely susceptible to bioaccumulation of toxins in the food web.

4.4.1.4 Terrestrial Wildlife (Birds)

Primary Bird Species: The Maury Island area offers wetland and riparian habitat for several species of migratory and resident marine birds. WDFW winter surveys between 1993 and 2002 identify American widgeon, surf and white-winged scoters, common and barrow’s goldeneye, bufflehead, gulls and western grebes as the most common wintering marine birds (WDFW, unpublished data). Average and peak observations for common bird species are shown in Table 8. Common resident birds include glaucous-winged gulls, black brant and the great blue heron (NORTEC 1984). Aside from specific areas with substantial human development (i.e., Gold Beach, Sandy Shores, Dockton, and Burton), the areas adjacent to the Maury Island site has riparian habitat that is largely intact and supports a number of bird populations, both seasonal and resident. In addition to being sheltered and relatively undisturbed by boat traffic, the site offers a plentiful food supply for aquatic piscivorous birds in the form of forage fish, juvenile salmonids, and shellfish.

Table 8: Average and peak observations for wintering marine birds within the Maury Island site (WDFW, unpublished data)

Species	Average annual count (1992 – 2001)	Peak 1-day Count	Date of Peak Count
American Widgeon	152.1	403	12/08/1999
Bufflehead	103.8	144	12/11/2000
Barrow’s Goldeneye	36.9	116	12/10/2001
Common Goldeneye	41.3	99	12/11/1992
Unidentified Goldeneye Sp.	144.6	314	12/28/1995
Surf Scoter	267	698	12/11/1992
White-winged Scoter	119.1	294	12/11/1992
Unidentified Scoter Sp.	715.2	1218	12/28/1995
Western Grebe	602.6	1664	12/18/1996
Gull (all species)	252.4	409	1/4/1995

Quartermaster Harbor has been designated an Important Bird Area (IBA) by the Audubon Society of Washington and supports approximately eight percent of Washington’s wintering population of Western grebe (Cullinan 2001). In addition to grebe, the area provides winter refuge for approximately 3,000 individuals from 35 species of aquatic birds annually (Cullinan 2001). The IBA program has two primary goals: 1) to identify the sites in the state of Washington that are the most essential for long-term conservation of birds, and 2) to take action to ensure the conservation of these sites.

Western Grebe (Aechmophorus occidentalis): The western grebe is considered by WDFW to be a candidate species for inclusion on the state species of concern list (Table 9). Grebes prefer to winter in sheltered, ice-free waters with large supplies of forage fish, which makes Quartermaster Harbor ideal habitat. Although almost 100 percent of the bird’s diet is fish, they also eat crustaceans, worms, and insects, spearing their prey with their long, pointed bills. Adult birds range from 22 to 30 inches in length and have long necks, with their feet positioned at the far back of the body, making walking difficult (Pease 2000). The birds migrate north beginning in late April and return to the site during September and October (Kirschenbaum 1996).

The presence of a relatively large population of wintering western grebe in Quartermaster Harbor was the primary reason that Audubon Washington listed the area as an IBA. From 1989 through 1991, surveys found an average winter abundance of 1,435 grebes in the area. Additional surveys conducted from 1999 through 2002 observed an average total of 2,345 individuals in the area during winter months (Willsie 2003). Annual winter flyover surveys from 1992 to 2001 detected an average of 603 grebes per survey year with a peak one-day count of 1,664 western grebes in 1996 (WDFW, unpublished data). These surveys illustrate that Quartermaster Harbor area is regularly used by large numbers of wintering western grebes.

Great Blue Heron (Ardea herodias): The great blue heron is a rather large bird attaining lengths of between 42 and 52 inches. They have long and slender bills, necks, and legs and they fly with a distinctively folded back neck. The great blue heron feeds in shallow waters, standing along the margin and using their long bills like tongs to clamp their prey. They tend to congregate near areas with eelgrass to take advantage of the abundance of forage fish (Quinn and Milner 1999). They are communal nesters that utilize rather tall trees, normally at least 30 feet in height, adjacent to feeding areas. Due to their dependence on nesting trees, the species is sensitive to riparian vegetation clearing, particularly near eelgrass beds.

The Mileta Creek Wildlife Refuge recently supported one of the largest Great Blue Heron rookeries in King County, located on the eastern shore of Quartermaster Harbor. Recent anecdotal reports suggest that this rookery may have been abandoned.

While currently not included on the state list of species of concern, WDFW has noted an apparent decline in the species and is monitoring populations. Although there are little data pertaining to the abundance of great blue herons in this area, surveys conducted in Quartermaster Harbor from 1999 through 2001 noted an average of six individuals (Willsie 2003).

Bald Eagle (Haliaeetus leucocephalus): Bald eagles were first protected by the Bald Eagle Protection Act of 1940 and later listed as endangered under ESA. In 1978, the bald eagle was reclassified as threatened in five states, including Washington. Bald eagle are also listed as a threatened species on the Washington State species of concern list (Table 9). In the past 20 years, the population of nesting bald eagles has grown about 10 percent per year as eagles reoccupy habitat (Stinson et al. 2001). Recovery is especially dramatic in Washington State, where there are now over 600 nesting pairs, with approximately 300 pairs in Puget Sound alone. Due to the demonstrated recovery of the species, in 1999 the USFWS proposed to remove bald eagles from the list of threatened and endangered species (64 FR 36454). To date, no decision has been made regarding the proposed delisting.

Bald eagles are found wherever food (i.e., fish and waterfowl) is abundant, with nesting typically occurring in forested settings that are relatively free from human disturbance (Stalmaster 1987). Nesting pairs return to the same nesting territories year after year, while wintering groups tend to be more transitory. In Puget Sound, the seasonal home range containing the foraging and nesting habitat of an eagle pair averages about 2.6 square miles (Stinson et al. 2001). Territories usually include large bodies of water, as the species tends to prefer fish to all other types of prey, although they may also feed on small mammals and waterfowl (Stalmaster 1987). Bald eagles are opportunistic feeders and forage most intensively at first daylight and at low tide (Watson et al. 1991). In the Puget Sound, nest initiation begins sometime in February and the breeding cycle ends when the juveniles disperse near the end of August (Stalmaster 1987).

There is one bald eagle nesting area near the Maury Island site and more than 10 additional nests in the local vicinity. The one nest closest to the reserve boundary is near Neill Point. Bald eagle feeding areas extend along the southern shore of Vashon Island into Quartermaster Harbor and along the southern shoreline of Maury Island (Appendix H). There is little information regarding the abundance of bald eagles using the Maury Island site, although surveys conducted from 1999 through 2001 noted an average of four individuals.

Marbled Murrelet (Brachyramphus marmoratus): Marbled murrelets in Washington, Oregon, and California were listed as a threatened species under the federal Endangered Species Act in 1992 and are also listed as a threatened species on the Washington State species of concern list (Table 9). Classified as diving seabirds, murrelets are small (0.5 pounds) birds. The species primarily feed on small fish such as sand lance, smelt, and herring, which makes Quartermaster Harbor a suitable location for these birds. They are normally found in small groups of two to twelve, although they may form larger groups in abundant feeding areas. They spend the majority of their lives within approximately one mile of the coastline, although they nest up to about 45 miles inland in old growth trees.

There have been reported, although unconfirmed, sightings of marbled murrelets in the vicinity of Point Robinson. There is no information regarding abundance or frequency of use of the species in this area and the Maury Island site is not within the species' designated critical habitat.

Other Bird Species: In addition to the species described above, there are a number of other species of grebes, cormorants, ducks, swans, geese, gulls, and loons in the area, some of which are included on the Washington State species of concern list (Table 9). Waterfowl such as mallard, scoters, goldeneye, and bufflehead tend to be the most common bird species in the area.

Table 9 . Bird species of concern present at the Maury Island site.

Common Name	Scientific Name	Federal Listing Status	State Listing Status
Western grebe	<i>Aechmophorus occidentalis</i>	None	Candidate
Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened	Threatened
Marbled murrelet	<i>Brachyramphus marmoratus</i>	Threatened	Threatened
Harlequin duck	<i>Histrionicus histrionicus</i>	Species of Concern	None
Common loon	<i>Gavia immer</i>	None	Sensitive
Brandt’s cormorant	<i>Phalacrocorax penicillatus</i>	None	Candidate
Common murre	<i>Uria aalge</i>	None	Candidate
Red-necked grebe	<i>Podiceps grisegena</i>	None	Monitor
Horned grebe	<i>Podiceps auritus</i>	None	Monitor

Source: Willsie 2003; WDFW 2003c

4.4.2 Impact Analysis

4.4.2.1 Alternative 1 (Preferred Alternative)

The Preferred Alternative would have a moderate probability of causing positive direct impacts to plant and animal species and communities at discrete locations throughout the site and positive indirect and cumulative impacts to plant and animal species and communities in and around the site.

Implementing the Preferred Alternative has the potential to greatly benefit the plant and animal communities that are located within, and/or that are dependent upon the Maury Island site. However, to be successful, management of the Maury Island site needs to recognize the interconnections between terrestrial and aquatic environments both within and outside of the Maury Island site, as well as those between activities on public and privately owned lands. Since DNR’s direct authority is limited to uses of state-owned aquatic lands, positive impacts to both plants and animals would be greatly enhanced through voluntary cooperation with other natural resource agencies (WDFW, Ecology, and King County Department of Natural Resources), local planning entities, adjacent landowners, and recreational user groups.

Salmonids: Implementation of the Preferred Alternative would have little direct impact on salmonid spawning in Judd Creek (Chinook, chum, coho, steelhead, and cutthroat), Fisher Creek (cutthroat) or Mileta Creek (cutthroat). However, possible joint efforts with King County and/or the Department of Ecology to improve the quality of freshwater inputs to the Maury Island site may have direct, positive impacts. Increases in streamside riparian vegetation would reduce water temperatures, as well as improve dissolved oxygen concentrations, decrease erosion and siltation of spawning beds, decrease nutrient inputs, and provide increased food supplied of terrestrial insects for resident fish and rearing juveniles. Similarly, outreach and

education efforts regarding stream management and stormwater would also have the potential to decrease harmful inputs to streams and ultimately Quartermaster Harbor.

The Preferred Alternative would have a direct and positive impact on rearing habit and migration corridors throughout the site. Through the use of best management practices and operational and constructions standards for marinas, over-water structures, recreational docks, and mooring buoys, critical nearshore aquatic vegetation would be protected. By ensuring the protection of eelgrass and kelp, the proposed reserve would also protect their associated fauna, thereby ensuring both shelter and food for the salmonids that utilize the area (Chinook, coho, chum, coastal cutthroat, and steelhead). Educational efforts aimed at decreasing the use of hard shoreline armoring and improving terrestrial vegetative cover would also lead to improved nearshore habitat by providing suitable substrate for aquatic vegetation, as well as cooler intertidal waters and increased supplies of terrestrial insects for rearing juveniles. The erosive effects of offshore winds and currents on benthic environments would also decrease as eelgrass and kelp beds increased.

Forage Fish: Similar to salmonids, exercising the Preferred Alternative offers a variety of benefits for forage fish populations (Pacific herring, surf smelt, and sand lance) within the Maury Island site. The risk of disease transfer from impounded herring to wild herring is decreased by preventing herring pens from being located within the herring spawning areas when spawning herring and larvae are likely to be present. Protection of eelgrass beds would positively impact herring spawning success, while also ensuring food and shelter for other forage fish populations. Partnerships with King County to encourage and fund the voluntary use of soft shoreline armoring techniques would also help to ensure sand and gravel substrates that would indirectly benefit surf smelt and sand lance spawning habitat. Utilizing soft armoring techniques would benefit forage fish habitat by providing suitable substrate for aquatic vegetation and decreasing wave action on intertidal benthic environments. Educational efforts aimed at decreasing nutrient inputs from malfunctioning septic systems and residential landscaping techniques, would also protect nearshore habitat for forage fish by limiting phytoplankton development and associated decreases in water clarity. In addition, while DNR has little control over the management of the herring fishery, the proposed reserve may also lead to the protection of the two herring holding areas off Neill and Piner Points, as portions of these holding areas would be within the proposed reserve boundary.

Groundfish: Groundfish are dependent on kelp beds and rocky nearshore environments throughout their lives. While DNR does not regulate groundfish harvest, educational efforts aimed at decreasing nutrient inputs from malfunctioning septic systems and residential landscaping techniques could lead to decreases in algal blooms and an increase in water clarity, benefiting kelp beds. In addition, limits on the construction and operation of structures within the Maury Island site would prevent the destruction of rocky habitats. Both impacts would protect juveniles as well as reproductive adults and should lead to increases in rockfish survival within the Maury Island site. However, groundfish tend to be attracted to any submerged

structures and are common around several docks and derelict structures within the Maury Island site. If derelict pilings and submerged structures are removed or prevented from being built, current and potential future habitat for groundfish would be reduced at the Maury Island site. This reduction would return groundfish habitat to natural, historic levels. These actions could reduce groundfish numbers in discreet areas of the Maury Island site.

Epifauna/Infauna: Macroinvertebrates such as geoduck and crab, as well as sea stars, worms, anemones and urchins are all dependent on nearshore environments. By implementing the Preferred Alternative DNR would be able to protect the substrate and vegetative communities that epifauna and infauna depend on through the use of best management practices and operational and construction standards for marinas, over-water structures, recreational docks, and mooring buoys. Partnerships with King County and Ecology would also indirectly benefit these species by improving water quality, thereby minimizing threats to water clarity and the euphotic zone, as well as minimizing erosion and shoreline hardening. As many of these species are key in the Puget Sound food web, their protection also directly benefits fish populations as well as marine mammals and birds.

Aquatic Vegetation: The Preferred Alternative would positively impact eelgrass and kelp beds through the implementation of the best management practices and operational and construction standards for marinas, over-water structures, recreational docks, and mooring buoys. Partnerships with King County and the Department of Ecology would also benefit these species by improving water quality, minimizing threats to water clarity and the euphotic zone, as well as minimizing erosion and shoreline hardening. Protection of eelgrass and kelp beds would have a cascading effect on species dependent on nearshore vegetation by improving amounts and quality of shelter, spawning area, and prey items.

Marine Mammals: Under the Preferred Alternative, marine mammals should indirectly benefit through the protection of prey species. No adverse impacts on marine mammals would be expected under the Preferred Alternative.

Terrestrial Wildlife: Similar to marine mammals, the majority of the benefits for terrestrial wildlife would be through the protection of prey species such as herring and crabs. However, species such as western grebe are also dependent on the area for shelter from winter storms, and as such the Preferred Alternative would provide protection for nearshore areas used as shelter.

These indirect benefits to bird species could increase bird use of the area, which could lead to increased predation on forage fish in the area. However, this potential effect would likely be negligible.

4.4.2.2 Alternative 2 (Repeal the Reserve)

Alternative 2 would have a moderate probability of causing negative direct impacts to plant and animal species and communities at discrete locations throughout the site

and negative indirect impacts to plant and animal species and communities in and around the site.

Repealing the reserve has the potential to further degrade the plant and animal resources discussed above. Without a comprehensive plan to protect the area, it can be expected that as shoreline development increases, so would eutrophication from non-point source pollution, which would decrease the euphotic zone, eelgrass, and kelp beds. As eelgrass and kelp decrease so would the communities that depend on them directly (i.e., anemone, sea star, algae) and indirectly for food and shelter (i.e., salmonids, forage fish, piscivorous mammals and birds). Use authorizations would be granted by DNR on a case-by-case basis, with little systematic or standardized method to address the cumulative impacts. In addition, shoreline armoring may increase because DNR would not be actively eliciting cooperative assistance to address it, which may lead to, and exacerbate, shoreline erosion and further decreases in the supply of fine-grained sediments utilized for forage fish spawning. King County would be solely responsible for the development, funding, and implementation of any and all protection beyond regulatory minimums.

4.4.2.3 Alternative 3 (No Action)

Alternative 3 would have a low probability of causing positive direct impacts to plant and animal species and communities at discrete locations throughout the site and positive indirect and cumulative impacts to plant and animal species and communities in and around the site.

As in Alternative 2, leaving the reserve status in place without developing a proactive management plan would not systematically address or protect the plant and animal resources discussed above. Use authorizations would be considered when they are proposed and those uses that do not conflict with the purpose of the reserve would be allowed to occur. Without a comprehensive plan to protect the area, DNR would rely on the programmatic FEIS and existing RCWs and WACs for guidance when issuing use authorizations within the site. This increased scrutiny (more than if there were no reserve, less than if there were a management plan) would likely benefit the plant and animal species described above in a similar, but less intense, less comprehensive, and less consistent manner than under the Preferred Alternative.

Without specific guidance for the Maury Island site, DNR's activities would likely be focused on uses of state-owned aquatic lands instead of seeking voluntary cooperation for activities on private property (as would be the case under the Preferred Alternative). This may cause increases in activities such as shoreline armoring, which would exacerbate shoreline erosion and further decrease the supply of fine-grained sediments utilized for forage fish spawning. King County would be solely responsible for the development, funding and implementation of any and all protection beyond regulatory minimums.

4.5 Energy and Natural Resource Use

Under SEPA, the energy and natural resources analysis in an EIS is to evaluate potential effects on sources and availability of energy and natural resources (e.g., fish, shellfish), nonrenewable resources, conservation of renewable resources, and scenic resources. Within its authority to manage state-owned aquatic lands, DNR can allow uses that may impact these energy and natural resources. Examples of uses that may impact these resources include allowing a use that obstructs a view corridor or dredging substrate from state-owned aquatic lands.

4.5.1 Affected Environment

The Maury Island site is not actively used for the extraction of energy resources. However, Puget Sound Energy has easements that traverse the Maury Island site along the northeastern shoreline (Appendix J). These easements are for submarine cables that provide electricity and natural gas to Maury and Vashon islands. The easements for the cable crossings are valid in perpetuity, as described in Section 4.7.1.4.

The site contains a number of commercial geoduck tracts, which provide a potential renewable natural resource for use by the state, although no state commercial harvests are presently conducted or proposed in the area. However, the Puyallup Tribe is commercially harvesting geoduck along the southeastern shoreline of Maury Island in accordance with tribal harvest policies. The Maury Island site also provides recreational geoduck harvest opportunities throughout the area. In addition to geoducks, recreational harvest of other shellfish species, such as manila clams, occurs throughout the Maury Island site.

Commercial and recreational harvest of herring and smelt also occurs within or near the Maury Island site, however DNR does not regulate such activities. Harvest of fisheries resources, both commercial and recreational, is under the authority of WDFW and the tribes.

The Maury Island site is primarily rural residential and scenic resources are relatively intact. However, structures within the Maury Island site, such as old piers, derelict vessels, and poorly maintained over-water structures, may be impacting the scenic resources of the area, although no reports of scenic resource degradation in the area have been received by DNR.

Before addressing possible impacts caused by an aquatic reserve designation, it is important to state that DNR does not have complete authority over all activities that take place on state-owned aquatic lands. As such, activities may take place within and outside of the Maury Island site that DNR cannot lawfully control. These activities may contribute to the degradation of energy and natural resources regardless of DNR's management efforts. The significant adverse impacts that may result to the state's energy and natural resource use from this proposed action are described below.

4.5.2 Impact Analysis

4.5.2.1 Alternative 1 (Preferred Alternative)

The Preferred Alternative would have no impact on energy delivery or consumption in the area. Alternative 1 would have a moderate probability of resulting in positive direct, indirect, and cumulative impacts to renewable natural resource use in the area, but would have a moderate to high probability of producing negative direct and indirect effects on extraction of non-renewable natural resources within the reserve.

No provisions of the management plan would disrupt the delivery of electricity and natural gas to the area, which is conveyed by the existing Puget Sound Energy submarine cables. The management plan proposed for the environmental aquatic reserve under this alternative contains no provisions relating to energy consumption or conservation of energy resources. Furthermore, the management plan does not propose any activities that would increase energy consumption or hinder energy conservation efforts. Therefore, the Preferred Alternative would have no impact on energy consumption or energy conservation in the area. The preferred alternative would have a moderate probability of negatively impacting future energy related facilities in the area by potentially limiting the suitable locations or methods of construction. However, no additional energy facilities have been proposed on state-owned aquatic lands in the area and the alternative does not prohibit construction of new underwater cables. Thus the potential impact on energy resources associated with the preferred alternative would be negligible.

The Preferred Alternative would have a moderate probability of causing direct, indirect, and cumulative positive impacts to some renewable natural resources within the site and the surrounding area. For example, the management plan includes provisions to protect and improve water quality and decrease the impacts of human development in the area. The geoduck harvest tracts along the western shore of Quartermaster Harbor are currently decommissioned due to fecal coliform and PSP concerns (Appendix I). Measures in the management plan could improve existing conditions for geoduck, which could ultimately lead to increased geoduck populations in the area. This population increase could in turn lead to improved state commercial harvest opportunities. Such activities would also benefit other shellfish in the area, such as oysters.

At present, the state has no plans to conduct commercial geoduck or other shellfish harvest within the Maury Island site. Under the management plan, if such activities were proposed, DNR would first have to assess whether harvest could be conducted without conflicting with the basis for reserve designation or damaging the primary habitats and species identified in the management plan. If the assessment limited state shellfish harvest in the area, this would produce a negative impact on state use of renewable natural resources. However, the probability of such restrictions are low, as the State of Washington Commercial Geoduck Fishery SEIS (DNR 2001a) and associated management plan (DNR 2001b) would likely be sufficient to protect the aquatic habitat and species within the Maury Island site from damage resulting from

shellfish harvest. The Puyallup Tribe would continue to harvest shellfish in the area under existing tribal harvest policies.

The management plan stresses the maintenance of aquatic vegetation and water quality, which are crucial habitat components for herring in the area. These measures could increase herring abundance, which could improve the existing herring fishery in Quartermaster Harbor that occurs annually from May through September.

Maintaining aquatic reserve status and implementing the proposed management plan could also contribute to preservation of the relatively natural aesthetic character of the Maury Island site, as it could preclude high impact land uses, remove derelict vessels, and improve or remove poorly maintained over-water structures in the area. It is important to note that the upland areas, which have the most opportunity to impact scenic resources, are not under the control of DNR.

The proposed management plan could preclude future activities that would extract non-renewable resources, such as substrate, from state-owned aquatic lands. The management plan states that authorized activities must cause no degradation of existing habitats and species. Therefore, an activity such as bedload removal may not be permitted within the reserve as it would likely result in at least short-term modifications to water quality, which could impact aquatic resources in the area. Extraction activities could also adversely impact aquatic vegetation within the Maury Island site, disrupt drift cell functions, and could also impact commercial fisheries (i.e., geoduck). Thus, implementation of the proposed management plan would have a high probability of reducing future opportunities for non-renewable resource extraction from the state-owned aquatic lands at the Maury Island site. There are no current or proposed non-renewable resource extraction activities within the Maury Island site; therefore, the direct negative impact from implementing the management plan would likely be negligible.

Maintaining the reserve designation and implementing the proposed management plan could produce an adverse indirect impact in areas outside the reserve, as the prohibition of such uses at the Maury Island site could result in a higher concentration of extraction efforts in other areas to meet public demand. This could lead to the decline of non-renewable resources in areas outside of the aquatic reserve. Yet, as the Maury Island site is relatively small and is not currently used for non-renewable resource extraction, the potential indirect impacts on other areas due to the prohibition of such activities within the reserve would likely be immeasurable.

4.5.2.2 Alternative 2 (Repeal the Reserve)

Alternative 2 would have no impact on energy resources in or around the site. Alternative 2 would, however, have a moderate probability of causing indirect and cumulative negative impacts to some renewable natural resource uses in and around the site.

Under this alternative, the Maury Island site would no longer be designated as an environmental aquatic reserve. Rescinding the reserve designation would not have a direct effect on the consumption or conservation of energy resources in the area. The existing Puget Sound Energy submarine cables, which provide electricity and natural gas to the area, would remain in place under the conditions of the current use authorization.

The Maury Island site would be managed in a manner similar to the rest of the state-owned aquatic lands for which DNR is the steward on behalf of the citizens of the state. Therefore, use authorizations for construction of energy related facilities or the extraction of non-renewable resources, such as substrate, would potentially be a permissible action. Authorization for such activities would be made in accordance with existing land management guidance. It would still be possible for DNR land managers to consider the environmental resources in the area and deny or condition use proposals due to adverse impacts on the aquatic environment, but there would be no formal framework guiding such decisions. This could also contribute to less consistency in use authorizations. As extraction of non-renewable resources would be permissible under this alternative there would likely be no impact on this type of use resulting from Alternative 2.

The DNR would continue to manage the renewable resources in the area (i.e., shellfish) to provide for the health of populations and sustainable harvest opportunities. However, there would be no formal directive for DNR to collaborate with the regulatory entities (i.e., WDFW, King County, Ecology), landowners, and recreational users to improve water quality and reduce human disturbances in the area making it less likely that such collaborative efforts would be made. Without such relationships bringing focus to the aquatic environment of the Maury Island site, it is likely that human activities would continue to produce negative impacts on the health and abundance of natural resources, such as geoducks and other shellfish within the area. There is also a moderate probability under this alternative that shellfish closures related to human-induced causes would persist, which would adversely impact use of these renewable resources in the Quartermaster Harbor area. Limited shellfish harvest opportunities in the Quartermaster Harbor area could lead to adverse indirect impacts to other areas of Puget Sound, which could experience higher levels of shellfishing pressure to meet demand.

Without the reserve designation, there would be limited efforts on the part of DNR to protect aquatic vegetation at the Maury Island site. Without specific management provisions related to aquatic vegetation, use authorizations could be issued that would degrade aquatic vegetation in the area, which could ultimately adversely impact the Quartermaster Harbor herring fishery. However, both WDFW and the Army Corps of Engineers, which have regulatory authority over many activities that could occur in the waters covering state-owned aquatic lands, have implemented management provisions for the protection of aquatic vegetation, namely eelgrass. Yet, without formalized directives for DNR to work proactively with regulatory entities in the management of the site, there would likely be a moderate probability of adverse

impacts on aquatic vegetation in the area, which could produce an indirect negative impact on the Quartermaster Harbor herring fishery and contribute to cumulative impacts to the Puget Sound herring fishery as a whole.

Repealing the reserve designation would not likely produce a significant impact on the scenic resources of the Maury Island site. Yet, it would be more likely, than under the Preferred Alternative, that more intensive activities, such as non-renewable resource extraction would be authorized, which are less compatible with the relatively natural character of the area.

4.5.2.3 Alternative 3 (No action)

The effects of the No Action Alternative on energy and natural resources would be similar to those explained for the Preferred Alternative, although it may actually result in increased restrictions on proposed new non-renewable natural resource uses in the area. The Maury Island site would continue to be considered an environmental aquatic reserve and the programmatic FEIS (along with applicable RCWs and WACs) would guide how the reserve designation influenced DNR use authorizations. This alternative would have no impact on energy consumption or conservation in the Vashon-Maury Island area. The existing Puget Sound Energy submarine cables in the area would continue to provide electricity and natural gas to the area. There would be a low probability of positive direct, indirect, and cumulative impacts to renewable natural resource use and a low probability of direct negative impacts on state harvest of shellfish within the site. Alternative 3 would also have a moderate to high probability of adversely impacting extraction of non-renewable resources from state-owned aquatic lands within the Maury Island site.

The manner in which DNR evaluates applications for construction of energy related facilities or extraction of non-renewable resources on state-owned aquatic lands would be rather strict and there would be a moderate to high probability of negative impacts in relation to new use proposals. No energy or mineral extraction activities would be allowed if they would alter, remove, and/or otherwise change the existing environmental or cultural characteristics of the Maury Island site, although the programmatic FEIS does not detail the specific environmental or cultural characteristics of concern. As extraction activities usually involve ground-disturbing activities that may impact environmental or cultural resources, such uses would not likely be permitted within the reserve boundary. This would have a moderate to high probability of negatively impacting non-renewable resource use in the area. However, no proposals to extract energy or non-renewable natural resources from the Maury Island site have been identified.

Similarly, the management of renewable resources, such as shellfish and aquatic vegetation that supports herring populations would be strictly managed. As per the programmatic FEIS, state commercial harvest of shellfish would not be permitted within the reserve unless the activity could demonstrate that it would not adversely impact the aquatic resources within the reserve. This could adversely impact the

potential for state commercial geoduck harvest within the Maury Island site, although the added protection would benefit the actual geoduck populations in the area.

Potential restrictions on commercial harvest of shellfish within the reserve boundary could produce an indirect adverse impact on geoduck harvest tracts in other areas of the state, which might experience increased harvest efforts to meet demand. However, the probability of such restrictions are low, as the State of Washington Commercial Geoduck Fishery SEIS (DNR 2001a) and associated management plan (DNR 2001b) would likely be sufficient to protect the aquatic resources within the Maury Island site from damage resulting from shellfish harvest. It is important to note that potential restrictions under the No Action alternative would only apply to state commercial harvest of geoducks. The Puyallup Tribe would continue to harvest shellfish in the area under existing tribal harvest policies.

The No Action Alternative could benefit the commercial herring fishery by protecting the aquatic vegetation upon which the species depends. The programmatic FEIS would not permit use authorizations that would damage aquatic vegetation within the Maury Island site. The preservation of aquatic vegetation could in turn increase herring populations, which would benefit harvest of this renewable natural resource.

Maintaining the reserve designation under the programmatic FEIS could produce a minor beneficial impact to scenic resources. The more strict aquatic land management practices that would be implemented under this alternative would likely preclude substantial infrastructure development on the state-owned aquatic lands within the reserve boundary. This would help to ensure that viewsheds were preserved and that the natural aesthetic of the Maury Island area was preserved.

4.6 Environmental Health

Aspects of environmental health that may be affected by the proposed alternatives include: noise generated by activities of lessees on state-owned aquatic lands and releases of foreign materials (such as toxic and hazardous substances) from outfalls, shoreland and tideland industries, or marinas.

4.6.1 Affected Environment

The Maury Island site is located in a relatively rural area. The only large-scale commercial operation in the vicinity is the resource use at the existing gravel mine located on uplands along the eastern shore of Maury Island. Glacier Northwest is currently working toward permitting an expansion of this gravel mine that would include a new pier and dock structure on approximately 2.31 acres of state-owned aquatic lands. If this activity were authorized, there could be noise in the area and a risk of hazardous material introduction, primarily associated with construction and construction materials and spills of gravel material or fuels and hydraulic fluids from barges. To obtain a use authorization in the area, Glacier Northwest would be required to utilize current technologies associated with the design of the gravel barge loading facility. In addition implementation of BMPs would be required during construction and operation to reduce and compensate for the potential effects on environmental health.

In addition to the Glacier Northwest facility, there are at least 84 other overwater structures within the Maury Island site including two commercial marinas and one public marina (Anchor 2004). There are also numerous floating structures, mooring buoys, and boat ramps within the Maury Island site. There is a potential for introduction of waste, fuels, and/or hydraulic fluids in these locations where boats are moored. In addition, creosote or other wood treatment chemicals used on the pilings of over-water structures could contribute to water and sediment contamination.

Failing residential septic systems along Quartermaster Harbor has led to the closure of some commercial shellfish areas and one commercial geoduck tract. In addition, high levels of PSP have been documented in Quartermaster Harbor. Consumption of contaminated shellfish poses a potential human health concern.

There may also be numerous stormwater and other outfalls that discharge into the Maury Island site, although DNR does not have a full inventory of these facilities at this time. Such outfalls could introduce toxic and hazardous substances into the aquatic environment.

4.6.2 Impact Analysis

4.6.2.1 Alternative 1 (Preferred Alternative)

The Preferred Alternative would have a moderate probability of causing direct and indirect positive impacts to environmental health at discrete locations throughout the site. Maintaining, reducing, and/or preventing noise and releases of foreign materials to areas within the site may realize possible improvements to environmental health.

Under the management plan, prior to authorization of the pier and dock expansion at the Maury Island gravel mine site, Glacier Northwest would need to demonstrate that the proposed activity would not result in a net loss of habitats and species identified for conservation in the management plan. This would include implementing appropriate BMPs to eliminate or minimize noise and prevent potential introductions of hazardous substances to the aquatic environment. Implementation of such BMPs would also likely be a requirement of regulatory permits needed for the expansion (e.g., local shoreline permits, hydraulic project approval, 401 certification, and U.S. Army Corps of Engineers' (Corps') permits). In addition, DNR would have the ability to require supplementary protective provisions if deemed necessary to further protect environmental health and the integrity of the aquatic environment at the Maury Island site. The use of current technologies for construction of the barge loading facility and implementation of BMPs would be expected to effectively eliminate or minimize the potential for adverse impacts to environmental health associated with the gravel barge loading facility, although no technology could completely alleviate the possibility of such impacts.

Under the management plan, DNR would work with lessees, such as Glacier Northwest, Quartermaster Yacht Club, Polaris Development, and King County, to develop actions to avoid and minimize potential adverse impacts resulting from their

operations over time, including those affecting environmental health. Such actions may include reducing the number of treated wood pilings or improving pump out facilities, which would help protect environmental health in the area. However, the need for such activities has not been fully evaluated; therefore, the specific activities that may be implemented under the preferred alternative to protect environmental health in the area are not fully defined at this time.

For any potential new uses within the Maury Island site, the management plan provides management strategies that would have a high probability of maintaining or improving environmental health in the area. For example, the management plan calls for the preclusion of construction of stormwater or sewage outfalls within Quartermaster Harbor on state-owned aquatic lands, which would help to protect water and sediment quality. These protective measures would not necessarily be implemented without the reserve designation and management plan. Further, the proposed management plan directs DNR to remove any trespass structures that are adversely impacting the aquatic reserve. Such activities could benefit aquatic health in the area. For example, a derelict dock structure may contain chemically treated wood pilings. The removal of these structures would reduce the introduction of pollutants to the site.

The management plan also states that DNR would work to identify threats to aquatic resources related to outfalls and non-point sources (i.e., stormwater runoff and failing septic systems) and would conduct inventory and monitoring activities that would help to identify such threats. Further, the Preferred Alternative provides for adaptive management of the site to ensure that management strategies could be adopted to address threats to environmental health as they were identified.

However, DNR does not have management authority over upland point and non-point pollution sources. Thus, the proposed management plan states that DNR would work cooperatively with the King County Health Department, other pertinent agencies, and local landowners to develop a strategy for dealing with water quality impacts within the reserve. Such cooperative relationships would be entirely voluntary, but it is likely that such efforts would reduce the levels of point and non-point pollution entering the Maury Island site.

4.6.2.2 Alternative 2 (Repeal the Reserve)

Alternative 2 would have a moderate probability of causing direct and indirect negative impacts to environmental health at discrete locations throughout the site. Under Alternative 2, there would be uncertain, but likely negative, effects on environmental health related to potential noise and releases of foreign materials to the aquatic environment. The high level of uncertainty of environmental health impacts associated with this alternative is mainly due to the absence of a site-specific management plan that would guide DNR actions in the area.

Without the reserve designation, Glacier Northwest would still have to implement BMPs to minimize noise and prevent potential introductions of hazardous substances,

as such measures would be required under the regulatory permits needed for the pier and dock expansion (e.g., local shoreline permits, hydraulic project approval, 401 certification, and Corps' permits). In addition, DNR land managers would maintain the ability to require additional provisions for use authorizations if deemed necessary for the protection of environmental health and aquatic resources at the Maury Island site. The likelihood that additional measures would be required for a given action is uncertain. The use of current technologies for construction of the barge loading facility and implementation of BMPs would be expected to effectively minimize the potential for adverse impacts to environmental health associated with the gravel barge loading facility, although no technology could completely alleviate the possibility of such impacts.

Under Alternative 2, it is unlikely that DNR would work with existing lessees to develop actions to avoid potential impacts on environmental health, aside from when applications for new uses or reauthorizations are submitted. Therefore, there is a moderate probability that any ongoing adverse impacts associated with the operations and facilities of existing lessees would continue under this alternative. Yet, since no immediate threats to environmental health resulting from the uses of existing lessees have been identified, the potential impacts for Alternative 2 are uncertain.

Under Alternative 2 it is unlikely that DNR would definitively preclude certain uses from occurring in areas of the Maury Island site as would occur under the Preferred Alternative. Therefore, there would be a moderate probability that uses such as stormwater or sewage outfalls, for example, would be permitted within Quartermaster Harbor. These types of uses could produce adverse impacts on environmental health throughout the Maury Island site. Without specific guidance to do so, it is also unlikely that DNR would proactively inventory and remove trespass structures within the reserve. Thus, there is a moderate probability that any adverse impacts on environmental health associated with these structures, such as pollutants introduction from chemically treated wood pilings, would likely continue under this alternative.

It is also unlikely without the reserve designation and management plan that DNR would proactively work with King County and other agencies to identify potential point and non-point pollution sources and develop strategies for addressing impacts on environmental health. If such relationships were not developed, existing environmental health conditions at the Maury Island site would not improve and there would be a moderate probability that conditions may worsen.

4.6.2.3 Alternative 3 (No Action)

There is moderate probability that Alternative 3 would result in direct and indirect positive impacts to environmental health in the area, as DNR would be more deliberate in its evaluation of the potential environmental impacts of proposed projects in the area. Alternative 3 would have a moderate probability of leading to indirect negative impacts to environmental health (related to potential continuing impacts from trespass or derelict structures, non-point pollution, etc.).

Under this alternative it is uncertain how DNR would consider potential impacts on environmental health resulting from authorization of the proposed Glacier Northwest pier and dock expansion. As part of the regulatory permits needed for the project (e.g., local shoreline permits, hydraulic project approval, 401 certification, and Corps' permits), Glacier Northwest would be required to implement BMPs to reduce potential impacts on environmental health. It is uncertain whether DNR would exercise the authority to require additional provisions to protect environmental health. However, the programmatic FEIS states that no use authorization would be granted if it would degrade existing environmental conditions. Thus, it could be assumed that a use authorization issued to Glacier Northwest under this alternative would be protective of environmental health. Further, Glacier's proposal includes the use of current technologies for construction of the barge loading facility and implementation of BMPs and would be expected to effectively minimize the potential for adverse impacts to environmental health associated with the gravel barge loading facility. Yet, no technology could completely alleviate the possibility of such impacts.

Under Alternative 3, it is unlikely that DNR would consistently and proactively collaborate with existing lessees to develop actions to avoid potential impacts on environmental health, aside from when applications for new uses or reauthorizations were submitted. However, when new uses or reauthorizations were proposed, the proponent would be required to ensure that their use of state-owned aquatic lands would not adversely impact the environmental resources of the reserve, which would include environmental health. Thus, if existing uses, such as the marinas, proposed expansion or needed reauthorization, they would likely be required to implement actions such as removing treated wood pilings or improving pump-out facilities, which would produce positive impacts on environmental health.

Under the No Action Alternative it is unlikely that DNR would definitively preclude certain uses from occurring in areas of the Maury Island site as would occur under the Preferred Alternative. However, no use would be authorized if it would degrade environmental conditions of the site. Thus, on a case-by-case basis, there is a moderate probability that DNR land managers would prohibit certain uses from occurring within the reserve, which could benefit environmental health in the area.

Under No Action, it is also unlikely the DNR would proactively inventory and remove trespass structures within the reserve. Thus, there is a moderate probability that any adverse impacts on environmental health associated with such structures, such as pollutant introduction from chemically treated wood pilings, would likely continue under this alternative.

Without a site-specific management plan directing DNR to proactively collaborate with King County and other entities to reduce potential threats of point and non-point pollution on the aquatic reserve, it is unlikely that such actions would be taken. The programmatic FEIS states that DNR must work with local jurisdictions and regulatory agencies to minimize offsite impacts, but environmental health is not explicitly discussed. Therefore, it is unlikely that DNR would work with King County and other

entities to reduce potential environmental health concerns related to non-point pollution and there is a moderate probability that any existing negative impacts on environmental health that may be occurring as a result of such pollution would continue.

4.7 Land and Shoreline Use

Aspects of land and shoreline use that may be affected by the action alternatives include: regional planning, shoreline modification, existing land uses, existing and proposed DNR use authorizations, and historical and cultural resources.

4.7.1 Affected Environment

4.7.1.1 Local Planning

The major issue in considering the relationship between the management of the Maury Island site and existing local land use plans is the coordination between DNR and the local (private and public) entities that have developed land use plans or that have existing, historic, or planned uses of state-owned aquatic lands.

The King County Comprehensive Plan designates Maury and Vashon islands predominantly as rural areas and these lands are not included in the county's urban growth area (King County 2002). With such a designation, King County asserts that for at least the next 20 years, urban levels of development are not appropriate at this location. In 1997, Maury and Vashon islands together were estimated to have a year-round population of roughly 10,500 people. Transportation to and from the mainland for residents and visitors to the islands is primarily by passenger/automobile ferry (not located within the Maury Island site) or by private boat.

The King County Comprehensive Plan land use map designates the majority of the lands adjacent to the Maury Island site as rural residential, meaning that they are to have one dwelling unit per 2.5 to 10 acres. The land use maps also designate as "open space" the lands that support park facilities such as Burton Acres, Dockton, Maury Island Marine, and Point Robinson parks. All of the 235 acres along the southeastern shoreline owned by Glacier Northwest are designated for mining land uses (King County 2002).

The King County Shoreline Master Program identifies the shorelines within the Maury Island site as "conservancy" and "rural" (Appendix K). These shoreline designations are consistent with the low density, rural zoning for the area. The purpose of the "rural" environment designation is to "restrict intensive development, function as a buffer between urban areas, and maintain open spaces and opportunities for recreational uses, within the ecological carrying capacity of land and water resources." "New developments in a rural environment should reflect the character of the surrounding area by limiting intensity, providing permanent open space and by maintaining adequate building setbacks from water to prevent shoreline resources from being destroyed for other rural types of uses" (King County Code 25.20.010). The majority of the areas within the Maury Island site are consistent with the regulations for the rural environment, although review of aerial photography of the

site suggests that some residences along the shoreline may not provide the full 25-foot buffer between the ordinary high water mark and the residence, as required by K.C.C. 25.16.100. Many of these residences within the buffer were likely constructed prior to adoption of the King County Shoreline Master Program.

The purpose of the conservancy environment designation is to maintain the existing character of the lands. The designation is “designed to protect, conserve, and manage existing natural resources and valuable historic and cultural areas” (King County Code 25.24.010). Preferred uses in these areas are non-consumptive of physical and biological resources. Single-family residences are permitted in conservancy areas, but they must maintain a 50-foot setback from the ordinary high water mark. Some structures in the area do not conform to this standard, although the residences may have been constructed prior to adoption of the King County Shoreline Master Program or may have secured a variance or conditional use permit.

The main congregations of residences in the vicinity of the Maury Island site are at Gold Beach and Sandy Shores (along the eastern shoreline of Maury Island) and at Dockton and Burton (which are adjacent to Quartermaster Harbor). These areas were primarily developed prior to King County comprehensive planning and zoning, which provides for densities of one dwelling unit per 2.5 to 10 acres (Appendix L).

4.7.1.2 Shoreline Modification

Shoreline modification includes all human activities that have altered the natural state of the Maury-Vashon Island shoreline. Such modifications may include residential and industrial upland development, shoreline armoring, over-water structures, bank stabilization efforts, and other forms of human development. As population and development increases throughout the Puget Sound region, the level of shoreline modification tends to also increase. In the central Puget Sound basin as a whole, approximately 59 percent of the shorelines have been modified by human development, with about 18 percent of the shorelines being modified to the extent that they are now considered man-made. Maury Island has experienced approximately the same level of overall shoreline modification (60 percent), although none of the areas in the reserve site have been modified to the point that they are regarded as man-made (Appendix M) (Nearshore Habitat Program 2001).

4.7.1.3 Existing Land Uses

The Vashon-Maury Island area was first homesteaded in the mid-1800s. Early land uses in the area included logging, lumber processing, farming, ship building and repair, brick making, and shingle making (Haulman 2002). The majority of Vashon and Maury Islands was originally cleared of old growth vegetation by the early 1920s. Since that time, approximately three fifths of the islands have been reforested and parceled out to thousands of different landowners, although King County has not formally zoned any of Vashon or Maury islands as forest production areas.

The vast majority of the land is currently used for residential purposes and small-scale agriculture. There are a number of parks and open spaces, which are further

described in Section 4.9.1 (Services and Utilities). The area is devoid of substantial commercial development and the only existing high intensity use is the resource use at the Glacier Northwest gravel mine located on uplands on the southeastern shore of Maury Island (King County 2002).

Quartermaster Harbor and the surrounding area is an important regional recreation area. Activities such as water-skiing, kayaking, fishing, shellfish harvesting, sailing, beach walking, and power boating are predominant throughout the harbor and to a lesser extent along the eastern shoreline of Maury Island.

4.7.1.4 Existing and Proposed DNR Use Authorizations

Quartermaster Yacht Club: The Quartermaster Yacht Club is a non-profit organization that provides private boat mooring. The yacht club has 94 slips, although only approximately 92 of the slips are located within the 2.97-acre area of the DNR lease (Agreement Number 20A11434). In addition, there are approximately 200-feet of dock that provides transient moorage to members of other yacht clubs with which the Quartermaster Yacht Club has reciprocal agreements. The yacht club is currently filled to capacity and has a waiting list for individuals that wish to join. Thus, the owners are considering expansion of the facility to meet demand for slips. The facility currently offers an on-site pump house for use by the Club's members. Effluent from the pump house is directed to a storage tank, which is emptied and disposed of by a contracted operator. The current lease of the yacht club expired on January 9, 2001, and has been in holdover status since that date, pending the decision on how the state-owned aquatic lands at the Maury Island site should be managed. Since 2001, the yacht club has been operated on a year-to-year agreement with DNR based upon the conditions of the original lease.

Polaris Development, LLC – Quartermaster Harbor Marina: The Quartermaster Harbor Marina, owned and operated by Polaris Development, LLC is under a DNR lease (Agreement Number 20010075) for the use of 3.09 acres of state-owned aquatic lands. The marina consists of a 65-slip structure that supplies private, permanent mooring. The marina provides portable pump units for the use of its clients. These pump units are then emptied into the Marina's drain field. A permanent pump house is not provided at the site to ensure that fuel or hydraulic fluids do not contaminate the drain field. The current authorization for the use of state-owned aquatic lands expires on November 14, 2004. Polaris may be seeking to expand the marina under the new lease to provide approximately 35 additional slips. Any expansion to be undertaken would be within the current boundary of the existing lease. An expansion is being considered by the marina owners to accommodate increasing demand.

King County Parks – Dockton Area Pier and Boat Dock: King County and DNR have entered into an interagency agreement (Agreement Number 20009814) for the use of 0.81 acres of state-owned aquatic lands for the purposes of a public pier and boat dock. The boat dock provides 58 slips for transient small boat moorage and a utility building that includes restroom and laundry facilities. All sewage from the utility building is pumped to an upland facility. The pier is a wood and concrete

structure primarily suspended by wooden piles, with a wooden deck on Styrofoam floats for the mooring slips. There is a concrete seawall along the shoreline of the majority of the park. The park also includes a public boat ramp to the west of the pier. The current authorization for the use of state-owned aquatic lands expires in 2012.

Glacier Northwest – Maury Island Gravel Barge Loading Facility: Glacier Northwest's Maury Island gravel mine is located on uplands along the southeastern shoreline of the island between the communities of Gold Beach and Sandy Shores. The mine is immediately adjacent to the state-owned aquatic lands included within the proposed reserve boundary. Mining has occurred on the site since the early 1940s. The upland site is comprised of approximately 235 acres of which only about 40 acres have been disturbed by previous mining activities. Mining is currently permitted on the site under King County Grading Permit No. 1128-714 and DNR Surface Mining Reclamation Permit No. 1128-714. These permits allow mining on approximately 193 acres of the site. The aquatic portions of the Glacier northwest site contain a dock and a portion of the original conveyor system. Current mining activities consist of sand and gravel extraction for local use. Approximately 10,000 tons per year have been extracted from the site under the existing grading permits. However, removal of gravel from the site has not occurred via the existing dock located on state-owned aquatic lands within the Maury Island site for over 20 years.

Glacier Northwest submitted a use authorization in 2000 to replace the existing dock located on state-owned aquatic lands in order to undertake more intensive gravel extraction activities at that site. The application was denied at that time. Since the original application, Glacier has made many improvements to the project design and may continue to pursue a use authorization from DNR for the use of state-owned aquatic lands in the area.

Glacier's current proposal includes rebuilding the existing loading dock. The new dock would include design consideration to reduce impacts, such as shading. Operations would also consider ways to reduce impacts. For example, only one barge would be allowed at the dock at any one time to help reduce shading. Barges would be docked only during loading and the dock would not be used as moorage for barges or tugboats. The number of barges loaded per day would depend on the size of the barges to be loaded (330 feet long by 80 feet wide or a smaller). The mining would be conducted at the site for an 11 to 50-year period (King County 2000). The new proposal includes many design improvements and BMPs that improve the mitigation plan for the project in comparison to the 2000 proposal.

All local, state, and federal permits would have to be secured prior to consideration by DNR of this activity at the Maury Island site. King County (2004) recently denied Glacier Northwest their shoreline substantial development permit (DDES File Number L02SH012) and shoreline conditional use permit (DDES File Number L02SH013) for this revised project. The King County decision is being appealed to the Shoreline Hearings Board. At the time this plan was printed, the matter was still before the Shoreline Hearings Board.

Puget Sound Energy – Utility Rights of Way: Puget Sound Energy has three right-of-way agreements for submarine cables (Agreement Numbers 51021507, 51027510, and 51033836). These cables cross the Maury Island site along the northeastern shoreline. The cables are used for telecommunications, power, and natural gas, which are important services for the residents of Vashon and Maury islands. The authorizations of the use of these state-owned aquatic lands are valid in perpetuity.

Comcast – Utility Right of Way: Comcast has proposed the installation of a submarine fiber optic cable that would provide cable, video, and high-speed internet services to Vashon and Maury islands. The proposed cable would traverse state-owned aquatic lands along the northern shoreline of Maury Island. A right-of-way would need to be obtained from DNR for this use of state-owned-aquatic lands.

4.7.1.5 Historical and Cultural Resources

The following sites of historic or cultural importance have been identified. None of the resources identified are within the boundaries of the Maury Island site, but are located on tidelands or uplands adjacent to the site:

- **Robinson Point Lighthouse:** Located at the northeast corner of Maury Island is on the National Register of Historic Places. The Lighthouse was originally constructed as a fog signal in 1885 and re-constructed in 1915.
- **Historical portage from the northeast corner of Quartermaster Harbor to Puget Sound:** This site is not registered on a historic register. When the portage was still submerged at high tide, the area was a popular tribal fishing and hunting ground. Nets in this area were used to capture abundant waterfowl (Larkin 1975).
- **Historic clam middens:** Historic clam middens were excavated on the north shore of the Burton Peninsula in 1996 by University of Washington's Department of Archaeology (Joseph 1996).

In addition, the Maury Island site is located within the Puyallup Tribe's exclusive usual and accustomed area.

4.7.1.6 Consistency with Other Pertinent Regulations

Projects in the aquatic environment are subject to a complex matrix of local, state, tribal, and federal authorities and regulations. For this reason, new actions proposed by DNR must not only be compatible with existing DNR aquatic land statutes and regulations, but also must be compatible with other local, state, tribal, and federal regulatory requirements.

The proprietary authority of DNR with respect to activities within navigable waters comes from a different perspective than the regulatory authorities. The DNR acts as a land manager of state-owned aquatic lands for the citizens of the state. As with any

land ownership, activities on land managed by DNR are subject to all of the authorities referenced below. If however, in its role as a steward of the public trust DNR identifies a specific need or land use issue that would not be adequately served by the minimum requirements of the regulatory authorities, it may condition or withhold its land use authorizations (such as leases, easements, and rights of entry) to provide for additional protection (RCW 79.90.460 (3)).

The following is a brief overview of major regulatory authorities and statewide planning efforts affecting activities on aquatic lands at the Maury Island site:

- King County issues Shoreline Substantial Development Permits, Shoreline Variances, and Conditional Use Permits under the Shoreline Management Act and develops Critical Areas Ordinances under the Growth Management Act.
- Ecology implements portions of the Clean Water Act through permit processes such as National Pollutant Discharge Elimination System (NPDES) permits for discharges of waste and storm water and Water Quality Certification (“401” certification), which certifies that actions subject to federal approvals comply with state water quality standards. In addition, they issue Coastal Zone Management Certifications for federally authorized projects to ensure substantial equivalence to state environmental standards.
- The WDFW issues Hydraulic Project Approvals (HPA) under the authority of the Hydraulic Code (RCW 77.08, RCW 77.55, and WAC 220-110). The purpose of the HPA process is to provide protection for all fish, including the protection of fish habitat. Additionally, WDFW designates “marine protected areas” that impose restrictions on fish harvest.
- At the federal level, the U.S. Army Corps of Engineers issues “404” permits (Section 404 of the CWA) and “Section 10” permits (Section 10 of the Rivers and Harbors Act) for construction, filling, or dredging within navigable waters of the United States. These federal authorities provide for protection of the biological integrity of the nation’s waters and protect the rights of navigation, respectively.
- As a result of the listing of certain species of salmon and bull trout under the ESA, the NOAA – Fisheries and USFWS provide “consultations” under ESA for activities which may result in an “incidental take” of threatened or endangered species.

4.7.2 Impact Analysis

4.7.2.1 Alternative 1 (Preferred Alternative)

The Preferred Alternative would have a moderate probability of causing negative direct impacts on land and shoreline uses at discrete locations throughout the site through increased restrictions and requirements for uses of state-owned aquatic lands. This alternative would also have a moderate probability of producing indirect positive impacts by improving management certainty in the area, providing for protection of

the natural resources in the area, and helping to ensure development consistent with applicable land use regulations and policies.

Local Planning: The Maury Island Aquatic Reserve designation and proposed management plan would not have a direct effect on upland land uses, which are primarily directed by the King County Comprehensive Plan and Shoreline Master Program, as DNR does not have authority over upland uses. However, these local planning efforts may impact the potential for success of the environmental aquatic reserve, as upland land uses could cause adverse impacts on aquatic resources within the reserve. In addition, some land uses conducted on the adjacent uplands would benefit from an aquatic interface for operational purposes (such as Glacier Northwest’s gravel mining operation) and would require a DNR use authorization. Activities that require a use authorization and that may impact species and habitat within the reserve would have a moderate probability of experiencing adverse impacts associated with the Preferred Alternative. The effects on these activities may include the costs of additional requirements for use (such as specific design features, BMPs, etc.) for activities occurring within the reserve or, in some cases, a prohibition of certain activities on state-owned aquatic lands.

On a number of occasions⁴ King County has expressed its support for DNR’s aquatic reserves program and in particular for the Maury Island Aquatic Reserve. In addition, King County has offered to collaborate with DNR in management planning efforts for aquatic reserves within the County, including Maury Island. These collaborative efforts would be consistent with the proposed management plan. For example, the research and monitoring provisions of the proposed management plan recognize the need to partner with King County to coordinate monitoring and research efforts. In addition, the adjacent land uses provisions of the proposed management plan rely on King County and other regulatory entities to manage adjacent lands in a manner compatible with the intent of the aquatic reserve.

This type of collaborative relationship with King County would produce a number of beneficial impacts for both aquatic and upland land uses in the area. A reciprocating relationship and communication between King County and DNR would help to ensure consistency in management strategies so that proponents of new and existing uses would be afforded some level of certainty as to what would be expected of them in using aquatic or upland areas in the reserve vicinity. An inter-agency relationship could also result in cost savings by reducing management redundancies, which would help to streamline permitting and authorization processes for uses in and adjacent to the Maury Island site.

⁴ February 7, 2001 – letter in support of Maury Island reserve designation from Ron Simms, King County Executive. November 10, 2003 – letter in support of Maury Island reserve designation from Daryl Grigsby, King County Water and Land Resources Division Director. August 20, 2004 – comment letter on draft management plan and SEIS from Daryl Grigsby, King County Water and Land Resources Division Director. 2004 Amendments to King County Comprehensive Plan 2000 Public Review Draft, November 2003 – Provision E-102a states that King County shall protect and enhance areas designated by DNR as aquatic reserves; King County will also participate in management planning for the reserves.

The aquatic reserve designation is consistent with the majority of King County's planning designations for the site. The King County Shoreline Master Program designations of rural and conservancy for the area are compatible with aquatic reserve designation. The rural designation stresses low density development, recreational use, and recognition of ecological carrying capacity, while the conservancy environment designation is meant to maintain natural and cultural resources. Both of these designations are consistent with aquatic reserve designation, although the conservancy designation, with its goals of protection and conservation (K.C.C. 25.24.010) is more in line with the objectives of the aquatic reserve. In some of the rural designation areas, it is possible that the level of development allowed in the area would be in excess of what would be desirable for protection of the aquatic resources within the reserve. In such instances, having strong interagency communication and local citizen involvement as proposed in the management plan would help in dealing with potential conflicts to protect the aquatic resources of the reserve, while still providing for the rural levels of development identified by King County as appropriate in the area.

At the locations where existing development is inconsistent with the buffer requirements of the Shoreline Master Program, a working relationship between local citizens, DNR, and King County could help in identifying such areas and implementing voluntary measures (e.g., vegetation buffer maintenance) that may protect or enhance aquatic resources adjacent to the area. Such potential measures could produce short-term adverse impacts to land use due to the costs of implementation, but would ultimately produce benefits, as it would lead to land uses in the area more consistent with the goals and objectives of both King County and DNR planning. In addition, DNR would seek outside funding so that the financial burden of implementing these voluntary activities would not be transferred to landowners adjacent to the aquatic reserve.

Through the adjacent land use provisions of the proposed management plan, DNR could cooperate with King County and local citizens to minimize the potential adverse impacts from existing residential developments that may exceed current King County density requirements (i.e., Gold Beach, Sandy Shores, Dockton, and Burton) and help to ensure that future residential developments do not conflict with area zoning and planning efforts. Such actions would have beneficial impacts on land use, as they would help to ensure that the area is developed in a manner consistent with local planning efforts, which would also indirectly benefit the Maury Island Aquatic Reserve.

Shoreline Modification: Alternative 1 would likely have beneficial impacts on shoreline modification at the Maury Island site. As stated previously, DNR does not have the authority to manage upland land uses, including shoreline modifications. Therefore, DNR would primarily rely upon local citizen efforts and the existing permitting authorities (i.e., King County) to ensure adequate protection of these resources. Through interagency and local citizen collaboration, DNR could ensure that agencies and the public are aware of the goals and objectives of the aquatic

reserve, and that these issues and concerns are considered in efforts that could modify the shorelines adjacent to the Maury Island site. However, the extent to which interagency and local citizen communication would lead to better management practices relating to shoreline modification is uncertain, as DNR would not be advocating for new regulations and local landowner involvement would be voluntary.

The proposed management plan, under Alternative 1, states that DNR would collaborate with interested adjacent landowners in an attempt to reduce existing impacts on the aquatic reserve from shoreline modification. This would include education, outreach, and seeking funding opportunities to aid in the implementation of “soft” armoring techniques such as beach nourishment, riparian plantings, and anchored drift logs to reduce shoreline impacts. These techniques would provide bank stabilization and protection for upland landowners while maintaining environmental processes in the area. The potential impacts on adjacent land uses if such activities were successful would be negligible, as they would not physically impact the use of the land. Further, if outside funding were acquired, there would be no additional financial burden on adjacent landowners for implementing these measures. These actions would not directly produce an adverse impact on adjacent landowners that wish to implement or maintain traditional bank armoring structures adjacent to the Maury Island site, as cooperative actions on behalf of landowners would be voluntary. Therefore, if landowners did not want to participate and soften their banks, they would not be required to do so.

Existing Land Uses: Current upland uses in the area are predominated by residences and small-scale agriculture. Reserve designation and the implementation of the proposed management plan would not likely have substantial impacts on such upland uses. The management plan proposes that DNR work with King County to ensure protection of the aquatic resources in the area, although the actual impacts of such collaboration are uncertain, as DNR does not have authority over upland lands uses.

Reserve designation and the proposed management plan would not directly impact recreational uses within the Maury Island site. The DNR has no authority to limit recreational uses such as boating, water-skiing, kayaking, swimming, fishing, or sailing. The DNR also does not have the authority to manage uses such as recreational shellfish harvesting or beach walking on privately owned tidelands, which comprise the majority (approximately 88 percent) of the tidelands located immediately adjacent to the Maury Island site. The proposed management plan suggests the implementation of education and outreach measures to help ensure that recreational activities are conducted in a manner that would not degrade aquatic habitat conditions, but DNR cannot enforce such provisions. Therefore, the effectiveness of these measures is uncertain, but would likely be positive.

Under the Preferred Alternative’s proposed management plan, DNR would inventory existing mooring buoys and recreational docks on state-owned aquatic lands to ensure that structures that should be authorized by DNR are reviewed and an appropriate authorization is issued. In addition, DNR would collaborate with owners of

recreational docks and mooring buoys that are constructed in a manner that may produce adverse impacts on aquatic resources (i.e., shading and scouring), to decrease potential impacts on the aquatic environment. This action may produce a minor adverse impact on recreational dock and mooring buoy owners as it may result in the removal of some unauthorized or derelict structures. Improvement or relocation of docks and buoys may result in a short-term, minor financial burden to owners that must implement modifications to protect the aquatic environment. As a mitigating factor, the DNR would seek to minimize these costs and locate funding assistance for projects.

Existing and Proposed DNR Use Authorizations:

Quartermaster Yacht Club: Reserve designation and management plan implementation could produce both positive and negative impacts to the Quartermaster Yacht Club. The lease for the yacht club is currently in holdover, pending the final decision regarding DNR management of the Maury Island site and the club is proposing an expansion of the existing facility under the new DNR use authorization.

The proposed management plan would result in the requirement that the Quartermaster Yacht Club implement measures to cause no new impacts and reduce existing impacts on the aquatic environment over time. The DNR would work collaboratively with the yacht club to develop a site plan that would aid in reducing existing impacts and avoid, minimize, and compensate for potential impacts from maintenance or upgrade activities. However, the implementation of the management plan could result in a minor, short-term adverse impact to the yacht club, as implementing impact reduction measures could require additional expenditures. Yet, overwater design recommendations of the proposed management plan are comparable to the Corps' requirements for a Section 404 permit; therefore, some of the expenditures resulting from structure design and construction costs would likely occur even without reserve designation.

The proposed management plan could also adversely impact the yacht club due to the provision that states that activities undertaken within the reserve must implement actions to benefit the reserve at-large. Such measures could take a variety of forms including: monitoring and research, education and outreach, or enhancement of aquatic habitat. Implementation of such measures could produce a financial burden to the yacht club owners. It is important to note, that expansion of the existing facility without increasing current impacts would actually benefit the reserve as a whole, as it would provide additional moorage for which the public has shown demand, which could decrease the amount of anchor dragging and number of unauthorized mooring buoys within the Maury Island site. Thus, yacht club expansion efforts, if done within the parameters identified in the management plan, would help to serve the objectives of the reserve. The DNR would work with the yacht club to identify additional ways the club's activities could serve the objectives of the reserve.

The reserve designation could also produce positive impacts for the yacht club, as the management plan provisions related to maintaining and enhancing the aquatic environment would indirectly benefit users of the yacht club through the protection of water quality, fisheries resources, and other aquatic conditions that add to the recreational experience of Quartermaster Harbor.

Quartermaster Harbor Marina: Similar to the yacht club, Polaris Development has plans to expand Quartermaster Harbor Marina. Therefore, the potential impacts associated with the reserve and proposed management plan would be largely identical to those described for the yacht club, above. The expenditures associated with meeting the requirements of the management plan would produce adverse impacts to Quartermaster Marina, although its clients may experience positive impacts associated with maintaining and enhancing the area's aquatic environment. The DNR would work collaboratively with the marina owners to develop a plan for reducing existing impacts and to determine additional ways that the marina could serve the objectives of the reserve.

King County Parks – Dockton Area Pier and Boat Dock: Reserve designation and management plan implementation could produce both positive and negative impacts to King County in relation to the pier and boat dock at Dockton Park. King County has no immediate plans to modify the existing structure and the current use authorization is valid until 2012. Therefore, the proposed management plan may not result in impacts to the Dockton facility until King County applies for reauthorization of their use. At such time, King County may experience minor negative financial impacts, similar to those described above for the yacht club, associated with ensuring that operations and structures comply with the provisions of the management plan, which are geared toward reducing impacts and enhancing aquatic habitat. The DNR would work collaboratively with King County to develop a plan for reducing existing impacts and to determine additional ways the Dockton Park facility could serve the objectives of the reserve. Users of Dockton Marina may experience positive indirect impacts associated with maintaining and enhancing the area's aquatic environment.

Glacier Northwest – Maury Island Gravel Barge Loading Facility: Reserve designation and the proposed management plan has the potential to adversely affect Glacier Northwest. In order to replace the existing pier and dock structure at the site, Glacier Northwest would have to first demonstrate that such activities could be conducted without resulting in net loss of habitats and species identified for conservation in the proposed management plan. This could require that Glacier first conduct restoration or enhancement activities in the area to improve existing conditions prior to conducting construction activities that could adversely affect current conditions. If such measures were required, this could lead to minor delays in the construction of the barge loading facility, which would adversely impact Glacier's use of the area and could result in a financial burden associated with expenditures for restoration or enhancement activities and delays.

Furthermore, Glacier would need to construct the pier and dock facility in a manner consistent with the specific management provisions for the facility described in the management plan. As Glacier would also need to secure Corps and King County permits for the proposed expansion, many of the structural requirements contained in the proposed management plan would already be met through the regulatory permitting process.

Glacier would also need to demonstrate that their operations (i.e., barge loading) would not result in net loss of the habitat and species identified in the proposed management plan. Of particular concern would be issues associated with noise, light, prop wash, gravel spills, nearshore drift interruption, and other related operational concerns. Complying with these requirements could result in design or operational modifications that may be less cost effective than other operational methodologies, which could produce an adverse impact to Glacier Northwest. Many of these concerns may have already been addressed in Glacier's most recent design and operations proposal for the Maury Island gravel mine and barge loading facility.

The management plan states that activities occurring at the Maury Island site must primarily serve the objectives of the reserve. While the fundamental objective of Glacier Northwest's operations on state-owned aquatic lands would be to transport gravel, measures could be implemented to ensure that a use authorization for Glacier served the objectives of the reserve. The DNR would work collaboratively with Glacier Northwest to identify such measures. However, such provisions of a use authorization for Glacier Northwest would produce a negative direct impact due to the financial burden associated with implementing activities to serve the objectives of the reserve.

The DNR recognizes that the current Glacier Northwest proposal already includes a number of components that would benefit the reserve, such as maintaining a 200-foot shoreline buffer between the mine and the shoreline. This buffer would ensure that natural erosion and sediment deposition processes in the area were maintained, which would benefit the drift cell along the eastern shoreline of Maury Island. Existence of the gravel mine also ensures for at least the near future that other development, which could modify the shoreline and disrupt natural processes, would not occur at the site. These and possibly other potential reserve-wide components of Glacier Northwest's proposal, could contribute to the goals and objectives of the aquatic reserve.

Puget Sound Energy – Utility Rights-of-Way: As the Puget Sound Energy rights-of-way in the area are valid in perpetuity, the proposed management plan would likely have no impact on these existing use authorizations. Further, under the Preferred Alternative, portions of the Puget Sound Energy rights-of-way would no longer be within the reserve boundary and would, therefore, not be subject to the provisions of the management plan. Land managers at DNR may work with Puget Sound Energy to reduce any potential adverse impacts associated with maintenance of the submarine cables that would remain within the proposed reserve boundary, although the need for such actions is uncertain at this time.

Comcast – Utility Right-of-Way: The Comcast submarine cable project could be adversely affected by the Preferred Alternative. A portion of the right-of-way for the project would still pass through the proposed reserve boundary, but less of the right-of-way would be within the reserve compared to the No Action Alternative. In order to avoid species and habitat impacts related to construction of the portions that pass through the reserve boundary, Comcast may be required to utilize more expensive design and construction strategies and would also need to implement actions to primarily serve the objectives of the reserve.

Future Use Proposals: Any new use proposed in the future would be subject to the proposed management plan provisions related to the type of use proposed (i.e., marina, fish pen, etc.). This could result in adverse impacts because some potential uses would not be permissible within the Maury Island site under the Preferred Alternative (Table 5). In addition, there may be additional costs for new uses resulting from: 1) ensuring no net loss of habitats and species identified for conservation in the proposed management plan, and 2) implementing actions to primarily serve the objectives of the reserve.

Historical and Cultural Resources: The proposed management plan would have no impact on the historic and cultural resources identified in the vicinity of the Maury Island site, as these sites are not within the reserve and DNR would not authorize uses that would adversely impact these resources. In addition, DNR would consult with the Puyallup Tribes and other applicable entities to ensure that management of the Maury Island site would adequately protect historic and cultural resources.

Consistency with Other Pertinent Regulations: As discussed above, reserve designation and the proposed management plan would be consistent with the King County Shoreline Master Program and King County Comprehensive Plan and DNR would collaborate with King County to ensure continued consistency.

The Preferred Alternative's proposed management plan would also be consistent with Ecology's regulatory authority relating to the NPDES program, 401 certifications, and Coastal Zone Management certification. The management plan proposes research and monitoring that would likely include water quality and sediment sampling. These efforts could assist Ecology in the administration of their regulatory mandates. However, DNR would need to consult with Ecology prior to undertaking research and monitoring projects to ensure that efforts are not duplicative and utilize approved methodologies.

The proposed management plan is also consistent with the objectives of HPA permits administered by WDFW. The management plan includes provisions related to protection of fisheries resources (e.g., salmonids and forage fish) and fish habitat (e.g., eelgrass), which is the primary purpose of HPA permits in this area. DNR could, however, impose requirements in addition to those in an HPA permit to protect the state-owned aquatic lands for which DNR is steward. These additional measures,

if required by DNR staff, would not impact WDFW's authority or ability to implement the HPA program.

The proposed management plan would also be consistent with the Corps' issuance of Section 404 and Section 10 permits. If deemed necessary, DNR could require additional conditions for uses within the reserve, but this would not impact the Corps' authority or ability to issue Section 404 or 10 permits.

Implementation of the proposed management plan would be consistent with administration of ESA by NOAA-Fisheries and USFWS. The management plan would conserve, protect, and enhance aquatic environmental resources, which could ultimately benefit listed species.

4.7.2.2 Alternative 2 (Repeal the Reserve)

The Repeal the Reserve Alternative would likely have no or negligible impacts on local planning, shoreline modification, existing land uses, existing and proposed use authorizations

Local Planning: Repealing the aquatic reserve designation for the Maury Island site would not have a direct impact on upland land uses, which are primarily directed by the King County Comprehensive Plan and Shoreline Master Program. Thus, upland land uses would continue as directed by King County.

Without the reserve designation, DNR would be less likely to actively engage King County to collaborate on land management issues related to the Maury Island site. Nothing would preclude establishing an interagency working relationship, but there would be no DNR guidance dictating that staff should pursue such efforts, lessening the likelihood. Without the reserve designation, DNR use authorizations would be negotiated under existing policy, which would not conflict with King County's implementation of their land use plans or policies.

Without the reserve designation DNR would also be less likely to work with King County to help avoid impacts on the Maury Island site that could result from future development.

Shoreline Modification: Repealing the reserve designation would have uncertain impacts on shoreline modification in the area. Without the reserve, it is unlikely that DNR would actively pursue a relationship with King County to aid in reducing shoreline modification, which may indirectly contribute to maintenance of existing armoring levels and possible increases in shoreline modification.

It is also unlikely that DNR would engage local landowners to reduce impacts from shoreline modification without a reserve designation in place. Since no proactive measures on behalf of DNR would be taken, there would be no direct benefits to shoreline modifications in the area.

Existing Land Uses: Repealing the reserve designation would not impact the majority of existing upland uses, which are residential and agricultural in nature. King County would likely continue to administer their zoning and regulatory authority in a manner similar to existing conditions.

The absence of a reserve in the area would also have no impact on recreational uses. Activities such as boating, water-skiing, kayaking, fishing, and sailing would continue as they do currently. Similarly, recreational shellfish harvesting and beach walking on privately owned tidelands would continue at existing levels. The DNR would maintain the authority to manage uses of state-owned aquatic lands in accordance with existing guidance and policies.

The DNR would likely not inventory recreational docks and mooring buoys in the absence of aquatic reserve designation; therefore, there would be no affect on recreational docks and mooring buoys in the area.

Existing and Proposed DNR Use Authorizations:

Quartermaster Yacht Club: With the reserve designation repealed, the lease for the yacht club, which has been in holdover status, would be negotiated based upon existing DNR guidance and policies. DNR would rely to some extent on the regulatory agencies (i.e., WDFW, King County, and Corps) to determine the structural and operational requirements for the marina. However, DNR would maintain the authority to require additional measures if deemed necessary to ensure environmental protection. Such additional measures would not likely cause a significant impact to the Quartermaster Yacht Club.

Quartermaster Harbor Marina: A use authorization for the expansion of Quartermaster Marina would also be negotiated under current DNR guidance, with similar impacts to those described above for the yacht club.

King County Parks – Dockton Park Pier and Boat Dock: The lease for the King County facility does not expire until 2012, so no additional measures would be required of King County until that time. When negotiating a new lease for the site, the potential impacts would be similar to those described above for the yacht club.

Glacier Northwest – Gravel Barge Loading Facility: Without the reserve designation, negotiation for a lease at the site would be conducted under current DNR guidance and policies. DNR would rely to some extent on the regulatory agencies (i.e., WDFW, King County, and Corps) to determine the structural and operational requirements. However, DNR would maintain the authority to require additional measures if deemed necessary to ensure environmental protection. The likelihood that additional measures would be required without a specific management plan in place for the site is uncertain, but would not likely lead to significant impacts on Glacier Northwest.

Puget Sound Energy – Utility Rights-of-Way: Without the reserve designation, the Puget Sound Energy use authorizations, which are valid in perpetuity, would not likely be impacted.

Comcast – Utility Right-of-Way: Rescinding the reserve designation would not likely impact the Comcast submarine cable proposal. A use authorization for this proposal would be negotiated in accordance with current DNR guidance and policies.

Future Use Proposals: Any new use proposed in the future would be subject to existing DNR policies for uses of state-owned aquatic lands. There would be no outright prohibitions of uses in the area. However, DNR would retain the authority to deny proposals considered inappropriate or require mitigation and enhancement provisions deemed necessary to adequately protect aquatic resources. Thus, this alternative would not be expected to produce significant adverse effects on future use proposals.

Historical and Cultural Resources: Rescinding the reserve designation would not impact historic and cultural resources in the vicinity. The DNR would continue to manage activities adjacent to such resources in accordance with existing guidance and policies.

Consistency with Other Pertinent Regulations: Rescinding the reserve designation would not conflict with other regulations germane to the Maury Island site. Land managers at DNR would continue to negotiate use authorizations with the knowledge that use proponents have a regulatory obligation to obtain the necessary permits and approvals from regulatory agencies to ensure that projects are conducted lawfully.

4.7.2.3 Alternative 3 (No Action)

Alternative 3 would have a low probability of causing positive impacts for local planning and shoreline modification. There would be a moderate probability of adverse effects on existing and proposed DNR use authorizations associated with the costs of meeting reserve objectives.

Local Planning: Maintaining the reserve designation without implementing a site-specific management plan would not have a direct impact on upland uses, which are primarily directed by the King County Comprehensive Plan and Shoreline Master Program, as DNR does not have authority over upland uses. As discussed above for the Preferred Alternative, King County supports the reserve designation and has expressed the desire to collaborate with DNR in the development of a management plan for the Maury Island site. Under this alternative, no management plan would be drafted, which would not be consistent with the position expressed by King County regarding the reserve.

The programmatic FEIS states that DNR must work with local agencies, such as King County, to minimize off-site impacts, although there is no specific guidance relating to the types of issues that should be addressed through cooperation with King County.

Under the No Action Alternative it is uncertain whether DNR would specifically collaborate with King County in regards to land management strategies and to what extent interagency cooperation would be made a priority. Thus, the interagency-cooperation dictated by the No Action Alternative would have a low probability of resulting in beneficial impacts on land management strategies compared to the Preferred Alternative, which explicitly outlines the types of issues that should be addressed through the development of interagency relationships.

Shoreline Modification: Maintaining the reserve designation under the original boundary but not creating a site-specific management plan would have uncertain impacts on shoreline modification in the area. The programmatic FEIS states that DNR must work with local jurisdictions, regulatory agencies, and adjoining landowners to minimize off-site impacts. Yet there is no specific guidance directing DNR staff to pursue a relationship with King County to aid in reducing shoreline modification, as there is under the Preferred Alternative. Given this lack of guidance, there is a lower probability under the No Action Alternative compared to the Preferred Alternative that DNR would make interagency collaboration related to shoreline modification a priority.

It is also likely that DNR would not engage local landowners in efforts to reduce impacts from shoreline modification or secure funding for such activities without a site-specific management plan directing these efforts.

Existing Land Uses: Maintaining the original reserve designation without creating a management plan would not impact the majority of existing upland uses, which are residential and agricultural in nature. However, the programmatic FEIS does state that DNR “must work with local jurisdictions... to minimize off-site impacts” (DNR 2002). Yet without more specific guidance pertaining to this type of inter-agency coordination, it is uncertain to what extent such activities would be undertaken and how successful they may be. In general, King County would continue to administer their zoning and regulatory authority in a similar manner to existing conditions.

Maintaining the reserve designation without a management plan would also not impact recreational uses, such as boating, water skiing, kayaking, fishing, shellfish harvesting, and sailing. Transitory recreational activities occurring on state-owned aquatic lands would also continue under existing conditions, as no provisions in the programmatic FEIS suggest altering management of recreational uses.

Without a management plan providing specific strategies for the reserve, the DNR would likely not attempt to inventory recreational docks and mooring buoys at the Maury Island site, as there would be no specific guidance directing this action. Thus, there would likely be no effects to existing recreational docks and mooring buoys caused by the No Action Alternative.

However, applications for new use authorizations for mooring buoys would not be granted if the buoy would alter, remove, and/or otherwise change any existing

environmental or cultural characteristic of the reserve. This would have a low probability of producing beneficial or adverse impacts on boating in the area. It could produce a negative impact to potential applicants that wish to secure a mooring buoy in the area, as these individuals may be forced to seek alternatives for mooring their vessels. Yet, it could also produce beneficial impacts to boaters in the area, as additional mooring buoys, especially in inner Quartermaster Harbor, produce potential navigation obstacles that would be controlled under the No Action Alternative.

Existing and Proposed DNR Use Authorizations:

Quartermaster Yacht Club: In order to authorize a proposal for expansion of the existing facility, the yacht club would need to demonstrate that activities conducted would not further degrade environmental resources and would primarily serve the objectives of the reserve (DNR 2002). Without a site-specific management plan, there would be a reduced level of certainty regarding how DNR would interpret these directives. If the use were found by the DNR to be incompatible with the reserve designation, then the existing lease would be allowed to expire and would not be renewed. It would be expected that DNR would negotiate the lease for the yacht club, which has been in holdover status, based upon current DNR guidance and policies. Land managers at DNR would likely rely on the regulatory agencies (i.e., WDFW, King County, and Corps) to some extent as far as structural and operational requirements for the marina. However, the DNR would maintain the authority to require additional measures if deemed necessary to ensure environmental protection and primarily serve the objectives of the reserve. It is likely that reserve status, without management plan site specific strategies, would mean that the DNR would require additional measures on the marina or possibly not reauthorize the use. Therefore, there would be a moderate probability of adverse impacts on the yacht club associated with the costs of meeting reserve objectives and potentially not having their use reauthorized.

Quartermaster Harbor Marina: A use authorization for the expansion of Quartermaster Marina would also likely be negotiated under current DNR guidance, with similar impacts to those described above for the yacht club.

King County Parks – Dockton Park Pier and Boat Dock: The use authorization for the King County facility at Dockton does not expire until 2012, so no additional measures would likely be required of King County until that time. When negotiating a new lease for the site, the potential impacts would be similar to those described above for the yacht club.

Glacier Northwest – Gravel Barge Loading Facility: The reserve designation without a management plan to provide consistent management strategies would have a moderate probability of producing negative impacts on the Maury Island gravel mine. Glacier Northwest would have to demonstrate that the proposal would avoid, minimize, and compensate for all environmental impacts that may occur and would primarily serve the objectives of the reserve (DNR 2002). Without additional site-

specific guidance, it is uncertain how DNR would interpret and implement these directives. If DNR found that the proposed use was incompatible with the reserve, then no authorization would be issued. In general, in negotiating the lease DNR would rely to some extent on the regulatory agencies (i.e., WDFW, King County, Ecology, and Corps) as far as structural and operational requirements for the facility. The DNR would maintain the authority to require additional measures for the protection of environmental resources and to ensure that activities primarily serve the objectives of the reserve.

Puget Sound Energy – Utility Rights-of-Way: Under the No Action Alternative it is unlikely that DNR would suggest modifications to the submarine cables in the area for which the current use authorizations are valid in perpetuity. Thus, there would likely be no impact. However, if maintenance or upgrades to the cables were necessary, Puget Sound Energy would have to demonstrate that such activities would avoid, minimize, and compensate for all potential environmental impacts.

Comcast – Utility Right-of-Way: Under the No Action Alternative, the proposed Comcast submarine cable would still be within the boundary of the aquatic reserve. Thus, Comcast would need to demonstrate that their activity could be conducted without further impact on aquatic resources and in a manner that primarily serves the objectives of the reserve. Without further guidance in the form of consistent site-specific management strategies, the programmatic FEIS provides little certainty to Comcast regarding how DNR may handle the use authorization negotiation. For the most part, use authorizations would be negotiated under the general management actions detailed in the programmatic FEIS. As such, it is likely that DNR would propose measures in addition to permit and approval requirements of the regulatory agencies (i.e., WDFW, King County, Ecology, and Corps) or may not authorize the use. Thus, there would be a moderate probability of negative impacts to the Comcast right-of-way.

Future Use Proposals: Any new use proposed in the future would be required to demonstrate that it could be conducted without further impact on aquatic resources and in a manner that primarily serves the objectives of the reserve. These provisions would likely result in adverse impacts to future use proposals as a result of 1) the cost of ensuring no further impact on aquatic resources and 2) primarily serving the objectives of the reserve.

Historical and Cultural Resources: Maintaining the original reserve designation without a management plan would not impact historic and cultural resources in the vicinity, as documented resources are located outside of the reserve boundary. The programmatic FEIS states, “no future use authorizations will be granted that alter, remove, and/or otherwise change any existing environmental or cultural characteristics...” (DNR 2002). Therefore, under the No Action Alternative, DNR land managers would critically review use authorization applications to ensure that actions conducted within the reserve would not impact cultural resources.

In addition, the programmatic FEIS states that DNR land managers would coordinate with tribal interests when reviewing use authorizations. Thus, DNR would consult with the Puyallup Tribes and other applicable entities to ensure that use authorization adequately consider impacts to historic and cultural resources.

Consistency with Other Pertinent Regulations: The No Action Alternative would not conflict with other regulations germane to the Maury Island site. Land managers at DNR would continue to negotiate use authorizations with the knowledge that use proponents have an obligation to acquire the necessary permits and approvals from regulatory agencies to ensure that projects are conducted lawfully.

4.8 Transportation

Aspects of transportation that apply to the Maury Island site are predominantly related to waterborne transportation, although there are some roadways and bridges on uplands adjacent to the site.

4.8.1 Affected Environment

There are no commercial ferry operations within the Maury Island site, nor are there currently commercial operations in the area predominantly geared toward the transportation of goods. If the gravel barge loading facility along the eastern shoreline of Maury Island was made operable, then up to four gravel barges per day could use waters within the Maury Island site for transportation of goods. The site also provides recreational waterborne transportation to residents of Maury and Vashon islands, as well as visitors to the area.

The United States Constitution gives the federal government “navigational servitude.” In doing so, the Constitution protects the use of navigable waters and aquatic lands for navigation and commerce. The DNR does not have the authority to prevent vessels from transiting any navigable waters of the state.

4.8.2 Impact Analysis

4.8.2.1 Alternative 1 (Preferred Alternative)

The Preferred Alternative would have a low probability of causing direct negative impacts to waterborne transportation facilities at discrete locations throughout the site.

The Maury Island Reserve designation and proposed management plan could reduce the areas considered suitable for new bridges or roadways. There are currently no proposals for roadway projects that would traverse or encroach upon state-owned aquatic lands, and since the site is located around islands, it is unlikely that additional applications for use authorizations would occur. Therefore, the potential impact on roadway expansion projects would likely be undetectable.

Reserve designation and the proposed management plan could also limit the potential locations for waterborne transportation facilities, such as large docks or wharves. The Glacier Northwest facility is currently the only proposed use within the Maury Island

site related to waterborne transportation and the potential effects on that operation are discussed in Section 4.7.2.1.

It is important to reiterate that DNR does not have the authority to limit the use of private commercial or recreational boats in state waters. Therefore, reserve designation and the implementation of the proposed management plan would have no impact on the use of vessels within the Maury Island site.

4.8.2.2 Alternative 2 (Repeal the Reserve)

Alternative 2 would have no impacts on waterborne transportation facilities at or near the site.

Repealing the reserve designation at the Maury Island site would likely have no impact on transportation systems in the area. Proposals for transportation systems would be permissible throughout the Maury Island site, although DNR would have the authority to require mitigation or enhancement provisions deemed necessary to adequately protect the aquatic resources in the area.

4.8.2.3 Alternative 3 (No Action)

Alternative 3 would have a moderate probability of causing direct negative impacts to transportation systems and facilities at discrete locations throughout the site.

Transportation impacts associated with the No Action Alternative would be uncertain. There would be no site-specific management provisions to direct authorizations related to transportation. However the rather strict directives of the programmatic FEIS would not permit new roadway transportation projects within the aquatic reserve if they would alter, remove, and/or otherwise change any existing environmental or cultural resources. This could produce a moderate impact on roadway transportation projects designed to cross or encroach upon the aquatic reserve.

Under No Action, new waterborne transportation facilities would also not be permitted in the reserve if they would result in environmental or cultural resource degradation. This would have a moderate probability of producing adverse impacts on waterborne transportation projects and could limit the accessibility of areas within the reserve by boats that require structural moorage facilities.

4.9 Public Services and Utilities

The SEPA definition of public services identifies a variety of components including: fire departments, police departments, schools, parks or other recreational facilities, maintenance, communications facilities, water/storm water systems, sewer/solid waste facilities, and any other governmental services or utilities. Management of the Maury Island site does not have the potential to impact services such as fire and police departments or schools, but it could impact recreational facilities, communications, and discharge systems.

4.9.1 Affected Environment

King County owns and operates a public park near Dockton. The park includes a public pier and 58-slip boat dock (see Section 4.7.2.1.), a boat launch, two restrooms, showers, picnic and barbecue areas, a playground, two parking lots, and beach access. The park is comprised of 20.52 acres of uplands, and an additional 0.81 acres of state-owned aquatic lands upon which the pier and boat dock are constructed. Only the state-owned aquatic lands would be directly affected by the DNR management strategies evaluated in this SEIS.

King County also operates the 320-acre Maury Island Marine Park along the eastern shore of Maury Island. The park is located at the site of an old gravel pit. Facilities include a fishing pier, restroom, lookout tower, and parking lot. The pier was originally used for loading gravel onto barges when the upland site was operated as a gravel mine. The DNR management strategies for the Maury Island site would have the potential to impact the existing pier, as it may be partially constructed on state-owned aquatic lands without a use authorization.

The Vashon Park District operates the Burton Acres Park and Point Robinson Park, which are adjacent to the Maury Island site. The 68-acre Burton Acres Park includes a boat launch, restroom, hiking trails, beach access, and a parking lot. The 10-acre Point Robinson Park includes picnic facilities, trails, and beach access. The U.S. Coast Guard operates the Point Robinson Lighthouse facility.

Along the northeast shoreline of Maury Island, there are several utility easements that pass through the study area (Appendix J). These easements are held by Puget Sound Energy and are for the purposes of submarine cable that provides power, natural gas, and telecommunications to the island. Authorizations for the easements extend in perpetuity. In addition, Comcast is proposing the construction of a submarine fiber optic cable along the northern shoreline of Maury Island, as described in Section 4.7.2.1.

There are likely stormwater and other water discharge systems at the Maury Island site, although DNR does not have a full inventory of these facilities at this time.

4.9.2 Impact Analysis

4.9.2.1 Alternative 1 (Preferred Alternative)

The Preferred Alternative would have a moderate probability of causing direct negative impacts to public services and utilities at discrete locations throughout the site, but would also have a moderate probability of indirect benefits to public services through improved environmental conditions within the reserve.

The Preferred Alternative would produce both minor adverse and beneficial impacts on parks at the Maury Island site. The Dockton Park currently has a use authorization with DNR for its public dock facility. Under the Preferred Alternative, King County would likely be required to make changes to this dock over time to reduce potential impacts on aquatic vegetation and fish in the area. The current dock is constructed of closely spaced wood planks suspended by floats and wooden pilings. To continue

using state-owned aquatic lands at the Dockton site, DNR would likely require that King County make modifications to the existing structure to reduce overwater shading and replace treated pilings that could impact water quality, which would have a moderate probability of producing adverse impacts associated with the costs of such changes. These modifications may be in excess of the requirements of other regulatory agencies (e.g., King County, WDFW, and Corps).

The management plan also states that activities cannot further degrade the existing conditions within the reserve. Therefore, if King County desired to modify the existing dock and pier structure in a manner that would impact the resources identified for protection under the management plan, then they would first have to demonstrate enhancement of the resources to be impacted prior to any activities that may disturb those resources. This could adversely affect park operations by delaying modifications that may be necessary to meet increasing demand for public boat moorage within Quartermaster Harbor.

Dockton Park would also experience beneficial impacts from the reserve designation and management plan. The provisions of the management plan to protect the natural resources of Quartermaster Harbor would help to ensure sustainable fish populations, clean water, and in general, a healthy aquatic ecosystem, which would enrich the recreational experience for users of Dockton Park.

King County's Maury Island Marine Park would also benefit from reserve designation. The purpose of this park is to provide a location for the public to experience the natural character of Maury Island and the surrounding waters. Reserve designation would help to ensure the preservation of the aquatic natural resources in the area, which is consistent with the purposes of the marine park. The DNR may require that King County acquire a use authorization for the pier structure and make modifications to the existing structure to minimize potential impacts from shading and treated wood pilings. The Marine Park would likely primarily support the objective of the reserve since it provides outdoor public use opportunities, which would likely benefit the reserve at-large.

The reserve designation and proposed management plan would not have a direct impact on Burton Acres Park or Point Robinson Park, as neither of these facilities includes structures on state-owned aquatic lands. Yet, both of these facilities may experience beneficial impacts from the reserve in the form of preservation of the quality of the aquatic resources in the area, which may enhance the recreational experience of park users.

The Preferred Alternative would have a moderate probability of producing negative impacts on future public services and utilities. Reserve designation would likely decrease the areas on state-owned aquatic lands available for new communications systems, water and waste disposal, and other services and utilities or at least require additional provisions for construction within the reserve. Existing utility easements

along the northeast shoreline of Maury Island would not be affected since they have perpetual easements.

Under the Preferred Alternative, DNR would work to inventory existing outfalls that discharge onto state-owned aquatic lands. These outfalls may be physically located within the Maury Island site or located adjacent to the Maury Island site on private or public lands. Following the inventory, DNR would work with outfall owners to ensure the outfalls are authorized (if within the reserve) and to minimize and avoid potential adverse impacts on aquatic resources. Such measures may produce an adverse impact to outfall owners in the form of additional costs to ensure aquatic resource protection. However, for structures not located within the reserve, efforts to decrease potential impacts from the outfalls would be voluntary.

4.9.2.2 Alternative 2 (Repeal the Reserve)

Alternative 2 would likely produce no significant impacts on public services or utilities at or near the site.

Repealing the reserve designation would likely have no impacts on parks, utilities, and other public services. For example, the current use authorization for the Dockton pier and boat dock expires in 2012. At that time, without a reserve designation it would be under the discretion of DNR staff whether or not to require that King County implement additional aquatic resource protection measures (i.e., reduce shading and remove treated wood piles) that would be explicitly required under the Preferred Alternative. Thus, the financial commitments that may be experienced under the Preferred Alternative may not occur without reserve designation in the area. King County, however, would be afforded no certainty regarding the types of provisions that may or may not be required for use authorizations, as there would be no site-specific management plan for the area. This could result in unanticipated costs for King County associated with the facility.

Furthermore, if King County were to propose any modifications or expansions to the existing dock and pier structure they would need to secure permits from the Corps. The Corps already requires most of the types of modifications to overwater structures (i.e., reduce shading, etc.) that are included in the proposed management plan. Therefore, even without reserve designation, King County may need to implement such aquatic resource protection measures.

The same types of potential impacts would exist for authorization or modification of the existing pier at the Maury Island Marine Park. Thus, without a site-specific management plan, there would be less certainty regarding what measures may or may not be required of King County to secure use authorizations in the area.

Rescinding the reserve designation would not directly impact Burton Acres Park and Point Robinson Park. However, these parks would not experience the potential beneficial impacts from the preservation and enhancement of aquatic resources at the Maury Island site associated with the Preferred Alternative.

Alternative 2 would not impact the existing Puget Sound Energy utility easements along the northeastern shoreline of Maury Island. These easements are valid in perpetuity and would continue without modifications.

Other utilities, such as Comcast, that may utilize the Maury Island site would not likely be impacted under Alternative 2, as use authorizations would be negotiated in the same manner as for all other non-reserve lands. There would likely be fewer restrictions on the locations that utility facilities could be constructed on state-owned aquatic lands. Yet, DNR would maintain the authority to require environmental protection measures for use authorizations as deemed appropriate. Therefore, there would be less certainty for applicants pertaining to the types of requirements that would be part of a use authorization at the Maury Island site.

Outfall operators would not likely be impacted under Alternative 2. Existing discharges would likely continue operations without additional review, authorization, and/or assistance by DNR. Without reserve designation at the Maury Island site, the DNR would likely not inventory discharges in the area or work directly to ensure water quality and sediment protection on state-owned aquatic lands due to resource and staffing constraints.

4.9.2.3 Alternative 3 (No Action)

Alternative 3 would have a moderate probability of causing direct negative impacts to public services and utilities at discrete locations throughout the site. The types of beneficial and adverse impacts of the No Action Alternative on parks, utilities, and other public services would be similar to those described for Alternative 1.

The area would still be considered an environmental aquatic reserve, but there would be no site-specific management provisions for the reserve; therefore, the DNR staff would apply management guidelines from the programmatic FEIS and relevant RCWs and WACs. The general negative effects on public services would likely be more than Alternative 1 and Alternative 2, as the restriction under the programmatic FEIS are rather strict.

Upon expiration of the use authorization for Dockton Park, King County would likely be required to implement some aquatic resource protection measures, as described for Alternative 1. In addition, if expansion or modification of the dock and pier structure were proposed, King County would need permits from the Corps which could result in the same types of impact minimization measures as those proposed in the Preferred Alternative's management plan. There would be similar impacts regarding authorization for the existing pier at the Maury Island Marine Park.

The No Action Alternative would likely indirectly impact Burton Acres Park and Point Robinson Park, as the recreation areas may experience fewer beneficial impacts from improved aquatic resource conditions in the area in comparison to the Preferred Alternative.

Under the No Action Alternative it is likely that DNR would allow the utility easements along the northeastern shoreline of Maury Island to continue in perpetuity without additional modifications, unless specific environmental concerns arose.

Comcast and other potential public service purveyors would also face a high level of scrutiny associated with DNR management of the Maury Island site. These entities would likely experience additional restrictions on the locations and construction strategies for proposed uses of state-owned aquatic lands for the purposes of utilities and public services.

The impacts to owners and operators of outfalls that apply for use authorizations within the Maury Island site would likely be high due to standards established in the programmatic FEIS. The DNR land managers, however, would not have explicit directives to inventory and proactively manage outfalls that currently exist within the Maury Island site, which would make it less likely that such activities would occur.

5.0 Cumulative Effects Analysis

In the analysis of impacts in an EIS prepared in accordance with SEPA, the lead agency must consider direct, indirect, and cumulative impacts (WAC 197-11-792(2)(i)). Yet, the WACs do not provide a definition of what comprises cumulative impacts. However, the term has been defined in a number of other arenas. In general, cumulative impacts on the environment are those that result from the incremental impact of a specific action when added to other past, present, and future actions. Cumulative impacts can result from minor impacts from a specific action that when considered in the spatial and temporal context of other activities in the area can collectively result in significant impacts. For example, the clearing of a single tree in a riparian area would likely have immeasurable impacts at the watershed scale, although the incremental impact of clearing many trees in a given area over time can produce substantial impacts to a watershed.

For a non-project action such as the proposed management framework for the Maury Island site, it can be difficult to effectively assess cumulative impacts, as there is not a particular site-specific activity being proposed. Therefore, the following evaluation of cumulative impacts focuses on other resource management plans and policies within the area and how the proposed action would likely interact with these to produce potential beneficial or adverse cumulative impacts. The spatial scope of the following discussion considers potential cumulative impacts in the spatial context of the Puget Sound region with a temporal scope of 90 years, the term of the proposed reserve designation.

There is a clear trend in western Washington, particularly in the Puget Sound region, of increasing development and associated habitat loss. Additional residential and commercial development is planned throughout much of the local area, as well as the central Puget Sound region. Within this context of increasing development, either Alternatives 1 or 3 would preserve habitat as an Aquatic Reserve. Conservation and restoration of lands through management actions identified in Alternative 1 would maintain or increase the carrying capacity of Quartermaster Harbor and surrounding environs for fish and wildlife. Additionally, Alternatives 1 and 3 would complement other regional habitat acquisition or protection programs under consideration by local, state, federal, tribal, and non-governmental agencies resulting in positive cumulative effects to fish and wildlife.

Cumulative effects involving the outreach and educational programs associated with Alternative 1 would be an overall improvement in the quality of environmental education and wildlife-dependent recreation opportunities in central Puget Sound.

5.1 Earth

The proposed action would produce beneficial cumulative impacts on geology and soils when considered in the context of other land management planning activities for the area. The King County Comprehensive Plan states that development within the county shall protect important ecological resources and also encourages the restoration of critical areas. Such ecological functions that King County attempts to protect include riparian function and natural erosion processes along water bodies. The proposed management plan also encourages bank protection and would prohibit activities that would adversely impact drift cells within the site. The potential incremental benefits of King County's land use planning

and the proposed Maury Island management plan when considered together could produce a cumulative beneficial impact for natural erosion processes in the immediate area and the central Puget Sound as a whole.

Alternative 2 would have a low probability of negligibly contributing to adverse cumulative effects on geology and soils. Under the Repeal the Reserve Alternative, DNR would issue use authorizations at the Maury Island site in the same manner as for the rest of the 2.4 million acres of state-owned aquatic lands that the agency manages. Without the prescriptive and consistent guidance included in the proposed management plan, activities that may be authorized within the Maury Island site may be conducted in a manner that could contribute to shoreline modification and/or disruption of nearshore sediment transport. When considered with other development projects throughout the Puget Sound, such activities could produce a minor adverse cumulative impact on geology and soils. However, due to the small size of the Maury Island site in comparison to the Puget Sound as a whole, cumulative impacts associated with Alternative 2 would likely be immeasurable.

The potential cumulative impacts that may occur under Alternative 3 would be similar to those described above for the Preferred Alternative. However, without a management plan that defines a systemic and standardized method for accounting for impacts of activities occurring at the Maury Island site, the likelihood of realizing the potential beneficial cumulative impacts on geology and soils would be reduced under Alternative 3.

5.2 Air

Although DNR does not have jurisdiction over air quality, activities conducted under authorizations for the use of state-owned aquatic lands could have impacts on air quality. Under the Preferred Alternative the restrictions placed on uses and BMP requirements could produce a localized benefit to air quality. Benefits would accrue as a result of fewer commercial vessel visits to the reserve area and a decreased likelihood that water-dependent industrial enterprises would locate adjacent to the reserve. This indirect effect of the reserve when considered in context with regional efforts to improve air quality in the metropolitan areas of Puget Sound could produce a minor beneficial cumulative impact.

Conversely, under Alternative 2, there would be less stringent requirements for uses occurring at the Maury Island site. This would produce a low probability of negligible adverse cumulative effects associated with air quality if projects authorized by DNR at the site increased air pollution, which would be contrary to regional efforts to improve air quality in the Puget Sound. However, as the Maury Island site is small in comparison to the Puget Sound as a whole, such potential cumulative impacts would likely be immeasurable.

The potential cumulative impacts that may occur under Alternative 3 would be similar to those described above for the Preferred Alternative. However, without a management plan that defines a systemic and standardized method for accounting for impacts of activities occurring at the Maury Island site, the likelihood of realizing the potential beneficial cumulative impacts on air quality would be reduced under Alternative 3.

5.3 Water Resources

Under the Preferred Alternative, no use authorizations or re-authorizations would be granted if the activity would result in net degradation of water quality in the area. Proponents of uses of state-owned aquatic lands would need to demonstrate that they could implement adequate design components and BMPs to avoid adverse impacts on water quality in the area. In addition, DNR would collaborate with King County to find ways in which existing septic systems, stormwater runoff, and other upland land uses could be structured to reduce potential water quality impacts at the Maury Island site. These activities when considered in the context of efforts by King County, the Puget Sound Action Team, Washington Department of Ecology, and other entities to improve the water quality of the Puget Sound could produce a minor cumulative beneficial impact.

Under Alternative 2, there would be no guidance specifically directing DNR land managers to work to protect water quality and quantity at the Maury Island site. This could lead to minor adverse impacts on water resources in the area, which could negligibly contribute to adverse cumulative impacts on water quality in the Puget Sound as a whole, as adverse localized impacts would be contrary to region-wide water quality planning.

The potential cumulative impacts that may occur under Alternative 3 would be similar to those described above for the Preferred Alternative. However, without a management plan that defines a systemic and standardized method for accounting for impacts of activities occurring at the Maury Island site, the likelihood of realizing the potential beneficial cumulative impacts on water resources would be reduced under Alternative 3.

5.4 Plant and Animal Resources

The Preferred Alternative stresses the preservation of aquatic vegetation at the Maury Island site and would not permit any authorization or re-authorization that would impact aquatic vegetation in the area. This activity would indirectly benefit the herring population in the area, which depends upon this habitat for spawning and rearing. This localized beneficial impact to aquatic vegetation and herring when considered in conjunction with efforts by WDFW through the HPA program to conserve aquatic vegetation throughout the state for the benefit of forage fish and other aquatic species would produce a minor cumulative benefit to aquatic vegetation and forage fish in the Puget Sound as a whole.

Benefits to the herring population in the area would also indirectly benefit salmonid populations in the vicinity as herring and other forage fish are a major diet component for salmonids. In addition, maintaining salmonid migration corridors in the area, protecting water quality, and other aquatic habitat conservation efforts associated with the Preferred Alternative would also benefit salmonids in the vicinity. When considered with other salmon conservation and enhancement efforts being conducted by entities such as King County, the Salmon Recovery Funding Board, NOAA-Fisheries, WRIA planning groups, and other entities the localized benefits at the Maury Island site would produce a minor cumulative benefit for salmonids in the greater Puget Sound.

Under the Repeal the Reserve Alternative there would be a moderate probability of negligible adverse cumulative impacts related to plant and animal resources. Without a

management plan for the site, land use practices and DNR use authorizations would likely continue to contribute to non-point source pollution, which could impact aquatic vegetation, fish species, and other aquatic fauna. Such localized impacts would be contrary to the region-wide planning efforts of King County, Salmon Recovery Funding Board, NOAA-Fisheries, and other entities. However, as the Maury Island site is relatively small in comparison to the Puget Sound as a whole, these potential cumulative impacts would likely be minor.

The potential cumulative impacts of the No Action Alternative would be similar to those for the Preferred Alternative. However, without a management plan that defines a systemic and standardized method for protecting plant and animal resources at the Maury Island site, the likelihood of realizing the potential beneficial cumulative impacts would be reduced under Alternative 3.

5.5 Energy and Natural Resource Use

None of the action alternatives would result in any adverse cumulative impacts related to energy use or consumption.

The Preferred Alternative could result in beneficial impacts to natural resource use related to shellfish and forage fish harvest. The indirect benefits on aquatic species associated with the preferred alternative, through preservation and improvement of aquatic habitat, could increase harvest opportunities. The beneficial impact when considered in association with other agency efforts (i.e., WDFW) to improve harvest opportunities could lead to minor beneficial cumulative impacts related to use of these natural resources. However, as the Maury Island area is relatively small, the beneficial impact would likely be negligible.

Alternative 2 would have a low probability of negligibly contributing to adverse cumulative impacts on Puget Sound shellfish and forage harvest. Under this alternative there would be no efforts for DNR to work with King County and other agencies to reduce the potential adverse indirect effects of development on natural resource use in the area, such as the effect of fecal coliform or PSP on shellfish harvest and the clearing of aquatic vegetation impacting forage fish available for harvest. Therefore, these indirect impacts would likely continue to occur and possibly worsen, which would negligibly contribute to adverse cumulative impacts associated with human development that hamper efforts in the Puget Sound to improve natural resource harvest opportunities. However, as the Maury Island area is relatively small, the potential adverse cumulative impact would likely be negligible.

The potential cumulative impacts of Alternative 3 would be similar to those for the Preferred Alternative. However, without a management plan that defines a systemic and standardized method for maintaining natural resource uses at the Maury Island site, the likelihood of realizing the potential beneficial cumulative impacts would be reduced under Alternative 3.

5.6 Environmental Health

The Preferred Alternative could produce beneficial cumulative impacts related to environmental health when considered within the context of other efforts in the Puget Sound to improve environmental health, such as the efforts of the Puget Sound Action Team and King County.

The Repeal the Reserve Alternative would have a minor probability of negligibly contributing to adverse cumulative impacts on environmental health. Use authorizations would be issued in accordance with standard DNR regulations and policies and there would be no specific guidance to DNR land managers to ensure that use authorizations accounted for potential impacts on environmental health.

The potential cumulative impacts of the No Action Alternative would be similar to those for the Preferred Alternative. However, without a management plan that defines a systemic and standardized method for protecting environmental health at the Maury Island site, the likelihood of realizing the potential beneficial cumulative impacts would be reduced under Alternative 3.

5.7 Land and Shoreline Use

None of the proposed alternatives would be expected to contribute to either beneficial or adverse cumulative impacts on land and shoreline use.

5.8 Transportation

None of the proposed alternatives would be expected to contribute to either beneficial or adverse cumulative impacts on transportation. Even if development of the Glacier project were impacted by one of the action alternatives, truck traffic would not be expected to increase. The King County EIS for the Glacier project states that if Glacier does not develop the barge loading facility, then mining would likely continue at the site in a similar manner to existing conditions. Under this scenario, the King County EIS found that truck traffic may actually be less than if the proposed barge loading facility is developed (King County 2000).

5.9 Public Services and Utilities

None of the proposed alternatives would be expected to contribute to either beneficial or adverse cumulative impacts on public services and utilities.

6.0 Mitigating Actions

The DNR would undertake general actions under each of the alternatives that would mitigate for some or all of the impacts to the natural and built environments.

6.1 Alternative 1 (Preferred Alternative)

The Preferred Alternative would cause no negative impacts to the natural environment. There is potential, however, for the Preferred Alternative to cause negative impacts to the built environment. To mitigate these impacts, the DNR would undertake several actions:

- Work cooperatively with existing and future lessees to develop long-range plans that would identify milestones and timeframes for complying with the reserve criteria. Existing uses within the reserve shall not be required to meet all of the reserve criteria immediately. Attainment of the reserve criteria would be over time. The DNR would also seek outside funding sources to assist lessees with conservation efforts on their leasehold areas.
- Work cooperatively with adjacent landowners on a voluntary basis to address activities taking place adjacent to the reserve that may indirectly impact habitats and species within the reserve. Landowners would not be required by DNR to participate in these efforts. The DNR would also seek outside funding sources to assist interested landowners with conservation efforts on their properties.
- Work cooperatively with recreational user groups on a voluntary basis to address transient recreational activities taking place within the reserve that may impact habitats and species within the reserve. Recreational user groups would not be required by DNR to participate in these efforts. The DNR would also seek outside funding sources to assist recreational user groups with conservation efforts on their properties.

6.2 Alternative 2 (Repeal the Reserve)

Alternative 2 would cause negative impacts to the natural environment and some negative impacts to the built environment. To mitigate these impacts, the DNR would work within existing RCWs, WACs, and DNR internal guidance to avoid, minimize, and compensate for impacts on a project-by-project basis. In addition, the DNR would work with local, state, and federal regulators to address environmental impacts through the permitting process.

6.3 Alternative 3 (No Action)

Alternative 3 would not likely cause significant negative impacts to the natural environment. There is a potential, however, for Alternative 3 to cause negative impacts to the built environment. To mitigate these impacts, the DNR would work within existing RCWs, WACs, and the programmatic FEIS to avoid, minimize, and compensate for impacts on a project-by-project basis. The DNR would also attempt to provide areas outside of the reserve for activities that could not be authorized within the reserve.

7.0 Distribution

Notice of availability of this document on DNR’s website (www.dnr.wa.gov) will be sent to all entities with jurisdiction and interest in the Maury Island site, such as local government planning departments (city and county), state and federal agencies, public port districts, leaseholders, selected environmental organizations, academia, industry representatives, selected Washington newspapers, affected tribes, and interested public. A copy of the distribution list is included as [Appendix N](#). In addition, two hard copies will be printed and submitted to Department of Ecology. Additional hard copies may be printed and made available upon request, by contacting the Department of Natural Resources, Aquatic Resources Division, as follows:

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Olympia, WA 98504-7027
Phone: (360) 902-1069; e-mail: david.palazzi@wadnr.gov

or

SEPA Center
Department of Natural Resources
1111 Washington St. SE, PO Box 47015, Attention Jenifer Gitchell
Olympia, WA 98504-7015
Phone: (360) 902-1634; e-mail: SEPAcenter@wadnr.gov

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Appendix A: Scoping Summary

The following comments were received by DNR through letters, e-mails, discussions, and written comments at public meetings (May 14, 2003; October 28, 2003; and January 22, 2004), and individual meetings with interested parties. The summary below has been divided into the primary subjects for which comments were received; these include: management plan, public benefits, boundaries, and general issues.

Management Plan

Comments:

The DNR should: involve other agencies, such as the Department of Ecology, WDFW, Puyallup Tribe, and King County in developing and implementing the management plan for the site and defining regulatory authority; incorporate existing development guidelines and support modifications from the King County Shoreline Master Program; create a revenue source dedicated to collaborating with other agencies; employ adaptive management strategies; and include interactions with the community to ensure all concerns are addressed.

Response:

DNR met directly with staff from WDFW, Ecology, Washington Department of Health, and King County Department of Natural Resources to discuss management of the proposed reserve. These meetings helped clarify the existing jurisdictional authorities and how the proposed management plan can work within the existing regulatory framework. The DNR also contacted the Puyallup Tribe about management planning. The Tribe expressed that they do not currently have the resources to actively cooperate in planning activities, but asked to be kept informed of DNR's activities. The DNR met with several local groups (e.g., the Vashon Community Council) and held three public meetings during the development of the management plan. Presently, there are no revenue sources other than finances dedicated by the DNR to manage the aquatic reserve program. The DNR will consider the reviewers' recommendation to create a revenue source dedicated to collaborating with other agencies. This management plan will be reviewed and updated every 10 years. We intend to incorporate adaptive management strategies for the site as our knowledge base improves and as conditions change. The DNR will continue to include the community in the development and administration of the management plan.

Comments:

The plan should conserve eelgrass and other nearshore habitat. The nearshore is the vital link between our marine and terrestrial environments. Reserve planning should comply with ESA salmon recovery efforts. The SEIS and management plan must identify known baseline conditions for habitats and species within the reserve and identify priority research needs to address critical gaps. The management plan should establish measurable benchmarks and include monitoring requirements to assess progress. The DNR should acknowledge that threats to the habitats and resources within the reserve might arise from conditions or activities outside the reserve. The SEIS should evaluate the benefits of opening up the water passageway at "Portage" between Vashon and Maury Islands and Tramp Harbor and open the salt marsh at "ports" to tidal flow from Tramp Harbor. The management plan should include provisions to update septic and stormwater systems to improve water quality.

Response:

Eelgrass is one of several habitats located in the nearshore zone identified for conservation in the management plan. The management plan is supportive of conserving habitats that support ESA species such as salmon as well as species identified on the Washington Department of Fish and Wildlife Priority Habitat and Species list.

Section 5.1.1 of the management plan describes the components that initial baseline monitoring should include. Section 5.1.2 identifies monitoring efforts to assess the effectiveness of the reserve in achieving identified conservation goals. Section 5.4 of the management plan addresses impacts from activities adjacent to the reserve. Section 5.1.3 of the management plan addresses assessing a potential research to assess the opening of Portage and the salt marsh at “ports,” as future habitat restoration. Sections 5.1.1 through 5.1.3 identify research and monitoring for the development of long-term water quality and sediment quality goals.

Comments:

The reserve should be managed for low-impact uses. The DNR should examine the impacts of recreational uses. The DNR should study the relationship of the feeder bluffs and nearshore ecology. The management plan should restrict activities that degrade the nearshore environment. When working toward improvements, realize the remaining economic life of the existing structure before requiring changes. The management plan should respect the right to access the reserve for boating, kayaking, sailing, swimming, clamming, fishing, and enjoying the wildlife. There is a need for better access to pump-out stations.

Response:

Section 5.0 of the management plan identifies the basic principals for the aquatic reserve and specifically states; “that activities related to new or existing facilities and uses may not create additional environmental impacts to the reserve.” Section 5.2.2.24 of the management plan addresses public use and access, and states that DNR’s management authority only extends to transient activities on state-owned aquatic lands. The management plan relies on existing local and state regulations and good public stewardship practices, discussed in section 5.4, to help minimize impacts originating from actions adjacent to the aquatic reserve and those outside DNR’s management authority (such as fishing and boating). The DNR is proposing that improvements of facilities occurring within the reserve be implemented as the economic life of a structure is realized. The DNR supports continued, responsible public access to the site. The DNR is a proponent of locating properly functioning pump-out stations (Sections 5.2.3.1, 5.2.3.2, and 5.2.3.3) that are available to the public in Dockton and inner Quartermaster Harbor.

Public Benefits

Comments:

Recognize the value of both the herring and salmon in addition to the economic value of the Glacier Northwest gravel mine. Specific uses such as utility lines, private docks and buoys, marinas, and Glacier's barge-loading dock, all serve important public benefits.

Response:

The DNR will evaluate the public benefits of habitat and resource conservation as well as the economic benefits provided by public services and public uses occurring in and adjacent to the proposed reserve in a separate public benefits review report that will be completed prior to the Commissioner's final decision about the status of the reserve. All existing uses will be reviewed.

Boundaries

Comments:

Those that supported the reserve preferred the most extensive boundary for the reserve, as it incorporates herring spawning grounds, salmon migratory corridors, drift cell, and the Maury Island Regional Park. The waterward boundary should extend to protect the euphotic zone.

Response:

The DNR is proposing an intermediate boundary option. The proposed boundary includes all of the herring spawning grounds, salmon migratory corridors, east shore drift cell, and the Maury Island Regional Park. The proposed waterward boundary will extend beyond the euphotic zone.

General

Comments:

The Maury Island area should not be designated as a reserve. The designation process should be restarted to better incorporate stakeholder input. More outreach is necessary to clarify reserve boundary and management objectives. This action would unduly, negatively affect businesses and property owners. The protection afforded by existing aquatic and land management regulations make designation unnecessary.

Response:

The DNR is continuing with a process that includes stakeholder input. Concerns and questions, including those of business and property owners, will be considered through the SEPA public process. The DNR has engaged in discussions with business leaseholders within the proposed reserve since October 2003, and discussions will continue as needed. The DNR does not believe that existing regulations negate the justification to manage the site as an aquatic reserve.

Comments:

Designating the reserve is necessary. Reserve status is important to the ecological integrity of the Puget Sound. The DNR should conserve the quality of our natural resources. Legislators representing Vashon and Maury islands would be willing to work with DNR on management planning for the site. The reserve is worthwhile but should not restrict existing structures, recreation access, or other existing uses of the area. Legal (mooring) buoys should not be eliminated. Some of the comments expressed that the management plan should restrict further

development of docks, buoys, etc., while others stated that these activities should not be restricted in the area.

Response:

The DNR established the aquatic reserve program to conserve unique ecological aquatic features throughout the state. The management plan would not limit responsible public recreational uses. The management plan proposes that existing structures decrease their impacts over time. The DNR does not manage mooring buoys and docks installed on private property. The DNR does have management authority of mooring buoys and docks on state-owned land. The management of these uses on state-owned aquatic lands is discussed in the management plan in Section 5.2.1.14. DNR does not manage docks, floats and mooring buoys on private property. However, Section 5.4.3 of the plan recommends voluntary cooperative efforts that can be taken to minimize impacts to the reserve from adjacent private and publicly owned tidelands. The plan recognizes the utility of mooring buoys and directs DNR to work cooperatively in the management and authorization of these uses to ensure proper installation methods and siting that would limit impacts to important conservation features of the site. The DNR will contact local legislators to assist in the development of the management plan.

Comments:

The EIS should clarify what management authority DNR has on private lands and discuss the ecological economics of reserve designation.

Response:

The management plan and supplemental environmental impact statement (SEIS) will describe DNR's management authority. The public benefits analysis will include a discussion on the value of the habitat and species being proposed for conservation at the site.

In addition, the Maury Island site is located within the Puyallup Tribe's exclusive usual and accustomed area. Therefore it is essential that conservation goals and management standards be established to protect Puyallup tribal interests. The DNR would engage in a government-to-government dialog with the Puyallup Tribe to ensure that their treaty rights and trust responsibilities are upheld

Appendix B: Preferred Alternative Reserve Boundary Legal Description

The tidelands and bedlands of navigable waters, owned by the State of Washington, described as follows:

Those tidelands and bedlands surrounding Maury Island, which are fronting and abutting Government Lot 4, excepting there from the west five acres, of Section 14, Sections 20-23, inclusively, and Sections 28-32, inclusively, Township 22 North, Range 3 East, W.M.;

Together with, those tidelands and bed lands lying westerly of said Maury Island which are fronting and abutting only those portions of Sections 9 and 16, which are fronting on Quartermaster Harbor, Township 22 North, Range 3 East, W.M.;

Together with, those tidelands and bedlands lying southerly of said Maury Island, which are fronting and abutting Sections 5 and 6, Township 21 North, Range 3 East, W.M.; and said reserve extends waterward to a water depth of 70 feet below mean lower low water OR one-half mile from the line of extreme low tide, whichever line is further waterward.

Those tidelands and bedlands lying southerly and easterly of Vashon Island, which are fronting and abutting Section 1, Township 21 North, Range 2 East, W.M.;

Together with, those tidelands and bedlands lying easterly of said Vashon Island, which are fronting and abutting Sections 24, 25, and 36 Township 22 North, Range 2 East, W.M.;

Together with, those tidelands and bedlands lying easterly of said Vashon Island, which are fronting and abutting Sections 17-20, inclusively, Township 22 North, Range 3 East, W.M.;

Together with, those tidelands and bed lands lying southerly and westerly of said Vashon Island, which are fronting and abutting only those portions of Section 8, which is fronting on Quartermaster Harbor, Township 22 North, Range 3 East, W.M.; and said reserve extends waterward to a water depth of 70 feet below mean lower low water OR one-half mile from the line of extreme low tide, whichever line is further waterward (Figure 1).

Situated in King County, Washington.

Prepared by Steven B. Ivey, PLS

Date: May 7, 2004

Appendix C– Reserve Boundary Options Considered for the Preferred Alternative
 Boundary Option B is the boundary proposed under the Preferred Alternative.

For a color version of this figure see <http://www.dnr.wa.gov/hdocs/aqr/reserves/home.htm>.



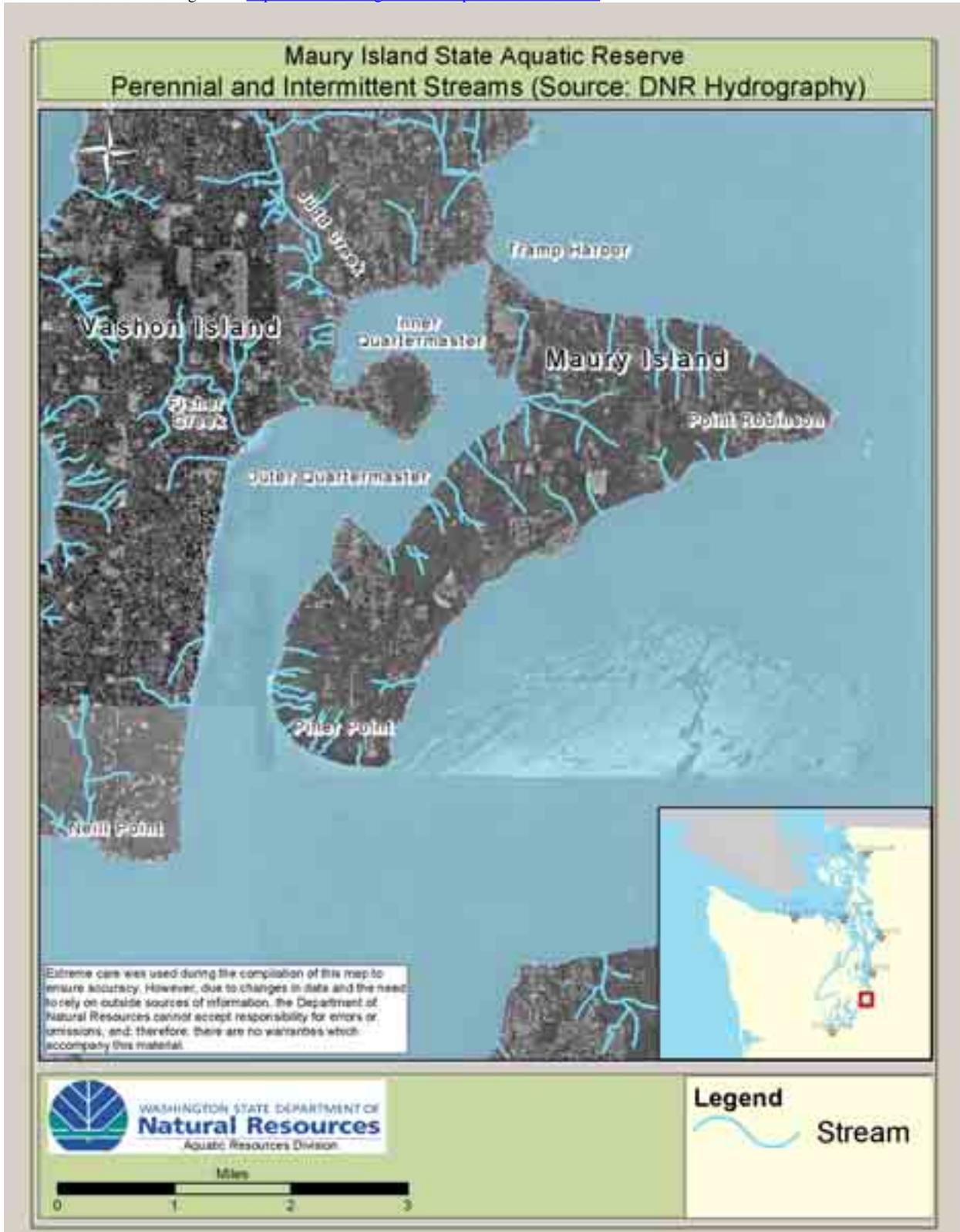
Appendix D– Drift Cells

For a color version of this figure see <http://www.dnr.wa.gov/htdocs/aqr/reserves/home.htm>.



Appendix E – Tributary Streams

For a color version of this figure see <http://www.dnr.wa.gov/htdocs/aqr/reserves/home.htm>.



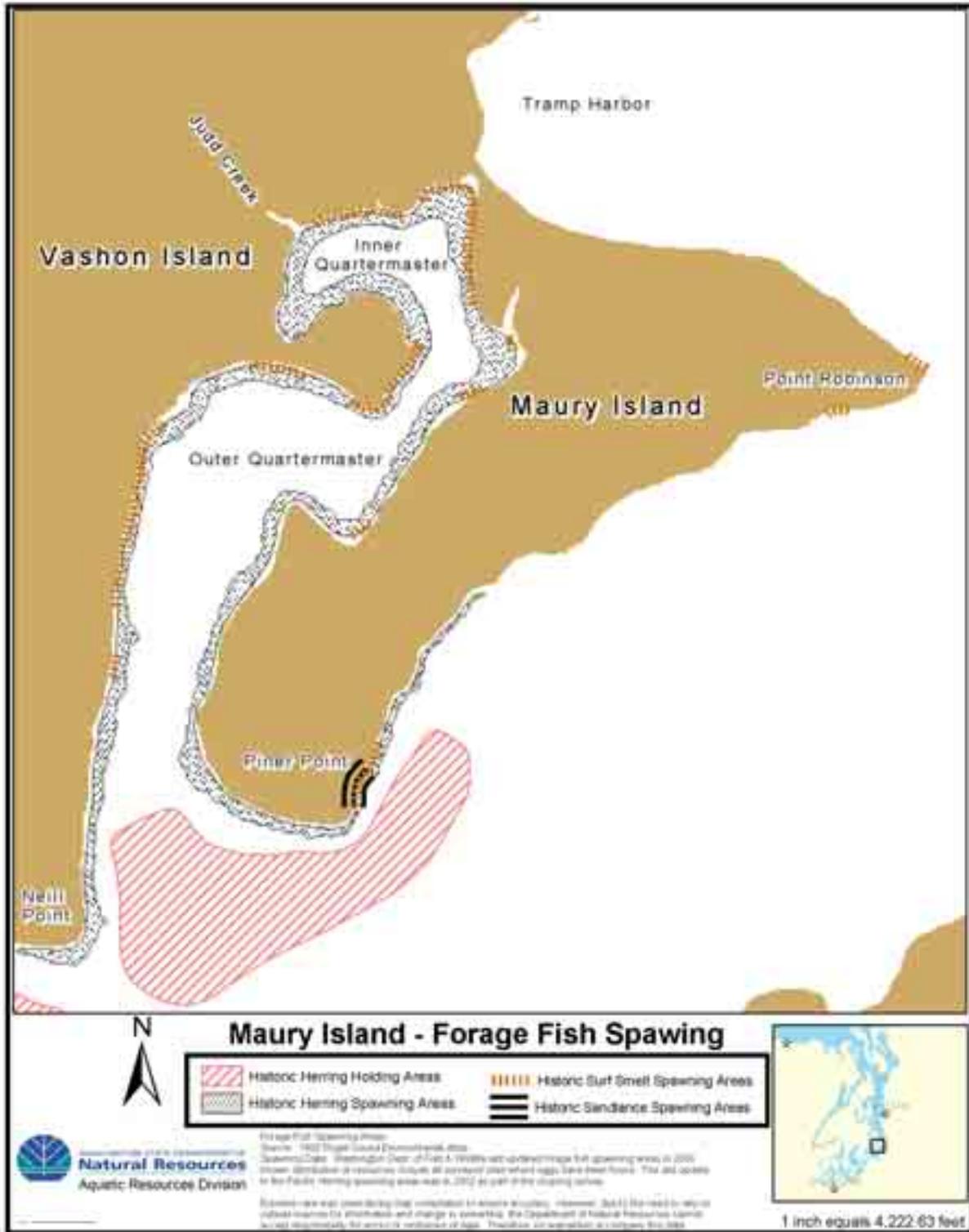
Appendix F – Aquatic Vegetation

For a color version of this figure see <http://www.dnr.wa.gov/htdocs/aqr/reserves/home.htm>.



Appendix G – Forage Fish Spawning

For a color version of this figure see <http://www.dnr.wa.gov/htdocs/aqr/reserves/home.htm>.



Appendix H – Priority Bird Use Areas

For a color version of this figure see <http://www.dnr.wa.gov/htdocs/aqr/reserves/home.htm>.



Appendix I – Geoduck Tracts

For a color version of this figure see <http://www.dnr.wa.gov/htdocs/aqr/reserves/home.htm>.

Commercial Geoduck Tracts Within The Maury Island Aquatic Reserve



Extreme care was used during the compilation of this map to ensure accuracy. However, due to changes in data and the need to rely on outside sources of information, the Department of Natural Resources cannot accept responsibility for errors or omissions, and, therefore, there are no warranties which accompany this material.



Legend

- Geoduck Tracts
- Geoduck Tract Number



WASHINGTON STATE DEPARTMENT OF
Natural Resources
Doug Sutherland - Commissioner of Public Lands
Public Lands are protected and managed by the State

Appendix J – Existing Use Authorizations

For a color version of this figure see <http://www.dnr.wa.gov/htdocs/aqr/reserves/home.htm>.



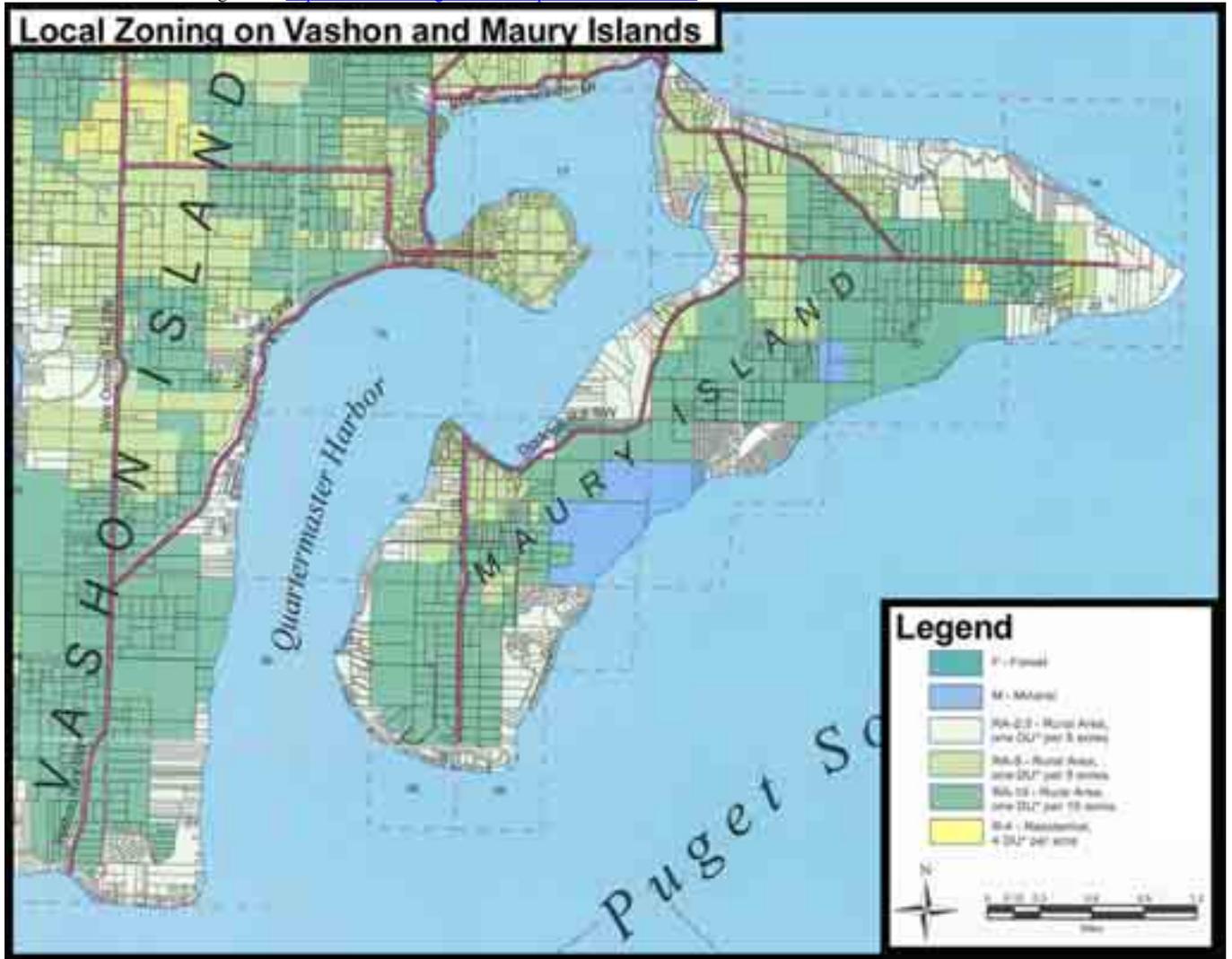
Appendix K – Shoreline Zoning

For a color version of this figure see <http://www.dnr.wa.gov/htdocs/aqr/reserves/home.htm>.



Appendix L – Land Use Designations

For a color version of this figure see <http://www.dnr.wa.gov/htdocs/aqr/reserves/home.htm>.



Appendix M: Shoreline Modifications

For a color version of this figure see <http://www.dnr.wa.gov/htdocs/aqr/reserves/home.htm>.

Data source: Berry et al. 2001



Appendix N: FSEIS Distribution List

Ray Heller, King County	Mike Stephens, Wa. Dept. of Transportation	Mike More, Friends of Quartermaster Harbor
Peter Stoltz, Glacier NW	Rick Singer, Wa. Dept. of Transportation	Paul Dye, Nature Conservancy
Bill Sullivan, Puyallup Tribe	David Kendal, U.S. Army Corp of Engineers	Eric Johnson, WA. Public Ports
Mike Wood, Quartermaster Yacht Club	Jay Davis, U.S.F.W	Jon Boyce, Anchor Environmental
Steven Choe, Polaris Development	Northwest Steelhead & Salmon Council	Pat Collier
Erik Poulsen, State Senator 34 th District	Fran Wilshusen, NW Indian Fisheries Commission	Ed Swan
Kathy Fletcher, People for Puget Sound	Kati Masterson	Ajay Ramachandran
Ron Sims, King County Executive	Puget Sound Water Quality Action Team	Greg Blar
Daryl Grigsby, Director King County, Water & Land Res.	Carl Winge, Friends of Quartermaster Harbor	John Nelson
Eileen Cody, State Representative 34 th District	Tom Dean, Vashon-Maury Island Land Trust	Brooke Nelson
Jim McDermott, Representative, 7 th Legislative District	Deeann Kirkpatrick, NOAA/NMFS	Judith Bardlsley
Pamela Erstad, WDFW-Region 4	Jonathan Freedman, U.S. Army Corps of Engineers	Joan Crooks, WA. Environmental Council
Preserve Our Islands	John Dohrmann, Puget Sound Water Quality Action Team	Stephen Roos, HCMP
Robert Taylor, Natural Resources NW	Frank Meriwether WA. DOH	Ellen Kritzman
Barbara Stenson, Marine Environmental Consortium	John Malek, U.S. EPA region 10	Joel & Yvonne Kuperberg
David & Helen Andrews	B.J. Cummings, Puget Sound Keeper Alliance	Billy Plauche, Vashon-Maury Island Land Trust
Bob Everitt, WDFW-Region 4	Keith Putnam, Putnam Architects	Dan Willisie
Muckleshoot Indian Tribe	Elizabeth Davis, League of Women Voters	Brenda & John Moore
Jeff Thomas, Puyallup Tribe		Liz Lathrop
		Tom Sherman
		Katy Vanderpool, King County
		James Dam, Vashon-Maury Island Land Trust
		Mary Ann Baird, Seattle District Army Corps of Engineers

Cindy Lantry	Jack Barbash	Norm Franklin
Joe McDermott, State Representative, 34 th District	Karlista Rickerson	Judy Pells
Katie McLarty	Ann Spiers	Tom Herring
Edith Ulatoski	Steve Caldwell	Sue Trevathen
Dayna Rogers,	Chris Connell	Kristine Dahms
Kathy Taylor, Puget Sound Water Quality Action Team	Virginia Ohmert	John Osborne
Rayna Holtz, Maury Island Audubon Society	John D Stewart	Saul Fortunoff
Susan Powell, Seattle Dist. U.S. Army Corps of Engineers	Patrick Christie, U.W. School of Marine Affairs	Jim Mcren
R. Turner	Mike Rossi	Carmen Radke
Paula Campbell	Barbara Garrison	Brownie Carver
Pam Purdy	Matt Wilson	Barbara Stratton
Libby McLarty, Preserve Our Island	Helen Mecker	Tim Robinson
Maurice Carpenter	Howard Koenig	Jack Richards
Bruce Wishart, People for Puget Sound	Larry Kjellberg	Rick Dahms
Ted & Jan Torve	Blythe Bartlett	Judith Parker
Gary Means	Joanna Gug	Elisabeth Wolf
Karen Perla	Suzanne Dale Estey, Office of King County Executive Ron Sims	Kim Lemaire
Lee Miller, Vashon Sportsman's Club	Joe Ulatoski	Sam & Sara Van Fleet
Steven Ohmert	Amy Carey	Susie Kalhorn
Patty Van Den Broek	Ann Stateler	Susie Keresztes-Nagz
Margaret Mackey	Beverly Skeffington	Robert Dixon
Interested Persons	Michelle Friars	Joann Nielsen
Michael Donnelly	John Galas	Keith Putman
Vicki L. Ward	Linda Ware	Tim Cullinan
Amy Wolff	James R. Mcrae	David M Parker
Marnie Jones	Odin Lorming	Tobias Wolf
	Sharon Metcalf	Denise Andrews
	Richard Lovering	Stan Merrell
	Shay Fortunoff	Dow Constantine, King County Council Dist. 8
	D. W. Marsland	Sharon Nelson
		John W. Moore
		Greg Blair

Enid Dolstad	Carol Ferch	Richard Bianchi
Sherry & Ira Weise	Catherine & Michael Cochrane	Mark Charnews
Melvin Mackey	Alan Huggins	Mary Peck
Robert Lenea	Michael McAllister	Bianca Perla
Stephen Meyer	Chris Fairbanks	Karl Olsen
Harrison Knowler	Gary Peterson	Elsa Croonquist
Mimi Thompson	Clayton D Williams	Carol Mielbrecht
Julie Shannon	Amy F. Bell	Steve Andrus
Carl Sells	Tim Klinefelter	Kathleen Hendrickson
Scott Rice	Maurice Carpenter	Greg Borba
John Greistle	Lew Hardy	Randy Thomas
D. L. Williams	Bob Brenno	Reed Waite, Washington Water Trails Association
Edith Schulster	Tim Seppala	Doug Hoffman
Marlene Rossi	Cliff Marks	Jeff Gateman
Lon A. Hoover	Nancy Silver	Lisa Defaccio
Randy Smith	Chas H. W. Talbot, Regional Commission on Airport Affairs	Jack Rowlands
Joe Matter	Wendy Middling	Claudia Ross-Weston
Donna Dederer	John M. Quall	Tom Lehman
Courtney & J.C. Estevenin	Charles L Goforth III	Dennis & Jennine Rampe
Jean Andrus	Judy & Bill Fletcher	Dana R. Hofman
Chris Townsend	David Korthals	Tom Croonquist
Robert Jungers	Lyle Hansen	Scott Brenner
Nanny E. Berry	Jim Brewer	Allison Arthur, Vashon Maury Beach Comber
Ann Middling	John & Mary Gerstle	Brad Shinn
G. Sherman	David Vogel	Chip Waterbury
Marilyn Omey	John Warner	Clayton Williams
Rosalie Reichel	Hans Hechitman	Perry Satterlee
Dan Cadman	Geo Christmacht	Abel Family
Jeffrey Votaw	Todd Gateman	Agan Family
F. Zellerhoff	Laura Wishik	Ahlin Family
Joellen Lewtas Jungers		Ake Family
Michael Horswill		

Alfers Family	Billingsley Family	Campbell Family
Allison Family	Bishop Family	Caraher Family
Anderle Family	Black Family	Carhart Family
Anderson Family	Blad Family	Carlander Family
Andrews Family	Boehm Family	Carleton Family
Angell Family	Bordner Family	Carlson Family
Antonich Family	Bostwick/Kelly Family	Carpenter Family
Arntz Family	Both Family	Carr Family
Arthur Family	Bourgette Family	Casey Family
Asbell Family	Bourke Family	Casper Family
Ascherfeld Family	Bowers Family	Centioli Family
Backup Family	Braiser Family	Chapman Family
Baker Family	Branscomb Family	Chen Family
Ball Family	Brasier Family	Chinn Family
Ballew Family	Brenno Family	Chippod Family
Bannecker Family	Bringolf Family	Chorak Family
Barney Family	Brischle Family	Christophersen Family
Barr Family	Brockway Family	Church Family
Bartlett Family	Brooks Family	Clabaugh Family
Baty Family	Brothers Family	Clark Family
Bauer Family	Brougham Family	Clayton Family
Beachwood Family	Brown Family	Cloutier Family
Belshaw Family	Bryant Family	Cole Family
Bennedsen Family	Buehl Family	Collier Family
Benner Family	Burke Family	Collins Family
Bennett Family	Burlingame Family	Compton Family
Berry Family	Burnett Family	Connelly Family
Best Family	Bushnell Family	Connolly Family
Bettner Family	Butler Family	Connors Family
Bianchi Family	Butterfield Family	Conti Family
Bianchi Family	Caldwell Family	Cook Family
Biesold Family	Calvo Family	Cordes Family
Biggs Family	Cameron Family	Corp Family

Cortelyou Family	Dravis Family	Fairweather Family
Coulter Family	Druxman Family	Farcy Family
Cowgill Family	Dudley Family	Fatton Family
Coy Family	Duke Family	Ferguson Family
Crane Family	Duncan Family	Feroglia Family
Crawford Family	Dunham Family	Fetterley Family
Crooker Family	Dunlap Family	Findlay Family
Croonquist Family	Dunn Family	Fischlin Family
Culley Family	Duntley Family	Fisk Family
Cullinane Family	Dupen Family	Flickinger Family
Cummings Family	Dutton Family	Foulkes Family
Cunningham Family	Dyer Family	Fouty Family
Curran Family	Eastman Family	Fox Family
Curwen Family	Eaton Family	Franklin Family
Cushing Family	Ebright Family	Fredenberg Family
Da Family	Edmunds Family	French Family
Dahl Family	Edwards Family	Friend Family
Davidson Family	Eggert Family	Frost Family
De Family	Ellison Family	Fulmer Family
Dean Family	Emery Family	Fulton Family
Defaccio Family	Emmett Family	Funkhouser Family
Deignan Family	Endlich Family	Gaines Family
Delano Family	English Family	Garrison Family
Denova Family	Ericksen Family	Gaspers Family
Dickinson Family	Erickson Family	Gaull Family
Diesner Family	Ernest Family	Gazin Family
Dixon Family	Eshelman Family	Gebhard Family
Doane Family	Estate Family	Gering Family
Dockton Family	Ester Family	Gerrard Family
Doherty Family	Estevenin-Bell Family	Gerrish Family
Donahoe Family	Evans Family	Gifford Family
Donohue Family	Everett Family	Gill Family
Downs Family	Faine Family	Gines Family

Glacier Family	Hawkins Family	Husmoe Family
Gleb Family	Hawkins Family	Hutchinson Family
Gloor Family	Hays Family	Ignatow Family
Glover-Thompson Family	Heath Family	Illman Family
Goetzinger Family	Heffelfinger Family	Irish Family
Goforth Family	Heimer Family	Iulo Family
Gordon Family	Hein Family	J. Family
Gorham Family	Helgeson Family	Jackson Family
Gould Family	Helsby Family	Jannison Family
Grant Family	Hendrickson Family	Jay Family
Graves Family	Hendrickson Family	Jenkins Family
Greene Family	Heneford Family	Jensen Family
Grimes Family	Herb Family	Jewell Family
Groth Family	Heron Family	Jewson Family
Gudmestad Family	Herrmann Family	John Family
Gustafson Family	Hesik Family	Johnson Family
H. Family	Hessler Family	Jones Family
Haddow Family	Highet Family	Judson Family
Hadley Family	Hildebrandt Family	Jueling Family
Hall Family	Hill Family	Jungers Family
Halladay Family	Hiller Family	Kallsen Family
Hamilton Family	Hinchman Family	Kanagy Family
Hammermeister Family	Hodges Family	Katica Family
Hansen Family	Hoene Family	Kautz Family
Hapeman Family	Hoff Family	Kawasaki Family
Hargrave Family	Hoffmann Family	Kay Family
Harrington Family	Holbrook Family	Keeley Family
Harrison Family	Holder Family	Keith Family
Hartley Family	Holert Family	Keller Family
Hartman Family	Horswill Family	Kelly Family
Hatfield Family	Huizenga Family	Kelsey Family
Haugen Family	Hull Family	Ketcham Family
Hawkins Family	Hunt Family	Kim Family

Kimmel Family	Light Family	Mcclean Family
King Family	Lilje Family	Mcfarlane Family
Kirk Family	Lingen Family	Mcguirk Family
Kirkpatrick Family	Locker Family	Mcintosh Family
Kirsch Family	Lockwood Family	Mckey Family
Kirsehner Family	Loesch Family	Mclaughlin Family
Kleer Family	Lofland Family	Mcmillin Family
Kloeppel Family	Long Family	Mctigue Family
Kloth Family	Looney Family	Mcvey Family
Klumpar Family	Loree Family	Meek Family
Knieval Family	Lowrey Family	Mellon Family
Knight Family	Luce Family	Mercer Family
Knutson Family	Lui Family	Meredith Family
Kostenko Family	Lunz Family	Merrell Family
Kuznetz Family	Macdonald Family	Merrick Family
Laird Family	Magas Family	Mickey Family
Lake Family	Malone Family	Middling Family
Lammert Family	Mannix Family	Miller Family
Lamp Family	Mansy Family	Minch Family
Lane Family	Mar Family	Mintz Family
Lang Family	Marsland Family	Mitchell Family
Lansciardi Family	Mathews Family	Mitchell Family
Larsen Family	Mathews Family	Moll Family
Larson Family	Matson Family	Molt Family
Lasalle Family	Matter Family	Mondau Family
Lausten Family	Mattern Family	Montgomery Family
Lawson Family	Matthias Family	Moore Family
Lee Family	Mattich Family	Mordre Family
Lemley Family	Matzke Family	More Family
Lemly Family	Mauel Family	Morgan Family
Leonard Family	Mcbride Family	Morris Family
Lewis Family	Mccarry Family	Morrison Family
Liddle Family	Mcclary Family	Morser Family

Moy Family	Payne Family	Raleigh Family
Mulhair Family	Pease Family	Ramseyer Family
Mulvihill Family	Peck Family	Randall Family
Munro Family	Pegnam Family	Raymond Family
Murdock Family	Pendergast Family	Red Family
Murphy Family	Peregrine Family	Redfield Family
Murray Family	Perry Family	Reed Family
Myers Family	Petricek Family	Reeves Family
Myhrman Family	Phillips Family	Reinelt Family
Nelson Family	Pickett Family	Reitz Family
Nesland Family	Pierce Family	Ressler Family
Nevler Family	Piercy Family	Rice Family
Newsom Family	Planeich Family	Richardson Family
Newton Family	Polaris Family	Rieder Family
Norin Family	Polich Family	Rigler Family
Norris Family	Pollock Family	Rindge Family
Norton Family	Porter Family	Ripley Family
Noyes Family	Potter Family	Robb Family
Nugent Family	Prentice Family	Robbins Family
Nurik Family	Price Family	Roberts Family
Oberbillig Family	Pries Family	Robinson Family
Oellien Family	Prince Family	Rogers Family
Okimoto Family	Pringle Family	Roket Family
Olson Family	Protzeller Family	Romain Family
Oneal Family	Puget Family	Romano Family
Oreilly Family	Putnam Family	Rooke Family
Orlosky Family	Puyallup Family	Roqojin Family
Osborne Family	Quartermaster Family	Rose Family
Palmberg Family	Query Family	Rosellini Family
Pankiewicz Family	Raab Family	Rossi Family
Pargeter Family	Radford Family	Roundtree Family
Parks Family	Rafert Family	Rowe Family
Passaglia Family	Raisio Family	Rowlands Family

Rowling Family	Shawnee Family	Sullivan Family
Russell Family	Sheehan Family	Summerhurst Family
Ruth Family	Sherman Family	Sundholm Family
Saccento Family	Shigley Family	Sussman Family
Sarkowsky Family	Shull Family	Svenson Family
Satterlee Family	Siddons Family	Svensson Family
Sauer Family	Silver Family	Svinth Family
Schafer Family	Simmons Family	Swaya Family
Schaffer Family	Singer Family	Symonds Family
Scharig Family	Skarshaug Family	Talarico Family
Scheer Family	Skoglund Family	Talbott Family
Scherer Family	Skow Family	Tarbox Family
Schliewe Family	Smith Family	Tarp Family
Schoby Family	Snell Family	Tate Family
Schroeder Family	Solomon Family	Taylor Family
Schubert Family	Spano Family	Tecca Family
Schwab Family	Spooner Family	Tegen Family
Schwaegler Family	Sprinkle Family	Teufel Family
Schwarzbeck Family	Squires Family	Thies Family
Schweinler Family	Sroufe Family	Thomas Family
Schwenk Family	Stabler Family	Thrupp Family
Schwind Family	Staehli Family	Thwing Family
Scott Family	Standley Family	Thwinge Family
Seethoff Family	Stark Family	Tibbits Family
Seibert Family	Steele Family	Timberlake Family
Selig Family	Steen Family	Topp Family
Sells Family	Stevenson Family	Tracy Family
Sengstock Family	Stewart Family	Troup Family
Senner Family	Stone Family	Tuck Family
Sha Family	Straight Family	Turner Family
Shackleford Family	Strandberg Family	Udall Family
Shanstrom Family	Stredicke Family	Urban Family
Shaw Family	Strom Family	Vallarta Family

Van Family	Watne Family	Wong Family
Vangolen Family	Watney Family	Wood Family
Vanderleest Family	Watson Family	Woodley Family
Vashon Family	Weaver Family	Woodruff Family
Vaughan Family	Weeks Family	Woods Family
Vaux Family	Weidkamp Family	Wren Family
Voss Family	Weise Family	Wu Family
Wacker Family	Weller Family	Wubbold Family
Wakeman Family	Wells Family	Yamada Family
Walker Family	Wheat Family	Yates Family
Wallace Family	Wheaton Family	Yeakel Family
Walls Family	White Family	Young Family
Walraven Family	Whited Family	Younger Family
Walston Family	Williams Family	Zakus Family
Walter Family	Winant Family	Zandonella Family
Washington Family	Winters Family	Zellerhoff Family
Waterbury Family	Wolf Family	Zue Family
WA. Dept. of Ecology Environmental Review	NOAA Fisheries Seattle, WA	USFWS Olympia, WA
Washington St. Library		

Appendix O: Comments to DSEIS and DNR Responses

Comments were received on the Maury Island Aquatic Reserve DSEIS in writing and through public testimony. This section includes copies of the 26 comment letters received during the comment period of July 13, 2004 through August 27, 2004, and associated DNR responses to these comments. This section also includes a summary of the public testimony, and associated DNR responses, heard during the August 10, 2004 public hearing held at McMurray Middle School on Vashon Island.

From: "mark anderson"
To: <sepacenter@wadnr.gov>
Date: 8/26/2004 9:26PM
Subject: File number 03-100801

RE: comments to DRAFT AND SUPPLEMENTAL EIS for MAURY ISLAND AQUATIC RESERVE.

Thank you for placing our family on the notification list. We have studied the information carefully and offer the following comments.

1. Buoys existing prior to enactment of this legislation (such as ours) become fish habitat due to the extensive amounts of kelp which grows on the anchoring line. Relocating said buoys unless they are derelict does more harm than good. The habitat has adjusted and adapted to the addition of the kelp, and moving heavy buoy anchors requires dragging the bottom which scars and destroys the eel grass beds and disturbs the clams and geoducks. Utilizing one inch nylon rope such as we did rather than chain which gets eaten away promotes the growth of mussels, kelp and seaweed all along the length of the line, and the line lasts a long time. 
2. We have noted the eelgrass has grown to within twenty feet of the bulkhead at our property, essentially a 40 linear foot advance toward high water mark during the past 4 years, an encouraging sign. We reside at 26332 Pillsbury Road SW and own the 2nd class tidelands adjacent. 
3. We believe all new buoys should use the line technique we utilize in order to stimulate the marine environment. We strongly believe that no crab pots should be allowed beyond 150 feet from the beach. Reason being the vast amounts of crab pots proliferating in the outer harbor from non residents during the past three years has created both a navigation hazard and a maze of ropes for fish to navigate seriously degrading the environment. We see and have experienced many times vessels getting tangled up in the crab pot lines while trying to get into and out of the harbor running the maze of crab pots everywhere including the middle of the channel, and the pots end up littering the bottom with cut lines, thereby harming marine life. 
4. I personally have resided on the harbor in various locations for over 50 years, growing up here in Inner Quartermaster harbor, just three houses east of the Marina. I recall distinctly as a 6 to 9 year old boy casting off our sandy beach for perch, cutthroat trout and salmon and routinely catching them. I used to ride my bike to Judd Creek, walk up the creek a mile or so and fish for salmon and trout and enjoyed watching the salmon go upriver to spawn. I fished for salmon and trout from the Yacht Club docks in its infancy. These were large salmon, 10 to 12 pounds. At the time I did not know what species they were. As a young man I became an avid fisherman, owning many small boats. I watched the beach in front of my parents home turn to mud over the sand, and over time become all mud, with the sand down 4 to 6 inches or more beneath the mud. I attribute this directly to the filling and blocking of the Portage/Tramp Harbor connection which used to provide current and tidal action flushing the harbor. We have also seen more than our share of toilet paper and human excrement in the water as we were swimming in the Inner harbor by the marina, although being children that did not stop us. We strongly urge the reopening of the Portage/Tramp harbor connection. The plentiful perch and salmon are all gone now. 

Page: 1

Sequence number: 1

 These are good points which will be considered when implementing management options for mooring buoys.

Sequence number: 2

 We will consider this information if we set up an eelgrass monitoring program.

Sequence number: 3

 DNR is not aware of the reviewers specific buoy technique. The WDFW has identified tow designs; an all rope system, and a mid-line float system. WDNR prefers the later. WDFW regulates where crab pots can be located. This is the first time DNR has been made aware of the issue regarding crab pots. If crab pot lines are actually a critical issue for vessel traffic and marine life the recreational community, WDFW, and any other party with an interest or jurisdictional authority regarding this issue will have to get together to develop recommendations.

Sequence number: 4

 Several residents have expressed interest in re-establishing the portage at Tramp Harbor. However, we are not aware of any documentation that relates to the sediment issue the reviewer discusses. We would be very interested to review documentation of historical current and tidal action associated with the portage connection between Tramp Harbor and Quartermaster Harbor. If no documentation exists, this issue is a potential research project under Section 5.1.3 of the management plan

5. The formerly plentiful salmon runs in the Outer Harbor 25 to 30 years ago in the fall are mostly gone now as well. It used to be easy to catch your limit, now you are lucky to catch a single legal fish once every three or four times out. We do not attribute the decline of the salmon population to habitat degradation, as almost all of the waterfront homes existed then as do now, rather the blame can be laid directly on over fishing by commercial operations which should be completely eliminated. We do not want to vote for a marine park or sealift zoo, we want the active, diverse herring and salmon populations back and the only way to do that is to terminate commercial fishing anywhere in this reserve. One day several years ago we called the police to notify them of a large fishing vessel harvesting fish in front of our home with all their lights off. It turned out to be a commercial herring operation. We do not want any commercial fishing in the reserve. Salmon eat herring, and as the herring population has dwindled, so goes the salmon and other wildlife.

6. We do not believe any additional regulations of any kind on private homes and the use of private property fronting the reserve should result from implementing the reserve.

Thank you for the opportunity to comment on this important matter.

MARK C. ANDERSON, of the Anderson family

Sequence number: 1

 The WDFW regulates commercial and recreational fishing in Quartermaster Harbor. At this time we are not certain of the long-term trend of the Quartermaster herring stock, which will require further monitoring.

Sequence number: 2

 DNR Aquatic Resources Division does not manage or regulate private property or the use of private property.

From: Jack Barbash
To: <David.Palazzi@wadnr.gov>, <sepacenter@wadnr.gov>
Date: 8/28/2004 9:59AM
Subject: Comments on WA DNR's proposed mgmt plan for Maury Island AqReserve -- Address and corrected fonts

Dear Mr. Palazzi,

Unfortunately, in my haste to send you my comments on WA DNR's proposed management plan for the Maury Island Aquatic Reserve yesterday, I neglected to include my home address (for your reference purposes). I have therefore included it with my comments below. I've also cleaned up what appeared to have been some erroneous character substitutions for the double quote sign (") and dash (--) that hopefully will remain corrected in the version you receive. Sorry for any confusion that may have caused.

Once again, thank you for all your time and effort on this project.

Jack Barbash

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Subject: Comments on Aquatic Reserve proposals

Thank you for giving the public the opportunity to provide comments on your Draft Management Plan (DMP) and Supplemental Environmental Impact Statement (SEIS) relative to the Maury Island Aquatic Reserve. It appears that the Washington State Department of Natural Resources (WADNR) has done an extensive amount of work to identify and catalogue the myriad ecosystem characteristics of the area to be included within the proposed Reserve. The comments provided below arise primarily from my concerns that the proposed Reserve management plan will not provide sufficient protection for the ecosystems whose characteristics and species composition you have so carefully described in this report.

Before listing my concerns, however, I would like to express my fervent support for the adoption of ALTERNATIVE 3 among the three management alternatives described in the SEIS. Although, as noted on p. 46 of the SEIS, Alternative 3 would not guarantee that armoring of the shoreline will not continue in the future, Alternative 1 provides no such guarantees, either--as noted on page 45, "the DNR has no direct control over armorin  1 processes"--and can only encourage King County to discourage armoring of the shoreline by private citizens. The DNR should be doing this anyway! One of the main advantages of Alternative 3 is that it protects a larger area than

Sequence number: 1

 DNR recognizes the negative impacts of armoring and does not support this practice on state-owned aquatic lands. In addition, WDNR Aquatic Resources Division does not have the authority to manage private property. The ability to protect a larger area was considered when evaluating the boundaries of the reserve. It was felt that this larger area, from Tramp Harbor to Pt. Robinson, only included a portion of a larger drift cell and that it was more important to be able to manage an entire system (drift cell) and avoid a boundary that fragments habitat components.

Alternative 1. Given how precious these areas are, we need to protect as much of them as possible.

Listed below are my principal concerns regarding these documents.

1. Given the critical need to protect the eelgrass beds that are present off the shore of Glacier Northwest's gravel pit--and still recovering from their activities several decades ago--the establishment of this Preserve should automatically prevent Glacier's proposed expansion of their operation, as described on pp. 53-55 of the DMP. Pages 21-23 of the DMP clearly state that no new activities will be permitted in the Reserve that are likely to damage any of the biological resources of the Reserve. Clearly, the proposed expansion of Glacier's operation poses a very significant risk of damaging the eelgrass beds offshore--and therefore should not be permitted. Has Glacier demonstrated--based on operations of comparable scale in other areas--that a barging operation of the scope described on pp. 53-55 of the DMP can be carried out with NO damage to the underlying eelgrass beds? If not, then given that "the objective of the reserve is environmental protection, lease activities within the reserve must primarily serve to protect the environment" (DMP, p. 22), as well as the stated aim that "no net loss--in time or space--of natural resources identified for conservation in Section 4.0 and Appenedix C will be permitted" (p. 23 of DMP), Glacier's proposed expansion of their operation obviously should not be permitted.



2. Given the negative impacts that are known to be associated with the discharge of saline brines from desalination operations, no such discharge should be permitted ANYWHERE in the Reserve. (In the DMP, such discharges are only prohibited in Quartermaster Harbor [p. 28].)



3. Through discussions with people who have lived their entire lives on Vashon-Maury Island, I've learned that the harvesting of geoducks and other shellfish by Indian tribes off the Eastern shore of Maury Island (as well as near Lisabeula off the west coast of Vashon, Tramp Harbor and other places) has been so aggressive in the past that extensive kelp forests have been destroyed. Given the importance of protecting both kelp and shellfish populations (DMP, p. 17), the DNR should aggressively pursue an agreement with Indian tribes for a complete moratorium on geoduck harvesting within the Reserve until it has been demonstrated that the populations of these organisms--as well as the aerial extent of the kelp beds that they once inhabited--have recovered to their extent that they exhibited at the beginning of the 20th century.



4. My understanding of fish farming practices is that ALL such facilities release feed and antibiotics to the surrounding waters--not just "some" of them, as stated on p. 31 of the DMP. Thus, all such activities should be banned from the Reserve unless they are operated without the release of ANY of these chemicals--or fish waste--to the surrounding waters. Furthermore, any such facilities that raise genetically modified fish should likewise be banned from the Preserve, as escape of fish from such facilities is commonplace.



5. Finally, the Management Plan for this Reserve should describe specific measures that WADNR will take to ensure that King County and all other agencies with jurisdiction over land use in the onshore areas adjacent to the Reserve will stop ALL additional armoring of the shoreline adjacent to the Preserve. As you know, Vashon-Maury Island contains most of the last



Page: 2

Sequence number: 1

 The management plan creates clear criteria that Glacier Northwest must satisfy before Washington DNR will issue a use authorization. Glacier Northwest will have to determine if they can satisfy the conditions described in the management plan, knowing that they're getting a use authorization from DNR is contingent on meeting the conditions of the management plan. Before Washington DNR makes a determination on Glacier Northwest's proposal, Glacier NW must gain regulatory permits from several agencies that are also charged with creating conditions for the protection of the natural environment.

Sequence number: 2

 Washington DNR believes that there is the potential for sufficient flushing offshore of Maury Island that hypersaline discharges may have no measurable impact on the natural environment. It should be noted that Washington DNR would "prefer no direct discharge to reserve area" (Page 28).

Sequence number: 3

 It is difficult for Washington DNR to set goals based on the distribution of kelp at the beginning of the 20th century due to the lack of reliable kelp distribution maps for that time period. The commercial geoduck harvest practices agreed to by both the DNR and the Tribes restricts harvest in areas with eelgrass and kelp.

Sequence number: 4

 Fish farming does typically involve feeding and treating fish with pharmaceuticals. However, not all fish pens are used for raising fish, some are primarily for the storage of fish (these are identified as herring holding in the Draft Management Plan, page 31). Washington DNR recognizes that there are disease dangers associated with fish pens that store fish, and feels it is necessary to restrict this activity during and immediately following fish spawning periods to avoid additional stress on spawning wild stocks.

Sequence number: 5

 The draft management plan identifies that "New shoreline modifications that create environmental impacts ... will not be allowed on state-owned aquatic lands throughout the reserve (Draft Management Plan, Page 47)." This would prohibit new shoreline armoring on state-owned aquatic lands. "DNR will also work in cooperation with adjacent landowners (on a voluntary basis) in efforts to gain support for the reserve and to help reduce impacts caused by shoreline modification; and seek funding opportunities and create incentives for the adoption of best management practices (BMPs) and improvement of shoreline conditions, through "soft" armoring techniques such as beach nourishment, riparian plantings, and other alternative strategies to reduce shoreline impacts (Draft Management Plan, page 61)."

remaining unarmored shoreline in King County. Thus, WADNR should do everything within its power to ensure the implementation of a COMPLETE MORATORIUM on the construction of new bulkheads along the entire shoreline adjacent to the Reserve.



Thank you for reading these comments!

Dr. Jack Barbash

Sequence number: 1



See comment regarding bulkheads above.

Comments on the Draft Supplemental Environmental Impact Statement - Proposed Maury Island Aquatic Reserve

Upon further study and consideration I now agree that Alternative 1 is the preferred choice. The proactive approach to actions such as inventories, research, monitoring, public education, outreach to land owners, securing funding for habitat acquisition and improvement, derelict vessel removal, partnering with other groups and agencies, etc. all lead me to favor Alternative 1. However, I fail to understand why these could not also be included with Alternative 3.



I regret the reduced boundary / area of Alternate 1, but recognize the ecosystem approach is appropriate. I do hope sometime soon the aquatic lands adjacent to Tramp Harbor and Pt. Heyer will be considered for Aquatic Reserve status. We must act expeditiously to protect and restore what little comparatively undamaged habitat remains. Puget Sound's ecosystem is tipping toward total collapse. Some of the indicators include:

- dead zones in Hood Canal and south Sound;
- increasing size, density and duration of algal bloom; and
- more than 30 marine vertebrates declining and at risk of extinction, including the top of the food chain, the orca.

Making aquatic lands adjacent to Tramp Harbor an aquatic reserve might facilitate opening the portage into Quartermaster Harbor and thus improve the habitat there.



Protecting the least damaged habitat remaining in Central Puget Sound should receive highest priority not only for the sake of the ecosystem but also for the benefit of the large urban population who live in close proximity and / or have easy access to this area. Our society needs contact with the natural world for our spiritual, mental and emotional health.

What follows are comments on and suggestions for specific sections of the DSEIS.

Page 2 1.2 Proposed Action - Purpose, Objectives, and Need

The need for this action arises from the nearshore habitat degradation that has occurred in the central Puget Sound basin and the fact that the Maury Island site represents one of the remaining areas in the basin that supports relatively high quality aquatic habitat and species assemblages. A stronger description of the declining health of the Puget Sound ecosystem is needed. More specifics should be given as to the indicators of the decline.



Page 4 1.4.4 Plant and Animal Resources

This section should include other declining species that use the area, ie cormorants, loons, scoters, goldeneyes.



Page: 1

Sequence number: 1

 Alternative 3 describes the current condition and how the site would be treated if there were no change in its management. Currently there is no management plan for the site. Alternative 1 is based around the management plan developed for the site and the modification to the reserve boundary was based upon principles described in the 2002 programmatic EIS..

Sequence number: 2

 Tramp Harbor could be considered in future Aquatic Reserve nomination cycles.

Sequence number: 3

 The description of the health of Puget Sound has been augmented with the following statements. "Puget Sound has experienced significant physical changes to its nearshore habitat as well as population declines in some of its best-known, important plant and animal species. Observed changes over the past century include: human development that has modified one-third of Puget Sound shoreline; 75% declines in intertidal salt marsh habitat since the 1800's; nine of the 10 species listed as endangered or threatened within the Puget Sound region live in the nearshore; three Puget Sound salmon species have been listed as in danger of becoming extinct."

Sequence number: 4

 The section is intended to summarize the description and status of plant and animal resources. Relating to cormorants, loons, scoters and goldeneyes, the section already notes "many other bird species" and the "Important Bird Area" identified by Audubon Society, Washington. A complete listing of plant and wildlife observations is provided in section 4.4 on pages 53-76.

Marine mammals are not particularly abundant . . . may all periodically inhabit . . .

This understates actual marine mammal use of the area southeast of Maury Island. Marine mammals make regular use of the area. Orcas, being considered for listing under the Endangered Species Act (ESA), use the area regularly during the winter. Humpback whales and Northern sea lions, listed under the ESA, use the area regularly. Harbor porpoise, a declining species, use this area. This section should also include Dall's porpoise, seen often in the area.



Page 5 1.4.7 Land and Shoreline Use . . . Development in the area has led to levels of shoreline modification (59 percent of the shorelines) similar to the rest of the Puget Sound. . . This does not recognize that SE Maury Island is one of the least developed shorelines left in Central Puget Sound. From Edmonds to Tacoma more than 95% of the shoreline has been degraded.



It is estimated that marine riparian vegetation exists along only 11 percent of the WRIA 9 shoreline (excluding Vashon-Maury Islands). (From Habitat Limiting Factors and Reconnaissance Report Executive Summary Green/Duwamish and Central Puget Sound Watersheds (Water Resource Inventory Area 9 and Vashon Island) December 2000)

[B]etween Everett and Tacoma . . . is more than 95% armored. (From Washington State ShoreZone Inventory conducted by the Washington Department of Natural Resources online at <http://www2.wadnr.gov/nearshore/research/index.asp#project19>)

Page 18 3.2.2 Goals and Objectives

Sustaining or increasing the documented extent and species composition of native aquatic vegetation. A biomass index . . . may not decrease due to human-induced impacts The FSEIS should make clear the importance of protecting the existing and naturally recovering native aquatic vegetation. That is, human impacts should not be allowed at a location with the expectation that total biomass will be sustained or increased through mitigation at another site. For example if the biomass at a mitigation site exceeds the biomass loss at a human impact site, this will not necessarily result in a healthier functioning nearshore habitat. Before any human impact with mitigation is permitted a number of questions should be answered, including (but not limited to):



- Has the mitigation proven successful over a sufficient length of time?
- Does the mitigation function biologically, physically and chemically as well as the natural habitat?
- Is the mitigation as biodiverse as the natural habitat?
- Are the species in similar proportion to the natural habitat?
- Does the mitigation fully compensate for the disruption to a continuous or contiguous corridor caused by the human impact?

Given the uncertainties of mitigation and the doubt that human habitat restorations function as well as natural beds, protection of existing beds should be prerequisite.

Sequence number: 1

 Section 1.4.4 has been revised to reflect these marine mammals have been observed in the area of the aquatic reserve.

Sequence number: 2

 This passage accurately compares the shoreline armoring adjacent to the reserve area to Central Puget Sound. While some parts of Central Puget Sound have much higher levels of shoreline armoring, it is inappropriate to selectively compare this site to a stretch of shoreline that only represents a percentage of the shoreline within Central Puget Sound.

Sequence number: 3

 See final management plan section 5.2.2.20 on pages for discussion of specific management strategies for mitigation. DNR, through the management plan, in cooperation with the regulators (Army Corps, EPA, Dept. of Ecology, King County), intendeds to asses and address the level of risk associated with a project, that are posed in the reviewer's comments.

Page 25 Table 5: Overview of General Management Strategies for Potential Activity Proposals Fish Pens; Shellfish Aquaculture Fish pens with none native species should not be allowed (for example: Atlantic salmon). This should be true for all aquaculture including shellfish. No chemicals, ie growth hormones, dyes, antibiotics, etc., should be introduced into the natural environment via these facilities.



Page 28 Mitigation and Mitigation Banking Again, before any human impact with mitigation is permitted a number of questions should be answered, including (but not limited to):



- Has the mitigation proven successful over a sufficient length of time?
- Does the mitigation function biologically, physically and chemically as well as the natural habitat?
- Is the mitigation as biodiverse as the natural habitat?
- Are the species in similar proportion to the natural habitat?
- Does the mitigation fully compensate for the disruption to a continuous or contiguous corridor caused by the human impact?

Given the uncertainties of mitigation and the doubt that human habitat restoration functions as well as natural undisturbed habitat, protection of existing habitat should be the highest priority.

Page 29 Specific Management Strategies for Authorized and Pending Uses Glacier Northwest

I strongly object to the assumption of this document that DNR will renew / grant a lease to GNW. No matter what the local (county) decision and or SHB / court decisions DNR should exercise its full authority for appropriate stewardship of the public's aquatic lands. Concerns that should be considered include (but are not limited to):



- eelgrass
- salmon
- forage fish
- geoduck (ie potential reduction in recruitment, reduction in value as harvestable bed)
- potential need to dredge due to spillage
- non-public use (compared to marina)
- disruption of the hydrologic cycle

As stated at *Page 2 1.2 Proposed Action - Purpose, Objectives, and Need* The need for this action arises from the nearshore habitat degradation that has occurred in the central Puget Sound basin and the fact that the Maury Island site represents one of the remaining areas in the basin that supports relatively high quality aquatic habitat and species assemblages. Further degradation of high quality aquatic habitat for a non-public



Sequence number: 1

 Section 5.2.2.7 of the draft management plan restricts impacts from fish pens to habitat from the activities identified by the reviewer. Shellfish aquaculture presents a different set of impacts than fish pens. Management is outlined in section 5.2.2.9, which does not allow impacts to aquatic vegetation, substrate, fish migration, spawning and rearing habitat.

Sequence number: 2

 Comment noted. See draft management plan section 5.2.2.20 on pages 44-45 for discussion of specific management strategies for mitigation.

Sequence number: 3

 There is no language in the management plan or DSEIS that makes the assumption that DNR will renew or grant a lease for any activity. The management plan creates clear criteria that Glacier Northwest, and other existing and potential leases, must satisfy before Washington DNR will issue a use authorization. It is possible that Glacier Northwest will not be able or will choose not to satisfy these conditions which would result in Washington DNR denying a use authorization for Glacier Northwest. Before Washington DNR makes a determination on the barge loading facility proposal, Glacier NW must gain regulatory permits from several agencies that are also charged with creating conditions for the protection of the natural environment. The development of the management plan did not revolve around the management of any specific activity, Glacier NW included. The plan was developed to protect and conserve the critical habitat that is unique for the Maury Island site and to manage the site as an ecosystem. The emphasis on trying to restrict one particular use misses this important aspect of the aquatic reserve program. There are other activities in the area that have and will continue to have an impact on the important habitat of the area.

Sequence number: 4

 It cannot be assumed that certain uses will undoubtedly lead to net degradation of aquatic habitat. The management plan contains provisions to avoid such degradation. Further, protection of habitat is the basis for establishing the elements of the management plan for the site. See above comment.

industrial use is inconsistent with the need for this aquatic reserve and should not be permitted.

*Page 40 4.0 Affected Environment and Impact Analysis
Built Environment*

- *Understanding related to science-based relationships between uses and environmental impacts is limited and expanding.*

What does this mean? Would another way to say it be: Science-based understanding of the relationships between uses and environmental impacts is limited and expanding? Or: Understanding related to science-based knowledge of relationships between uses and environmental impacts is limited and expanding?



Page 42 4.1.1.1 Regional Overview

3. Piner Point - Point Robinson Nearshore (also referred to as the east shore of Maury Island). There are several places in this document that refer to the eastern shore of Maury Island that I believe would be more accurately labeled southeastern. To illustrate: Luana Beach is more eastern than Gold Beach or Sandy Shores. Referring to it as southeast recognizes that this is a more south facing shoreline than much of Puget Sound's topography. This may come from my narrow perspective from living on the most southerly facing portion of that shoreline. However, some of the unique attributes (extensive madrone forest, riparian plant community, northwestern fence lizard, exposure to southwesterly storms) derive from the southerly aspect.



Page 43 4.1.1.2 Geology and Soils

In Quartermaster Harbor, tributary streams such as Judd and Fisher creeks also deliver sediments (Appendix E). It would be helpful to label Fisher Creek on the map at Appendix E.



Page 49 4.3.1.1 Marine Water Resources It would be helpful to give a brief explanation of the significance and / or effects of low dissolved oxygen (DO) to the ecosystem.



Page 50 However, the site conditions have not necessarily improved and the site is being removed from the 303(d) list because no recent monitoring has taken place. One hopes with Alternative 1 monitoring will take place.



Page 54 4.4.1.1 Fisheries

Washington DNR classified approximately 28 percent of the shorelines adjacent to the Maury Island site as containing riparian vegetation during the ShoreZone Inventory (Nearshore Habitat Program 2001). This figure (28 percent) should be broken down between the three different Ecological Management Zones to show the difference between Inner and Outer Quartermaster Harbor and Southeast Maury Island. The People for Puget Sound Rapid Shoreline Inventory (Bloch, 2002) might be useful for this information.



Page: 4

Sequence number: 1

 This statement has been revised to say: "The state of scientific knowledge relating to the relationships between uses managed by Washington DNR and their associated environmental impacts is currently limited and continues to expand."

Sequence number: 2

 We realize that a large portion of the shoreline has a south easterly aspect, although the northern portion has a northeasterly aspect. Thus, for the ease of understanding, these components have been grouped and are referred to as the eastern shoreline.

Sequence number: 3

 Figure 2 and Appendix E have been adjusted to reflect the location of Fisher Creek.

Sequence number: 4

This information was added to section 4.3.1.1 in the SEIS.



Sequence number: 5

 The draft management plan describes proposed monitoring in section 5.1 (pages 19-21). It is anticipated that water quality monitoring will be a component of Washington DNR's monitoring efforts.

Sequence number: 6

 Reviewing appendix M, Shoreline Modifications, would indicated that most of the shoreline hardening occurs in most of inner Quartermaster Harbor and roughly 50% of outside Quartermaster Harbor. Since there is a strong correlation between shoreline modification and loss of riparian vegetation adjacent to the shoreline, we can deduct that most of the 28% lies along the eastern shore of Maury Island. The People For Puget Sound Inventory is an inappropriate tool to supplement this information because it selectively surveyed only those properties that granted permission to survey their shorelines.

Page 62 *Sand Lance (Ammodytes hexapterus): . . . The sand lance spawning area along the northeastern shore of Maury Island is one of the few sandy-beach areas in which the state has ownership of the intertidal zone.* *“Northeastern” is not consistent with what is shown on the map at Appendix G.*



Page 63 *Geoduck (Panopea abrupta)* If DNR were to renew the lease for the gravel barging it would facilitate exploitation and rapid depletion of a nonrenewable at the expense of degrading this valuable renewable, sustainable resource. How will spillage and turbulence from gravel loading affect the recruitment and recovery time of tract 10150 at and down current from the proposed dock?



Page 71 *4.4.1.3 Marine Mammals River Otter (Lontra anadensis)* Otters are often seen on and offshore of SE Maury Island, and have denned under at least one waterfront home of this shoreline.



Harbor Seals (Phoca vitulina) *“Periodically” is an understates the fact that harbor seals are often seen from SE Maury Island.*



As noted above, this section should include humpback whales, Northern sea lions, harbor porpoise, and Dallís porpoise.



Page 74 *Great Blue Heron (Ardea herodias)* Along the SE shore of Maury Island great blue herons typically feed territorially, jockeying for position, spacing themselves along the shoreline at low tide, forcing off other gbh who encroach too close.

Page 93 *Glacier Northwest ? Maury Island Gravel Barge Loading Facility* *The site contains a portable screening plant, dock, and conveyor system.* This is not true. There is no usable dock nor conveyor system nor screening plant at this site.



All local, state, and federal permits would have to be secured prior to consideration by DNR of this activity at the Maury Island site. Even if local, state and federal permits were to be secured DNR should exercise its authority for appropriate stewardship and not renew a lease for nonpublic use of the publicís lands in an aquatic reserve. Leases for public use - such as marinas - have a public benefit. The gravel barging benefits only a narrow short term corporate interest to the detriment of the public interest in preserving our natural heritage.



Thank you for the opportunity to review and comment on the Maury Island Aquatic Reserve Draft Supplemental Environmental Statement. Please give careful considerations to these comments in your final SEIS

Sincerely,

Pat Collier

Page: 5

Sequence number: 1

 The statement will be corrected to identify the southeastern shore of Maury Island as the area where sand lance spawn.

Sequence number: 2

 Until Washington DNR receives a complete application for a gravel barging facility it is difficult to assess what its potential impacts on renewable resources such as geoduck would be. This would be a component of Washington DNR's evaluation of this or any other proposal within an Aquatic Reserve.

Sequence number: 3

 The regular occurrence of river otters at the Maury site is acknowledged in this section

Sequence number: 4

 The preceding sentence states that "Harbor seals are rather common in the central Puget Sound..." DNR feels that this qualifies the use of "periodically" to describe their presence at the site.

Sequence number: 5

 Section 4.4.1.3 describes the marine mammals that are fairly common or occasionally seen in the vicinity of the aquatic reserve, or in the case of Killer Whales, listed as endangered by WDFW . The four species identified by the reviewer may transit through the area. We are not aware of any documentation that identifies that these species depend on, or extensively utilize the resources or habitat at the reserve site. However, we have recognized observations of these species in Section 1.4.4.

Sequence number: 6

 The text has been updated to reflect the historical use of this area with a portable screening plant, dock and conveyor system, and the proposed future use.

Sequence number: 7

 See previous comments regarding Glacier NW.

Lisa De Faccio
24322 43rd Ave. S.W.
Vashon, WA 98070
defaccio@earthlink.n

et

Ms. Jennifer Gitchell
SEPA Center
Washington Department of Natural Resources
P.O. Box 47015
1111 Washington St.
Olympia, WA 98504-7015

July 27, 2004

Ms. Gitchell,

I am writing to express my concerns about the Maury Island Aquatic Reserve being implemented along the shoreline in front of *private properties IN SPITE OF OBJECTIONS FROM THE LANDOWNERS WHOSE ADJACENT PROPERTIES WILL BE EFFECTED*. *The shoreline is already monitored extensively by King County, the Army Corps of Engineers, DNR, Fisheries, local volunteers, and another layer of bureaucracy is redundant*. Having taken several hours to read and respond to the onerous 293 pages of information I was mailed by DNR, my concerns about the designation were further aggravated. I SUPPORT ALTERNATIVE 2, Repeal the Reserve, for the following reasons. 

I have lived on Maury for 27 years and have become completely disenchanted with governmental agencies foisting layer upon layer of bureaucracy upon local property owners without veto power on the part of the property owners affected. Even though, at this point, DNR claims their enforcement to be voluntary and educational, other agencies will certainly use the legislation as an opportunity to further harass landowners and confiscate their property rights without due compensation. The vague, open-ended language in the “recommendations” are dangerous because they leave too much room for other agencies (if DNR does not end up with enforcement powers over adjacent land) to further hassle adjacent property owners. The reserve is yet another an encumbrance  which will ultimately result in significantly more time and expense to adjacent properties. Such an outcome is **unacceptable to the majority of property owners whose land borders the reserve**.

Another layer of regulation is a burden that I am opposed to after personal  experience dealing with the **more than ten agencies** and sub-agencies involved in obtaining an **emergency** seawall permit. The “help” provided by the shoreline regulatory agencies *already in place* meant an incredible expense of **\$42,000 for PERMITS** alone (construction costs were in addition to the permits) required to restore the shoreline

Page: 1

Sequence number: 1

 DNR appreciates the time you took to review the DSEIS. We recognize your support for alternative 2.

Sequence number: 2

 DNR Aquatic Resources Division does not, and will not in the future, have enforcement powers over non-state owned lands adjacent to the reserve. DNR does not have the authority to control land use regulations enforced by other government agencies. However, King County is promoting a voluntary approach toward reserves in the recent draft of the Comprehensive Plan update.

Sequence number: 3

 DNR is not another layer of regulation. DNR has been managing the state-owned aquatic lands, including those within the reserve, since the turn of the 20th century. While we understand the concern you've expressed, DNR's intent under the management plan is to build voluntary cooperative partnerships with adjacent landowners and regulatory agencies to improve the condition of the area.

(eroded by a huge increase in shipping traffic to Tacoma) and keep my 1940's house from falling over the 75 foot bank into the water. The permit process took OVER 1 YEAR. Although the arduous permit process did not stop the obviously necessary bulkhead, it was another opportunity for public agencies to steal money before granting a permit that should have taken a month and cost a few hundred dollars. DDES's extortionist tactics suddenly halted and the permits were immediately granted when an attorney was retained (at ever further expense) to force them to comply with their own regulations regarding issuance of emergency permits. It was obviously very important to DDES's strategy to move slowly and hope for the next big storm that would get rid of the house so they could "protect and restore the environment" by condemning the property as unbuildable using the updated environmental regulations that have been imposed in recent years. **I have had my fill of uncooperative bureaucrats charging \$130 an hour to obstruct LEGAL actions because they are interested in generating the revenue necessary to perpetuate their organizations. Needless to say, my personal experience, combined with the knowledge of others' similar experiences, makes me very concerned about the effects of any additional regulation, no matter how benign it is initially purported to be.**

It would obviously be better for the eel grass, shorebirds and bullheads if my house were not there, but should an existing home be allowed to fall into the water for want of enough money and time to get the required permits? **Aquatic reserve designation will certainly be used by DDES and other agencies as an excuse to deny permits even for maintenance of existing assets.** (My property has already been regulated out of the market if the house burns down – it could not be rebuilt under existing SEPA regulations. The KC council's proposed 60/30/10 actions will make the current layout of my property illegal.) I would prefer not to have to deal with additional headaches in trying to maintain my home.  1

The Maury Island Aquatic Reserve should be a **voluntary incentive program**, with tax breaks for those who will bear the additional cost of using their adjacent property as a result of the increased regulation and limitations. It seems fair that the state should be able to implement the Aquatic Reserve designation where it borders county or state owned lands. In a democracy, though, effected waterfront property owners should at least have the right to VOTE on the designation. There needs to be some means of compensation for lost opportunities to use property as incentive for those who take on the burden of saving the environment for the benefit of all. Since businesses can write off their expenses for permits, etc., when they develop land, they are compensated for their development-related costs. They can also pass associated costs on to their customers in the form of increased prices. However, individual private landowners cannot pass along those costs. **Nor are our property taxes adjusted to reflect the new limitations on land use.** Once again, the costs and burdens associated with increased environmental regulation shall be borne by the middle class, working-for-a-living people who cannot afford the attorneys that businesses can muster to fend off regulators and "work with" multiple agencies. **This well-intentioned reserve plan, when combined with existing agencies and regulations, will further limit property uses that were acceptable when people purchased their land, but which will not be allowed after the reserve is in**  2

Sequence number: 1

 DDES has a responsibility under the Growth Management Act to properly manage critical areas. Whether the establishment of the aquatic reserve initiates some additional regulatory action is King County's decision. Amendments and updates to any King County land management ordinance must be available for review and comment by King County residents.

Sequence number: 2

 Section 5.4 of the management plan identifies only "voluntary stewardship activities" for adjacent property owners. Therefore, the individual landowner will have to consider if they are willing to bear the additional costs associated with voluntary stewardship activities. This section also identifies a management strategy to "seek funding opportunities" as an incentive for adjacent land owners.

place. In doing so, it places an unfair economic burden for environmental protection on adjacent landowners whose property uses will be curtailed.



For these reasons, I urge you to TRY the reserve designation ON A LIMITED BASIS IN FRONT OF PROPERTIES WHO CONSENT TO WORK WITH DNR, AND PERHAPS EVEN PROVIDE PROPERTY TAX INCENTIVES FOR THOSE WHO CHOOSE TO PARTICIPATE. Will the vague, open-ended language result in more burdens for my family and me when we want to enjoy the waterfront on which we pay taxes? Definitely. If the reserve regulations will merely “urge cooperation”, reiterate current regulations and make use of volunteers, etc., why bother with it? Obviously, **the ultimate outcome of the reserve will be to make it more difficult for people upland from the reserve to live on their property as they are presently.** Reserve status will give coordinating agencies yet another means of raising revenues and imposing restrictions on those who can least afford to fight to preserve current uses of their property.



The initial interest in making the area an aquatic reserve was by a few vocal Vashon Islanders (most of whom DO NOT own the waterfront land they propose to FURTHER regulate) as a means of blocking Glacier Sand & Gravel’s mining operation. Since Glacier recently acquired the permits necessary to mine their property, the aquatic reserve is too late to impact it. Existing environmental regulations require limitations on their development of the dock, so the reserve will simply be a redundancy, which will adversely effect nearby property owners. If Glacier cannot barge their gravel off the island they will truck it, creating loud traffic and more ferry congestion. It makes much better environmental sense that the gravel be quietly barged off the island once every few days that to drive it tin loud, diesel-spewing, loud, dump trucks along our rural roads where there are bicyclists, children playing and horses being ridden. The increased ferry traffic problems resulting from frequent dump truck runs will be yet another unfair burden impacting all islanders if Glacier’s dock permits are denied.



There are literally hundreds of meetings every year on Vashon hosted by public agencies, private organizations, and politicians to acquire “input” from “stakeholders” who will be affected by the decisions made by these organizations. As a person with a child, job, commute and a home to take care of, I find the call to so many meetings exceedingly burdensome. The few of those meetings I can attend invariably leave me with the distinct impression that the issues have already been decided before the meetings take place by parties desiring to further regulate and encumber property they do not even own. I hope the upcoming aquatic reserve meeting will be an exception. The last meeting apparently amounted to nothing more than an opportunity for the agency to go through the motions of allowing “public input” on an issue that had apparently already gathered enough momentum that the suggestions those in opposition would be ignored (judging by how quickly we received the Drafts in the mail). Apparently the true intent of the meeting was merely to check off the box showing stakeholder *involvement* – never mind that the vast majority of those owning property that borders the reserve came to oppose the plan. Good attendance at meetings seems to give governmental agencies the false impression that their new rules are well received and appreciated! I resent

Page: 3

Sequence number: 1

 Please see previous comments.

Sequence number: 2

DNR intends to maintain open communications with adjacent property owners, among others, to ensure that the aquatic reserve program is working for everyone. DNR views adjacent land owners as land stewards critical to the success of the reserve.

 Property tax is a good suggestion for incentives to property owners, although this is outside of DNRs authority.

Sequence number: 3

 The 2004 management plan is not based on managing the Glacier site, but based on conserving the unique habitat features of the Maury Island site as a whole.

REGULARLY having to sacrifice my time to attend meetings in an attempt (usually futile) to fend off the people constantly attempting to “manage” my property and usurp my rights to use it for the uses it was zoned for when I purchased it.



All I can do from here is to hope that when I sell my property it is to some hapless individual from out of the area who is unaware of the myriad of stipulations, regulations and costs associated with the property which I am growing tired of defending. Maybe they will be so environmentally conscientious *and wealthy* that they can afford to remove the house and bulkhead piece by piece, without any adverse environmental impacts (after, of course, spending years obtaining the required permits and navigate the incredible bureaucracy) and return the two acre plot to the “wild”. The tansy ragwort, non-native, invasive Himalayan Blackberries, poison oak, tansy ragwort and a few raccoons, mice, rats and deer will thrive. When the bank sloughs off, temporarily destroying the sand lance, bird egg, lizard and sand flea habitat it lands on) the natural beach building process will be back in action, and the property bordering the reserve will, at last, be in compliance with Reserve and King County regulations and objectives!



Of course, I could be spending my valuable time doing a myriad of things other than writing this letter, but, as futile an attempt as it is, I couldn't sit silently by and watch my tax dollars being spent on yet another well -intentioned, yet misguided, environmental effort. I do not really expect this will be taken seriously or given much more than a cursory read by those of whose jobs depend on increased spending and development of reams of new laws and regulations every year to keep their jobs, but, for the record, here you go!



Sincerely,

Cc: Francea McNair, David Palazzi, Loren Stern

Sequence number: 1

 Public meetings are an important venue to get feedback on proposed government actions and are encouraged under the State Environmental Policy Act (SEPA) and by DNR to provide better public participation and review of agency actions. DNR staff are also available to meet with stakeholders at their convenience.

Sequence number: 2

 DNR believes that the reserve and adjacent residents can co-exist and even benefit one another.

Sequence number: 3

 The Aquatic Reserve Program does not use tax dollars. All monies used by the program are generated directly from the aquatic lands DNR manages.

Comment Sheet

Public Comment Period: July 13 - August 27, 2004

Name:

Bob Dixon

Address:

22113 Dockton Rd SW, Vashon WA 98070

Comments:

I am in favor of Alternative 1 with the following considerations:

1. Extend the boundary to include more of Trump Harbor to protect the geoduck population. I have never seen so many. I boat for such an extended time!

2. Analyze the opening of Portage between DM & Trump Harbors for benefit to natural resources. This has been talked about for at least 30 years.

3. Grandfather those existing facilities which do not degrade existing conditions but do not allow any further degradation regardless of political pressure.

4. Be certain Management Plan includes representation from Vashon-Maury Islands

Written comments can be left at the sign in table tonight, mailed or E-mailed to the WDNR SEPA Center. Comments must be received by 5 p.m., August 27, 2004.

Mail comments to: WDNR SEPA Center
1111 Washington Street SE
PO Box 47015
Olympia, WA 98504-7015

5. Thanks for the opportunity.
Bob Dixon

E-mail comments to: SEPAcenter@wadnr.gov

Page: 1

Sequence number: 1

 At this time the boundary cannot be extended beyond the area of the original proposal (which did not include Tramp Harbor). Others have expressed interest in putting this area into reserve status as well. It can be considered as an addition to the proposed site during a later aquatic reserve proposal cycle.

Sequence number: 2

 Interest in opening portage was expressed by several citizens and is identified as a possible research topic in section 5.1.3 of the management plan.

Sequence number: 3

 We have identified management guidance for existing uses (facilities) in section 5.2 of the management plan. Our goal is to permit their continuance under the conditions that they not create additional environmental impacts and develop a plan to lessen existing impacts over the 90 year life of the aquatic reserve.

Sequence number: 4

 Local citizen involvement will continue to be an important element of developing, updating, and implementing the management plan.

August 23, 2004

To: Jennifer Gitchell,
SEPA Center

From: Robert J. Gerrish
28251 Manzanita Beach Road SW.,
Maury Island/ Vashon, WA 98070

Reference: Proposed Maury Island Aquatic Reserve

Dear Ms Gitchell,

Unfortunately I was not able to attend your meeting on August 10th, however, I would like to make my input with this letter.

I have been a resident on Quartermaster Harbor for over twenty four years and have never seen the general environment, (harbor water, marine life, plants and wildlife), in more pristine condition that it is today. Creating the proposed reserve at this time could not benefit the harbor and will inevitably lead to more bureaucracy. Bureaucracies always believe they have to create regulations to justify their existence which inevitably leads to hardship for property owners.



It is my sincere belief that the property owners around Quartermaster Harbor are the most responsible people where environmental issues are concerned and that all funds planned to establish this aquatic reserve would be more wisely spent on other projects in other areas. With this belief, at this time, Alternative 2 (Repeal the Reserve) is my recommendation on how to proceed.



Sincerely,

Robert J. Gerrish

Page: 1

Sequence number: 1

 The justification for the proposed reserve was established by a technical advisory committee not affiliated with WDNR and based on the existence of the unique habitat and species present at the Maury Island site.

Sequence number: 2

 DNR acknowledges the support for alternative 2.

To Whom it may concern:

Subject: Proposed “Maury Island” Aquatic Reserve

The concept of this proposed reserve began because some residents of Gold Beach on the southeast shore of Maury Island wished to prevent Glacier Sand and Gravel from removing gravel from Glacier’s property. They enlisted environmental groups to assist them. No special interest groups, whether they are well meaning environmentalists or others with radical agendas, should be allowed to influence a government agency to this extent. This is no justification for the Dept. of Natural Resources to add another layer of regulatory bureaucracy to the restrictions already in place. If the DNR wishes to establish an aquatic reserve to prevent gravel from being removed from long established gravel pits on Maury Island, then that reserve should be in that specific area, not in Quartermaster Harbor. (I object to the formation of any aquatic reserve titled “Maury Island” when the proposal encompasses all of Quartermaster Harbor including a large portion of Vashon. DNR representatives state that tax money will not be used to establish or maintain the proposed reserve. I see no distinction between using money raised by the DNR from the fees they charge or in taxes on my property. Any money diverted to this proposal is less money available for more worthy uses. In my opinion, if this reserve is established, it will have been for the wrong reasons and in the wrong place.



Lyle D. Hansen

Page: 1

Sequence number: 1

 The reserve is being proposed, and the management plan written, to protect and conserve important regional aquatic habitat and has not been developed in response to specific existing or proposed uses. This present effort to establish the site as an aquatic reserve is not an effort to prevent the gravel mine from operating. The reserve encompasses the shoreline on both sides of Maury Island, hence the name.



King County

Water and Land Resources Division

Department of Natural Resources and Parks
King Street Center
201 South Jackson Street, Suite 600
Seattle, WA 98104-3855
206-296-6519 206-296-0192 Fax

August 20, 2004

Jennifer Gitchell
SEPA Center
Washington Department of Natural Resources
PO Box 47015
1111 Washington Street SE
Olympia, WA 98504-7015

Dear Ms. Gitchell:

Thank you for the opportunity to comment on the Draft Supplemental Environmental Impact Statement (SEIS) for the Maury Island Aquatic Reserve and the July 13, 2004 Draft Management Plan. I am writing to express my support for Alternative 1 (preferred alternative) in the SEIS to establish an Environmental Aquatic Reserve at the Maury Island Site. King County Water and Land Resources Division (WLRD) also supports establishing an Aquatic Reserve Draft Management Plan with our comments on the Draft Management Plan contained below.

Establishment of the Maury Island Environmental Aquatic Reserve is an important step in recognizing, protecting, and managing the regionally important natural resources within the reserve. King County WLRD looks forward to working with Washington State Department of Natural Resources (WDNR) Aquatic Reserves Program, the Vashon/Maury Island Community, and other agencies and groups to maintain rural resources, lifestyles, and uses compatible with maintaining sustainable natural resources in and adjacent to the reserve.

Draft Management Plan Comments

4.5.1 Physical Resources

The draft management plan lists an objective to decrease shoreline hardening to less than 30 percent within and around the reserve. What is the current percent of armoring within and around the reserve? Knowing the current level of armoring would help as to whether or not the 30 percent objective is reasonable or best fits with managing the natural resources of the reserve.



Sequence number: 1

 The management plan states on page 84 "An estimated 13.75 miles or 57.6% of the shoreline within the reserve has been hardened or modified." By hardening Washington DNR is referring to structural stabilization measures with solid, hard surfaces such as concrete bulkheads. 'Soft' structural measures that rely on less rigid materials, such as biotechnical vegetation measures or beach enhancement would be considered areas that are not hardened.

5.0 Aquatic Reserve Management

“Since most of the long-term goals and management strategies for the reserve depend on understanding the baseline ecological conditions within the site, a major emphasis during the first ten years of reserve designation will be placed on establishing these baseline conditions.”

King County and many other agency and local jurisdiction partners have been compiling marine and nearshore conditions in and near the Reserve as part of the Salmon Recovery Conservation Planning efforts over the past 4 years. We would like to work with the WDNR Aquatic Reserve Program to share existing data and coordinate on future data collection to best utilize all parties monetary and staff resources in establishing the Reserve’s baseline conditions.



5.2.2.1 Stormwater Outfalls

This section is unclear about the difference between outfalls and discharges. There are an unknown number of locations where stormwater currently discharges into marine water around Maury Island. Stormwater runoff originates in forest, tilled, pasture, building, landscape and paved areas. Most of Maury Island is forested, with pasture being the next most common surface. Less than 10 percent of the island is covered with impervious surface. There is little formal stormwater infrastructure. Much of the runoff is sheet flow that ends up in ditches and streams. The ditches and streams cross under roadways in culverts, and some flow is piped down steep slopes to the nearshore.

Much of Maury Island has outwash soil that infiltrates well, but a large portion of the island is mantled with glacial till, which infiltrates poorly. With the exception of existing small lots in Dockton, Gold Beach and Sandy Shores and on parcels adjacent to the nearshore, most of Maury is rural zoned at 5 and 10-acre minimum.

The management strategy described in the draft plan states that outfalls on state-owned aquatic land will not normally be allowed. *The plan should note that some outfalls may currently exist and that existing outfalls will be allowed to remain.* The plan states that WDNR would prefer no direct discharge to the reserve area from Piner Point to Point Robinson. *The plan should state that direct discharge currently exists and that given the glacial till soils and steep slopes in the upland area, it is not feasible to have no direct discharge. Infiltration is the preferred method of managing stormwater, but steep slopes and till soils may make infiltration unfeasible in many locations. Maintaining a high proportion of forest cover and low-density zoning is a very effective way to maintain a healthy surface water regime. Stormwater runoff from new impervious surfaces should be infiltrated and dispersed in upland areas to the maximum extent feasible to reduce storm flows and improve water quality.*



5.2.2.10 Marinas and Public Docks

King County Shoreline Management regulations do not allow marinas to be permitted in Conservancy environments.



5.2.2.11 Breakwaters

King County Shoreline Management regulations do not allow breakwaters to be permitted in the Rural and Conservancy environments both of which encompass the whole Aquatic Reserve area. The stated reserve management strategy of allowing breakwaters within the reserve as stated in this section would create a conflict with County Code adopted to implement the State Shoreline Management Act.



Page: 2

Sequence number: 1

 Washington DNR recognizes the existing research and monitoring initiatives and hopes to work as a cooperative partner with these initiatives.

Sequence number: 2

 Comments will be reflected in text.

Sequence number: 3

 Recommended clarifications will be reflected in text.

Sequence number: 4

 Any breakwater placed on state-owned aquatic lands managed by Washington DNR must also comply with King County's Shoreline Management regulations. The text will be clarified and the conflicting text will be removed.

5.2.2.19 Voluntary Restoration and Enhancement

King County through its Rural Drainage Program and salmon recovery planning efforts looks forward to working with WDNR on voluntary restoration and enhancement activities and projects on reserve lands and adjacent properties that will provide a positive environmental change. 

5.2.3 Specific Management Strategies for Existing and Pending Uses

It would appear that a key reserve management tool to assuring positive environmental change to existing permitted uses within the reserve is a comprehensive resource-monitoring program. The monitoring program will need to document both detrimental and benign uses, monitor their change or lack of it and provide the data to deny future use if the change in a detrimental practice isn't forthcoming. 

5.3.3 Aquatic Nuisance Species Management

The specific references to invasive species threats and management actions could be augmented to better reflect the needs of the Aquatic Reserve. The discussion would also benefit from a few good general principles of invasive plant management. For example, the management strategy described on page 64 should recommend a focus on frequent surveying, early detection, and rapid response for any new infestations. This is how spartina has been kept out of the area. 

5.3.? Derelict Fishing Gear Removal

WDNR should develop a new section here to allow the removal of derelict fishing gear in the Aquatic Reserve. This new section would be similar or compatible with protocols and reporting system developed by the Northwest Straits Commission. 

5.4 Private and Public Land Adjacent to the Aquatic Reserve

The Aquatic Reserve management plan correctly states that most of the upland areas surrounding the reserve are in private ownership. King County established the Rural Drainage Program (RDP) in 2000 to address a variety of water related issues identified in rural areas, which in Maury Island's case will help, improve terrestrial and aquatic land conditions adjacent to the reserve. The RDP funding focuses primarily on private property and includes a groundwater management program, drainage complaint resolution, drainage and habitat projects, water quality enforcement, conservation of high quality natural resource lands, assistance with forest and agricultural land management, and stewardship services. King County WLRD looks forward to coordinating with WDNR to see how our existing programs can assist WDNR in maintaining or enhancing the public resources of the Aquatic Reserve. 

6.0 - 7.0 Adaptive Management and Capital and Management Funding

To assure successful implementation of the Maury Island Aquatic Reserve it is essential that the Reserve Management Plan be adequately funded, staffed, monitored, and managed. This is critical in order to accomplish Reserve Management Plan objectives through working partnerships with adjacent landowners, tribes, agencies, and local jurisdictions. 

Page: 3

Sequence number: 1

 DNR will work closely with the RDP when implementing the management elements for voluntary restoration and enhancement.

Sequence number: 2

 We will include this recommendation as we develop our monitoring plan with King County.

Sequence number: 3

 The management strategy discussed on page 59 of the management plan has been adjusted to reflect strategic focus on early detection and removal.

Sequence number: 4

 Derelict Fishing Gear Removal qualifies as a type of Voluntary Restoration and Enhancement and therefore is covered by the management strategies described in section 5.2.2.19.

Sequence number: 5

 DNR will work closely with the RDP when implementing the management elements for voluntary restoration and enhancement.

Sequence number: 6

 DNR agrees and has requested funding for implementation of the management plan and management of the site. We will work with all those identified by the reviewer.

Appendix B

Need to add another King County bullet for the Seattle/King County Health Department, Environmental Health Division. They are the lead entity for septic systems on the lands adjacent to the Maury Aquatic Reserve.



Appendix C, 1.2.1, Freshwater Hydrology

The July 2004 Vashon-Maury Island Rapid Rural Reconnaissance Report has divided Maury Island into watersheds. This is shown on Figure 7-1 and is based on a 2002 stream inventory conducted by Washington Trout and available on their website. In December 2003, WLRD staff observed spawning adult chum salmon in Raab's Creek at Dockton Road and coho in Mileta Creek at Dockton road both streams are on Maury Island draining to Quartermaster Harbor.



Conclusion

King County WLRD supports Alternative 1 (preferred alternative) in the SEIS for the Maury Island Aquatic Reserve. We also look forward to working with WDNR in implementing the management plan for the Reserve since there are many opportunities to coordinate the resources of our two agencies. If you have any questions regarding this letter or the comments herein please contact Ray Heller, Vashon-Maury Island Steward at 206-296-8391. Thank you for the opportunity to comment.



Sincerely,


Daryl Grigsby
Division Director

DG:vd

cc: Bill Eckel, Manager, Land and Watershed Stewardship, Water and Land Resources Division (WLRD), Department of Natural Resources and Parks (DNRP)
Clint Loper, Manager, Watershed Stewardship Unit (WSU), WLRD, DNRP
Ray Heller, Vashon-Maury Island Basin Steward, WSU, WLRD, DNRP
Steve Foley, Engineer, Stormwater Services, WLRD, DNRP
Steve Burke, Manager, Noxious Weed Unit, WLRD, DNRP
Randy Shuman, Manager, Science, Monitoring and Data Management - Scientific and Technical Support Section, WLRD, DNRP

Sequence number: 1

 Seattle/King County Health Department Environmental Health Division has been added to the description of other managers contained in Appendix B.

Sequence number: 2

 DNR will include this information in section 4.1.1, Salmonids in appendix C.

Sequence number: 3

 We appreciate King County WLRD support and look forward to working with King County staff as we implement the management plan.

From:
To: SEPACenter@dnr.gov>
Date: 8/26/2004 3:08PM
Subject: Proposed Maury Island Aquatic Reserve

Public Comment:

I believe at least a few minutes of the Public Hearing should have been devoted to a comparison/explanation of the proposed management alternatives, as was requested. Without that, those of us who had not had the opportunity to fully digest the tomes of related hard copy were robbed of our ability to comment thoughtfully and constructively, leaving the field to shoreline property owners and other property rights folks who had no trouble identifying the hands-off, #, as their preferred. 

I appreciated getting the Aug. 12 summary, therefore, but again comparison was very difficult because only the preferred alternative, #, was not fleshed out. For Leading & Partnering Activities, and for Outreach to Adjacent Landowners, \$pecific areas of work are not defined"for \$. It is extremely disappointing to me when we have waited so many months to get to this point. I will, therefore, not deal in specifics, but comment that I support whatever management practices will do the most to preserve this Reserve in the most ecologically pristine way. It was chosen for a Reserve (twice) because of its unparalleled biological resources. I would deem all consumptive (extractive) leasing -- for fish, gravel, or other natural resource -- to be incompatible conservancy uses and strongly urge against allowing them whether they are new or existing.  

Ellen Kritzman

Page: 1

Sequence number: 1

 The draft SEIS was issued on July 13 and the public meeting was held on August 10 with the intention of providing people with adequate time (28 days) to review the documents prior to the hearing. There were a total of 45 days provided for public review of the DSEIS and management plan. Also, comments made during the public hearing carry no more weight than the written comments submitted regarding the DSEIS.

Sequence number: 2

 Under alternative 3, no specific partnering and outreach activities would be defined.

Sequence number: 3

 Section 5 and appendix O of the management plan were established to promote conservancy at the site and define compatibility with reserve designation.

From:
To:
Date: 8/25/2004 4:13PM
Subject: Maury Island Aquatic Reserve

Phil,

I wanted to put in my two cents but felt I could not do so at the public hearing because I hadn't fully read the documents, and no comparisons were made that night, unfortunately. Therefore it was good to get the hearing summary mailed out about 10 days ago. I am still having some trouble, however, because only the first, preferred, alternative is really fleshed out. I like the pro-active approaches proposed in #, but don't quite know how to evaluate them against \$, where specific areas of work are not defined. The reverse seems true with regards to management of leases, where # is based on a set of established criteria, but those criteria are not stated, while \$ is based on existing state mandates and guidance, and the Aquatic Reserve FEIS. Could you tell me whether leasing is permitted under both options, or only #. Does compatibility of a lease operation with ecological conservancy and Reserve purposes play a role?



Thank you,

Ellen Kritzman

Page: 1

Sequence number: 1

 The critical difference between options 1 and 3 is that alternative 1 would include the proposed management plan and a slightly reduced reserve boundary, while alternative 3 would include the original boundary from the 2000 commissioner's Order and would not include site-specific management guidance.

Sequence number: 2

 The criteria are in section 5.2 and appendix O of the management plan.

Sequence number: 3

 Neither option 1 or 3 precludes DNR from considering a lease.

Sequence number: 4

 Yes, the management plan defines the criteria that users must adhere to in order to be considered compatible with the reserve.

Aug 10, 2004

Ref. File No. 03-100801

To: Rochelle Doss, SEPA Center

From: Paul W Lemley DMD
Property Owner on Quartermaster Harbor

Subject: Proposed strategies for a Maury Island Aquatic Reserve

I am responding to your mailing of July 13, 2004
Many questions have come to mind since receipt of this letter

1. Why does the state think that more management of these waters over and above the already existing laws necessary?  1
2. What will be the impact on the historic recreational use of the harbor, fishing crabbing, and water skiing?  2
3. What about existing bulkheads repair etc?  3
4. Then there is Dockton Park ,Jensen launching ramp, the local Yacht club, Camp Burton , private buoys,floats?
5. And I am sure the list will go on, also what are the costs to the private homeowner and why should this be any extra expense?  4

I wont be able to attend the Aug 10th meeting but I feel that these and other questions must be answered before any type of additional management be implemented. Also in Alternative 3 please explain "Withdrawn area"  5

At this time no action should be taken except Alternative 2.

Sincerely



Paul W Lemley DMD
9323SW Quartermaster Dr
Vashon WN. 98070

Page: 1

Sequence number: 1

 The site is being proposed as an aquatic reserve to ensure environmental protection of the unique habitat and species at the site. The draft management plan identifies the specific actions that DNR would implement in its management of these state owned lands.

Sequence number: 2

 If successful, the management actions proposed for the site will improve habitat conditions and enhance fish and crab stocks.

Sequence number: 3

 This action primarily occurs on private property, which is not part of the reserve nor management by DNR. King County manages bulkhead construction and repair.

Sequence number: 4

 There have been no costs to the private homeowner associated with establishing the aquatic reserve.

Sequence number: 5

 "Withdrawn area" implies that no future use authorizations would be granted that alter, remove, and /or otherwise change any existing environmental or cultural characteristic of the reserve, except for use authorizations that primarily serve the objectives of the reserve designation.

August 27, 2004

Ms. Jennifer Gitchell
SEPA Center
Washington Department of Natural Resources
P.O. Box 47015
111 Washington Street SE
Olympia, WA 98504-7015
sepacenter@wadnr.gov

Dear Ms Gitchell:

The proposed management plan for the Maury Island Aquatic Reserve as set forth in the “Draft Supplemental Environmental Impact Statement” of July 13, 2004, represents a considerable expenditure of time and effort by DNR and the personnel involved. The result is extremely complex and difficult to provide adequate analysis and comment. On the one hand, the proposal simply ratifies DNR’s responsibilities for balancing exploitation of the reserve lands with environmental protection of the same lands.

The “preferred alternative” tries to do both. In providing continued leases for existing leases and condoning existing non-conforming uses, the muscle of the reserve designation is lost. On the other hand, the turmoil and community opposition that would be generated by denying leases currently enjoyed and pursuing a heavy handed approach to existing uses (buoys, docks and such) would deny the obvious advantage of the reserve designation.

I have been opposed to the expansion of Glacier Northwest’s mine on Maury Island. There are a number of inaccuracies in your description of the current operation which should be corrected;

1. Page 93, “Glacier Northwest – Maury Island Gravel Barge Loading Facility” inaccurately describes the current situation of the mine. Mining is not allowed on any previously undisturbed property on-site to avoid toxic laden over-burden. 1
2. There is no screening plant, and no conveyor. 2
3. The dock was declared unusable by the Army Corps of Engineers years ago. 3

These inaccuracies have been corrected in the many environmental documents submitted in Glacier’s applications for permits since their original application. These inaccuracies should not appear in a current environmental document.

The Management Plan includes these inaccuracies. Page 53, 5.2.3.4, “Glacier Northwest’s Maury Island Gravel Barge Loading Facility”. In addition, the second 4 bullet, page 55, same section notes limits on construction, maintenance and operational noise be eliminated during forage fish spawning periods “if facility is located in or near spawning areas.” As was developed by the Washington Department of Fish and Wildlife, herring spawn takes place along the Eastern shore of Maury Island to a point north of the Glacier dock. This position was listed as an option for the boundaries of the reserve as recommended by members of the TAC. Since this spawn has been established and is included in DNR’s own findings, the limits recommended should be made a part of any lease granted Glacier.

Page: 1

Sequence number: 1



These corrections will be made in the FSEIS.

Sequence number: 2



This has been clarified in the management plan and FSEIS.

Sequence number: 3



DNR is not aware of an Army Corps declaration about the condition of the dock.

Sequence number: 4



The conditions in the management plan will be required of Glacier, as well as any other existing and proposed uses in the reserve.

As I indicated at the outset, this is a difficult proposal to understand and will be even more difficult to effectively administer. The talent is obviously available in DNR as it is in the communities around the reserve, but it will take considerable effort by the community, King County and DNR to make it work. I support the reserve concept and the recommendations for Alternative 1, but think we have made this whole process overly complex and onerous.



Very truly yours,

Donald W. Marsland

Sequence number: 1

 We appreciate your support. DNR's approach to implementation would be based on taking the time and acquiring the necessary resources to effectively manage the site to protect the critical aquatic resources at the site. DNR acknowledges your support of alternative 1.

August 9, 2004

Department of Natural Resources
Attn: SEPA Center, Maury Island Aquatic Reserve
PO Box 47015
Olympia, WA 98504-7015

I would like to offer my public comment on the issue of establishing an aquatic reserve at the Maury Island site.

I have been a private landowner of a beachfront cabin inside Quartmaster Harbor for many decades. My family and I have been responsible advocates of tending to the environment in all aspects of our maintenance and repair of the home and bulkhead. We have not witnessed any serious degrading of the marine wildlife in front of our place and do not see the necessity for the government to take over it's management.



Our vote is for **ALTERNATIVE 2 - NO RESERVE STATUS at the Maury Island Site. DNR should repeal the existing reserve designation and return the state-owned lands to general leasing status.**



I feel that the plan being proposed would lead to regulations and restrictions affecting the private property rights of U.S. citizens such as myself who own and care for our valuable waterfront residences.



Respectfully,

George Mael

cc: Doug Sutherland, Commissioner of Public Lands
King County Council, Critical Areas Ordinance
Governor Gary Locke

Page: 1

Sequence number: 1

 Good stewardship, as expressed by the reviewer, is important to the success of conserving the aquatic habitat of the reserve. The reserve program is based on preserving critical local, regional, and state habitat not on the condition of the habitat. DNR has managed state-owned aquatic land since the beginning of the 20th century (see reviewers second paragraph).

Sequence number: 2

DNR acknowledges the support for alternative 2.



Sequence number: 3

 The aquatic reserve management plan states that DNR Aquatic Resources Program does not manage private property. The management plan proposes that property owners voluntarily practice good stewardship to compliment the important resources on adjacent public lands.

August 27, 2004

Ms. Jennifer Gitchell
SEPA Center
Washington Department of Natural Resources
P.O. Box 47015
111 Washington Street SE
Olympia, WA 98504-7015
sepacenter@wadnr.gov

Dear Ms. Gitchell:

The following are comments from Preserve Our Islands regarding the draft management plan and Draft Supplemental Environmental Impact Statement for the Maury Island Aquatic Reserve.

- a) It is Preserve Our Islands' position, as it is King County's position, that Glacier's proposed industrial pier within the aquatic reserve is **not** a water dependent use. This issue is still before the courts and we believe that is the appropriate venue for this determination.  1
- b) We concur with DNR's position that Glacier's proposed facility on Maury Island is an "industrial pier." As such, it should not be allowed in a conservancy environment. We support King County's position that this is an industrial/commercial use and that the  2 facility should not be allowed in a conservancy environment.
- c) We concur with DNR's approach that the management plan should involve working with willing adjacent landowners and the community on restoration projects and to ensure that recreational uses are optimized. This further emphasizes the reason that Glacier's  3 proposed barging facility should not occur within the reserve, due to the recreational uses at the site, i.e. diving, recreational boating, kayaking, birdwatching, etc.
- d) In the recent shorelines hearing regarding Glacier's appeal of King County's denial of  4 their permits, Glacier Northwest presented an appraisal to the Shorelines Hearings Board showing the value of the current barging facility, in its current condition, as \$20 million. While Preserve Our Islands does not concur with this valuation, nor does King County, it is clear that Glacier Northwest should be providing their appraisal to the Commissioner and should be amenable to paying back lease payments based on their valuation.

Since 1978 Glacier has paid less than \$500 per year to WADNR for use of these valuable public tidelands. As noted before the Shorelines Hearings Board, based on Glacier's valuation of their current non-serviceable dock, the multinational should have been paying approximately \$133,000 per year to WADNR for the privilege of having their industrial

Page: 1

Sequence number: 1

 The Shoreline Hearings Board partial summary judgement of August 10, 2004, Issue 6(b) determined that the Glacier pier is a water dependent use. This is pertinent to the King County permit. Based on the definition in Chapter 332-30-106(75), DNR defines Glacier's proposed facility as a "water dependent use." (terminal and transfer facility).

Sequence number: 2

 This definition is relevant to King County regulations and will guide their decision about the appropriateness of the pier. We have changed "industrial pier" to "resource use" in in the FSEIS and management plan to be consistent with King County defining the facility as "mineral". DNR leases must however, be consistent with local permitting requirements. Presently the Shoreline Hearings Board is determining if the pier is an appropriate use in a conservancy environment.

Sequence number: 3

 With the exception of the footprint of the pier, both the existing and proposed, very little area will be excluded (if any) from other public uses.

Sequence number: 4

 This issue is not pertinent to the management plan.

barging facility on these tidelands. Due to the difference between actual lease payments which were made and the valuation which the multinational has now placed on their facility, it is critical that the Commissioner consider requesting back payments from Glacier N. W. 

Sincerely,

Libby McLarty
President
Preserve Our Islands.

Cc: Francea L. McNair, Aquatics Land Steward
Commissioner of Public Lands Doug Sutherland
King County Executive Ron Sims
Kathy Fletcher, Executive Director, People for
Puget Sound
Ellen Kritzman, Vashon-Maury Island Audubon

Sequence number: 1

 Rent and back rent (if due) will be determined prior to issuance of an authorization if the project goes forward.

From: Meriwether, Frank"Frank.Meriwether@OH.WA.GOV"
To: Dave Palazzi (E-mail)"David.Palazzi@dnr.gov"
Date: 7/20/2004 10:28AM
Subject: Maury Island Mgt Plan

Hi Dave,

The Tacoma News Tribune had a good article yesterday on the work that your office is doing at Maury Island, with good links to the draft plan. I read through some of the 7/13 Draft Mgt Plan for the Maury Island Env. Aquatic Reserve, and have two comments in Section 5.2.2.10 (Marinas and Public Docks):

- The Department of Health establishes closure zones around marinas, including marinas with pumpout facilities, and including marinas that have a watch person or harbormaster on site. These closure zones are mandated by the National Shellfish Sanitation Program. 
- We appreciate and support the mandate by DNR to require all new marinas to have pumpout facilities and to adopt BMPs. Is this a DNR policy? If so, I would like to get a copy of that requirement. 

Thanks for the opportunity to comment, and for your assistance,

Frank Meriwether
(360)236-3321
Fax: (360)236-2257
frank.meriwether@h.wa.gov

Public Health - Always Working for a Safer and Healthier Washington."

CC: Woolrich, Bob"Bob.Woolrich@OH.WA.GOV"

Page: 1

Sequence number: 1

 We will recognize the closure zones in the management plan in section 5.2.2.10.

Sequence number: 2

 This is not a DNR policy. This is a management action drafted for marinas at the Maury Island site.

From: Ron Mitchell"
To: SEPACenter@dnr.gov>
Date: 8/11/2004 4:38PM
Subject: Wshon-Maury Commentary RE: File No. 03-100801

Doug Sutherland
Washington State Commissioner of Public Lands
C/O
Rochelle Goss / ET All Staff SEPA Center.

August 11, 2004

Re: Written Commentary pertaining to the draft version or the proposed aquatic reserve affecting Wshon-Maury Islands King County Washington.

Dear Mr. Sutherland,

The following should be considered a specific request involving the decision of the Wshon-Maury aquatic reserve proposal. Myself as well as many other concerned citizens within the Wshon-Maury community have evidence that the Glacier Mining opposition group specifically influenced the conception and creation of this reserve. Based upon past and present experience of 1 wasteful and reactive governmental bodies affecting our area, a decision to create such a reserve will become a hardship and will likely cause financial damage resulting in negative consequences. These consequences will be caused specifically due to direct and peripheral affects stemming from the creation of this reserve and management plan. This plan appears to have been intentionally written with the vagueness of an item with hidden agendas. These affects are not listed within any of your studies, submittals and have not apparently been a part of your investigations.

The residents of Wshon-Maury Islands that will be forced to endure this hardship are the same residents that have contributed to the proven positive recovery to our islands water ecosystem over the last 10 to 20 years. You 2 as the commissioner of public lands must consider not only the fiduciary affect of your project but must create a balance between the environment and the people of which exist and pay for its protection. As member of organizations that contribute to environmental concerns, it has been repeatedly proven that Education and positive involvement is a much more productive approach to your objective. A forceful bureaucratic and damaging approach only raises additional concerns that some unknown persons will 3 intentionally disregard your newly found reserve with such disdain that it will undo the very thing you are attempting to accomplish.

I formally request this issuance of "Alternative #2 (No Reserve Status)" as listed within the August 10, 2004 public hearing. I am as others many others within this community do not believe that additional bureaucracy and controls, including the cost to monitor manage this new undeveloped system is an appropriate use of public funds. It would seam that a better use of 4 these said " already appropriated " funds would be better used to improve sites with known failing environmental conditions, not an area that is environmentally improving.

The below list are bullet point list of questions I and others have compiled awaiting direct response information and/or answers:

Page: 1

Sequence number: 1

 In depth review is based on programmatic criteria described in the Non-Project Final Environmental Impact Statement - Aquatic Reserves Program Guidance. September 6, 2002. DNR believes the reserve will have a positive impact on the environment and local community.

Sequence number: 2

 State-owned aquatic lands are managed as a public trust, not a fiduciary trust. State law directs the DNR to manage state-owned aquatic lands for a balance of public benefits which are described in Section 2 of the management plan.

Sequence number: 3

 Education and outreach are part of the management plan, described in section 5.3.5.

Sequence number: 4

 DNR acknowledges your support of alternative 2. Protecting existing habitat is more efficient than improving degraded habitat.

- * How much has been spent to date on this specific project?  1
- * What is the proposed annual expected cost of the proposed management?  2
- * Why was this area extended from the original proposal "South Eastern shoreline of Maury Island"?  3
- * What programs have been created to stop the continued damages to Puget Sound in target damage areas specifically Urban Municipalities and their impact?  4
- * If there are systems in place to the (above mentioned) question, why are they not the focus of action? (Because they are not working)  5
- * As Washington State is in a severe budget deficit, how do you plan to pay for and administer this plan?  6
- * Why have your studies included peripheral affect? i.e. Stepping-stones by other bureaucracies for more enforcement.  7
- * What comparatives have been made from existing compliant requirements from other agencies?  8
- * Due to the affect of the endangered species act on Puget Sound from the federal government, why has not methods to reverse, suspend or amend the older legal decisions the continued unmonitored harvesting been investigated?  9

(Statement for contemplation) We are spending millions to remove productive dams to facilitate federal requirements. At the unmonitored harvesting by specific ethnic groups using the most modern of means is solely based upon a treaty issued at a time there were no endangerment concerns and harvesting was performed using dugout canoes and hand made nets. Could it be possible that for the welfare and entitlement of all the federal recognized endangered mandates could be helpful in controlling the unbalanced taking of a natural resource? 

* How many authorized artificial reefs does the DNR endorse and are there specific guidelines? 

* Are there any plans to open the isthmus (a man made closure) between Ashon-Maury Island? 

* Why is the use and replacement of existing pilings docks and other structures streamlined with a co-agency permit process that encourages the use of materials beneficial to the environment? 

(Statement for contemplation) The present system is anti-development and is unfriendly costly and cumbersome causing the reverse (non-approved installations). This has been an attitude carried the far extreme with threatening letters and actions by persons within all agencies to the general public.

* Relevant to the statement above, It would seam again this is policy though it is common recognized knowledge that sea life is attracted and benefits 

Page: 2

Sequence number: 1

 Cost include staff time, printing costs, travel and meeting room rentals for the last 16 months. This amounts to roughly \$100,000.

Sequence number: 2

 Section 7.0 of the management plan outlines a proposed capital and management funding. It estimates that one staff person will be working part time to manage the site (roughly \$25,000/yr.). Funding for research, monitoring, specific projects, acquisition and other elements proposed in the management plan will be determined when these specific components are implemented.

Sequence number: 3

 The original area included Quartermaster Harbor as well as the eastern and northeastern shore of Maury Island. See Appendix C on page 138 of the DSEIS.

Sequence number: 4

 These efforts have primarily been implemented through changes in local, state, and federal land use regulations.

Sequence number: 5

 The management plan states that DNR would work cooperatively with regulatory entities(ie., King Co., WDFW, Ecology)

Sequence number: 6

 The budget for the aquatic reserve does not utilize state general funds. DNR will fund the administration of the management plan through rents collected from the use of state-owned aquatic lands.

Sequence number: 7

 DNR's studies have not included a look at a "peripheral affect." DNR does not have any authority over the regulations developed by other agencies. However, DNR does support a coordinated effort with other local, state, federal and tribal agencies to support the conservation of the unique resources identified at the Maury Island site.

Sequence number: 8

 We have considered other regulatory authority in the development of the management plan to avoid duplicity and this effort would continue throughout implementation of the management plan.

Sequence number: 9

 Fisheries are managed for the state by WDFW and outside the scope of the proposed action.

Comments from page 2 continued on next page

* How much has been spent to date on this specific project? 

* What is the proposed annual expected cost of the proposed management? 

* Why was this area extended from the original proposal "South Eastern shoreline of Maury Island"? 

* What programs have been created to stop the continued damages to Puget Sound in target damage areas specifically Urban Municipalities and their impact? 

* If there are systems in place to the (above mentioned) question, why are they not the focus of action? (Because they are not working) 

* As Washington State is in a severe budget deficit, how do you plan to pay for and administer this plan? 

* Why have your studies included peripheral affect? i.e. Stepping-stones by other bureaucracies for more enforcement. 

* What comparatives have been made from existing compliant requirements from other agencies? 

* Due to the affect of the endangered species act on Puget Sound from the federal government, why has not methods to reverse, suspend or amend the older legal decisions the continued unmonitored harvesting been investigated? 

(Statement for contemplation) We are spending millions to remove productive dams to facilitate federal requirements. At the unmonitored harvesting by specific ethnic groups using the most modern of means is solely based upon a treaty issued at a time there were no endangerment concerns and harvesting was performed using dugout canoes and hand made nets. Could it be possible that for the welfare and entitlement of all the federal recognized endangered mandates could be helpful in controlling the unbalanced taking of a natural resource? 

* How many authorized artificial reefs does the DNR endorse and are there specific guidelines? 

* Are there any plans to open the isthmus (a man made closure) between Ashon-Maury Island? 

* Why is the use and replacement of existing pilings docks and other structures streamlined with a co-agency permit process that encourages the use of materials beneficial to the environment? 

(Statement for contemplation) The present system is anti-development and is unfriendly costly and cumbersome causing the reverse (non-approved installations). This has been an attitude carried the far extreme with threatening letters and actions by persons within all agencies to the general public.

* Relevant to the statement above, It would seam again this is policy though it is common recognized knowledge that sea life is attracted and benefits 

Sequence number: 10

 DNR does not share the reviewers statement regarding treaty rights.

Sequence number: 11

 DNR does not have an established policy on endorsing (or not) artificial reefs. The position would be established based on existing site conditions.

Sequence number: 12

 Presently there are no plans to open up portage, although this may be studied under section 5.1.3 of the management plan.

Sequence number: 13

 To support the use of more eco-friendly materials.

Sequence number: 14

 Underwater structures, whether installed properly or not, could provide benefits to some aquatic species. However, it may not be favorable for all species and may not be compatible with existing habitat.

August 26, 2004

Loren Stern, Manager
Aquatic Resources Division
Department of Natural Resources
P.O. Box 47027
Olympia WA 98504-7027

Dear Mr. Stern:

Thank you for the opportunity to comment of the Draft Environmental Impact Statement and Draft Management Plan for the Maury Island Aquatic Reserve. People For Puget Sound is a citizens' organization working to protect and restore the health of Puget Sound and the Northwest Straits. We applaud the Department's commitment to establishing and managing aquatic reserves and thank the staff for the work done to produce these documents.

As DNR observed in its 2003 State Aquatic Reserves Technical Advisory Committee Recommendation, the Maury Island site is "unique and critical for conservation," due to overall habitat diversity that includes "extensive eelgrass beds, kelp beds, limited salt marsh habitat, herring and surf smelt and sand lance spawning grounds, Chinook salmon and bull trout migratory corridors, bottom fish rearing habitat, and important wintering grounds for Western Grebe."

Due to the vitally important ecological resources listed by the DNR Committee and the lack of certainty as to the ultimate management decisions that could be made based on the DEIS Preferred Alternative, People For Puget Sound supports the No Action Alternative (Alternative 3), which would maintain the existing reserve  1 designation, with management decisions guided by the "general management actions' presented in the programmatic Final Environmental Impact Statement for the Aquatic Reserve Program (September 6 2002). The Draft EIS states on page 37 that under Alternative 3, "...in general, no future use authorizations would be granted that alter, remove, and/or otherwise change any existing environmental or cultural characteristic of an established reserve...."

Under Alternative 3, the general management actions that would govern are given in the 2002 FEIS on page 26 and would have the "primary effectthat some low-impact activities may continue and expand, assuming they are compatible with the objective of the reserve. However, future leases that are not compatible with reserve goals will not be allowed." We read this statement to parallel the  2 Commissioner's Withdrawal Order, dated November 17, 2000, which found that "the aquatic resources surrounding Maury Island will benefit greatly by reducing and/or preventing further certain leasing activities and associated disturbances...."

The draft EIS notes on page three that "Development has contributed to the declining health of Puget Sound's and the state's other aquatic resources, including

Page: 1

Sequence number: 1

 The management plan developed for alternative 1 provides guidance for the management decisions at the site. Alternative 3 has no guidance to support the "no future use authorizations" statement.

Sequence number: 2

 Alternative 3 has no "reserve goals" to base a determination as to what uses are compatible at the site. The elements of the management plan established for Alternative 1 were developed to reduce and prevent further degradation of the resources identified for conservation at the site.

coastal and freshwater systems. Species that are dependent on those resources are impacted by the changes in the

state’s landscape and are declining in health and numbers.”

There can hardly be any justification for further impacts to Puget Sound, especially when those impacts can be totally avoided, as required by the State Environmental Policy Act, through a scientifically based aquatic reserve program that precludes further impacts from leasing. As DNR noted in a recent report, “Current conditions in Puget Sound, for example, bear an alarming resemblance to those of Chesapeake Bay 20 years ago.”¹ The report goes on to note that Puget Sound is experiencing the same pattern of decline as other dying water bodies, such as the Baltic Sea and the Gulf of Mexico. Look no farther than Hood Canal for evidence that Puget Sound itself is in deep jeopardy.

The only responsible way to address a system in such decline is to use the precautionary approach, best available science, the principles of conservation biology, and adaptive management. People For Puget Sound is deeply concerned that the Preferred Alternative and Draft Management Plan do not employ these four methods and do not, therefore, provide the requisite certainty that the Maury Island site will indeed be protected to the full extent of the law. 

Indeed, we strongly urge the Department to reorder its priorities and first conduct a programmatic EIS on its leasing program before it sets out to develop reserve management plans that are based, at least in part, on a leasing program that has not been sufficiently evaluated for its impacts on aquatic lands. 

Alternative 3 is the option of the three alternatives presented that would at least provide a precautionary approach toward ensuring environmental protection of this important aquatic site, which is the goal DNR puts forth for its aquatic resources program. 

If the Preferred Alternative were adopted, we would respectfully remind the Department that any new or amended leases in the Maury Island Aquatic Reserve would require an environmental impact statement under SEPA. 

Again, thank you for the opportunity to comment, and we look forward to working with your staff on this and other aquatic reserves. 

Sincerely,

Kathy Fletcher

¹ *Changing Our Water Ways, Trends in Washington’s Water Systems*, Washington State Department of Natural Resources, 2000, page 18.

Page: 2

Sequence number: 1

 DNR acknowledges PPPS concerns and welcomes your cooperation with DNR and the other resource agencies efforts to ensure the resources identified for conservation at the site are adequately protect as we implement the management plan

Sequence number: 2

 DNR requires all leaseholders to comply with environmental regulations, which includes the duty to conduct SEPA when appropriate.

Sequence number: 3

 Alternative 3 includes the boundary from the 2000 Commissioner's Order and would continue to allow leasing in the area and would not provide specific guidance related to uses that would be in conflict with the reserve.

Sequence number: 4

 Most leasing activities that occur on state-owned aquatic lands would require SEPA review under any circumstances.

Sequence number: 5

 DNR welcomes opportunities to work on aquatic reserve issues with People for Puget Sound.

From: Bianca Perla
To: <sepacenter@wadnr.gov>
Date: 8/26/2004 9:11PM
Subject: Comment letter for Vashon Maury Island Marine Preserve DEIS

Jennifer Gitchell
SEPA Center
Washington Department of Natural Resources
PO Box 47015
1111 Washington Street SE
Olympia, WA 98504-7015
sepacenter@wadnr.gov

August 26, 2004

Dear Ms. Gitchell,

We support the preferred Alternative 1 for the Vashon-Maury Island Aquatic Reserve. Quartermaster Harbor and the Maury Island shoreline host regionally important spawning, breeding, feeding, and migratory bird habitats. Formal recognition of the importance of these areas, and a concerted effort to develop a comprehensive management plan for this area are imperative to assuring the health of these places into the future and we believe that Alternative 1 can accomplish this. 

In the DEIS, there is mention of Washington State Department of Natural Resources (WADNR) intention to include resident input, education, and voluntary programs but there is no mention as to how this will be done and to what extent. We would like to see more detailed information on how local residence involvement in the preserve will be encouraged. 

Eliciting community participation could take many forms from involving local island groups in assisting interested landowners with restoration projects, to supporting a community driven draft plan for the reserve headed by a Vashon Community Council group, to setting up a review board of island residents, to turning over management of the reserve to a local island group, like Vashon Parks District, and holding this local management group accountable through biological monitoring of reserve health done by WADNR. We believe that it is imperative to the success of the reserve that there is a formalized structure not only for community input and comment, but also for community participation-including creation of management plans, and participation in adaptive problem solving, monitoring, and implementation. 

Thank you for considering our comments. 

Sincerely,

Bianca Perla and Harrison Knowler

Karen Perla

Page: 1

Sequence number: 1

 DNR acknowledges and appreciates the reviewers support of alternative 1.

Sequence number: 2

 Section 5.3.3 Outreach and Education in the management plan describes DNR's proposed management of this important aspect of reserve management. The details of what and how will this be done will be established when specific needs and opportunities are identified.

Sequence number: 3

 DNR fully intends to integrate willing members of the local community in the management of the aquatic reserve.

Sequence number: 4

 We appreciate your support and will consider your comments as a notice to DNR of your desire to participate in reserve decision making and activities.

From: "Allan Query"
To: <sepacenter@wadnr.gov>
Date: 8/15/2004 2:27PM
Subject: File No. 03-100801, re. Proposed Maury Island Aquatic Reserve

re. File No. 03-100801

Having reviewed the DSEIS and the Draft Maury Island Reserve Management Plan, we have to say that Aquatic Reserve designation for the Quartermaster Harbor area just doesn't make sense. With the possible exception of better protective management along the east shore of Maury Island related to the gravel mine and "gravel barge loading facility", there appears to be little need or public interest to interfere with the long established users in the area. 

We are particularly concerned that boating related facilities and private property owners in the area will be negatively impacted by the apparent maze of regulation enforcement, agencies interference, required mitigations, and "voluntary incentives" that will be that will become regular requirements. It just doesn't appear to be needed or wanted, and it will cost the taxpayers of the state unnecessarily. 

We therefore wish to strongly recommend that Alternative 2 be adopted, that is to repeal the Aquatic Reserve designation for Maury Island. Thank you for receiving this comment and we hope you will consider our desires, especially our concern that traditional and even enhanced recreational boating facilities in Quartermaster Harbor be actively encouraged rather than "allowed if....." 

Sincerely,

Allan and Denise Query (Maury Island property owners near Rosehilla Beach)

Page: 1

Sequence number: 1

 The Aquatic Reserve Technical Advisory Committee (TAC) recommended the site as an aquatic reserve because of the extensive eelgrass beds, herring spawning, and winter migratory bird use that occurs primarily within Quartermaster Harbor. The proposed gravel barge loading facility was not an issue for the TAC.

Sequence number: 2

 If the reserve is established it will be at no additional cost to taxpayers of the state. Also, WDNR does not have the authority to regulate private property.

Sequence number: 3

 DNR acknowledges your support of alternative 2 and recognizes the importance of public use of the proposed reserve area, including boating facilities.

From: SEPACENTER
To: PALAZZI, DAVID; PRATT, CYNTHIA
Date: 8/9/2004 9:15AM
Subject: Fwd: Maury Island Aquatic Reserve, File # 03-100801

Greetings:

following are two comments relating to File # 03-100801, plus some background about my comments. These comments are specific to Quatermaster Harbor, the bottom of which is covered by a deep layer of glacial clay silt.

1. Mooring buoy's can be beneficial to the ecosystem of Quartermaster Harbor. These buoys and the anchor line and anchor support a large variety of marine flora which in turn attracts and supports a variety of marine fauna, including birds, fish, crab, worms, etc. A quick skin diving tour will bear this out.



In the winter, attaching a log to the buoy (for a period long enough so that marine growth can accumulate and hence support a variety of marine creatures) provides a welcome way station for birds, including Blue Herons and the migratory fish eating birds that visit us each year. (At times we have had so many Cormorants on the log that it was in danger of sinking!).

2. Large wakes from passing cruisers, especially during low spring/summer tides, damage marine flora and the attached eggs of fish and other creatures, plus the waves stir up the silt causing strife for virtually all marine flora and fauna. This is especially true in all areas north of the outer Quartermaster Harbor Coastguard buoy.



My background, so that you can gain some confidence in my comments: Marine biology and zoology courses associated with a major in geological oceanography.

Ten years living on Quartermaster Harbor. Five years living on the waterfront in West Seattle. Three years living on the waterfront at Cove on the West side of Vashon. Five years working for the US Coast and Geodetic Survey. Twenty years of skin diving throughout Puget Sound. Avid fisherman for twenty years. A keen interest in all areas related to our marine environment and the flora and fauna. Multiple small personal projects to improve the marine environment (beach cleanup, construction of small reefs, removal of creosote logs, etc.)

I attended your previous public meeting on Vashon and noticed that some folks were a bit overboard pro as well as con regarding the Maury Island Aquatic Reserve. I feel that a large number of the comments during the meeting were not based upon science but more on personal feelings. Hopefully, cool heads will prevail and a reasonable solution will result. I will send comments on the Management plan after the meeting on August 10th.



Thanks for you time.
Sincerely,
Jack Rowlands

Page: 1

Sequence number: 1

 Areas that lack natural complexity and heterogeneity may become more biologically active when structures are added. Care must be taken to ensure that such structures are not also harmful to the natural environment. For example, line from mooring buoys can scour and damage aquatic vegetation if improperly installed.

Sequence number: 2

 Washington DNR does not have authority to regulate commercial or recreational navigation.

Sequence number: 3

 We appreciate your insight and support.

8/24/04

Washington State Dept. of Natural Resources
concerning Mawry Island Aquatic Reserve

After attending the hearing on Aug. 10th on Vashon Island we believe we do not need an aquatic reserve. We heard from several different people speaking for and against. We are property and tidelands owners at Burton. We have lived on our property for 70 years and have been able to observe our water and tidelands and birds. We believe our area is just fine and does not need managing. The water quality is all right and the blue herons are becoming more plentiful, the butter clams are coming back, so we think conditions are improving. We also feel that the reserve status directly affects us. People who do not live here will not be directly affected. One of the young women who spoke at the meeting said she wanted conditions to be good for her children. At least, where we live conditions are good and I want this property

Page: 1

Sequence number: 1

 DNR acknowledges the reviewers preference for alternative 2.

Sequence number: 2

 The area is being managed as an aquatic reserve because of the unique regional habitat and species use at the site and not necessarily the condition of these resources.

Sequence number: 3

 The management plan in section 5.4 states that DNR will work cooperatively with voluntary adjacent land owners. The goal of the reserve is to have a positive effect on the aquatic environment that will benefit everyone.

to be enjoyed by our children too,
free and clear of unneeded management,
and restrictions. I don't understand
how someone can sit in Olympia and
arbitrarily say they are going to manage
areas where so many of us live, without
having lived here. 

We want government to leave us
alone. We prefer Alternative 2 of the
Mauzy Island Aquatic Reserve Draft
Plan. 

Herb and Ann Dattler

Page: 2

Sequence number: 1

 DNR does not intend to manage private property. However, DNR has the mandate to manage state owned aquatic lands. Both DNR and the reviewer share the common goal of trying to assure that future generations will be able to enjoy the area.

Sequence number: 2

 DNR acknowledges your support of alternative 2.

From: SEPACENTER
To: PALAZZI, DAVID; PRATT, CYNTHIA
Date: 8/6/2004 9:52AM
Subject: Fwd: Maury Is. aquatic reserve

>>>

As a property owner on Quartermaster Harbor I am continually amazed at the actions of a few Island residents whose only purpose in the creation of the above Reserve was to stop Glazier Sand and Gravel from utilizing its natural resources on this Island! These people were determined to stop all Glazier activities and it made no difference to them that further restrictions and potential harm would result to other property owners in the area. 

That, it seems to me, was the fundamental and only reason the former Land Commissioner was solicited to create this Reserve and why, in my opinion, reasons were created for the establishment of the Reserve in the first place. The Eel grass and Herring grounds arguments were pure rationalizations, afterthoughts and post justifications, nothing more!

Now that, as I understand it, Glaziers use of its property has been approved(a great saving to King County taxpayers in the overall cost of the third runway I might add) there would seem to continue to be no real reasons for the establishment or continuation of the Reserve in the first place. It would also seem that in reality no dire necessity exists or existed for the Reserve creation and it is highly restrictive on those presently and potentially owning land within or bordering on the Reserve area 


The Harbor area, by your own reports, is making a comeback on its own and why further governmental restrictions and regulations on use and enjoyment of lands within or abutting the Reserve escapes me. Waterfront and other land owners on this Island are now taxed at extremely high and burdensome rates and to place further governmental restrictions and interference on such use and enjoyment seems to me to be unwarranted and unwanted! 

Since one of the current Alternatives is " Repeal of the Reserve" (Alternative 2) I strongly urge you to adopt this Alternative and once and for all time put to rest a scheme designed only to stop a particular land owner and it's land use and one only favored by small and vocal minority of Vashon residents. Sincerely David and Elizabeth Schweinler 

Page: 1

Sequence number: 1

 The site was proposed as an aquatic reserve by the Aquatic Reserve Technical Advisory Committee. They recognized the significant regional resources at the site and felt they warranted special management under the reserve program.

Sequence number: 2

 Glacier's permit was not granted by the County. This decision is presently under appeal by the Shoreline Hearings Board. The operation of the gravel mine has no bearing on the present process for establishing the area as an aquatic reserve. The process for establishing any aquatic reserve are established in the Aquatic Reserve Programmatic EIS, September 2002.

Sequence number: 3

 The DNR Aquatic Reserve Program does not manage private property. Section 5.4 of the management plan directs DNR to seek voluntary cooperation from land owners adjacent to the reserve who are interested in conservation efforts that can benefit the aquatic environment.

Sequence number: 4

 The proposed reserve will place no additional regulations or additional tax burdens on private property owners. Property taxes are directly related to property values and the tax rates approved by the reviewer's elected officials.

Sequence number: 5

 DNR acknowledges the reviewers support for alternative 2 and appreciates the input on this matter.

From:
To: <sepacenter@wadnr.gov>
Date: 8/27/2004 3:56PM
Subject: 03-100801: Maury Island Aquatic Reserve

Re. File No. 03-100801

We support Alternative 1, an Environmental Aquatic Reserve at the Maury Island Site, from the DSEIS.



Sincerely,

Ann Stateler
Odin Lonning

Page: 1

Sequence number: 1



DNR acknowledges your support of the proposed reserve.



5050 First Avenue South
Suite 102
Seattle, WA 98134
P.O. Box 1730
Seattle, WA 98111
Telephone: (206) 764-3000

Fax Numbers:
Executive (206) 764-3012
Sales (206) 764-3014
Credit (206) 764-3012
Warehouse (206) 762-3077
Cement Terminal (206) 764-7176

August 27, 2004

Ms. Jennifer Gitchell
SEPA Center
Washington DNR
P.O. Box 47015
1111 Washington Street SE
Olympia, WA 98504-7015

Mr. David Palazzi
Washington DNR
Aquatic Resources Division
P.O. Box 47027
1111 Washington Street SE
Olympia, WA 98504-7027

Re: *Maury Island Aquatic Reserve Draft Environmental Impact Statement and Draft Management Plan*

Dear Ms. Gitchell and Mr. Palazzi:

Glacier Northwest submits the following comments for your consideration regarding the Draft Environmental Impact Statement and Draft Management Plan for the Maury Island Aquatic Reserve.

A. COMMENTS ON DRAFT SUPPLEMENTAL EIS

Section 1.4.4. Plant and Animal Resources. Paragraph 2 says, “*Spartina*, an invasive aquatic plant species, has also been found in the area, but is not currently found at levels that substantially threaten habitat quality.” This statement is puzzling. Given the level of attention and concern regarding the habitat damage caused by *Spartina* in Puget Sound, is there a “level” that does not substantially threaten habitat quality?



Section 1.4.6. Environmental Health. No “Industrial” use is proposed on the eastern shoreline. As explained further below, Glacier’s barge-loading facility is not an “Industrial Use.” Furthermore, the threat associated with noise and hazardous spills is not unique to Glacier’s dock, as this section implies. A number of commercial and recreational watercraft traverse these waters. All these vessels generate noise and haul fuel and possibly other hazardous materials.



Page: 1

Sequence number: 1

 Spartina has historically been detected and removed from within the proposed Aquatic Reserve. The current "level" is the seed bank and likely potential for future re-invasion which requires vigilant monitoring and aggressive treatment when new growth is observed to avoid substantially threatening habitat quality. Section 5.3.3 identified management strategies that include cooperative efforts with the state and local agencies that manage invasive species. DNR will work with these agencies to determine the substantial threat of spartina to aquatic habitat.

Sequence number: 2

 "Industrial" will be changed to "resource use and Industrial."

Ms. Jennifer Gitchell
Mr. David Palazzi
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Section 1.4.9. Public Services and Utilities. The Glacier mine is designated a mineral land of long-term significance and as such may become a major source of sand used to complete both public and private projects in the region.



Section 3.2.1. Aquatic Reserve Boundary

Page 14. The EIS should explain why the waterward boundary of the reserve is set at -70 ft MLLW or one-half mile from line of extreme low tide (whichever line is further waterward).



Section 3.2.2. Goals and Objectives

Part I, Page 18, Third Bullet. Regarding the goal to sustain or increase the documented extent and species composition of native aquatic vegetation, the use of a biomass index comprised of bed and bed density as a baseline determined at the time of establishment of the reserve will be difficult. Will this baseline incorporate measurement of inter-annual variability? If not, how will this be measured to determine whether a change has occurred? What other parameters will be measured, and how will the agency separate variation in the biomass index from natural variability, changes induced by climatologically changes, and “human-induced” changes?



Part II, Page 19, First Bullet. The target reduction of shoreline hardening to less than 30% of the shorelines in the reserve is certainly admirable, but no information is provided in the section that can be used to evaluate whether this goal is achievable. Section 1.4.7 points out that 59% of the shoreline in King County is hardened but says nothing about the current condition within the reserve. Given that the DNR has no jurisdiction on private lands, and owns very little property where bulkheads are located on the island, are there specific actions that DNR will take to achieve this goal and is there evidence to suggest that these goals will be effective enough to reach the stated goal?



Part II, Page 19, Third Bullet. DNR should identify specific actions the department will take to support local efforts to manage and treat stormwater, sewage, and gray water discharging to the reserve. How will DNR monitor nearshore water quality for signs of impairment and determine whether observed impairment is resulting from outfalls or runoff is discharging into the reserve? Section 1.4 says there is currently no water quality information for East Maury Island and what is available for Quartermaster Harbor is limited. Monitoring, identifying and resolving nearshore water quality impacts are an extremely complex task by itself. This is not a specific goal and the EIS presents no evidence that it is measurable or achievable.



Section 3.2.3.1. Research and Monitoring. Landowners will be key players in implementation of any management strategies in the proposed reserve. For this reason



Page: 2

Sequence number: 1

 The mining and transport of gravel and sand is a private enterprise.

Sequence number: 2

 This boundary was selected because it both captures the ecosystem and primary resources that support reserve designation. Additionally, this boundary includes those areas where threats to those natural resources are most likely to arise. This will be included in the FSEIS.

Sequence number: 3

 A baseline for biomass will describe the observed range of biomass over several years and ecological cycles to properly reflect natural variability. Parameters for this baseline described in the draft Supplemental EIS include bed area and density of aquatic vegetation. Sources of change will be elucidated from the empirical observations and it is likely that human induced changes will be localized while natural variability or large scale environmental changes will affect all vegetation resources within the reserve. More defined goals for gathering baseline information will be established when a monitoring plan is developed.

Sequence number: 4

 The last paragraph of section 2.0 in the final management plan states that "an estimated 13.75 miles or 57.6 percent of the shoreline within the reserve has been hardened or modified." Section 5.4.1 of the final management plan describes the management strategy Washington DNR will employ to address shoreline modification on private and public land adjacent to the Aquatic Reserve. These management strategies include working in cooperation with adjacent landowners (on a voluntary basis) in efforts to gain support for the reserve and to help reduce impacts caused by shoreline modification; and to seek funding opportunities and create incentives for the adoption of best management practices (BMPs) and improvement of shoreline conditions, through "soft" armoring techniques such as beach nourishment, riparian plantings, and other alternative strategies to reduce shoreline impacts. DNR recognizes the uncertainty in the 30% percent estimate due to the voluntary nature of the management provisions. This figure can be updated when the plan is updated.

Sequence number: 5

 DNR will be working cooperatively with the King County Health Dept. and the Rural Drainage Program to address water issues (see King County comment letter) to identify sources impacting water quality and methods to minimize impacts from these sources. This is a standard practice for isolating and prioritizing water quality issues. DNR has also been working with the Washington Department of Health, Office of Shellfish Programs, to identify shellfish area closures within the aquatic reserve. With adequate funding and monitoring, correcting water quality problems within the reserve is both measurable and achievable. For example, efforts by WDOH in coordination with local county government have re-certified previously downgraded commercial shellfish beds in Burley Lagoon and North Bay. Local efforts in Mason, Kitsap, and Pierce counties have corrected water quality problems, and re-certified shellfish beds in the Hood Canal, and Rocky Bay respectively.

Sequence number: 6

 Washington DNR may create an advisory group that includes landowners as well as other interested parties as discussed in section 2.6 of the final management plan. The role of this advisory group will be to help Washington DNR identify priorities and measure successful management of this site.

Ms. Jennifer Gitchell
Mr. David Palazzi
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landowners should be provided the opportunity to actively participate with the agencies and organizations listed to identify and develop research projects within the reserve.

Section 3.2.3.2. Management Guidance for Existing and Future Use Authorization General programmatic Principles:

Table 5, Page 26. The word “Industrial” should be removed from the first column. As discussed below, not all wharves and piers described are industrial.



Page 29, Third Bullet From Bottom of the Page. All storm water is currently infiltrated in upland areas, and this would not change under Glacier’s proposed activities; therefore, this item should be removed from the list because it will not reduce the impacts of the existing structure over time.



Section 4.1.1.2, Page 44, Paragraph 2. The paragraph is confusing. The middle section of the paragraph indicates that two stations in Quartermaster Harbor failed toxicity testing, then the last sentence says, “No exceedences of state criteria for sediment toxicity or chemical concentrations have been reported at the Maury Island Site.”



Section 4.2.2.1, Page 47, Second Full Paragraph. The paragraph should point out that an increase in transit distance would likely result if some activities are prohibited. If for example the Glacier Northwest barge-loading dock cannot go forward in the reserve, materials that could otherwise be delivered by barge would be transported by truck. One 4,000 ton barge (small to moderate size) can haul as much sand as approximately 115 trucks and trailers. Increased truck traffic may cause traffic congestion and increase emissions from trucks and other vehicles stalled in traffic congestion.



Section 4.2.2.3, Page 50, Paragraph 2. The paragraph is confusing because it compares marine water acute and chronic criteria for dieldrin and then appears to compare tissue concentration to the marine acute criteria. This appears to be a comparison of apples to oranges and is not consistent with standard methods of comparison used in toxicology. This section should be clarified.



Section 4.2.2.3, Page 50, Paragraph 4. A reference should be provided for the statement that, “The northerly transport of surface waters along the shoreline is believed to concentrate plankton and nutrients along the beach, providing relatively high levels of primary production.”



Section 4.3.2.2, Page 52. It seems unlikely that repealing the reserve would have a negative impact of water quality over the current condition. The DNR would still be required to ensure environmental protection under RCW 79.90.455. Given current zoning and DNR’s limited ownership of the shoreline areas, it is not clear how



Page: 3

Sequence number: 1

 Will be replaced with resources use and Industrial.

Sequence number: 2

 This will be changed to indicate that water collected on site, such as from the facilities settling ponds or stormwater treatment facilities, will be infiltrated and no discharge will be permitted into the aquatic reserve.

Sequence number: 3

 The section does not state that two stations failed toxicity testing, it states that three samples taken during a "coarse" assessment "showed high chemical concentrations..." The point of this section is to clarify that while Quartermaster Harbor has met state sediment and chemical toxicity criteria there still exists some level of contamination.

Sequence number: 4

 The last sentence in this section already notes that "this increased transit distance would likely result in adverse air quality impacts due to increased emissions." We have also added the language regarding conversions from barge to truck loads suggested by the reviewer.

Sequence number: 5

 This information is clarified in section 4.3.1.1.

Sequence number: 6

 The reference for Williams et al. 2001 will be added to the FSEIS.

Sequence number: 7

 The second sentence of this paragraph provides further clarification for this statement.

Ms. Jennifer Gitchell
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development pressure will increase if the reserve is repealed, and it is clear that King County, Ecology and other agencies will continue to take additional steps to improve environmental quality.

Section 4.4.1.2. Aquatic Vegetation

Page 65. It might be helpful to include the point that continuous light measurements taken over a period of 47 days during the growing season on the shore near the Glacier barge-loading dock show that light becomes a limiting factor for eelgrass in that area between elevations -12 and -16 ft MLLW.



Page 66. Please review literature and provide additional references documenting the presence of common macroalgae at depths of 50 to 100 feet. Based on personal observations, I would guess that by far the vast majority of macroalgae occurs above elevation -50 ft MLLW in Puget Sound, and this is certainly true at Maury Island. While I do not know how long a kelp plant can grow, it is extremely unlikely that an individual plant even approaches a length of 65 ft at Maury Island.



Section 4.4.2.2, Page 79. The section appears to discount the work of other agencies to protect, conserve and improve conditions for plant and animal resources. DNR is already required to ensure environmental protection under RCW 79.90.455. There appears to be no evidence presented showing that repealing the aquatic reserve would increase these impacts.



Section 4.5. Energy and Natural Resource Use

Section 4.5.2.1. If the Management Plan is interpreted to preclude use of a barge-loading dock at the Glacier site, then there will be adverse impacts to the continued production of sand and gravel resources. Mineral production is an acknowledged public benefit under aquatic lands regulations, and DNR has recognized that there is presently a critical need for sand and gravel in our region. *See* WAC 332-30-106(48); OUR CHANGING NATURE: NATURAL RESOURCE TRENDS IN WASHINGTON STATE, Dep't of Natural Resources (1998) at 13-15; *see also* THE AGGREGATES INDUSTRY IN WASHINGTON: ECONOMIC IMPACT AND IMPORTANCE, Pacific Lutheran Univ. School of Business (2003). Therefore, this section should include some discussion of the potential impact of the aquatic reserve on the extraction and distribution of mineral resources if the preferred alternative is selected. *See* WAC 197-11-444(1)(e)(impacts to availability of natural resources must be considered under SEPA). If Glacier's barge-loading dock is not allowed, mineral resources designated by King County as having long-term significance will be entombed on the island. This will require more material to be imported from outside the region. If the dock is allowed but additional conditions are placed on the dock replacement or operations, then the cost and/or time required to distribute these materials may be increased.



Sequence number: 1

 Because this section refers to the eelgrass distribution for the entire proposed Maury Island Environmental Aquatic Reserve, it is inappropriate to include such localized information. Local observations may be misleading or contradict distribution information for other parts of the reserve site. As of July 2004, detailed eelgrass depth observations have been made at two sites within the Aquatic Reserve.

Sequence number: 2

 This language was clarified.

Sequence number: 3

 The DSEIS evaluates the effects of the three action alternatives, not the effectiveness of other agencies.

Sequence number: 4

 The management plan does not preclude use of state-owned aquatic lands for the barge loading facility. The management plan establishes criteria for allowing uses throughout the reserve. WAC 332-30-151(4)(b) requires the Commissioner of Public Lands to consider public benefits in the case of conflicting uses. Although the management plan does not foreclose any existing uses in the reserve, the Commissioner has elected to consider a public benefits review in addition to SEPA in reaching a decision on the reserve. The Commissioner may also consider additional information, such as potential economic impacts from reserve designation on the gravel mining operation.

Ms. Jennifer Gitchell
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Section 4.6. Environmental Health

Section 4.6.1. Affected Environment. As discussed below, the Glacier dock is not an “industrial” use. Please remove the word industrial from the second sentence.



Section 4.6.2.2. Alternative 2. It is not clear how repealing the reserve would increase noise impacts over baseline conditions.



Section 4.7.1.1 Local Planning. The first sentence of the second paragraph incorrectly suggests that all of Maury and Vashon Islands are designated as rural areas. This sentence should be revised to reflect the fact that Glacier’s site is designated Mineral under the King County Comprehensive Plan. The discussion of the shoreline conservancy environment on page 9 should also be modified to state that mining uses are generally compatible with the conservancy environment. Specifically, we suggest adding the following sentence after the second sentence of the first full paragraph on page 9: “The King County Shoreline Master Program policies state that uses relating to forestry, agriculture, fisheries, and mining are not discouraged in the conservancy environment. (King County Shoreline Master Program Policies at 20).”



If the Aquatic Reserve precludes future use of the barge-loading facility, then it is inconsistent with current King County zoning and shoreline designations. WAC 197-11-444(2)(b)(i)(relationship to existing land use plans should be considered under SEPA).



Section 4.7.1.4, Page 93, Paragraph 2. Please clarify that the dock could be used to load up to four 10,000-ton barges per day or a large number of smaller barges. No more than one barge will be tied to the dock at any one time and barges will only be at the dock during loading. No barges will be allowed to wait while tied to the dock.



Section 4.7.1.6, Page 95, First bullet. King County also issues a grading permit.



Section 4.7.2.1, Page 95. Please clarify what is meant by, “improving management certainty.” It is also unclear how implementation of the preferred alternative will ensure development consistent with applicable land use regulations and policies. Will DNR take specific steps in this regard? Will this change be measurable? It should also be noted that if, for example, the Glacier Northwest project experiences adverse impacts such as delays and increased costs, then there could be adverse impacts to the implementation of other local projects such as construction and maintenance of local schools, roads and transportation infrastructure.



Section 4.7.2.1, Page 101, Paragraph 2. The financial impact to Glacier Northwest will have secondary impacts on public projects and plans for the region. Currently Glacier imports into King County from other areas including Canada. Delays



Page: 5

Sequence number: 1

 Change to resource use and industrial.

Sequence number: 2

 If the reserve were repealed Washington DNR would not work with lessees during the terms of their leases to employ all known available and reasonable methods of prevention, control and treatment of noise impacts on specific species identified for conservation at the site. Thus, it would be likely that without the plan, such impacts could be more pronounced. However, the last sentence of the paragraph on page 88 states that such impacts would be expected to be effectively minimized by the implementation of BMPs.

Sequence number: 3

 The draft SEIS accurately reflects that Vashon-Maury Island, per the King County Comprehensive Plan designates the area as rural, and is not included in the county's designated urban growth area. Additionally the draft SEIS already states "All of the 235 acres along the southeastern shoreline owned by Glacier Northwest are designated for mining land use."

Sequence number: 4

 The King County Shoreline Master Program states "Commercial and industrial uses other than commercial forestry, agriculture, fisheries and mining should be discouraged." This does not suggest that the aforementioned activities cannot or should not be discouraged within portions of a conservancy environment, simply that all other activities should be discouraged wherever conservancy shoreline designations have been made. Furthermore, the King County guidelines state that "Conservancy areas are intended to maintain their existing character. This designation is designed to protect, conserve, and manage existing natural resources and valuable historic and cultural areas."

Sequence number: 5

 King County has determined that the barge-loading facility is inconsistent with the shoreline zoning. This decision is presently under appeal by the Shorelines Hearings Board. Further, the management plan does not preclude the barge loading facility, but outlines the conditions that would need to be met for the use to be authorized in the reserve.

Sequence number: 6

 This information will be updated in the final SEIS and management plan.

Sequence number: 7

 This section only pertains to major regulatory activities "on aquatic lands." DNR is unaware of any proposed grading on aquatic lands.

Sequence number: 8

 Improving management certainty suggests that by establishing in writing the management goals and conditions for authorizing future leases that Washington DNR will provide clarity to all interested parties as to the conditions an activity will be allowed to take place on state-owned aquatic lands. As to the relationship to other construction and maintenance projects, DNR is not aware of projects that are currently slated to receive materials from Glacier that could only be satisfied through barging, as the existing dock has been inactive for over 20 years.

Comments from page 5 continued on next page

Ms. Jennifer Gitchell
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Section 4.6. Environmental Health

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Section 4.7.1.1 Local Planning. The first sentence of the second paragraph incorrectly suggests that all of Maury and Vashon Islands are designated as rural areas. This sentence should be revised to reflect the fact that Glacier’s site is designated Mineral under the King County Comprehensive Plan. The discussion of the shoreline conservancy environment on page 9 should also be modified to state that mining uses are generally compatible with the conservancy environment. Specifically, we suggest adding the following sentence after the second sentence of the first full paragraph on page 9: “The King County Shoreline Master Program policies state that uses relating to forestry, agriculture, fisheries, and mining are not discouraged in the conservancy environment. (King County Shoreline Master Program Policies at 20).”



If the Aquatic Reserve precludes future use of the barge-loading facility, then it is inconsistent with current King County zoning and shoreline designations. WAC 197-11-444(2)(b)(i)(relationship to existing land use plans should be considered under SEPA).



Section 4.7.1.4, Page 93, Paragraph 2. Please clarify that the dock could be used to load up to four 10,000-ton barges per day or a large number of smaller barges. No more than one barge will be tied to the dock at any one time and barges will only be at the dock during loading. No barges will be allowed to wait while tied to the dock.



Section 4.7.1.6, Page 95, First bullet. King County also issues a grading permit.



Section 4.7.2.1, Page 95. Please clarify what is meant by, “improving management certainty.” It is also unclear how implementation of the preferred alternative will ensure development consistent with applicable land use regulations and policies. Will DNR take specific steps in this regard? Will this change be measurable? It should also be noted that if, for example, the Glacier Northwest project experiences adverse impacts such as delays and increased costs, then there could be adverse impacts to the implementation of other local projects such as construction and maintenance of local schools, roads and transportation infrastructure.



Section 4.7.2.1, Page 101, Paragraph 2. The financial impact to Glacier Northwest will have secondary impacts on public projects and plans for the region. Currently Glacier imports into King County from other areas including Canada. Delays



Sequence number: 9

 DNR has developed a public benefits review. However, it is unlikely that this work will depict secondary economic impacts to the central Puget Sound Region. The preferred alternative provides guidelines and conditions for replacing the barge-loading dock.

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in getting material from Maury Island, a source designated a mineral resource of long-term significance, could impact the cost of public infrastructure in the region.

Section 4.8. Transportation. The site has a dock that has been used to transport substantial amounts of aggregates from Maury Island in the past. There are currently plans to replace the existing dock. Installation of the new dock would presumably reduce vessel traffic on Puget Sound by reducing the amount of material barged from Canada. The facility would also reduce the number of trucks hauling similar materials on roadways on other parts of the region because one 4,000-ton barge can haul as much sand and gravel as about 115 trucks with trailers.



Section 4.9. Public Services and Utilities. This section includes evaluation of impacts on maintenance. Sand and gravel is an essential component needed to maintain private and public structures such as roads, schools and bridges. If implementation of a management plan precludes use of the barge-loading dock, then there would be a negative impact on the availability of this resource. Repealing the aquatic reserve would not impact this use.



Section 5.6, page 120. Sand from Maury Island would be ideal for remedial capping of contaminated sediment as well as other habitat improvement projects. There could be a negative impact to the availability of this material for these projects if implementation of the preferred alternative prevents Glacier from replacing and using its barge-loading dock.



Section 5.7, Page 120. If the replacement dock is constructed, mining will continue on the Glacier Northwest property and over one mile of native shoreline will be untouched for the life of the mine (probably 35 plus years). If the dock is not allowed to proceed, the property is no longer viable as a sand and gravel mine and could be sold and developed for other uses. Alternative 1 could moderately impact shoreline use under this scenario, alternative 2 would not impact the use and alternative 3 would severely impact the use.



Section 5.8, Page 20. Alternatives 1 and 3 could impact Glacier's ability to build a barge-loading dock. One small to medium size barge (4,000 ton) hauls as much gravel as about 115 trucks with trailers. Alternatives that impact the dock have the potential to increase truck traffic, thereby adding to traffic congestion on the regions roadways and negatively impacting transportation. They could also negatively impact the maintenance of roadways in two ways. Increased truck traffic would increase wear and tear on roadways, and limitations or prohibition of barge-loading operations could reduce the availability and/or increase the cost of material needed to complete road maintenance.



Section 5.9, Page 120. Alternatives 1 and 3 could negatively impact the availability of sand and gravel needed to maintain and construct components used for



Page: 6

Sequence number: 1

 There is currently no opportunity for barge traffic considering the existing condition of the facility. A new facility would clearly create additional barge traffic in the area. In addition, DNR does not have information on barge traffic from Canada and the EIS for the Glacier project does not discuss this potential benefit.

Sequence number: 2

 See previous comments regarding the definition of public services and utilities. In addition, the preferred alternative would not preclude development of the barge loading facility.

Sequence number: 3

 DNR has developed a public benefits review. However, it is unlikely that the review will be able to capture speculative negative impacts. The preferred alternative provides guidelines and conditions for replacing the barge-loading dock.

Sequence number: 4

 The preferred alternative provides guidelines and conditions for replacing the barge-loading dock.

Sequence number: 5

 Implementation of the management plan would not preclude development of the gravel barge loading facility. DNR has also developed a public benefits review. In addition, the EIS for the Glacier project assumes that if the barge loading facility were not approved, then mining would continue at the site at current level of 10,000 tons/year and that surface traffic volumes from the facility would actually be lower than under Glacier's proposal for mining 7.5 million tons/year. DNR has no information to refute King County's analysis.

Sequence number: 6

 See previous comment regarding public services and utilities.

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public services and utilities. Repealing the Aquatic Reserve (Alternative 2) would not have this impact.

B. COMMENTS ON DRAFT MANAGEMENT PLAN

Section 2.7. Planning Process. The Section says, “Every ten years after the adoption of the plan, it shall be reviewed and updated with current scientific, management and site-specific information. During the development of the original plan and each subsequent update, the DNR shall work with other jurisdictions, Tribes, interest groups, and local citizens to establish cooperative management actions for activities within and adjacent to the reserve to conserve habitats and species within the reserve.” Landowners should specifically be included as a stakeholder group to provide input on the revisions to the management plan. Glacier Northwest would like to have the opportunity to actively participate in this process.



Section 4.3. Species. The section includes the following statement: “Fish species found in Quartermaster (Harbor) that are absent from urban bays include: Spiny dogfish, spotted ratfish, longnose skate, rock sole, starry flounder, speckled sanddab, pile surfperch, striped surfperch, bay goby, blackbelly eelpout, bay pipefish, and plainfin midshipman (Gibson *et al.* 2000).” This is incorrect and should be removed. The statement caught my eye because I have observed several of these species while diving at project sites in Elliott and Commencement Bays as well as elsewhere in Puget Sound. Chapter 13 of the document by Gibson *et al.*, presents case studies as examples of the appropriate use of bioassessment and biocriteria marine survey methods. The Example given in the Gibson document is work completed by Eaton and Dinnel between 1993 and 1995 in which the investigators completed trawl surveys at stations in Commencement Bay waterways and compared them to trawl surveys conducted at a reference site in Quartermaster Harbor. The study compared the frequency that each species was caught at the different stations, and used that information to determine whether species were tolerant or sensitive to contaminants in the waterway. It appears that DNR simply inserted the list sensitive species in the above statement. The statement is erroneous because, while the study found some of these species are more prevalent in Quartermaster Harbor than in Commencement Bay Waterways, it certainly did not find that all these species were absent from the waterways and does not appear to have included any study of the presence or absence of these fish in other urban waterways.



Section 5.1.3. Glacier Northwest owns a significant portion of the shoreline on Maury Island and will be conducting intensive monitoring of eelgrass at the dock site. We want to actively participate with other stakeholders, regulatory agencies and research groups to identify and develop research projects within the reserve.



Page: 7

Sequence number: 1

 Adjacent landowners will be added to this list.

Sequence number: 2

 This statement has been adjusted to correctly reflect the findings of Eaton and Dinnell (1993) as reported in Gibson et al (2000). The statement now reads "species found in Quartermaster that are less abundant in samples taken from urban bays include ..."

Sequence number: 3

 Washington DNR encourages property owners, including Glacier Northwest, to cooperatively participate in developing research projects within the proposed Aquatic Reserve.

Section 5.2.2.13. Industrial Wharves and Piers. This section refers to Glacier’s barge-loading dock as an “industrial pier.” The management plan does not define “industrial.” We assume that the term is used loosely and informally to indicate certain types of non-residential uses. In fact, however, the barge-loading facility is not properly categorized as an “industrial pier.” Both King County (in its shoreline permit decision) and the Shorelines Hearings Board (in its Order on Summary Judgment) concluded that the barge-loading facility is *not* an “industrial development.” See ATTACHMENT 1 (Permit Decision) at 9, Concl. No. 4; ATTACHMENT 2 (Order on Summary Judgment) at 31-32. The County and the Board recognized that King County’s Shoreline Master Program and Zoning Code—as well as the Department of Ecology’s shoreline guidelines—distinguish between industrial uses and resource-related uses (such as mining, timber, and agriculture). Therefore, the references in Section 5.2.2.13 and elsewhere to “industrial wharves and piers” should be changed to “industrial and mining-related wharves and piers.” The word “industrial” should also be stricken from the last sentence of Section 5.2.2.13 (on p. 39). These changes are consistent with the King County Shoreline Master Program and Zoning Code.



Section 5.2.3.4. Barge Loading Facility. Please note that the Shorelines Hearings Board has reversed the primary basis for King County’s denial of the shoreline permits. See ATTACHMENT 2 (Order on Summary Judgment). A final decision from the Board is expected in early October. This section (as well as p. 93 of the Draft SEIS) will presumably be revised after the Board issues that decision.



We recommend that this section (and p. 93 of the Draft SEIS) also be revised to state that Glacier obtained a Hydraulic Project Approval for the project in June 2004. See ATTACHMENT 3. The HPA reflects WDFW’s conclusion that the construction and operation of the replacement barge-loading dock will result in no net loss of productive capacity of fish and shellfish habitat. See WAC 220-110-300.



Page 54, Paragraph 1 - states that the proposed dock would moor up to four 10,000-ton barges. In fact, barges would not be moored at the dock; barges will only be at the dock when they are being loaded. No more than one barge will be at the dock at any one time. No barges will be allowed to wait at the dock. Up to four 10,000-ton barges may be loaded at the dock in one day.



Page 54, Bullets 2 and 4 – Please remove this bullet. All stormwater will be managed in accordance with the NPDES Sand and Gravel General Permit issued by Ecology that prohibits water quality impacts.



Page 55, Bullet 2 – please change “Eliminated” to “minimized.” This change is consistent with the Draft SEIS (p. 30), which refers to the “minimization” of noise impacts.



Page: 8

Sequence number: 1

References to the mining operations have been changed to resource use.

Sequence number: 2

If the SHB makes a final decision that warrants a revision in the management plan prior to the publication of the final management plan, this decision will be referenced.

Sequence number: 3

It is DNR's understanding that the HPA is being appealed. Thus, the addition of this information is not warranted at this time.

Sequence number: 4

This language has been updated to reflect this information.

Sequence number: 5

While Washington Department of Ecology is responsible for issuing NPDES permits, Washington DNR is charged with ensuring environmental protection for the aquatic lands that it manages and one element of that protection is protection from the impacts of water outflows. DNR is working with King County and the Department of Ecology regarding industrial stormwater issues to the aquatic reserve.

Sequence number: 6

Studies have shown that noise from large approaching vessels, like tug boats resulted in an avoidance response by Pacific herring. DNR needs to assure that spawning herring are not disturbed at the reserve site. The language in the plan has been changed to be more specific and requires that noise be minimize so that it does not result in impacts to species identified for conservation.

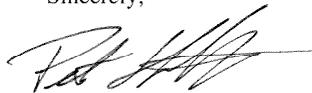
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Page 55, Bullet 7 – Please change “recover” to “respond to”; Glacier will have a spill response plan that specifies how Glacier will respond to spills depending on the size of the spill. 

Glacier operates at the site under a Surfacing Mining Reclamation permit issued by DNR (Geology and Earth Resources Division), an NPDES general permit issued by Ecology, and air quality permits issued by the Puget Sound Air Quality Authority. It is important that DNR recognize that the goals of these other programs overlap with the goals of the Aquatic Reserve. It is important that the Management Plan not require DNR to expend scarce resources to implement policies that duplicate and/or conflict with the goals and objectives of these other programs and agencies. 

Thank you for your consideration of these comments, and we look forward to continuing to work with DNR.

Sincerely,



Pete Stoltz

Enclosures
#282447 10552-069 61xr01!.doc

Sequence number: 1

 This language has been updated to state;"recover as appropriate" spills. It is recognized that recovery of all lost gravel may not always be the most appropriate response and may inadvertently create additional environmental harm.

Sequence number: 2

 DNR acknowledges the reviewers comments. DNR also has the authority to manage state owned aquatic lands and does not do this in a manner that duplicates or conflicts with other local, state, and federal regulations.

From:
To: <sepacenter@wadnr.gov>
Date: 8/24/2004 1:42PM
Subject: Maury Island Aquatic Reserve

My name is Clayton Williams, president of Williams Holding who owns property on Quartermaster Harbor on Vashon Island.

I am deeply concerned about the proposed Aquatic Reserve Plan. I feel that we do not need another Government Agency to invade our property rights. 

The agencies that are in place can accomplish what the reserve wants to do. I have 2 examples.

When my grandfather purchased this property in 1924, there was a good run of salmon going up Judd Creek, and by 1950 the run was very small. Due to the efforts of the Dept. of Fisheries and the Vashon Island Sportsman Club, the run is now very good.

I had a bulk fuel plant in Quartermaster Harbor until 1970. At that time I  moved the plant away from the water to improve the environment. This was a very costly move and I followed all necessary government regulations. Many of the problems we have in Quartermaster Harbor are not caused by property owners.

Please consider option 3!!!!

NO MORE GOVERNMENT AGENCY'S PLEASE!!!!!!!!!!!!!! 

Clayton Williams

Page: 1

Sequence number: 1

 The aquatic reserve does not include DNR management of private property. The management plan proposes that property owners voluntarily practice good stewardship to compliment the important resources on adjacent public lands.

Sequence number: 2

 DNR appreciates your willingness to be a good steward of your land.

Sequence number: 3

 DNR has been responsible for managing state-owned lands since the early part of the 20th century, including all lands within the proposed reserve site.

From: Janet Williams
To: <sepacenter@wadnr.gov>
Date: 8/27/2004 7:59PM
Subject: Maury Island Aquatic Reserve

We are opposed to the reserve. Our family has lived on inner 
Quartermaster Harbor for five generations and we do not believe that
additional management of the site is necessary or adviseable. Although
we agree the area is unique and valuable, the reserve would create
another unnecessary layer of government control. It is already very
difficult to maintain waterfront properties and your proposals regarding
water outfalls etc. would create undue hardships on the property owners 
adjacent to the reserve. Under the current federal, state, and local
controls the harbor has become cleaner and healthier. I am also opposed
to giving the Department of natural resources more control over the 
area, given their dubious record with regard to the management of the
Geo Duck harvests. At the last public hearing on Vashon, I was told by
the gentleman at the back answering questions that the DNR would have 
additional leasing opportunities if the reserve designation is
finalized. We are concerned about the additional costs of managing the
Reserve. Where is this revenue going to come from? More leases and/or
fees and/or taxes? We ask you to use your existing revenue and power
to control and regulate areas in decline, not around Vashon and 
especially not in inner Quartermaster Harbor.

Dennis L. Williams
Janet L. Williams

Page: 1

Sequence number: 1

 DNR acknowledges your opposition to the reserve.

Sequence number: 2

 The management of stormwater and sewage outfalls described in sections 5.2.2.1 and 5.2.2.2 respectively only applies to those outfalls occurring on state-owned aquatic lands. We intend to work through the King County Rural Drainage Program on issues regarding individual property owners and only on a voluntary basis.

Sequence number: 3

 There will be no direct cost for management of the aquatic reserve to the citizens of Vashon or Maury Island, aside from any use authorization fees that would apply with or without a reserve in place.

Sequence number: 4

 The aquatic reserve program was established for conservation purposes and is quite different from the geoduck fishery. The reviewer can call Todd Palzer at 902-1864 to discuss any issues or concerns regarding DNR' management of the commercial geoduck fishery.

Sequence number: 5

 The aquatic reserve program was established to provide management of unique aquatic resources on state-owned aquatic lands, not necessarily areas in decline. DNR has no authority to manage private property.

PUBLIC COMMENT SUMMARY AND DNR RESPONSE

AUGUST 10, 2004 PUBLIC HEARING ON THE DRAFT DSEIS FOR THE MAURY ISLAND AQUATIC RESERVE

1. Establishing the reserve will create more regulatory problems because it will cause other agencies, particularly King County, to increase regulations. Some question the public benefits of the reserve and portrayed the purpose of the reserve to establish a stumbling block for “Glacier.”

Response: See the Group Response on page 5 of this summary. Section 4.5 – Desired Future Conditions of Reserve Resources, of the management plan, defines the public benefits of conserving the featured resources of the reserve. In addition, DNR staff are preparing a public benefits review for the site.

2. Removal of pilings in area results in a decline in perch. Commercial geoduck fishery took all the geoduck; DNR completely destroyed the other fisheries, and now they are going to open Quartermaster Harbor to geoduck fishing and all the crabs will be gone.

Response: The environmental impacts of the state’s commercial geoduck fishery are evaluated in the 2001 Final Supplemental Environmental Impact Statement for the State of Washington Commercial Geoduck Fishery. The DNR has no plans to open a commercial geoduck fishery in Quartermaster Harbor. The Puyallup Tribe however, has treaty rights to fish for geoduck in Quartermaster Harbor.

3. Prefer adopting Alternative 3. People for Puget Sound and another citizen voiced that they do not want the reserve open for leasing.

Response: Under Alternative 3, the site would be managed under the Washington DNR’s current statutes and regulations, as well as the general guidelines established in the 2002 programmatic Final Environmental Impact Statement (FEIS). The statutes, regulations, and programmatic FEIS **do** allow leasing at the site. A no leasing alternative was considered but not evaluated in detail as there are already uses in the area, and this alternative would be not meet the purpose, objectives, and need of the reserve as stated in Section 1.2 of the FSEIS.

Section 3.2.1.4.2. of the programmatic FEIS states that, “...future leases *that are not compatible* with the reserve goals will not be allowed...” [emphasis added]. Additionally, Section 3.2.1.4.2. Of the programmatic FEIS and Section 3.4.3.2 of the Supplemental SEIS state that, “In general, no future use authorizations will be granted that alter, remove, and/or otherwise change any existing environmental or cultural characteristic of an established reserve, *except for those use authorizations that primarily serve the objectives of the reserve designation*” [emphasis added].

4. Why do we need an aquatic reserve? This effort should be stopped.

Response: The purpose for establishing the site as an aquatic reserve is discussed in section 2.5 of the Maury Island Environmental Aquatic Reserve Final Management Plan.

5. Creating an aquatic reserve is not the solution and alternative 2, to repeal the reserve, should be adopted. Another layer of government management will make County regulations more difficult. DNR should use the money for establishing the reserve for other purposes such as education, maintaining and updating current uses (such as creosote pilings, septic systems, and restoring the isthmus between Maury & Vashon Island).

Response: See the Group Response on page 5 of this summary. The management plan would formalize DNR's goals for outreach and education in the reserve, as explained in Sections 5.3.5. The management plan calls for the removal of creosote pilings in sections 5.2.2.10, 5.2.2.13, 5.2.2.25, and 5.2.3 and researching the feasibility of re-connecting Quartermaster Harbor and Tramp Harbor at portage in section 5.1.3.

6. The public needs to remember that DNR works for all citizens of the state, not just shoreline property owners. I support DNR.

Response: DNR appreciates the support and the acknowledgement of our responsibility to work for all of the state's citizens and for future generations.

7. Fish populations are in jeopardy, thus support for alternative 1 was indicated. We are not adequately protecting the Puget Sound where salmon smolts require habitat and food to survive. These resources are dwindling.

Response: Protection of fish populations and particularly, fish habitat was a factor in the rationale behind the aquatic reserve program.

8. The area does not need another set of bureaucracy. The aquatic reserve will not be affective. Spend money on better things.

Response: See group response on page 5.

9. Things are better today because they are managed and monitored and DNR is taking responsibility for these reserves. The responsibility of DNR is to manage state lands for the public trust.

Response: We appreciate the support of our efforts.

10. This additional bureaucracy is a stepping-stone to additional management. We don't want to pay to lease a mooring buoy in front of our house. The pendulum has gone too far the other way and I support alternative 2.

Response: The 2002 Legislature passed a law that allows individual residential property owners abutting state owned aquatic lands to install a mooring buoy on those public lands for recreational purposes without charge, as discussed in Section 5.4.3 of the management plan. Also, See the Group Response on page 5 of this summary.

11. DNR should not trample over individual rights without making it possible to develop our property. Public rights should not be put ahead of the individual property rights.

Response: See the Group Response on page 5 of this summary. The Washington DNR does not manage or regulate private property and it is not our intent to infringe upon private property rights in any way. In statute (RCW 79.90.460) the legislature directed that in the case of conflict between water-dependant uses, priority shall be given to uses, which enhance renewable resources, water-borne commerce, and navigational and biological capacity of the waters, and to statewide interests as distinguished from local interests.

12. We are concerned about the health of the Puget Sound as it needs more protection. We support the alternative with the most environmental protection.

Response: This is the rationale behind the aquatic reserve program.

13. Concern was voiced as to whether DNR has adequate staff and funds to implement the management plan. The plan is vague and needs more details before people can comment.

Response: The draft plan includes a section (7.0) that defines staffing and funding needs. The plan provides specific detail regarding management in Section 5 and appendix O of the management plan. The Aquatic Reserve Program also provides for a periodic review and adaptive management for updates to the management plan in order to integrate new knowledge, information, and feedback after the plan is developed and implemented.

14. A large industrial facility could be developed near Gold Beach and the reserve can stop it. I agree with what DNR is proposing. Portage should be re-opened to help flow in Quartermaster Harbor. Some of the management plan needs correct points: Gravel pit has been inactive for more than 20 years. They have not extracted 10,000 tons of gravel from the site under the existing grading permit.

Response: See response #3 above. In addition, section 5.2.3.4 defines the site-specific management strategies for the Glacier site. The management plan states that "However, removal of gravel from the site has not occurred via the existing dock and conveyor

system located on state-owned aquatic lands within the reserve for over 20 years.” The reference utilized (King County FEIS Maury Island Glacier Northwest gravel mine. June 2000) states the “approximately” 10,000 tons per year have been extracted. If there is another, more accurate reference, please provide it to DNR staff.

15. The commenter voiced support of the reserve because the area supports the largest herring spawning stock in the South Puget Sound. The reserve is a step in the right direction for system management. DNR should keep the northwest boundary to protect the entirety of the converging drift cell.

Response: Boundary option C was not chosen for the Preferred Alternative as it encompasses only a small portion of a larger drift cell that extends along the northern shoreline of Maury Island. The aquatic reserve program places emphasis on including whole ecosystem and habitat components versus fragmented conservation of ecological features, and the current configuration of boundary option C does not meet this objective.

16. Reducing environmental impacts is going to affect shoreline property owner’s rights.
Response: See the Group Response on page 5 of this summary.

17. The commenter supports alternative 3 as it provides the greatest protection and helps to ensure that we leave a legacy for our children.

Response: Under Alternative 3, the site would be managed under the Washington DNR’s current statutes and regulations, as well as the general guidelines established in the 2002 programmatic Final Environmental Impact Statement (FEIS). The statutes, regulations, and programmatic FEIS **do** allow leasing on the site. A no leasing alternative was considered but not evaluated in detail as there are already uses in the area, and this alternative would be not meet the purpose, objectives, and need of the reserve as stated in Section 1.2 of the FSEIS. The designation under Alternative 1 includes specific management actions to protect the area for future generations.

Section 3.2.1.4.2 of the programmatic FEIS states that, “...future leases *that are not compatible* with the reserve goals will not be allowed...” [emphasis added]. Additionally, Section 3.2.1.4.2 of the programmatic FEIS and Section 3.4.3.2 of the Supplemental SEIS state that, “In general, no future use authorizations will be granted that alter, remove, and/or otherwise change any existing environmental or cultural characteristic of an established reserve, *except for those use authorizations that primarily serve the objectives of the reserve designation*” [emphasis added].

18. DNR has conflict of interest as manager of state-owned aquatic lands and the commercial geoduck fishery. DNR needs to resolve this issue.

Response: The final SEIS is not evaluating the state geoduck fishery. The impacts of the geoduck fishery have been examined in the 2001 Final Supplemental Environmental Impact Statement for the State of Washington Commercial Geoduck Fishery. Any

harvest occurring within the reserve area would adhere to these standards and the reserve management plan.

19. The commenter discussed his lawsuit with Ron Simms.

Response: The hearing was not associated with this issue.

20. DNR's designation of the reserve is about making money. Science is only giving us a portion of the information. What exactly is DNR going to do in the reserve and what agencies are going to stair step off of the reserve?

Response: Aquatic reserve designation would not be expected to generate an increase in revenue to the state. See the Group Response on page 5 of this summary.

Group Response

Several people repeated some iteration of the following comment during the hearing.

1. Another layer of government management will make County regulations more difficult.

Response: DNR has proprietary responsibility to manage state-owned aquatic lands whether the site is an aquatic reserve or not. DNR has been responsible for the management of state-owned aquatic lands throughout the state, including the Maury Island site, since the early part of the 20th Century. DNR will continue to have this responsibility whether there is an aquatic reserve or not.

King County, or any other regulatory agency, has not indicated any intent to develop additional restrictive regulatory measures resulting from the aquatic reserve being established. Recent language from the King County Comprehensive Plan update, which was approved by the King County Growth Management and Unincorporated Areas Committee, regarding the Aquatic Reserve, is mentioned in DNR's management plan. The full King County Council has not yet approved the Comprehensive Plan, however, the language approved by the Committee is as follows:

Section E-120a "King County should protect and enhance the natural environment in those areas recommended as Aquatic Reserves by Washington State Department of Natural Resources. This should include participation in management planning for the aquatic reserves and working with willing landowners adjacent to the reserve on restoration and acquisition projects which enhance the natural environment."

Thus, the Committee has clarified that the intent of the County is to work collaboratively with willing landowners to enhance the values of the Aquatic Reserve, not adopt additional restrictions for the site. In addition, King County citizens can comment on this or any other regulatory proposal being developed by King County.

