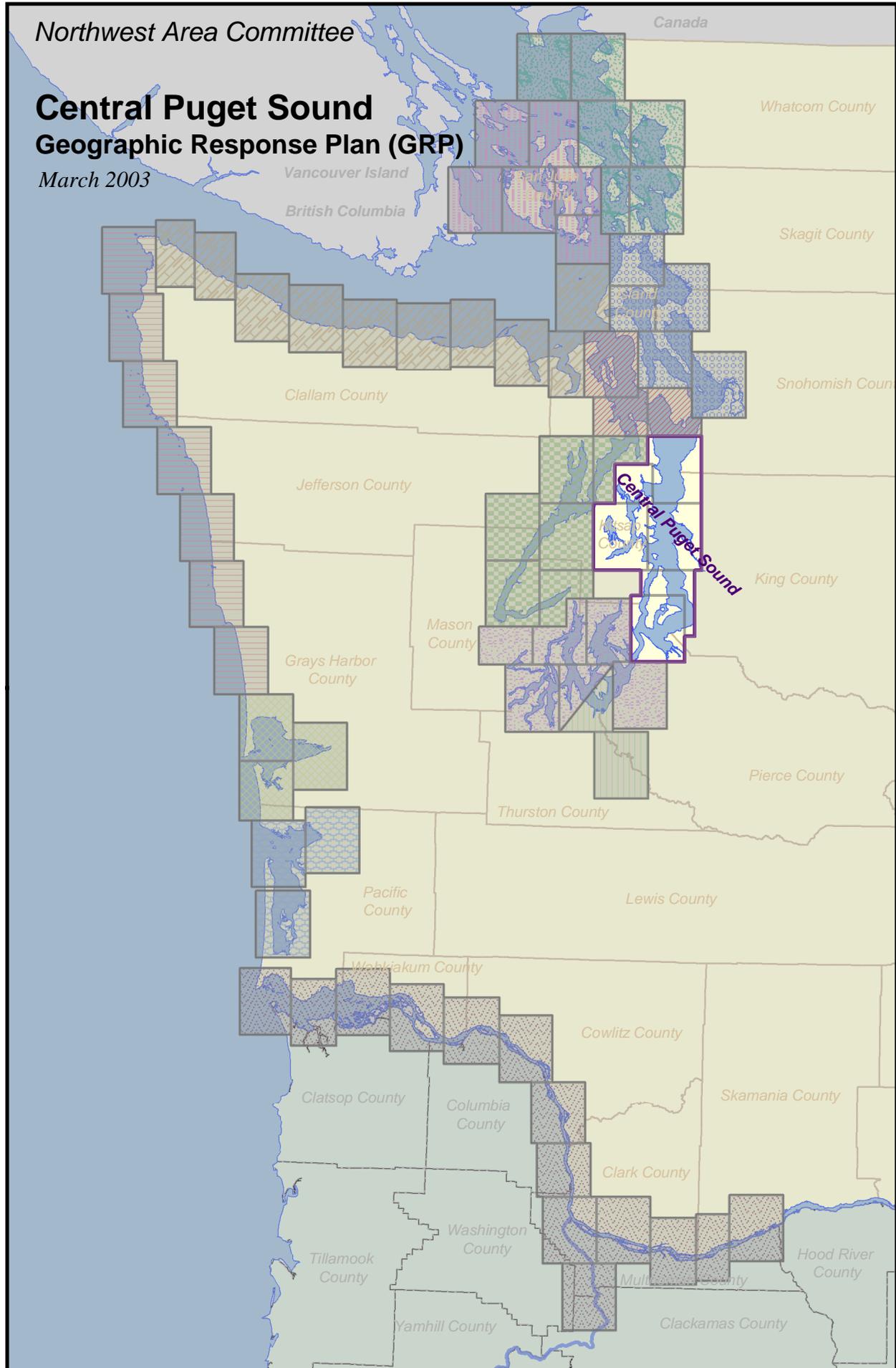


Northwest Area Committee

# Central Puget Sound Geographic Response Plan (GRP)

March 2003



## SPILL RESPONSE CONTACT SHEET

### Required Notifications For Hazardous Substance or Oil Spills

USCG National Response Center.....	<b>(800) 424-8802</b>
In Oregon:	
Department of Emergency Management.....	<b>(800) 452-0311</b>
In Washington:	
Emergency Management Division.....	<b>(800) 258-5990</b>
Department of Ecology Northwest Regional Office.....	<b>(425) 649-7000</b>
Department of Ecology Southwest Regional Office.....	<b>(360) 407-6300</b>

#### U.S. Coast Guard

National Response Center	<b>(800) 424-8802</b>
Marine Safety Office Puget Sound:	
Watchstander	<b>(206) 217-6232</b>
Safety Office	(206) 217-6232
Marine Safety Office Portland:	
Watchstander	<b>(503) 240-9301</b>
Safety Office	(503) 240-9379
Pacific Strike Team	<b>(415) 883-3311</b>
District 13:	
MEP/drat	(206) 220-7210
Command Center	(206) 220-7001
Public Affairs	(206) 220-7237
Vessel Traffic Service (VTS)	<b>(206) 217-6050</b>

#### Environmental Protection Agency (EPA)

Region 10 Spill Response	<b>(206) 553-1263</b>
Washington Ops Office	(360) 753-9083
Oregon Ops Office	(503) 326-3250
Idaho Ops Office	(208) 334-1450
RCRA/ CERCLA Hotline	(800) 424-9346
Public Affairs	<b>(206) 553-1203</b>

#### National Oceanic Atmosphere Administration

Scientific Support Coordination	(206) 526-6829
Weather	(206) 526-6087

#### Canadian

Marine Emergency Ops/Vessel Traffic	(604) 666-6011
Environmental Protection	(604) 666-6100
B.C. Environment	(604) 356-7721

#### Department of Interior

Environmental Affairs	(503) 231-6157
	<b>(503) 621-3682</b>

#### U.S. Navy

Naval Shipyard	<b>(360) 476-3466</b>
Naval Base Seattle	(360) 315-5440
Supervisor of Salvage	<b>(202) 695-0231</b>

#### Army Corps of Engineers

Hazards to Navigation	(206) 764-3400
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#### Muckleshoot Tribe

Tribal Office	(253) 939-3311
Tribal Police	(253) 833-7616

#### Nisqually Tribe

Tribal Office	(360) 456-5221
After Hours Emergencies	(360) 459-9603

#### Puyallup Tribe

Tribal Office	(253) 573-7800
After Hours Emergencies	<b>(253) 573-7911</b>

#### Suquamish Tribe

Tribal Office	(360) 598-3311
After Hours Emergencies	(360) 340-4508

#### Federal O.S.R.O./

##### State Approved Response Contractors

All Out Indust. & Env. Services	(360) 414-8655
Certified Cleaning Services, Inc.	(253) 536-5500
Clean Sound Cooperative, Inc.	<b>(425) 783-0908</b>
Cowlitz Clean Sweep, Inc.	(360) 423-6316
FOSS Environmental	<b>(800) 337-7455</b>
Global Diving and Salvage	(206) 623-0621
Guardian Industrial Services, Inc.	(253) 536-0455
Matrix Service, Inc.	(360) 676-4905
MSRC	(425) 252-1300
National Response Corporation	(206) 340-2772

#### Washington State

Department of Ecology Headquarters	(360) 407-6900
Southwest Region	<b>(360) 407-6300</b>
Northwest Region	<b>(425) 649-7000</b>
Central Region	<b>(509) 575-2490</b>
Eastern Region	<b>(509) 456-2926</b>

Department of Fish and Wildlife	<b>(360) 534-8233</b>
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Emergency Management Division	(360) 438-8639
	<b>(800) 258-5990</b>

#### State Patrol

Bellevue	(425) 455-7700
Tacoma	(253) 536-6210
Bremerton	(360) 478-4646

#### Oregon State

Department of Environmental Quality	(503) 229-5733
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Emergency Management	<b>(503) 378-6377</b>
	<b>(800) 452-0311</b>

## HOW TO USE THIS GEOGRAPHIC RESPONSE PLAN

### Purpose of Geographic Response Plan (GRP)

**This plan prioritizes resources to be protected and allows for immediate and proper action. By using this plan, the first responders to a spill can avoid the initial confusion that generally accompanies any spill.**

Geographic Response Plans are used during the emergent phase of a spill which lasts from the time a spill occurs until the Unified Command is operating and/or the spill has been contained and cleaned up. Generally this lasts no more than 24 hours. The GRPs constitute the federal on-scene coordinators' and state on-scene coordinators' (Incident Commanders) "orders" during the emergent phase of the spill. During the project phase, the GRP will continue to be used, and the planned operation for the day will be found in the Incident Action Plan's Assignment List (ICS Form 204). The Assignment List is prepared in the Planning Section with input from natural resource trustees, the Incident Objectives (ICS Form 202), Operations Planning Worksheet (ICS Form 215), and Operations Section Chief.

### Strategy Selection

Chapter 4 contains complete strategy descriptions in matrix form, response priorities, and strategy maps. The strategies depicted in Chapter 4 should be implemented as soon as possible, following the priority table in Section 2 with the "Potential Spill Origin" closest to the actual spill origin. These strategy deployment priorities may be modified by the Incident Commander(s) after reviewing on scene information, including: tides, currents, weather conditions, oil type, initial trajectories, etc.

**It is assumed that control and containment at the source is the number one priority of any response.** If, in the responder's best judgment, this type of response is infeasible then the priorities laid out in Chapter 4, Section 2 take precedence over containment and control.

It is important to note that strategies rely on the spill trajectory. A booming strategy listed as a high priority would not necessarily be implemented if the spill trajectory and booming location did not warrant action in that area. However, the priority tables should be followed until spill trajectory information becomes available, and modifications to the priority tables must be approved by the Incident Commander(s).

The strategies discussed in this GRP have been designed for use with persistent oils and may not be suitable for other petroleum or hazardous substance products. For hazardous substance spills, refer to the Northwest Area Contingency Plan, Chapter 7000.

### Standardized Response Language

In order to avoid confusion in response terminology, this GRP uses standard National Interagency Incident Management System, Incident Command System (NIIMS, ICS) terminology and strategy names, which are defined in Appendix A, Table A-1 (e.g. diversion, containment, exclusion).



**Central Puget Sound Geographic Response Plan  
Table of Contents**

Spill Response Contact Sheet .....	i
How to Use This Geographic Response Plan .....	ii
Record of Changes .....	iii
<b>1. Introduction: Scope of this Project</b> .....	1-1
<b>2. Site Description</b>	
2.1. Physical Features .....	2-1
2.2. Hydrology .....	2-1
2.3. Currents and Tides .....	2-1
2.4. Winds .....	2-2
2.5. Climate .....	2-2
<b>3. (Reserved)</b>	
<b>4. General Protection/Collection Strategies</b>	
4.1. Chapter Overview .....	4-1
4.2.1 Potential Spill Origins Map.....	4-7
4.2.2 Booming Strategy Priority Tables.....	4-8
4.3.1 Proposed Booming and Collection Strategies: Maps.....	4-21
4.3.2 Proposed Booming and Collection Strategies: Matrices.....	4-32
<b>5. Shoreline Information</b>	
5.1. Shoreline Types and Sensitivity.....	5-1
5.2. Shoreline Type Maps .....	5-2
5.3. Oil Countermeasure Matrix .....	5-9
<b>6. Sensitive Resource Description</b>	
6.1. Marine Mammals .....	6-1
6.2. Birds.....	6-1
6.3. Flight Restriction Zones.....	6-1
6.4. Hazing.....	6-2
6.5. Flight Restriction Zones/ Sensitive Wildlife: Maps & Matrices.....	6-4
<b>7. Logistical Information</b>	
7.1. Logistical Support.....	7-1
<b>Appendices</b>	
Appendix A: Summary of Protection Techniques .....	A-1
Appendix B: Original Geographic Response Plan Contributors.....	B-1
Appendix C: Geographic Response Plan Comments/Corrections/Suggestions.....	C-1

## Central Puget Sound, WA

### GEOGRAPHIC RESPONSE PLAN

#### 1. INTRODUCTION: SCOPE OF THIS PROJECT

Geographic Response Plans are intended to help the first responders to a spill avoid the initial confusion that generally accompanies any spill. This document serves as the federal and state on-scene-coordinators “orders” during a spill in the area covered by this GRP (see Chapter 3 for area covered). As such, it has been approved by the U.S. Coast Guard Marine Safety Office and the Washington State Department of Ecology Spills Program. Changes to this document are expected as more testing is conducted through drills, site visits, and actual use in spill situations. To submit comments, corrections, or suggestions please refer to Appendix C.

GRPs have been developed for the marine and inland waters of Washington, Oregon, and Idaho. They are prepared through the efforts and cooperation of the Washington Department of Ecology, Washington Department of Fish and Wildlife, Oregon Department of Environmental Quality, Idaho State Emergency Response Commission, the U.S. Coast Guard, the Environmental Protection Agency, tribes, other state and federal agencies, response organizations, and local emergency responders.

GRPs were developed through workshops involving federal, state, and local oil spill emergency response experts, response contractors, and representatives from tribes, industry, ports, environmental organizations, and pilots. Workshop participants identified resources which require protection, developed operational strategies, and pinpointed logistical support. A similar process has been used for major updates.

Following the workshops, the data gathered was processed and reproduced in the form of maps and matrices which appear in Chapters 4 through 6. The maps in Chapters 5 and 6 were generated using Canvas. Maps for Chapter 4 were generated using ArcView GIS. The matrices were created using MS Excel, and the balance of each GRP was produced using MS Word.

The first goal of a GRP was to identify, with the assistance of the Washington State Natural Resource Damage Assessment Team, resources needing protection; response resources (boom, boat ramps, vessels, etc.) needed, site access and staging, tribal and local response community contacts, and local conditions (e.g. physical features, hydrology, currents and tides, winds and climate) that may affect response strategies. Note that GRPs only address protection of sensitive **public** resources. It is the responsibility of private resource owners and/or potentially liable parties to address protection of private resources (such as commercial marinas, private water intakes, and non-release aquaculture facilities).

Secondly, response strategies were developed based on the sensitive resources noted, hydrology, and climatic considerations. Individual response strategies identify the amount of boom necessary for implementation. The response strategies are then applied to Potential Spill Origins and trajectory modeling, and prioritized, taking into account factors such as resource sensitivity, feasibility, wind, and tidal conditions.

Draft strategy maps and matrices were sent out for review and consideration of strategy viability. Field verification was conducted for some strategies, and changes proposed by the participants were included in a semi-final draft, which was offered for final review to all interested parties and the participants of the field verification.

Finally, the general text of the GRP was compiled along with the site description, reference maps, and logistical support.

Items included in Logistical Support:

- Location of operations center for the central response organization;
- Local equipment and trained personnel;
- Local facilities and services and appropriate contacts for each;
- Site access & contacts;
- Staging areas;
- Helicopter and air support;
- Local experts;
- Volunteer organizations;
- Potential wildlife rehabilitation centers;
- Marinas, docks, piers, and boat ramps;
- Potential interim storage locations, permitting process;
- Damaged vessel safe-havens;
- Vessel repairs & cleaning;
- Response times for bringing equipment in from other areas.

## 2. SITE DESCRIPTION

Central Puget Sound is bounded by Edmonds to the north and Commencement Bay to the south. This also includes Liberty Bay, Port Orchard, Sinclair Inlet and Dyes Inlet.

Although abundant wildlife and natural resources exist throughout the region, it is heavily dominated by human population and important ports including Edmonds, Everett, Seattle, Tacoma, Bremerton, and Port Madison. Naval bases are also located at Keyport and Bremerton.

Several species of aquatic birds, clams, and beach spawning fish reside in Central Puget Sound. In the early fall, salmon return to many of the rivers and streams that flow into the Sound. In addition, kelp and eelgrass are common throughout the near-shore zone.<sup>1</sup>

Refer to Chapter 6 for detailed resource information.

### 2.1. Physical Features

The bays that comprise Central Puget Sound are generally characterized by sand and gravel beaches, sand and cobble beaches, and some areas of exposed tidal flats. Inlets that are adequately sheltered from Puget Sound itself have protected tidal flats and marshes. Central Puget Sound includes the following shoreline habitats:<sup>2</sup>

- Pocket Beaches along rocky shores
- Sand and cobble beaches
- Sand and gravel beaches
- Exposed tidal flats
- Sheltered tidal flats

Commercial and ferry traffic dominate the area surrounding Edmonds, Bainbridge Island, Seattle, Vashon Island and Tacoma. Manmade features, including docks, wharves, fuel piers, waterways and marinas, also occupy much of the shoreline.

### 2.2. Hydrology

Net surface currents generally flow seaward and exit through Admiralty Inlet. A distinctive clockwise pattern exists around Vashon Island in East and Colvos Passages, extending from the surface to the bottom. There are also several eddies located off Alki Point.

Studies of contaminant transport in Elliott Bay show that contaminants introduced through the Duwamish River and the Seattle waterfront accumulate in a thin surface layer approximately five meters deep along the eastern side of the Bay. The along-shore current continues to West Point where tidal mixing destroys this distinct layer.<sup>3</sup>

### 2.3. Currents and Tides

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<sup>1</sup> National Oceanic and Atmospheric Administration, Environmental Sensitivity Index, Central & Southern Puget Sound (Seattle: 1984).

<sup>2</sup> Ibid.

<sup>3</sup> Evans Hamilton, Inc. and D.R. Systems, Inc., Puget Sound Environmental Atlas, vol. 1. (1987) 122-125.

The mean tidal range (MHW - MLW) for the Central Puget Sound area is 9.4 to 10.48 feet. The diurnal tidal range (MHHW - MLLW) is 13.1 to 15.0 feet. Tidal ranges increase further south.<sup>4</sup>

The average currents in the Central Puget Sound area do not exceed much more than a knot. Exceptions are areas in and around narrow passages including Agate Passage, Rich Passage, Port Washington Narrows, and Tacoma Narrows. Weak currents are experienced along the east side of Central Puget Sound from the 20-fathom curve inland and in Port Orchard, East Passage, Colvos Passage (on the flood), and Carr Inlet.<sup>5</sup>

Tides and currents vary with seasonal runoff and lunar cycles in localized areas. Spill responders should consult tide and current tables for their particular location.

#### **2.4. Winds**

The winds in this area are a result of diverse topography including the Cascade and Olympic Mountains. The westerly winds from the Pacific appear to flow to the north and south around the Olympics, causing what is commonly known as the “Puget Sound Convergence” on the eastern side.

From October through March and April through May, winds are generally from a southwesterly direction at 10 to 20 mph. The summer months, June through September, usually have winds from the north at 0 to 9 mph.<sup>6</sup> Local wind conditions may vary.

#### **2.5. Climate**

The area has a maritime climate with cool summers and mild winters. Annual precipitation rate is between 18 and 50 inches. Fog may cause visibility problems on about 25 to 40 days per year, usually in autumn and again in January and February.<sup>7</sup>

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<sup>4</sup> National Oceanic and Atmospheric Administration, Tide Tables West Coast of North and South America. (1994).

<sup>5</sup> National Oceanic and Atmospheric Administration, Tidal Current Tables Pacific Coast of North America and Asia (1994).

<sup>6</sup> State of Washington Department of Natural Resources, Washington Marine Atlas, South Inland Waters, vol. 2 (1972).

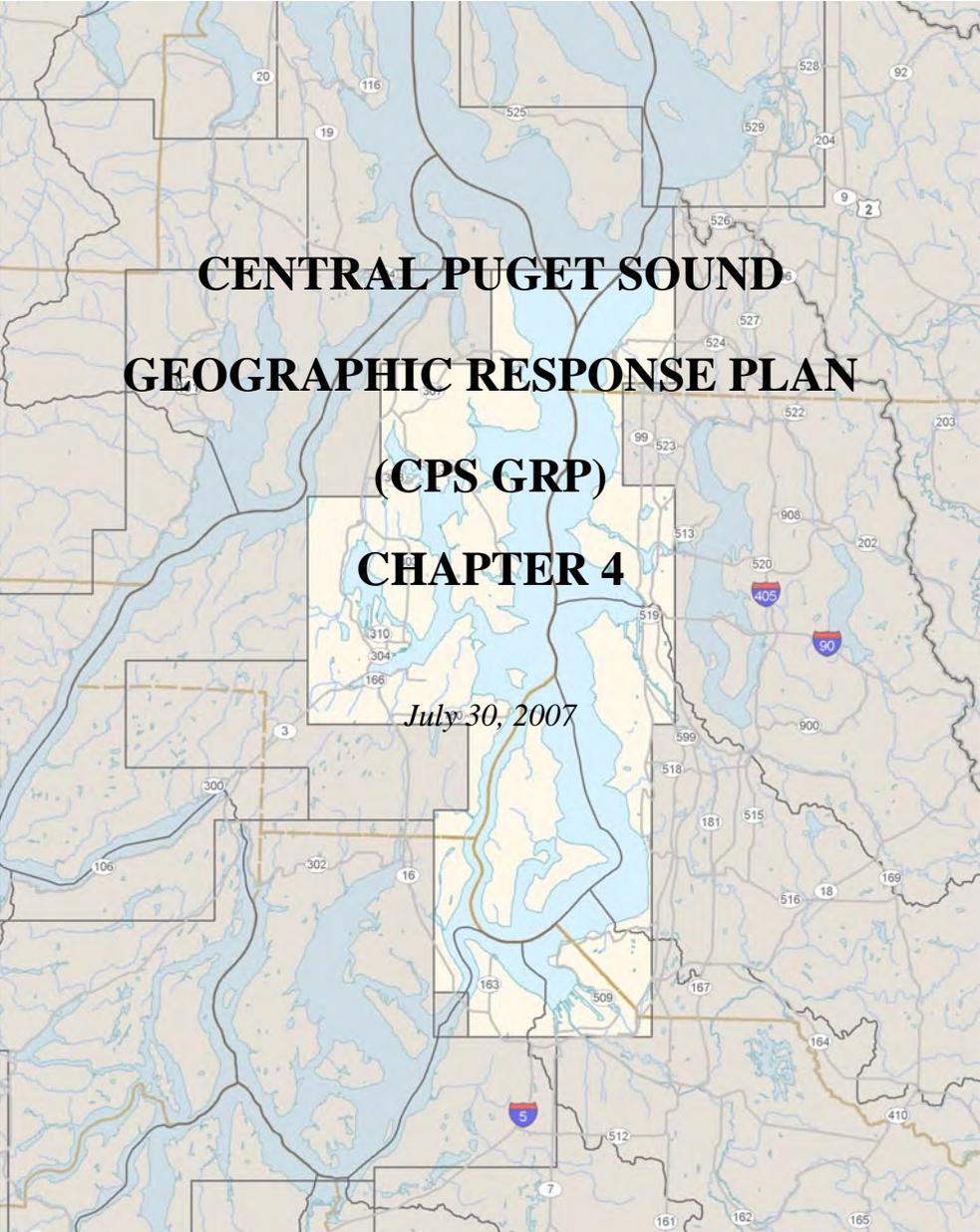
<sup>7</sup> National Oceanic and Atmospheric Administration, U.S. Coast Pilot (1993) 312-313.

## **Chapter 3 – (Reserved)**

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**NORTHWEST AREA COMMITTEE**

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# TABLE OF CONTENTS

## **4.0 GENERAL PROTECTION/COLLECTIONS STRATEGIES - 4-1**

4.1 Chapter Overview - 4-1

4.2 Strategy and Access Locations Overview - 4-3

*Strategy Locations Overview Map - 4-4*

*Boat Launch Locations Overview Map - 4-5*

4.3 Strategy Priorities - 4-6

*Potential Spill Origin Locations Map - 4-7*

*Potential Spill Origins Booming Priority Tables - 4-8*

4.4 Proposed Booming and Collection Strategies - Maps - 4-21

*Map # CPS-1 Edmonds - 4-22*

*Map # CPS-2 Port Madison - 4-23*

*Map # CPS-3 Bremerton North - 4-24*

*Map # CPS-4 Seattle North - 4-25*

*Map # CPS-5 Bremerton South - 4-26*

*Map # CPS-6 Seattle South - 4-27*

*Map # CPS-7 Des Moines - 4-28*

*Map # CPS-8 Tacoma North - 4-29*

*Map # CPS-9 Tacoma South - 4-30*

4.5 Proposed Booming and Collection Strategies - Matrices - 4-32

## **APPENDIX A - BOAT LAUNCH LOCATIONS SUMMARY - 4-68**

## 4.0 GENERAL PROTECTION/COLLECTION STRATEGIES

### 4.1 Chapter Overview

Geographic Response Plans (GRPs) are:

- Triggered in the first hours (usually 6-24) following an oil spill.
- Targeted at shielding sensitive resources that lie close to the reported spill source.
- Just one method to minimize spill impacts, they can occur concurrently with other efforts, including skimming.

#### On-site Considerations

**Before** deploying a GRP strategy, responders should ask:

- Are conditions safe?
- Has initial control and containment been sufficiently achieved?
- Underflow dams and culvert blocks require Emergency Hydraulic Project Approval (HPA) prior to implementation. These response tactics will reduce, interrupt, or divert the water flow of streams that can be damaging to sensitive fish life and habitat. Responders must receive Emergency HPA from the Washington State Department of Fish and Wildlife **before** using culvert blocks and underflow dams. The Hydraulic Code (RCW 75-20.11-160) provides for immediate verbal approval in emergency situations. For emergency HPA contact 360-534-8233 (24 hour pager).

**During** the initial GRP-response phase, responders should be aware that:

- Challenging field conditions may require them to modify strategies, and later notify the command center.
- Certain strategies may call for access points or staging areas that are not easily reached at all times of the year or in all conditions.
- All strategies were designed for use with persistent, heavy oils and may not be suitable for other petroleum products or hazardous materials.
- Boom deployment may require around-the-clock tending and/or precise anchoring techniques.

- The sequence of deployments is pre-determined in a booming priority table. The appropriate table is found by finding which “Potential Spill Origin” point (orange boxes on the maps) lies closest to the actual (or reported) spill site.

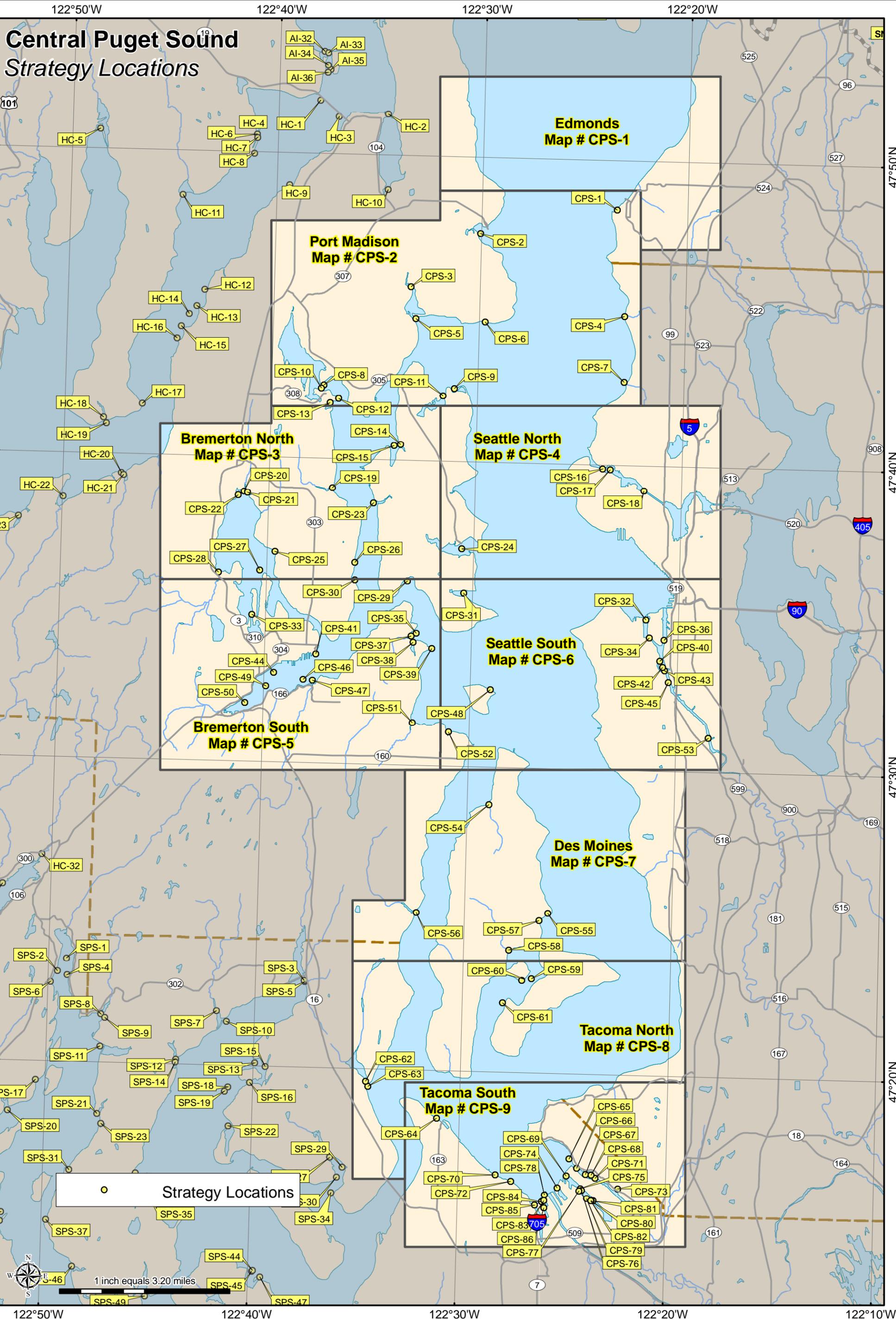
**After** considerably more is known about the spill and surrounding area:

- Other techniques for recovery or containment (skimming, in situ burning, or dispersants) may be applied.
- GRP strategies are likely to be refined as a result of lessons learned.

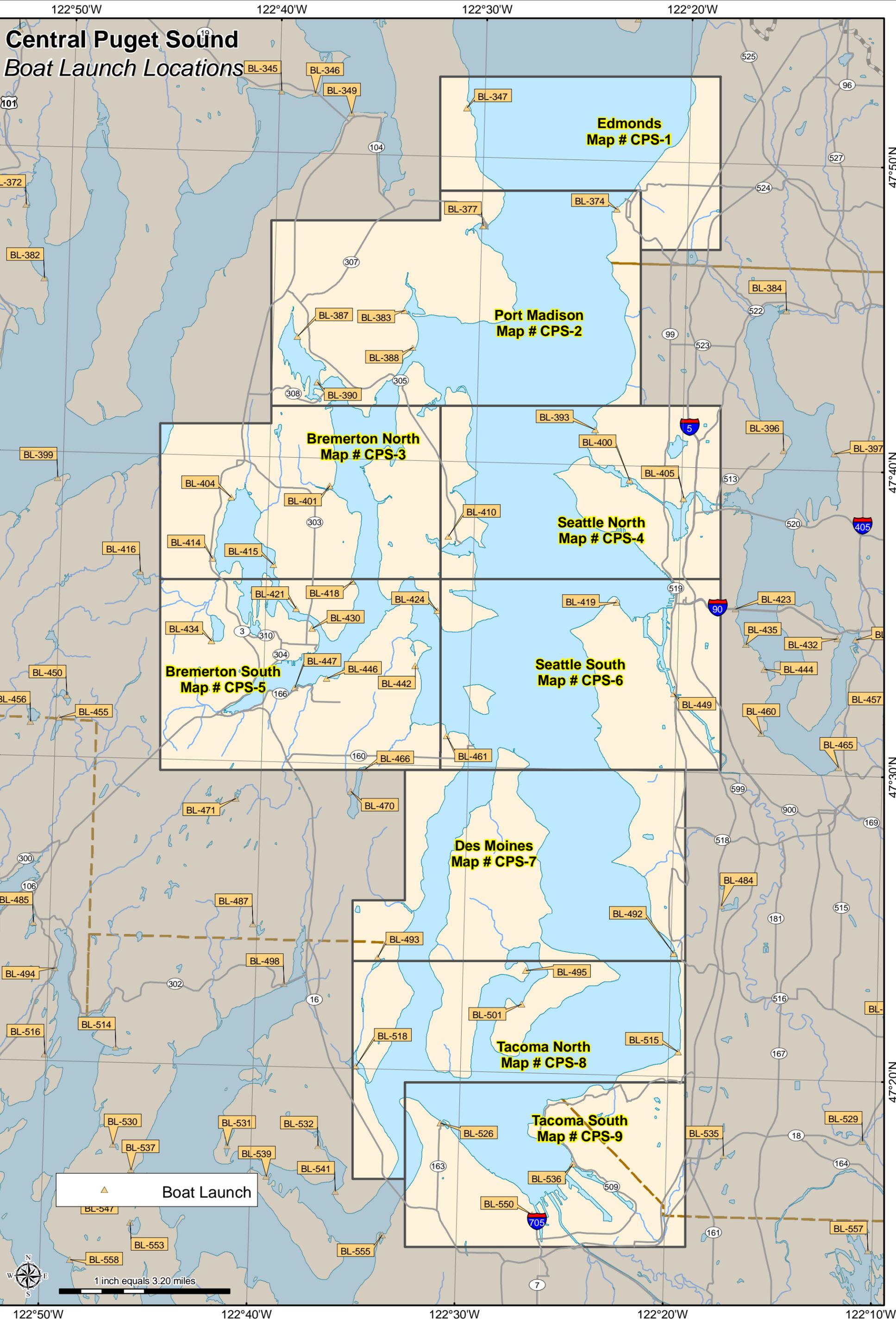
**Marine booming strategy sites are numbered from North to South.**

## 4.2 Strategy and Access Locations Overview

Marine booming strategy sites are numbered from North to South

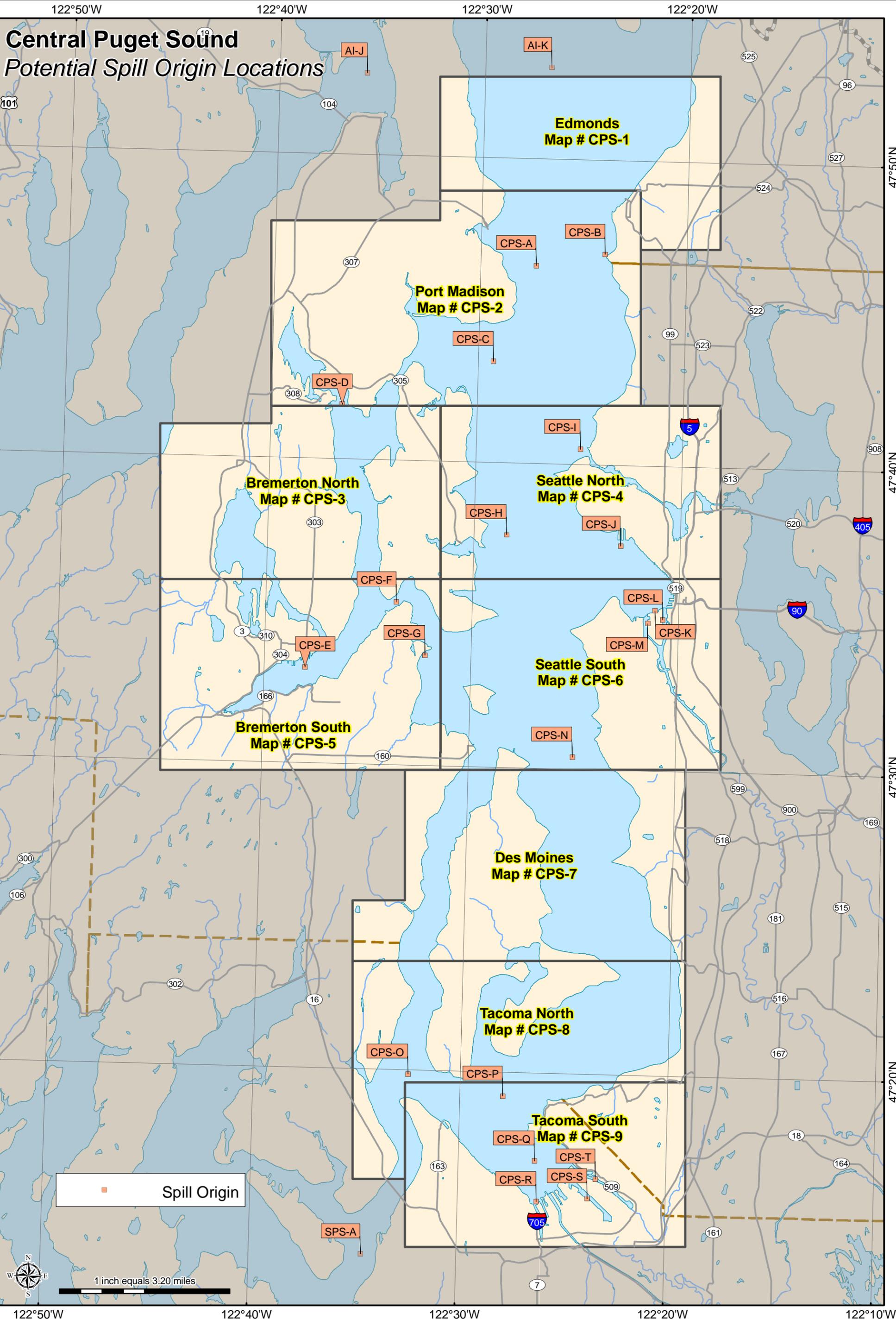


Central Puget Sound (CPS) GRP, Version 2.01



### 4.3 Strategy Priorities

The sequence of deployments is pre-determined in a booming priority table. The appropriate table is found by finding which 'Potential Spill Origin' point (orange boxes on the maps) lies closest to the actual (or reported) spill site.



Central Puget Sound (CPS) GRP, Version 2.01

**Table 4-1: CPS-A, Apple Tree Cove, Potential Spill Origin Booming Priority**

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-2	4- 23	4- 33
2	CPS-4	4- 23	4- 34
3	CPS-7	4- 23	4- 35
4	CPS-1	4- 23	4- 33
5	CPS-6	4- 23	4- 35

**Table 4-2: CPS-B, Chevron - Point Wells, Potential Spill Origin Booming Priority**

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-4	4- 23	4- 34
2	CPS-7	4- 23	4- 35
3	CPS-1	4- 23	4- 33
4	CPS-6	4- 23	4- 35
5	AI-29	See Admiralty Inlet GRP	See Admiralty Inlet GRP

Table 4-3: CPS-C, Port Madison, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-11	4- 23	4- 37
2	CPS-6	4- 23	4- 35
3	CPS-5	4- 23	4- 35
4	CPS-9	4- 23	4- 36
5	CPS-2	4- 23	4- 33
6	CPS-4	4- 23	4- 34

Table 4-4: CPS-D, Keyport, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-13	4- 23	4- 38
2	CPS-12	4- 23	4- 38
3	CPS-8	4- 23	4- 36
4	CPS-10	4- 23	4- 37
5	CPS-15	4- 24	4- 39
6	CPS-14	4- 24	4- 39
7	CPS-19	4- 24	4- 40

Table 4-5: CPS-E, Puget Sound Naval Shipyard, Mouth of Dyes Inlet, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-44	4- 26	4- 48
2	CPS-41	4- 26	4- 47
3	CPS-50	4- 26	4- 50
4	CPS-47	4- 26	4- 49
5	CPS-49	4- 26	4- 50
6	CPS-46	4- 26	4- 49
7	CPS-26	4- 24	4- 42
8	CPS-30	4- 26	4- 43
9	CPS-35	4- 26	4- 45
10	CPS-29	4- 26	4- 43
11	CPS-37	4- 26	4- 46
12	CPS-38	4- 26	4- 46

Table 4-6: CPS-F, Rich Passage, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-35	4- 26	4- 45
2	CPS-37	4- 26	4- 46
3	CPS-38	4- 26	4- 46
4	CPS-29	4- 26	4- 43
5	CPS-26	4- 24	4- 42
6	CPS-30	4- 26	4- 43
7	CPS-50	4- 26	4- 50
8	CPS-47	4- 26	4- 49
9	CPS-41	4- 26	4- 47
10	CPS-46	4- 26	4- 49
11	CPS-44	4- 26	4- 48
12	CPS-49	4- 26	4- 50

Table 4-7: CPS-G, Manchester Fuel Depot, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-35	4- 26	4- 45
2	CPS-37	4- 26	4- 46
3	CPS-38	4- 26	4- 46
4	CPS-51	4- 26	4- 51
5	CPS-52	4- 27	4- 51
6	CPS-29	4- 26	4- 43
7	CPS-26	4- 24	4- 42
8	CPS-30	4- 26	4- 43
9	CPS-47	4- 26	4- 49
10	CPS-48	4- 27	4- 50
11	CPS-23	4- 24	4- 41

Table 4-8: CPS-H, E shore Bainbridge Island N of Eagle Harbor, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-24	4- 25	4- 41
2	CPS-6	4- 23	4- 35
3	CPS-9	4- 23	4- 36
4	CPS-11	4- 23	4- 37
5	CPS-31	4- 27	4- 43
6	CPS-5	4- 23	4- 35

Table 4-9: CPS-I, Lake Washington Ship Canal Entrance, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-7	4- 23	4- 35
2	CPS-4	4- 23	4- 34
3	CPS-1	4- 23	4- 33
4	CPS-6	4- 23	4- 35

Table 4-10: CPS-J, Pier 91, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-32	4- 27	4- 44

Table 4-11: CPS-K, Duwamish River, Rainier Petroleum/Shell, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-34	4- 27	4- 44
2	CPS-36	4- 27	4- 45
3	CPS-40	4- 27	4- 47
4	CPS-42	4- 27	4- 48
5	CPS-43	4- 27	4- 48
6	CPS-45	4- 27	4- 49
7	CPS-32	4- 27	4- 44

Table 4-12: CPS-L, Duwamish River, E waterway, Kinder Morgan Facility, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-36	4- 27	4- 45
2	CPS-40	4- 27	4- 47
3	CPS-42	4- 27	4- 48
4	CPS-43	4- 27	4- 48
5	CPS-45	4- 27	4- 49
6	CPS-32	4- 27	4- 44
7	CPS-34	4- 27	4- 44

Table 4-13: CPS-M, Duwamish River, W Waterway, ARCO/BP facility, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-32	4- 27	4- 44
2	CPS-34	4- 27	4- 44
3	CPS-36	4- 27	4- 45
4	CPS-40	4- 27	4- 47
5	CPS-42	4- 27	4- 48
6	CPS-43	4- 27	4- 48

Table 4-14: CPS-N, E Passage/Blake Island/Three Tree Point, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-55-High Flow	4- 28	4- 53
1	CPS-55-Low Flow	4- 28	4- 53
2	CPS-57	4- 28	4- 54
3	CPS-48	4- 27	4- 50
4	CPS-31	4- 27	4- 43
5	CPS-24	4- 25	4- 41

Table 4-15: CPS-O, Dalco Passage/Narrows/Gig Harbor, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-64	4- 30	4- 57
2	CPS-63	4- 29	4- 57
3	CPS-62	4- 29	4- 56
4	CPS-61	4- 29	4- 56
5	CPS-59	4- 29	4- 55
6	CPS-58	4- 28	4- 55
7	CPS-60	4- 29	4- 56
10	CPS-56	4- 28	4- 54
11	CPS-54	4- 28	4- 52
12	SPS-34	See South Puget Sound GRP	See South Puget Sound GRP
13	SPS-30	See South Puget Sound GRP	See South Puget Sound GRP
14	SPS-29	See South Puget Sound GRP	See South Puget Sound GRP
15	SPS-27	See South Puget Sound GRP	See South Puget Sound GRP
16	SPS-44	See South Puget Sound GRP	See South Puget Sound GRP
17	SPS-47	See South Puget Sound GRP	See South Puget Sound GRP
18	SPS-57	See South Puget Sound GRP	See South Puget Sound GRP

Table 4-16: CPS-P, Commencement Bay, E Passage, Des Moines, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-64	4- 30	4- 57
2	CPS-70-High Tide	4- 30	4- 60
3	CPS-72-High Tide	4- 30	4- 62
4	CPS-61	4- 29	4- 56
5	CPS-59	4- 29	4- 55
6	CPS-58	4- 28	4- 55
7	CPS-60	4- 29	4- 56
8	CPS-63	4- 29	4- 57
9	CPS-62	4- 29	4- 56

Table 4-17: CPS-Q, Commencement Bay, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-65	4- 30	4- 58
2	CPS-66	4- 30	4- 58
3	CPS-75	4- 30	4- 63
4	CPS-69	4- 30	4- 60
5	CPS-74	4- 30	4- 63
6	CPS-64	4- 30	4- 57
7	CPS-70-High Tide	4- 30	4- 60
8	CPS-72-High Tide	4- 30	4- 62
9	CPS-61	4- 29	4- 56
10	CPS-59	4- 29	4- 55

Table 4-18: CPS-R, Commencement Bay/Thea Foss Watrwy/Simpson Facil., Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-85	4- 30	4- 67
2	CPS-84	4- 30	4- 66
3	CPS-86	4- 30	4- 67
4	CPS-83	4- 30	4- 66
5	CPS-66	4- 30	4- 58
6	CPS-65	4- 30	4- 58
7	CPS-72-High Tide	4- 30	4- 62
8	CPS-70-High Tide	4- 30	4- 60
9	CPS-74	4- 30	4- 63
10	CPS-69	4- 30	4- 60

Table 4-19: CPS-S, Commencement Bay, U.S. Oil Fac., Blair Waterway, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-75	4- 30	4- 63
2	CPS-69	4- 30	4- 60
3	CPS-81	4- 30	4- 65
4	CPS-66	4- 30	4- 58
5	CPS-65	4- 30	4- 58
6	CPS-79	4- 30	4- 65
7	CPS-76	4- 30	4- 64
8	CPS-77	4- 30	4- 64

Table 4-20: CPS-T, Commencement Bay, Hylebos Wtrwy, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number
<b>SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE</b>			
1	CPS-71	4- 30	4- 61
2	CPS-68	4- 30	4- 59
3	CPS-67	4- 30	4- 59
4	CPS-66	4- 30	4- 58
5	CPS-65	4- 30	4- 58
6	CPS-73	4- 30	4- 63
7	CPS-69	4- 30	4- 60

## 4.4 Proposed Booming and Collection Strategies - Maps

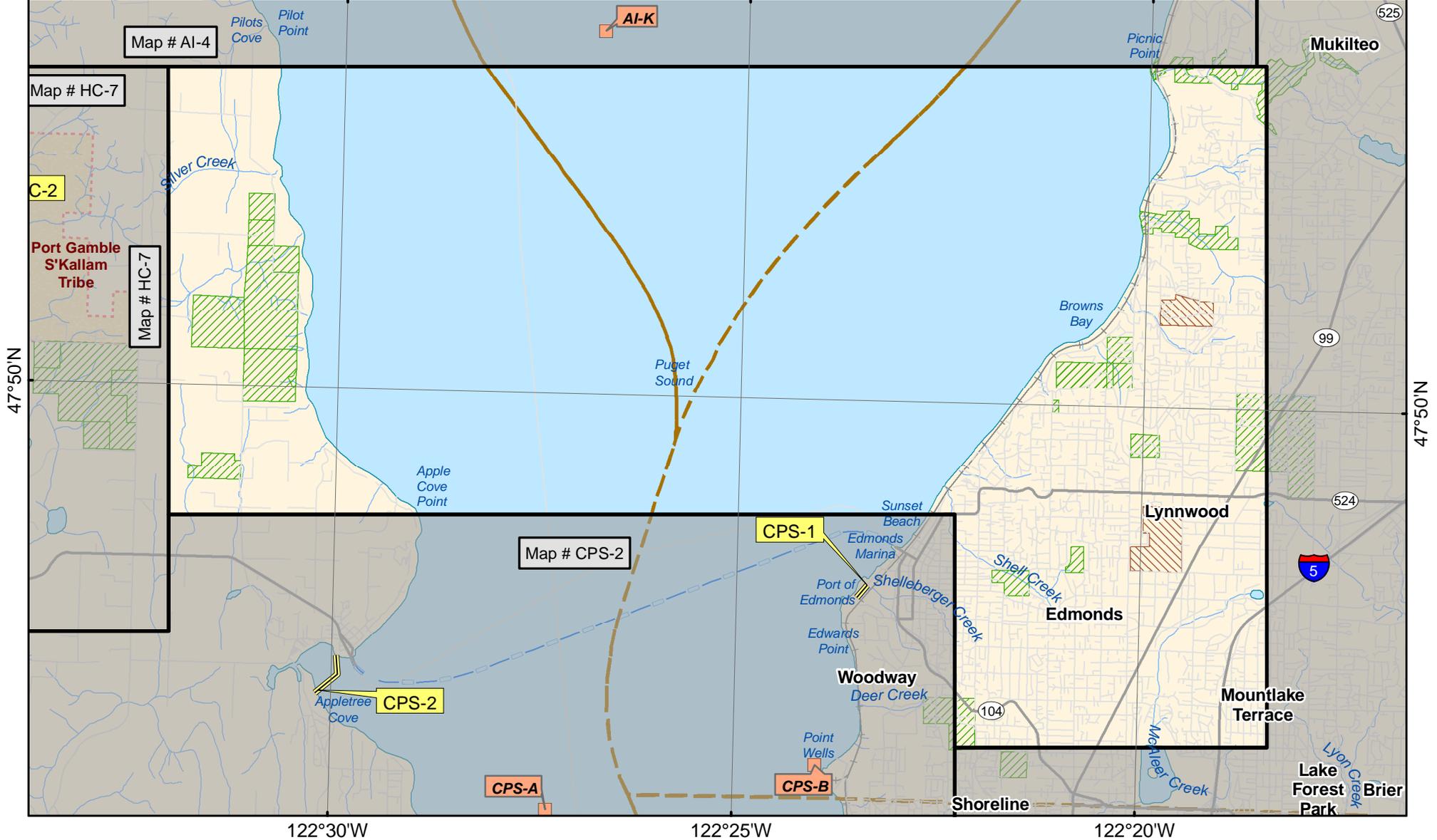
# Map # CPS-1

## Edmonds

### Proposed Booming Strategies

Street	Proposed Boom Placement	Sector	Military Lands	Tribal Lands
Highway	Railroad	Potential Spill Origin	Public Lands	County Boundary
Ferry Route				

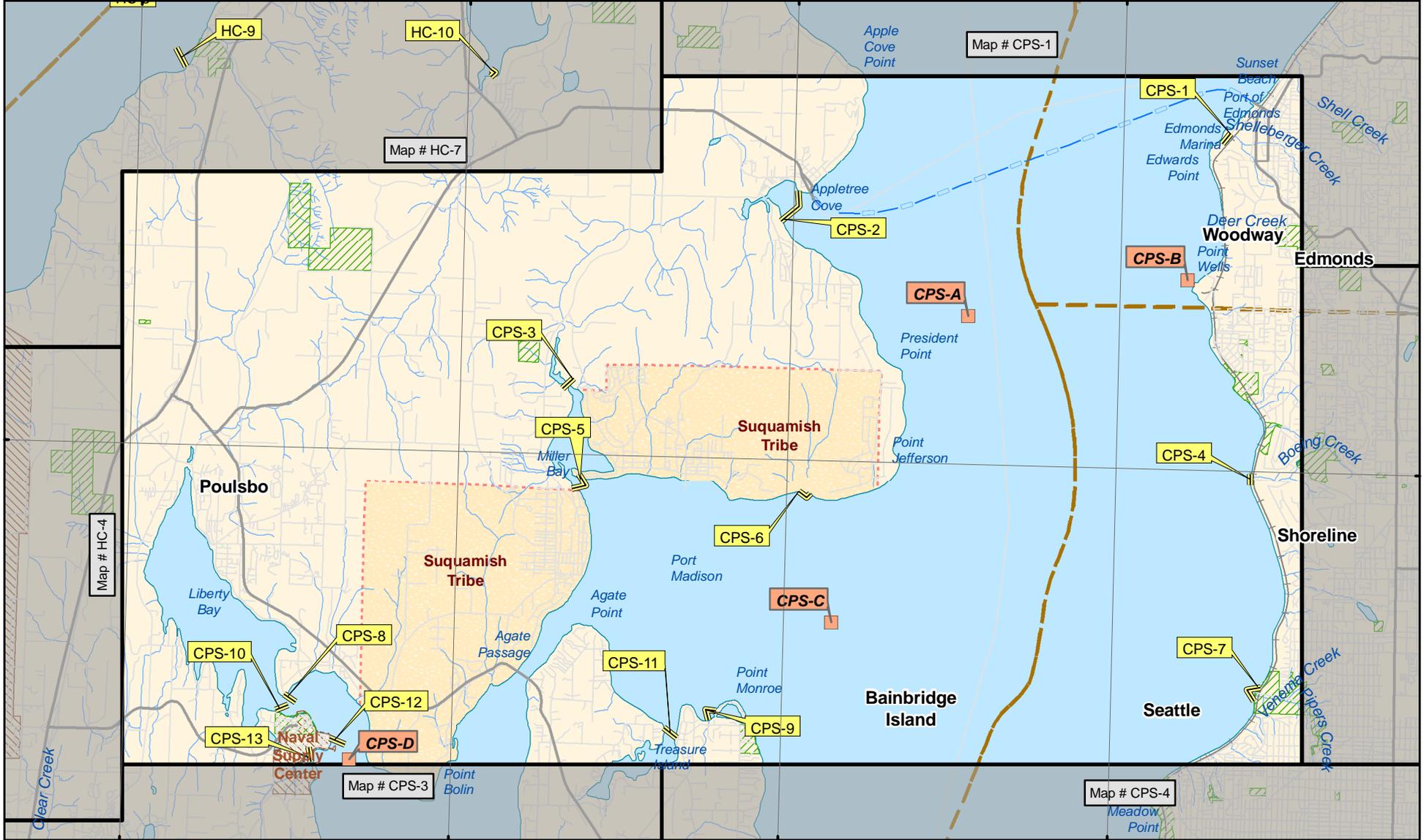
1 inch equals 1.31 miles



# Map # CPS-2 Port Madison Proposed Booming Strategies

Street	Proposed Boom Placement	Sector	Military Lands	Tribal Lands
Highway	Railroad	Potential Spill Origin	Public Lands	County Boundary
Ferry Route				

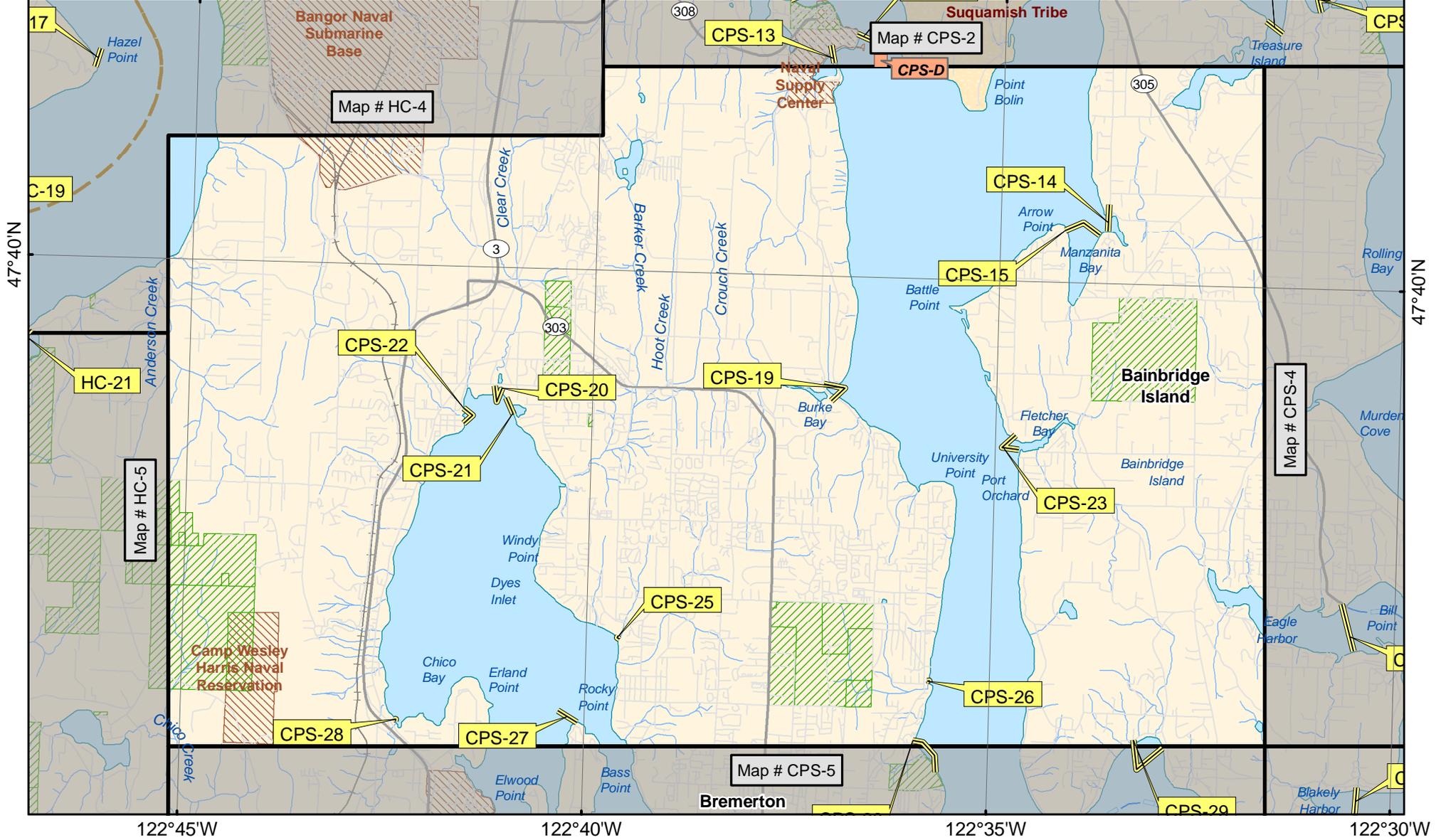
1 inch equals 1.65 miles

# Map # CPS-3 Bremerton North Proposed Booming Strategies

Street	Proposed Boom Placement	Sector	Military Lands	Tribal Lands
Highway	Railroad	Potential Spill Origin	Public Lands	County Boundary
Ferry Route				

1 inch equals 1.31 miles

# Map # CPS-4 Seattle North Proposed Booming Strategies

Street	Proposed Boom Placement	Sector	Military Lands	Tribal Lands
Highway	Railroad	Potential Spill Origin	Public Lands	County Boundary
Ferry Route				

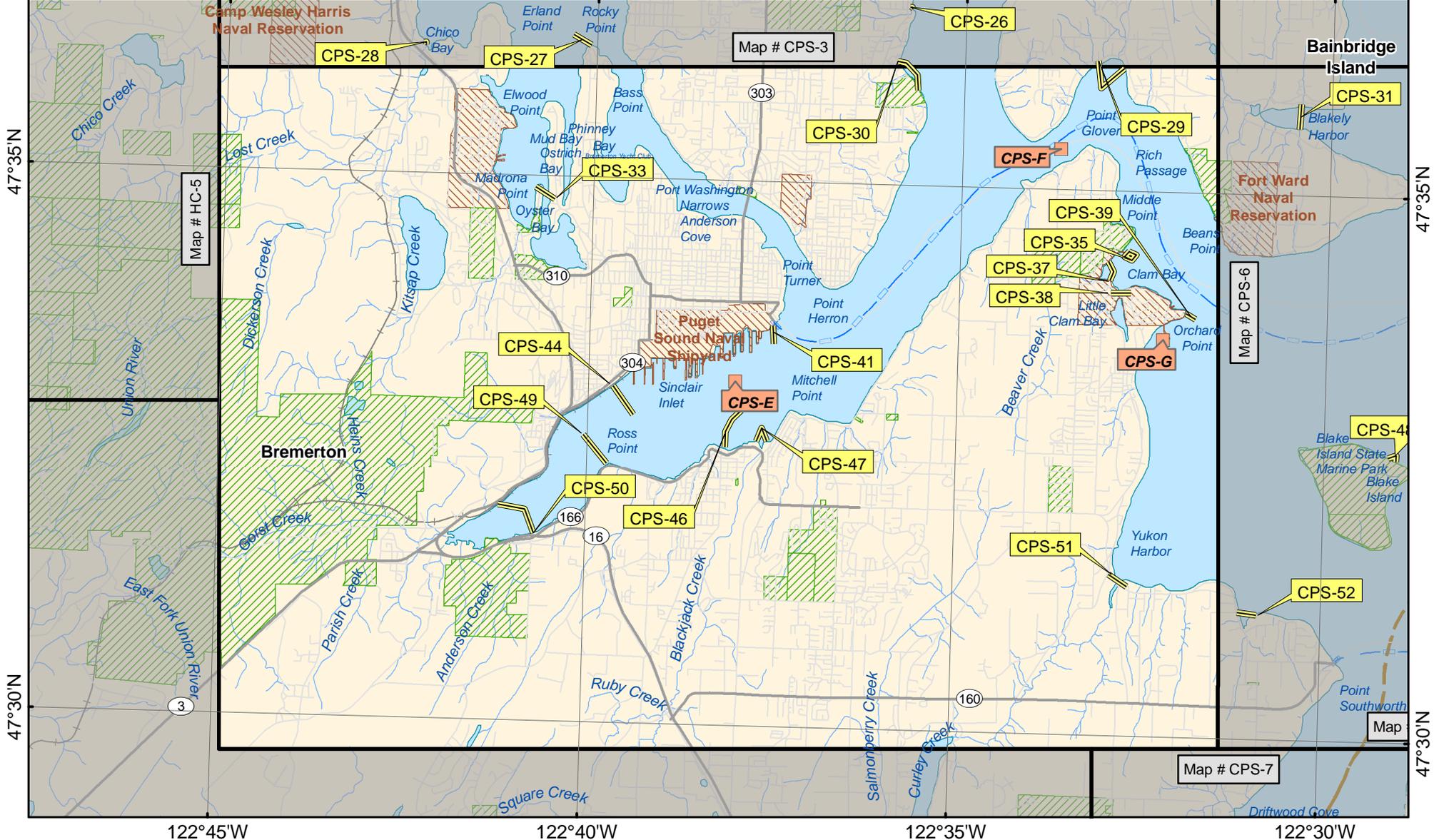
1 inch equals 1.31 miles




# Map # CPS-5 Bremerton South Proposed Booming Strategies

Street	Proposed Boom Placement	Sector	Military Lands	Tribal Lands
Highway	Railroad	Potential Spill Origin	Public Lands	County Boundary
Ferry Route				

1 inch equals 1.44 miles



# Map # CPS-6 Seattle South Proposed Booming Strategies

Street	Proposed Boom Placement	Sector	Military Lands	Tribal Lands
Highway	Railroad	Potential Spill Origin	Public Lands	County Boundary
Ferry Route				

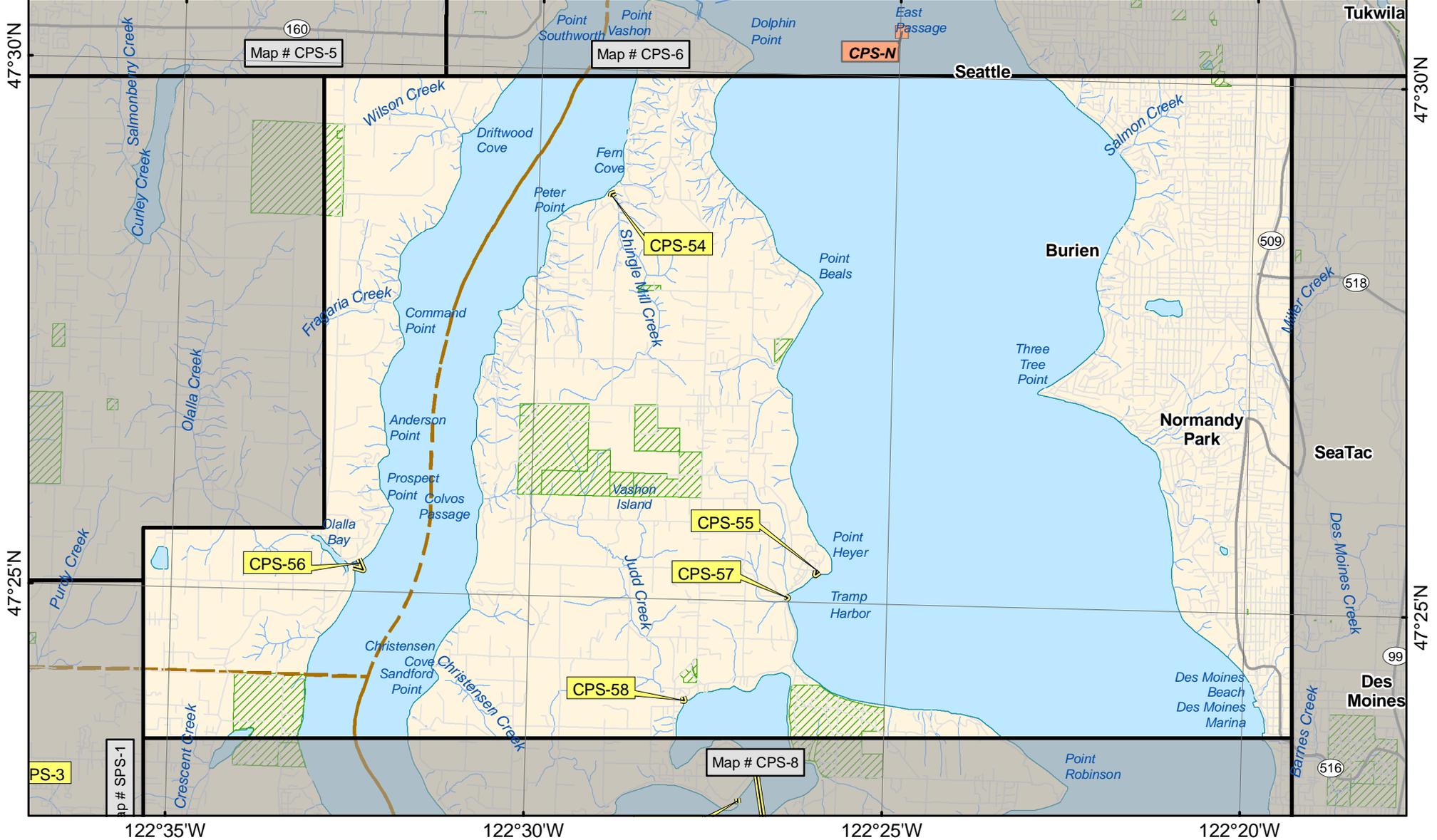
1 inch equals 1.44 miles



# Map # CPS-7 Des Moines Proposed Booming Strategies

Street	Proposed Boom Placement	Sector	Military Lands	Tribal Lands
Highway	Railroad	Potential Spill Origin	Public Lands	County Boundary
Ferry Route				

1 inch equals 1.49 miles





# Map # CPS-9

## Tacoma South

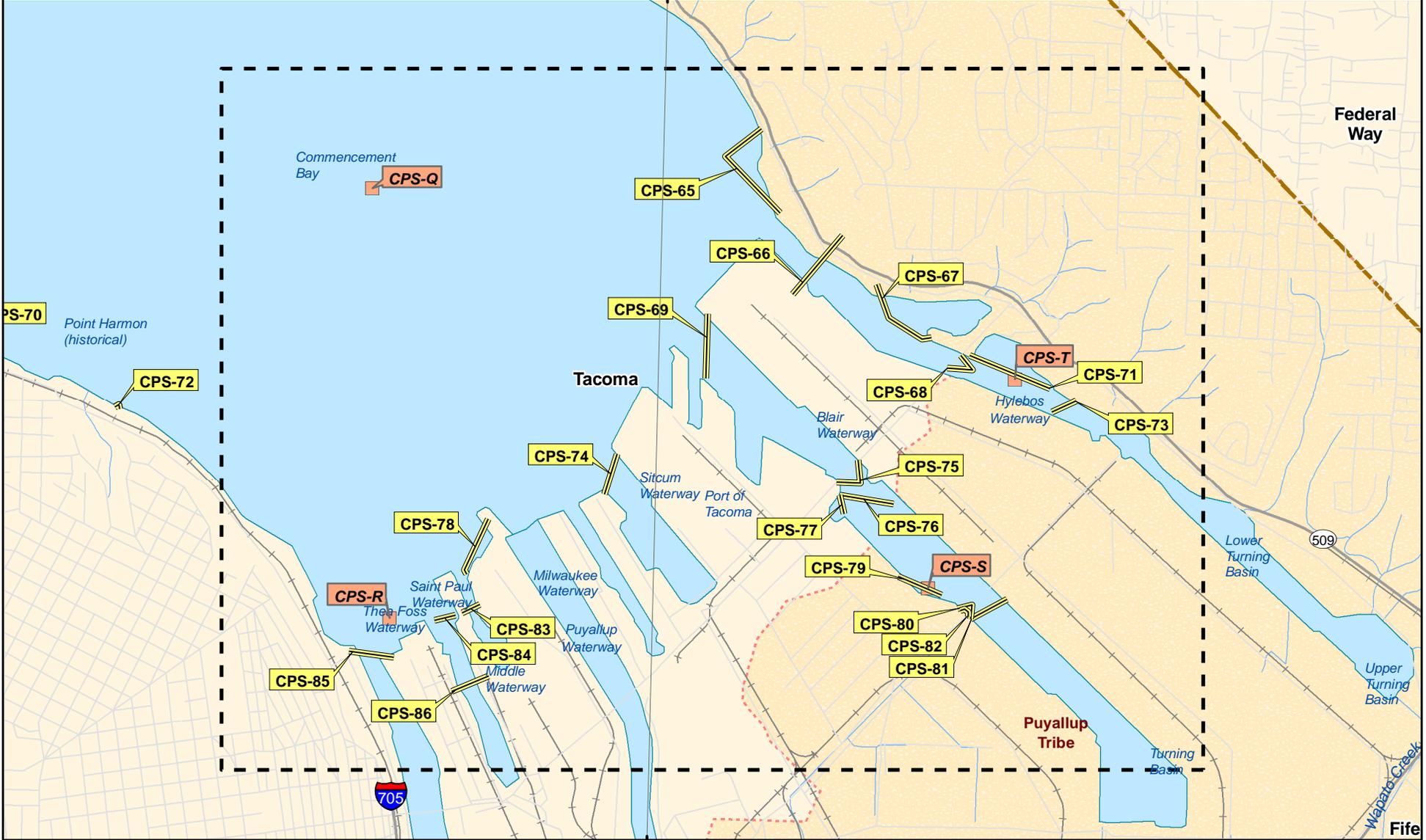
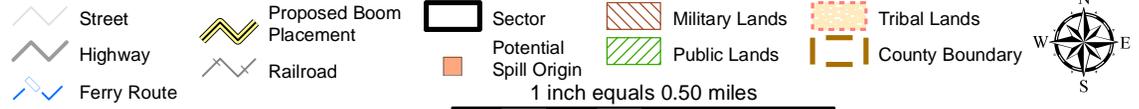
### Proposed Booming Strategies

Street	Proposed Boom Placement	Sector	Military Lands	Tribal Lands
Highway	Railroad	Potential Spill Origin	Public Lands	County Boundary
Ferry Route				

1 inch equals 1.25 miles



# Tacoma South Inset Inset Level Map Proposed Booming Strategies



122°25'W

## 4.5 Proposed Booming and Collection Strategies - Matrices

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-1</b>	Visited and Not Tested 05/01/2006	<b>Edmonds Wildlife Sanctuary</b>  N 47° 48.410' W 122° 23.443'  map page 4-23	Exclusion - Keep oil out of wildlife sanctuary	NA	Shut tide gates if the threat of oiling exists. Tide gate is 0.3 mile south of Dayton St., off gravel road along RR tracks.  Contact immediately or before entering: Edmonds Public Works, (W) 425-771-0235, Contact for key to tide gate chain/lock, can also be cut.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNO0268">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNO0268</a>	special protection area - Edmonds Wildlife Sanctuary, sensitive habitat, waterfowl, shore birds, herons & other wading birds
<b>CPS-2</b>	Visited and Tested 03/01/1997	<b>Appletree Cove</b>  N 47° 47.531' W 122° 30.056'  map page 4-23	Collection, exclusion - Prevent oil from entering Appletree Cove mud flats and intertidal area.	200ft Contractor Boom, 1300ft Harbor Boom	Attach 200 feet of intertidal boom to south end of cove at treeline east of retaining wall. Connect with 1300 feet of harbor boom which should be attached to the south end of the breakwater. (variation, attach to piling first and then to breakwater). 3 anchors should be placed in and 3 outside of boom. Collection can take place in cusps that form between anchors.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0339">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0339</a>	sensitive habitat, shellfish

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-3</b>	Visited and Tested 09/01/1996	<b>Inner Miller Bay</b> N 47° 45.735' W 122° 33.363'  map page 4-23	Exclusion - prevent oil from entering creek mouth	300ft Contractor Boom	Close off creek mouth.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0306">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0306</a>	sensitive habitat, salmonids (anadromous), waterfowl, herons & other wading birds
<b>CPS-4</b>	Visited and Tested 03/01/1997	<b>Boeing Creek</b> N 47° 44.923' W 122° 22.955'  map page 4-23	Exclusion - Prevent oil from entering creek mouth.	100ft Contractor Boom	High tide only - no threat otherwise. Place weir dam or other partial dam at culverts to prevent oil/tidal water from entering but allowing creek flow out. Will need sandbags, cement, plywood, etc. Boom as last resort.  Contact immediately or before entering: WDFW Emergency Hydraulic Project Approval, (M) 360-534-8233, 24-hour pager number. Responders must receive Emergency HPA from the WDFW prior to using culvert blocks and underflow dams.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0009">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0009</a>	special management area, salmonids (anadromous)

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-5</b>	Visited and Tested 09/01/1996	<b>Outer Miller Bay</b> <b>N 47° 44.689'</b> <b>W 122° 33.085'</b>  <b>map page 4-23</b>	Exclusion - prevent oil from entering bay	800ft Contractor Boom	Anchor boom at south end of south shore to close off entrance.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0300">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0300</a>	baitfish, salmonids (anadromous), shellfish, waterfowl, herons & other wading birds, tribal lands/resources - Port Madison Suquamish Indian Reservation
<b>CPS-6</b>	Visited and Not Tested 12/01/2004	<b>Doe-Kag-Wats Marsh</b> <b>N 47° 44.643'</b> <b>W 122° 29.725'</b>  <b>map page 4-23</b>	Exclusion - Keep oil out of marsh.	1000ft Contractor Boom	Deploy boom in a chevron configuration in front of the entrance to the marsh. Current is very strong in entrance channel during tidal changes. Oil could be collected with a vactruck from the west side of the boom.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0323">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0323</a>	sensitive habitat, tribal lands/resources - Port Madison Suquamish Indian Reservation
<b>CPS-7</b>	Visited and Not Tested 05/01/2006	<b>Piper Creek - Inner Strategy</b> <b>N 47° 42.769'</b> <b>W 122° 22.909'</b>  <b>map page 4-23</b>	Exclusion - Keep oil out of Piper Creek estuary	200ft Contractor Boom	Boom off both culverts where RR crosses creek.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0020">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0020</a>	special management area, salmonids (anadromous), public lands/facilities - Carkeek Park

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-8</b>	Visited and Not Tested 05/01/2006	<b>Liberty Bay</b>  N 47° 42.434' W 122° 37.468'  map page 4-23	Collection, diversion - Divert and collect oil before it can reach Liberty Bay.	500ft Contractor Boom	Angle north leg toward the east to collect oil in North of bay. Deploy in conjunction with CPS -10.  Contact immediately or before entering: Navy Regional Operations Center, (W) 360-315-5123, Alt Business Phone 360-315-5122	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0275">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0275</a>	baitfish, marine birds, waterfowl
<b>CPS-9</b>	Visited and Not Tested 05/01/2006	<b>Point Monroe Lagoon</b>  N 47° 42.425' W 122° 31.131'  map page 4-23	Collection, diversion - Keep oil out of the lagoon.	1000ft Contractor Boom	Deploy boom in a chevron configuration from the Pt. Monroe sand spit to the shoreline to the south to close off the entrance to the lagoon.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0666">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0666</a>	salmonids (anadromous)

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-10</b>	Visited and Not Tested 05/01/2006	<b>Liberty Bay</b> <b>N 47° 42.335'</b> <b>W 122° 37.585'</b>  <b>map page 4-23</b>	Collection, diversion - Divert and collect oil before it can reach Liberty Bay.	500ft Contractor Boom	Locate south leg just West of power lines and East of the house w/ flagpole flying several state flags - Collect oil at small private ramp (caution pipeline area). Deploy in conjunction with CPS-8.  Contact immediately or before entering: Navy Regional Operations Center, (W) 360-315-5123, Alt Business Phone 360-315-5122	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0236">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0236</a>	baitfish, marine birds, waterfowl
<b>CPS-11</b>	Visited and Not Tested 05/01/2006	<b>Port Madison</b> <b>N 47° 42.181'</b> <b>W 122° 31.676'</b>  <b>map page 4-23</b>	Collection - Exclude oil from entering Port Madison	1200ft Contractor Boom	Deploy boom at an angle across the entrance of Port Madison to divert oil to the east shore near the road for collection.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0673">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0673</a>	baitfish, salmonids (anadromous), waterfowl

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-12</b>	Visited and Not Tested 05/01/2006	<b>Entrance to Liberty Bay</b>  N 47° 42.005' W 122° 36.729'  map page 4-23	Collection, diversion - Prevent oil from entering Liberty Bay	1000ft Contractor Boom	Attach to fenceline, divert to Navy shoreline.  Contact immediately or before entering: Navy Regional Operations Center, (W) 360-315-5123, Alt Business Phone 360-315-5122	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0233">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0233</a>	baitfish, marine birds, waterfowl
<b>CPS-13</b>	Visited and Not Tested 05/01/2006	<b>Keyport Lagoon</b>  N 47° 41.861' W 122° 37.141'  map page 4-23	Exclusion, collection - Keep oil from entering lagoon, collect oil if it is trapped by chevron.	100ft Contractor Boom	This area would only be at risk during high tides. Deploy boom inside of the entrance of the lagoon so that oil is prevented from entering the rest of lagoon and so that oil could be collected with vac truck.  Contact immediately or before entering: Navy Regional Operations Center, (W) 360-315-5123, Alt Business Phone 360-315-5122	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0232">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0232</a>	marine birds, waterfowl

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-14</b>	Visited and Not Tested 05/01/2006	<b>Manzanita Bay - E Inlet</b>  N 47° 40.551' W 122° 33.670'  map page 4-24	Exclusion - Prevent oil from entering bay	900ft Contractor Boom	Place boom across East inlet.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0557">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0557</a>	baitfish, shellfish, waterfowl
<b>CPS-15</b>	Visited and Not Tested 05/01/2006	<b>Manzanita Bay</b>  N 47° 40.505' W 122° 33.982'  map page 4-24	Exclusion - Prevent oil from entering bay	2000ft Contractor Boom	Place booms in chevron configuration across mouth of bay; anchor to pilings. Large anchor at apex.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0558">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0558</a>	sensitive habitat, baitfish, waterfowl
<b>CPS-16</b>	Visited and Not Tested 05/01/2006	<b>Chittenden Locks - Salmon Bay</b>  N 47° 39.913' W 122° 23.856'  map page 4-25	Exclusion - Keep oil in lakes	NA	Contact immediately or before entering: Chittenden Locks, (W) 206-783-7000, Notify Lock master to close the locks, fish ladder, and spillway gates and await further guidance from Unified Command.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0037">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0037</a>	general fish & wildlife resources

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-17</b>	Visited and Not Tested 05/01/2006	<b>Time Oil Co.</b> N 47° 39.886' W 122° 23.482'  map page 4-25	Collection - Prevent oil from reaching Locks	1200ft Contractor Boom	Boom across canal from Time Oil Co. boom to solid shoreline beyond the wooden pier on north shoreline.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0037">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0037</a>	public lands/facilities, general fish & wildlife resources
<b>CPS-18</b>	Visited and Not Tested 05/01/2006	<b>Lake Washington Ship Canal</b> N 47° 39.219' W 122° 21.822'  map page 4-25	Collection, exclusion - Keep oil out of Puget Sound	300ft Contractor Boom	Boom across canal; use skimmer along boom; anywhere along canal that is appropriate/accessible.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0037">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0037</a>	public lands/facilities, general fish & wildlife resources
<b>CPS-19</b>	Visited and Not Tested 05/01/2006	<b>Burke Bay</b> N 47° 39.075' W 122° 36.914'  map page 4-24	Exclusion - Prevent oil from entering Burke Bay	400ft Contractor Boom	Deploy boom in a chevron configuration on the east side of the bridge.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0223">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0223</a>	sensitive habitat, salmonids (anadromous), herons & other wading birds
<b>CPS-20</b>	Visited and Tested 06/01/2000	<b>Clear Creek</b> N 47° 38.881' W 122° 41.185'  map page 4-24	Exclusion - Prevent oil from entering creek estuary	200ft Contractor Boom	Close off flat in front of creek (two culverts where road crosses creek). High water, deploy from boat; low tide, deploy from road.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0174">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0174</a>	sensitive habitat, salmonids (anadromous)

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-21</b>	Visited and Not Tested 05/01/2006	<b>Lagoon near Clear Creek</b>  N 47° 38.847' W 122° 41.021'  map page 4-24	Exclusion - Prevent oil from entering lagoon.	100ft Contractor Boom	Close off small lagoon to SE of Clear Creek.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0175">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0175</a>	sensitive habitat, waterfowl
<b>CPS-22</b>	Visited and Not Tested 05/01/2006	<b>Strawberry Creek</b>  N 47° 38.759' W 122° 41.477'  map page 4-24	Exclusion - Prevent oil from entering creek estuary	200ft Contractor Boom	Close off flat in front of creek; High water deploy from boat, Low water from road.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0173">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0173</a>	salmonids (anadromous)
<b>CPS-23</b>	Visited and Not Tested 05/01/2006	<b>Fletcher Bay</b>  N 47° 38.609' W 122° 34.909'  map page 4-24	Exclusion - Keep oil out of Fletcher Bay	600ft Contractor Boom	Deploy boom in a chevron configuration across the entrance to the bay.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0578">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0578</a>	sensitive habitat, salmonids (anadromous)
<b>CPS-24</b>	Visited and Not Tested 05/01/2006	<b>Eagle Harbor</b>  N 47° 37.178' W 122° 30.586'  map page 4-25	Exclusion - Keep oil out of harbor.	3000ft Contractor Boom	Close off harbor at ferry dock; deploy boom from west side of ferry dock to pilings just west of old creosote plant.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0635">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0635</a>	sensitive habitat, baitfish, marine birds, waterfowl

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-25</b>	Visited and Not Tested 05/01/2006	<b>Barker Creek Dyes Inlet</b>  N 47° 36.932' W 122° 39.615'  map page 4-24	Exclusion - Keep oil out of creek.	100ft Contractor Boom	Recommend chevron be put at mouth of creek. Requires about 100 ft of boom, deployed from road (5999Tracyton Blvd NW).	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0177">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0177</a>	salmonids (anadromous)
<b>CPS-26</b>	Visited and Not Tested 05/01/2006	<b>Illahee</b>  N 47° 36.643' W 122° 35.744'  map page 4-24	Exclusion - Keep oil out of creek	200ft Contractor Boom	Deploy boom in a chevron configuration across mouth of the creek.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0206">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0206</a>	sensitive habitat, salmonids (anadromous), public lands/facilities - Illahee State Park
<b>CPS-27</b>	Visited and Not Tested 05/01/2006	<b>Rocky Point</b>  N 47° 36.308' W 122° 40.326'  map page 4-24	Deflection - Keep oil out of bay	800ft Contractor Boom	Start at Rocky Point using 800' of boom for a westerly deflection, anchored outward at angle depending on tides and currents.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0128">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0128</a>	sensitive habitat
<b>CPS-28</b>	Visited and Not Tested 05/01/2006	<b>Chico Creek</b>  N 47° 36.201' W 122° 42.331'  map page 4-24	Exclusion - Prevent oil from entering creek	200ft Contractor Boom	Form chevron across the mouth of Chico Creek. Attach point on SE side of creek.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0162">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0162</a>	salmonids (anadromous)

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-29</b>	Visited and Not Tested 05/01/2006	<b>Lynnwood Center / Rich Passage</b>  N 47° 36.070' W 122° 33.173'  map page 4-26	Collection - Exclude from restoration project, and enhance natural collection site.	1000ft Contractor Boom	Deploy boom in a chevron configuration across the front of the tide flats east of the mouth of culvert which feeds restoration site, collect oil from beach.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0704">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0704</a>	general fish & wildlife resources, special management area
<b>CPS-30</b>	Visited and Tested 06/01/2000	<b>Illahee State Park</b>  N 47° 36.067' W 122° 35.717'  map page 4-26	Exclusion - Keep oil off shoreline	2800ft Contractor Boom	Anchor boom from SE shore at State Park property boundary sign to mooring buoys, then to dock and anchor to bulkhead on the NE side of the small creek.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0206">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0206</a>	public lands/facilities - Illahee State Park
<b>CPS-31</b>	Visited and Not Tested 05/01/2006	<b>Blakely Harbor</b>  N 47° 35.726' W 122° 30.432'  map page 4-27	Exclusion - Keep oil out of the back of Blakely Harbor	1500ft Contractor Boom	Close at mid-harbor - Need large land anchors. If unable to deploy boom at mid-harbor, boom across narrow opening at head of bay (200' chevron).	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0613">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0613</a>	sensitive habitat, baitfish, marine birds, waterfowl

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-32</b>	Visited and Tested 09/01/1995	<b>Harbor Island - W Waterway, N End</b>  N 47° 34.985' W 122° 21.587'  map page 4-27	Collection, exclusion - Prevent oil in the waterway from entering Elliott Bay.	1200ft Contractor Boom	Deploy boom from the north end of the BP/Arco pier to the old fire station pier on the west shore using a rolling bridle. For spills in Elliott Bay, allow oil to enter the waterway and then deploy the boom to prevent oil from moving back into Elliott Bay. Collect with skimmers/vac trucks.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0103">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0103</a>	general fish & wildlife resources
<b>CPS-33</b>	Visited and Not Tested 05/01/2006	<b>Oyster Bay</b>  N 47° 34.846' W 122° 40.658'  map page 4-26	Exclusion - Keep oil out of bays	500ft Contractor Boom	Close off mouth to Oyster Bay w/ 250' sections anchored to boulders, trees & pilings.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0145">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0145</a>	waterfowl
<b>CPS-34</b>	Visited and Not Tested 05/01/2006	<b>Harbor Island - W Waterway, S End</b>  N 47° 34.399' W 122° 21.395'  map page 4-27	Collection, exclusion - Prevent oil from moving into the Duwamish Waterway.	1000ft Contractor Boom	Deploy boom across the south end of the West Waterway at a site suitable for collection from shore with a vac truck.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0097">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0097</a>	special management area, salmonids (anadromous), waterfowl

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-35</b>	Visited and Not Tested 05/01/2006	<b>Clam Bay / NMFS Fish Net Pens</b>  N 47° 34.371' W 122° 32.675'  map page 4-26	Exclusion - Prevent oil from reaching NMFS Fish Net Pens and water intake	1100ft Contractor Boom	Navy has predeployed boom at NMFS pier. Surround the net pens at the end of the NMFS pier. Note - does not address adjacent net pens anchored in the mouth of the bay that are privately owned.  Contact immediately or before entering: Navy Regional Operations Center, (W) 360-315-5123, Alt Business Phone 360-315-5122 Manchester Fuel Department Security, (W) 360-476-2158, Call for interface with NMFS	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0050">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0050</a>	salmonids (anadromous) - net pens for rearing endangered salmon species
<b>CPS-36</b>	Visited and Tested 08/03/2007	<b>Harbor Island - E Waterway, S End</b>  N 47° 34.332' W 122° 20.687'  map page 4-27	Collection, exclusion - Prevent oil from moving into the Duwamish Waterway.	800ft Contractor Boom	Deploy boom across the south end of the East Waterway at a site suitable for collection from shore with a vac truck.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0108">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0108</a>	herons & other wading birds, salmonids (anadromous), waterfowl, special management area

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-37</b>	Visited and Tested 08/01/2006	<b>Clam Bay Tide Flats/ Beaver Creek</b>  N 47° 34.272' W 122° 32.926'  map page 4-26	Exclusion - Keep oil out of the tide flats and Beaver Creek.	1200ft Contractor Boom	Deploy boom in a chevron configuration across the front of the tide flats east of the mouth of Beaver Creek and the NMFS buildings. Navy has set attachment points.  Contact immediately or before entering: Navy Regional Operations Center, (W) 360-315-5123, Alt Business Phone 360-315-5122	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0049">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0049</a>	sensitive habitat, salmonids (anadromous), waterfowl, herons & other wading birds
<b>CPS-38</b>	Visited and Tested 06/01/1994	<b>Little Clam Bay</b>  N 47° 34.069' W 122° 32.810'  map page 4-26	Exclusion - Keep oil out of Little Clam Bay.	600ft Contractor Boom	Deploy boom in a chevron configuration across the front of the tide flats east of the mouth of creek which feed Little Clam Bay.  Contact immediately or before entering: Navy Regional Operations Center, (W) 360-315-5123, Alt Business Phone 360-315-5122	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0048">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0048</a>	salmonids (anadromous)

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-39</b>	Visited and Tested 05/01/2006	<b>Orchard Point</b> N 47° 33.883' W 122° 31.900'  map page 4-26	Collection - Collect oil to shore.	1000ft Contractor Boom	Place off beach at angle.  Contact immediately or before entering: Navy Regional Operations Center, (W) 360-315-5123, Alt Business Phone 360-315-5122	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0046">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0046</a>	sensitive habitat
<b>CPS-40</b>	Visited and Not Tested 05/01/2006	<b>Kellogg Island</b> N 47° 33.652' W 122° 20.866'  map page 4-27	Collection, exclusion - Protect backwaters west of Kellogg Island	1600ft Contractor Boom	1600' on North entrance, anchor to pilings, boom around small island, can also connect to barges.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0094">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0094</a>	herons & other wading birds, salmonids (anadromous), waterfowl, special management area
<b>CPS-41</b>	Visited and Not Tested 05/01/2006	<b>Puget Sound Naval Shipyard</b> N 47° 33.601' W 122° 37.510'  map page 4-26	Collection - Prevent oil from going up Dyes Inlet	1000ft Contractor Boom	Attach to fenceline of Puget Sound Naval Shipyard boundary; run boom out at a SW angle. Deflect oil and collect with vac truck.  Contact immediately or before entering: Navy Regional Operations Center, (W) 360-315-5123, Alt Business Phone 360-315-5122	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0096">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0096</a>	general fish & wildlife resources

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-42</b>	Visited and Tested 06/01/2002	<b>Kellogg Island</b> N 47° 33.448' W 122° 20.723'  map page 4-27	Collection, exclusion - Protect backwaters west of Kellogg Island	800ft Sorbent Boom	Boom gaps in barges to protect East side of island.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0093">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0093</a>	herons & other wading birds, salmonids (anadromous), waterfowl, special management area
<b>CPS-43</b>	Visited and Not Tested 05/01/2006	<b>Kellogg Island</b> N 47° 33.335' W 122° 20.620'  map page 4-27	Collection, exclusion - Protect backwaters west of Kellogg Island	1000ft Contractor Boom	From the SE corner angle 1000' section of boom off end of Ideal Cement dock to the south tip of Kellogg Island to exclude oil from back channel of island.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0092">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0092</a>	herons & other wading birds, salmonids (anadromous), waterfowl, special management area
<b>CPS-44</b>	Visited and Tested 06/01/2005	<b>Puget Sound Naval Shipyard</b> N 47° 32.965' W 122° 39.526'  map page 4-26	Deflection - Deflect oil from entering the head of Sinclair Inlet	1000ft Contractor Boom	Anchor boom from west end of PSNS (edge of rockery); extend out by anchoring or tend with boat.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0090">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0090</a>	sensitive habitat, baitfish, marine birds, waterfowl, shore birds

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-45</b>	Visited and Not Tested 05/01/2006	<b>Lone Star Cement Dock</b>  N 47° 32.950' W 122° 20.433'  map page 4-27	Exclusion - Keep oil out of marsh area	1000ft Contractor Boom	Place boom outside of the cement piled dock to protect the marsh area west of the dock.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0091">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0091</a>	sensitive habitat
<b>CPS-46</b>	Visited and Tested 11/01/2000	<b>Port Orchard Marina</b>  N 47° 32.762' W 122° 38.084'  map page 4-26	Collection, deflection - Prevent oil from reaching shoreline of Sinclair Inlet	2500ft Contractor Boom	Anchor boom along the east edge of marina dock and extend out at angle toward reflector markers. Collect at dock with vac trucks.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0072">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0072</a>	sensitive habitat, baitfish, marine birds, waterfowl, shore birds
<b>CPS-47</b>	Visited and Tested 06/01/2000	<b>Blackjack Creek</b>  N 47° 32.742' W 122° 37.636'  map page 4-26	Exclusion - Keep oil out of creek	250ft Contractor Boom	Close off mouth of creek; stake boom to the flat, tide condition dependent. If shallow, deploy from road.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0070">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0070</a>	salmonids (anadromous)

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-48</b>	Visited and Not Tested 05/01/2006	<b>Blake Island marina</b>  N 47° 32.582' W 122° 29.025'  map page 4-27	Exclusion - Keep oil out of marina	500ft Contractor Boom	Place boom across mouth of marina anchor to break water.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0696">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0696</a>	public lands/facilities - Blake Island State Park
<b>CPS-49</b>	Visited and Tested 06/01/1997	<b>Ross Point</b>  N 47° 32.512' W 122° 39.889'  map page 4-26	Exclusion - Protect shoreline from oil	2200ft Contractor Boom	Depending on direction of tidal flow, secure one end of boom to beach on east or west side of point; extend out to deflect away from point. Boom must be tended by boat.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0076">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0076</a>	baitfish, waterfowl, shore birds
<b>CPS-50</b>	Visited and Tested 08/01/1996	<b>Sinclair Inlet head</b>  N 47° 31.947' W 122° 40.880'  map page 4-26	Exclusion, deflection - Prevent oil from entering inlet	3000ft Contractor Boom	Apex at outermost log buoy, adjust leg angle to make chevron.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0079">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0079</a> <a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=kit0085">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=kit0085</a>	sensitive habitat, marine birds, waterfowl, shore birds

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-51</b>	Visited and Not Tested 05/01/2006	<b>Yukon Harbor / Curley Creek</b>  N 47° 31.432' W 122° 32.761'  map page 4-26	Exclusion - Prevent oil from entering marsh @ high tide	300ft Contractor Boom	Place boom across creek at bridge, deploy from road.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0038">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0038</a>	sensitive habitat, salmonids (anadromous)
<b>CPS-52</b>	Visited and Not Tested 05/01/2006	<b>County Park N of Southworth</b>  N 47° 31.156' W 122° 30.999'  map page 4-27	Exclusion - Keep oil out of inlet	750ft Contractor Boom	Close off mouth of inlet, anchor to pilings on East shore and road guard-rail on West shore.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0033">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0033</a>	sensitive habitat, public lands/facilities, salmonids (anadromous)
<b>CPS-53</b>	Visited and Tested 06/02/2007	<b>NW Cooperage (barrel factory)</b>  N 47° 31.146' W 122° 18.435'  map page 4-27	Exclusion - Keep oil out of small inlet	200ft Contractor Boom	Place boom at mouth of inlet behind barrel factory.	<a href="#">NA</a>	sensitive habitat

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-54</b>	Visited and Not Tested 05/01/2006	<b>Vashon Island - Fern Cove</b>  N 47° 28.810' W 122° 28.950'  map page 4-28	Exclusion -	800ft Contractor Boom	Stream mouth could be readily protected using multiple strands of sorbent boom. The high exposure of the “marsh” fringe would make effective protection difficult under many circumstances due to wind exposure the SW, W, NW or N. Under favorable wind conditions it would be possible to string sorbent boom across the face of the marsh berm to protect the outer fringe of grasses at high tide, though the amount of habitat protected under these circumstances would be minimal and perhaps not warranted unless dealing with a smaller, localized spill event. Boat access difficult under low tide.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0366">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0366</a>	sensitive habitat, special management area, salmonids (anadromous)

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-55-High Flow</b>	Visited and Not Tested 05/01/2006	<b>Vashon Island - KVI beach and marsh</b>  N 47° 25.290' W 122° 25.980'  map page 4-28	Exclusion - Keep oil out of marsh.	100ft Contractor Boom	Small tidal marsh behind tower, channel which feeds the marsh is relatively narrow and can be accessed via road. Unsure of volume and speed of flow during high tidal action. To limit impact on this marsh area during high flow: use a chevron boom configuration further out to prevent material from coming up the channel.	<a href="http://apps.ecy.wa.gov/shorephoto/scripts/bigphoto.asp?id=KIN0327">http://apps.ecy.wa.gov/shorephoto/scripts/bigphoto.asp?id=KIN0327</a>	sensitive habitat, salmonids (anadromous), waterfowl, shore birds
<b>CPS-55-Low Flow</b>	Visited and Not Tested 05/01/2006	<b>Vashon Island - KVI beach and marsh</b>  N 47° 25.290' W 122° 25.980'  map page 4-28	Exclusion - Keep oil out of marsh.	100ft Contractor Boom	Small tidal marsh behind tower, channel which feeds the marsh is relatively narrow and can be accessed via road. Unsure of volume and speed of flow during high tidal action. To limit impact on this marsh area during low flow: Put a diversion boom across channel near the abandoned bridge, which would collect spilled material on the beach for vacuum truck removal.	<a href="http://apps.ecy.wa.gov/shorephoto/scripts/bigphoto.asp?id=KIN0327">http://apps.ecy.wa.gov/shorephoto/scripts/bigphoto.asp?id=KIN0327</a>	sensitive habitat, salmonids (anadromous), waterfowl, shore birds

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-56</b>	Visited and Not Tested 05/01/2006	<b>Olalla Bay</b>  N 47° 25.210' W 122° 32.334'  map page 4-28	Exclusion - Keep oil out of Olalla Bay	600ft Contractor Boom	Deploy boom in chevron configuration at mouth of bay.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0010">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIT0010</a>	sensitive habitat, salmonids (anadromous), waterfowl
<b>CPS-57</b>	Visited and Not Tested 05/01/2006	<b>Vashon Island - Site #12 Ellis Marsh</b>  N 47° 25.044' W 122° 26.402'  map page 4-28	Exclusion - Keep oil out of creek.	200ft Contractor Boom	Creek with saltwater influence extending upstream of large "culvert" (approx. 10 foot wide cement 'box' provides flow to Puget Sound) under road. Small saltmarsh area upstream of road crossing. Recommend small (about 200 ft of boom) chevron of contractor boom on the seaward side of the culvert to exclude oil from the creek mouth. Fallback strategy (or emergency primary strategy) would be to place multiple layers of sorbent boom in the creek mouth.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0327">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0327</a>	sensitive habitat

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-58</b>	Visited and Tested 08/01/2005	<b>Vashon Island - Site #10: Judd Creek mouth</b>  N 47° 24.050' W 122° 27.820'  map page 4-28	Exclusion - Keep oil out of creek.	800ft Contractor Boom	If existing GRPs unable to keep oil out of Quartermaster Harbor, recommend placing ~800 feet of exclusion boom in chevron configuration at the mouth of the creek, using pilings for boom attachment. Test deployment of this proposed strategy has been conducted. Resources protected: estuarine creek mouth. In addition to documented coho salmon spawning, there has been documented presence of fall chum, fall chinook and winter steelhead.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0256">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0256</a>	salmonids (anadromous)
<b>CPS-59</b>	Visited and Tested 04/01/1997	<b>Quartermaster Harbor, boat ramp @ Burton</b>  N 47° 23.123' W 122° 26.701'  map page 4-29	Collection, deflection, exclusion - Prevent oil from reaching the north end of the harbor.	3000ft Contractor Boom	Deploy boom from the point adjacent to the boat ramp at an angle to the southeast to the opposite shore. Collect with vac trucks at the boat ramp.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0246">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0246</a>	baitfish, salmonids (anadromous), marine birds - Audubon "Important Bird Area", waterfowl, herons & other wading birds

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-60</b>	Visited and Not Tested 05/01/2006	<b>Burton Marsh</b> N 47° 23.060' W 122° 27.160'  map page 4-29	Exclusion - Keep oil out of pocket marsh.	300ft Contractor Boom	Booming off the inlet stream. Access for any boom deployment would need to be by water at high tide. Note: Protection only needed if oil threatens northern Quartermaster Harbor	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0244">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0244</a>	sensitive habitat
<b>CPS-61</b>	Visited and Not Tested 05/01/2006	<b>Quartermaster Point - Point N. of Dockton</b> N 47° 22.317' W 122° 28.063'  map page 4-29	Collection, diversion - Keep oil out of the North end of Quartermaster Harbor	2000ft Contractor Boom	Anchor at the large dock w/ yellow building; angle out to the SW to trap oil at flood tide; collect w/ portable skimmers & vac trucks.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0278">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=KIN0278</a>	baitfish, salmonids (anadromous), shellfish, marine birds - Audubon "Important Bird Area", waterfowl
<b>CPS-62</b>	Visited and Not Tested 05/01/2006	<b>Gig Harbor</b> N 47° 19.626' W 122° 34.549'  map page 4-29	Collection, deflection, exclusion - Keep oil out of harbor	500ft Contractor Boom	Angle boom behind chevron (placed across mouth) from lighthouse NW to sand beach by private ramp next to flagpole.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0502">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0502</a>	sensitive habitat, baitfish, salmonids (anadromous)

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-63</b>	Visited and Not Tested 05/01/2006	<b>Gig Harbor</b> <b>N 47° 19.466'</b> <b>W 122° 34.441'</b> <b>map page 4-29</b>	Collection, deflection, exclusion - Keep oil out of harbor	1000ft Contractor Boom	Place chevron across mouth, anchor to dock w/ davit on West side & to East spit w/ land anchor (may be able to use bridle on small lighthouse).	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0502">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0502</a>	sensitive habitat, baitfish, salmonids (anadromous)
<b>CPS-64</b>	Visited and Not Tested 05/01/2006	<b>Point Defiance Park</b> <b>N 47° 18.477'</b> <b>W 122° 31.097'</b> <b>map page 4-30</b>	Notification - Provide notice to Aquarium so they can take appropriate steps.	NA	Provide notice to Point Defiance Zoo and Aquarium.  Contact immediately or before entering: John Rupp, Point Defiance Park, (W) 253-404-3675, (M) 253-677-3386, (H) 206-463-3149, Office: M-F 8:00-5:00, Home: 5:00-8:00 Stan Chapin, Point Defiance Park, (W) 253-404-3802, (M) 253-677-1543, (H) 253-847-1614, Office: M-F 8:00-5:00 Scott Clark, Point Defiance Park, (W) 253-404-3660, (M) 253-677-7104, (H) 253-549-2414 Robin Thompson, Point Defiance Park, (W) 253-404-3631	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0105">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0105</a>	public lands/facilities

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-65</b>	Visited and Not Tested 05/01/2006	<b>N 47° 17.239'</b> <b>W 122° 24.668'</b>  <b>map page 4-30</b>	Exclusion - Protect mudflats	3000ft Contractor Boom	Deploy boom from the north shore at the west end of Olie & Charlie's Marina (at 47°-17.088'N 122°-24.442'W) near buoy "1", then back to shore just east of the log boom (at 47°-17.390'N 122°-24.467'W).	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0015">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0015</a>	sensitive habitat, waterfowl
<b>CPS-66</b>	Visited and Tested 11/01/2001	<b>Hylebos Waterway</b>  <b>N 47° 16.945'</b> <b>W 122° 24.287'</b>  <b>map page 4-30</b>	Exclusion - Keep oil in or out of waterway	1000ft Contractor Boom	Deploy 600' of boom from the rip-rap or old dock on the south shore (at 47°-16.898'N 122°-24.264'W) to the end of the finger pier at the west end of the Chinook Marina if oil is coming from the east. If oil is coming from the west, deploy an additional 400' of boom from the finger pier to the north shore.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0016">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0016</a>	special protection area, sensitive habitat, salmonids (anadromous)

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-67</b>	Visited and Tested 11/01/2001	<b>Hylebos Waterway</b>  N 47° 16.745' W 122° 23.861'  map page 4-30	Exclusion - Keep oil away from mudflats.	1800ft Contractor Boom	Deploy boom from an anchor point just west of the former 11th St. bridge on the north side, to the north end of the dock at the Chinook Marina to the west of the bridge (at 47°-16.797'N 122°-23.892'W). An additional 500' of boom can be deployed from the Chinook dock to the SE to collect oil coming from the east. An additional 800' boom required to exclude oil from marina.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0017">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0017</a>	sensitive habitat, waterfowl
<b>CPS-68</b>	Visited and Not Tested 05/01/2006	<b>Former 11th Street Bridge</b>  N 47° 16.725' W 122° 23.589'  map page 4-30	Exclusion - Keep oil in or out of waterway depending on spill origin point.	1000ft Contractor Boom	Keep oil in or out of waterway depending on spill origin point. Strategy would consist of ~1000 feet of boom deployed in a chevron formation at the location of the former 11th Street Bridge. Attach ends of boom to remaining bridge pilings and place an anchor at the apex of the chevron to maintain the "V" configuration of the boom. Orientation of the chevron will depend on spill origin point.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0034">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0034</a>	sensitive habitat, waterfowl

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-69</b>	Visited and Not Tested 05/01/2006	<b>Mouth of Blair Waterway</b>  N 47° 16.684' W 122° 24.783'  map page 4-30	Exclusion - Keep oil in or out of waterway	1300ft Contractor Boom	Angle from tip of Pier 2 to the opposite shore at mouth of waterway.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0056">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0056</a>	special protection area, sensitive habitat, salmonids (anadromous)
<b>CPS-70-High Tide</b>	Visited and Not Tested 05/01/2006	<b>Dickman Mill Pocket Marsh</b>  N 47° 16.664' W 122° 28.203'  map page 4-30	Exclusion - Keep oil out of marsh.	100ft Contractor Boom	Dickman Mill Pocket Marsh - Perched pocket marsh. Only threatened on high tides. Based on observation of the site from land, there would appear to be minimal current flow into the marsh on an incoming tide. An estimated 50 feet of boom placed on the seaward side of the channel entrance at the concrete walkway would be sufficient to block the entrance to the marsh.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0095">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0095</a>	sensitive habitat, special management area

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-71</b>	Visited and Not Tested 05/01/2006	<b>Hylebos Waterway</b>  N 47° 16.627' W 122° 23.401'  map page 4-30	Exclusion - Protect mudflat.	2000ft Contractor Boom	Anchor just east of former 11th St. bridge on the north side (at 47°-16.685'N 122°-23.533'W), east to the east end of the Sound Refining Dock.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0019">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0019</a>	special protection area, salmonids (anadromous), waterfowl, herons & other wading birds

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-72-High Tide</b>	Visited and Not Tested 05/01/2006	<b>Tahoma Salt Marsh</b>  N 47° 16.459' W 122° 27.452'  map page 4-30	Exclusion - Keep oil out of marsh.	100ft Contractor Boom	City of Tacoma Saltwater Marsh (ref. #A.4) Perched pocket marsh with single entrance, adjacent to the berthed Navy ships. Only threatened on high tides. An estimated 100 ft of boom placed in chevron formation on the seaward side of the channel entrance would be sufficient to block marsh entrance. Possible to connect the apex of the chevron to pilings supporting the short loading dock near the marsh entrance. It's also possible that the boom could be configured to collect oil on the shore at the Navy facility, where there is access for a vac truck.  Contact immediately or before entering: Navy Regional Operations Center, (W) 360-315-5123, Alt Business Phone 360-315-5122	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0093">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0093</a>	sensitive habitat, special management area

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-73</b>	Visited and Not Tested 05/01/2006	<b>Tacoma Hylebos Waterway</b>  N 47° 16.300' W 122° 22.300'  map page 4-30	Exclusion, collection - Try to keep oil from moving waterway.	700ft Contractor Boom	Collection/exclusion boom angled to prevent spill from moving up waterway and impacting several habitat restoration sites. Requires about 700 Ft boom.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0021">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0021</a>	sensitive habitat, special management area, tribal lands/resources, salmonids (anadromous), herons & other wading birds, waterfowl
<b>CPS-74</b>	Visited and Not Tested 05/01/2006	<b>Sitcum Waterway</b>  N 47° 16.281' W 122° 25.205'  map page 4-30	Exclusion - Keep oil in or out of waterway	1500ft Contractor Boom	Angle SW from end of concrete abutment on East shore to pilings on West shore.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0058">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0058</a>	sensitive habitat, salmonids (anadromous), general fish & wildlife resources
<b>CPS-75</b>	Visited and Tested 07/01/1999	<b>Inner Blair Waterway</b>  N 47° 16.273' W 122° 24.088'  map page 4-30	Exclusion - Keep oil in or out of waterway	1000ft Contractor Boom	Place chevron just SE of where former 11th St. bridge was & just NW of Lincoln Ave.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0041">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0041</a>	general fish & wildlife resources

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-76</b>	Visited and Tested 07/01/1999	<b>Inner Blair Waterway</b>  N 47° 16.221' W 122° 24.038'  map page 4-30	Collection - Keep oil in waterway.	1000ft Contractor Boom	For large spills in waterway, use boom to deflect oil into the wetland mitigation area for collection.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0053">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0053</a>	general fish & wildlife resources
<b>CPS-77</b>	Visited and Tested 07/01/1999	<b>Inner Blair Waterway</b>  N 47° 16.204' W 122° 24.151'  map page 4-30	Exclusion - Protect mitigated wetland area SE of 11 St. bridge.	500ft Contractor Boom	For small spill in waterway, place boom across mouth of mitigation area.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0053">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0053</a>	sensitive habitat
<b>CPS-78</b>	Visited and Not Tested 05/01/2006	<b>St. Paul Waterway</b>  N 47° 16.046' W 122° 25.814'  map page 4-30	Exclusion - Keep oil out of waterway	1200ft Contractor Boom	Waterway spill: place exclusion boom off North point to protect mudflats.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0073">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0073</a>	special management area, special protection area, sensitive habitat, salmonids (anadromous)

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-79</b>	Visited and Tested 07/01/1999	<b>Inner Blair Waterway</b>  N 47° 15.958' W 122° 23.786'  map page 4-30	Exclusion - Protect mitigated wetland area between US Oil dock and Lincoln Outfall	500ft Contractor Boom	Place boom across mouth of wetland area.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0052">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0052</a>	sensitive habitat
<b>CPS-80</b>	Visited and Tested 09/01/1995	<b>Inner Blair Waterway</b>  N 47° 15.900' W 122° 23.559'  map page 4-30	Exclusion - Keep oil out of waterway	1000ft Contractor Boom	Surround boom (placed around Lincoln Ave ditch outfall) with a chevron.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0051">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0051</a>	general fish & wildlife resources
<b>CPS-81</b>	Visited and Tested 09/01/1995	<b>Inner Blair Waterway</b>  N 47° 15.891' W 122° 23.471'  map page 4-30	Exclusion - Keep oil in or out of waterway	1000ft Contractor Boom	Place boom from just SE of Lincoln Ave. ditch outfall to steel pole in parking lot NW of casino.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0044">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0044</a>	general fish & wildlife resources

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-82</b>	Visited and Tested 09/01/1995	<b>Inner Blair Waterway</b>  N 47° 15.886' W 122° 23.576'  map page 4-30	Exclusion - Keep oil out of waterway	300ft Contractor Boom	Place boom around Lincoln Ave. ditch outfall.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0051">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0051</a>	general fish & wildlife resources
<b>CPS-83</b>	Visited and Not Tested 05/01/2006	<b>St. Paul Waterway</b>  N 47° 15.854' W 122° 25.827'  map page 4-30	Exclusion - Keep oil in or out of waterway	400ft Contractor Boom	Angle Boom from the west to east side of channel. If the spill has occurred inside the channel the angle should be so that the oil is kept in the channel. If the spill has occurred outside the channel the angle should be so that oil is kept out of the channel.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0074">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0074</a>	special management area, sensitive habitat, special protection area, salmonids (anadromous)
<b>CPS-84</b>	Visited and Tested 12/01/2002	<b>Middle Waterway</b>  N 47° 15.823' W 122° 25.944'  map page 4-30	Exclusion - Keep oil in or out of waterway	500ft Contractor Boom	Boom straight across waterway from Foss dock on West shore to end of gravel beach on East shore.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0075">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0075</a>	special protection area, sensitive habitat, salmonids (anadromous)

## 4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-21: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
<b>IF FIELD CONDITIONS REQUIRE MODIFICATION NOTIFY COMMAND</b>							
<b>CPS-85</b>	Visited and Not Tested 05/01/2006	<b>Thea Foss Waterway</b>  N 47° 15.705' W 122° 26.275'  map page 4-30	Collection, containment, deflection - Keep oil in or out of waterway	1000ft Contractor Boom	Deploy boom from the rip-rap shoreline at the north end of the Valero Pier on the east shore across the waterway to a suitable anchor point on the west shore.	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0089">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0089</a>	special protection area, sensitive habitat, salmonids (anadromous)
<b>CPS-86</b>	Visited and Tested 12/01/2002	<b>Middle Waterway</b>  N 47° 15.622' W 122° 25.822'  map page 4-30	Exclusion - Keep oil in or out of waterway.	400ft Contractor Boom	Angle Boom from the west to east side of channel in a N-NE direction. Angle to be determined at time of deployment based on current conditions	<a href="http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0076">http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=PIE0076</a>	special protection area, sensitive habitat, salmonids (anadromous)

# APPENDIX A - BOAT LAUNCH LOCATIONS SUMMARY

### Appendix A: Boat Launch Locations Summary

Reference Number	Site Name	Location	Facility Description
<b>Motorboat Launch Inventory</b>			
BL-347	Eglon Boat Launch	Sector Map CPS-1 N 47° 51.667' W 122° 30.783' Puget Sound	Car Parking, Gravel - 10 Fencing, Perimeter fence - 1 Launches, Ramp - concrete, solid - 1 Restrooms, Portable sani-cans - 1 Trailer Parking, Gravel - 8
BL-374	Edmonds Marina (Port of)	Sector Map CPS-2 N 47° 48.450' W 122° 23.383' Puget Sound	Car Parking, Paved and striped - 35 Launches, Hoist - fixed - 2 Restrooms, Restrooms w/ showers - 1 Trailer Parking, Paved and striped - 30 Waste Disposal, Pumpout - 1 Waste Disposal, Trash receptacle - 3
BL-377	Kingston Cove Marina	Sector Map CPS-2 N 47° 47.800' W 122° 29.867' Appletree Cove	Car Parking, Paved and striped - 20 Fencing, Perimeter fence - 1 Launches, Hoist - fixed - 1 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 2 Trailer Parking, Paved and striped - 50 Waste Disposal, Dump station - 1 Waste Disposal, Pumpout - 1 Waste Disposal, Trash receptacle - 2
BL-383	Miller Bay Ramp	Sector Map CPS-2 N 47° 44.950' W 122° 33.567' Miller Bay	Launches, Loading float - 1 Launches, Ramp - concrete, solid - 1 Trailer Parking, Gravel - 3
BL-387	Port of Poulsbo Marina	Sector Map CPS-2 N 47° 44.017' W 122° 38.733' Liberty Bay	Car Parking, Paved and striped - 20 Launches, Ramp - concrete, solid - 1 Waste Disposal, Pumpout - 1

### Appendix A: Boat Launch Locations Summary

Reference Number	Site Name	Location	Facility Description
<b>Motorboat Launch Inventory</b>			
BL-388	Charles Lawrence Memorial Boat Ramp	Sector Map CPS-2 N 47° 43.750' W 122° 33.133' Port Madison	Launches, Ramp - concrete, solid - 1 Trailer Parking, Paved no striping - 12
BL-390	Keyport Boat Ramp	Sector Map CPS-2 N 47° 42.533' W 122° 37.700' Liberty Bay	Fencing, Perimeter fence - 2 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 1 Trailer Parking, Paved and striped - 3
BL-393	Eddie Vine Boat Ramp	Sector Map CPS-4 N 47° 41.200' W 122° 24.183' Shilshole Bay	Fencing, Perimeter fence - 3 Launches, Loading float - 3 Launches, Ramp - asphalt - 4 Restrooms, Flush - 1 Trailer Parking, Paved and striped - 50 Waste Disposal, Pumpout - Waste Disposal, Trash receptacle - 3
BL-400	14th Avenue NW Boat Ramp	Sector Map CPS-4 N 47° 39.583' W 122° 22.450' Salmon Bay	Car Parking, Gravel - 10 Car Parking, Paved and striped - 1 Launches, Loading float - 2 Launches, Ramp - concrete, plank - 2 Restrooms, Portable sani-cans - 1 Trailer Parking, Gravel - 10 Trailer Parking, Paved and striped - 1 Waste Disposal, Trash receptacle - 2
BL-401	Port of Brownsville Marina	Sector Map CPS-3 N 47° 39.150' W 122° 36.967' Burke Bay	Car Parking, Paved and striped - 100 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 2 Restrooms, Restrooms w/ showers - 1 Trailer Parking, Paved and striped - 50 Waste Disposal, Pumpout - 1 Waste Disposal, Trash receptacle - 2

### Appendix A: Boat Launch Locations Summary

Reference Number	Site Name	Location	Facility Description
<b>Motorboat Launch Inventory</b>			
BL-404	Waterfront Park (Silverdale)	Sector Map CPS-3 N 47° 38.667' W 122° 41.717' Dyes Inlet	Launches, Loading float - 1 Launches, Ramp - concrete, solid - 2 Trailer Parking, Gravel - 20 Trailer Parking, Paved and striped - 26 Waste Disposal, Trash receptacle - 2
BL-405	Sunnyside Avenue North Boat Ramp	Sector Map CPS-4 N 47° 39.000' W 122° 19.817' Lake Union	Car Parking, Gravel - 5 Fencing, Perimeter fence - 1 Launches, Loading float - 1 Launches, Ramp - concrete, plank - 2 Trailer Parking, Gravel - 3 Waste Disposal, Trash receptacle - 3
BL-410	Eagle Harbor Dock	Sector Map CPS-4 N 47° 37.583' W 122° 31.167' Eagle Harbor	Launches, Loading float - 1 Launches, Ramp - concrete, solid - 1 Trailer Parking, Paved and striped - 5 Waste Disposal, Dump station - 1 Waste Disposal, Pumpout - 1 Waste Disposal, Trash receptacle - 1
BL-414	Chico Boat Ramp	Sector Map CPS-3 N 47° 36.650' W 122° 42.550' Chico Bay	Car Parking, Gravel - 4 Launches, Ramp - concrete, solid - 1 Trailer Parking, Gravel - 4 Waste Disposal, Trash receptacle - 1
BL-415	Tracyton Boat Ramp	Sector Map CPS-3 N 47° 36.500' W 122° 39.583' Dyes Inlet	Car Parking, Gravel - 5 Launches, Ramp - concrete, solid - 1 Trailer Parking, Gravel - 5

### Appendix A: Boat Launch Locations Summary

Reference Number	Site Name	Location	Facility Description
<b>Motorboat Launch Inventory</b>			
BL-418	Illahee State Park	Sector Map CPS-5 N 47° 36.017' W 122° 35.750' Port Orchard	Car Parking, Paved and striped - 30 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 1 Restrooms, Flush - 1 Trailer Parking, Paved and striped - 5 Waste Disposal, Pumpout - 1
BL-419	Don Armeni Boat Ramp	Sector Map CPS-6 N 47° 35.550' W 122° 22.933' Elliot Bay	Car Parking, Paved and striped - 15 Launches, Loading float - 2 Launches, Ramp - concrete, solid - 4 Restrooms, Flush - 1 Trailer Parking, Paved and striped - 85 Waste Disposal, Trash receptacle - 8
BL-421	Lions Park (Bremerton)	Sector Map CPS-5 N 47° 35.083' W 122° 38.433' Port Washington Narrows	Car Parking, Paved and striped - 27 Fencing, Perimeter fence - 1 Launches, Loading float - 1 Launches, Ramp - asphalt - 3 Trailer Parking, Paved and striped - 7 Waste Disposal, Trash receptacle - 1
BL-424	Fort Ward State Park	Sector Map CPS-5 N 47° 35.133' W 122° 31.600' Rich Passage	Car Parking, Gravel - 5 Fencing, Gates - 1 Launches, Ramp - concrete, solid - 2 Restrooms, Vault - 2 Trailer Parking, Gravel - 11
BL-430	Evergreen Park - Bremerton	Sector Map CPS-5 N 47° 34.450' W 122° 37.633' Port Washington Narrows	Car Parking, Paved and striped - 10 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 2 Trailer Parking, Paved and striped - 10 Waste Disposal, Trash receptacle - 1

### Appendix A: Boat Launch Locations Summary

Reference Number	Site Name	Location	Facility Description
<b>Motorboat Launch Inventory</b>			
BL-434	Kitsap Lake (WDFW)	Sector Map CPS-5 N 47° 33.950' W 122° 42.483' Kitsap Lake	Car Parking, Paved no striping - 5 Fencing, Gates - 1 Fencing, Perimeter fence - 2 Launches, Ramp - concrete, plank - 1 Restrooms, Vault - 2 Trailer Parking, Paved no striping - 10
BL-442	Pomeroy Park	Sector Map CPS-5 N 47° 33.317' W 122° 32.600' Puget Sound	Car Parking, Paved and striped - 10 Fencing, Perimeter fence - 2 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 2 Trailer Parking, Paved and striped - 11
BL-446	Retsil (WDFW) - Puget Sound	Sector Map CPS-5 N 47° 32.817' W 122° 36.867' Sinclair Inlet	Car Parking, Paved no striping - 5 Launches, Ramp - concrete, solid - 1 Trailer Parking, Paved no striping - 15
BL-447	Water Street Boat Launch	Sector Map CPS-5 N 47° 32.483' W 122° 38.400' Sinclair Inlet	Launches, Loading float - 1 Launches, Ramp - concrete, solid - 2 Trailer Parking, Paved and striped - 10
BL-449	Duwamish River Boat Ramp	Sector Map CPS-6 N 47° 32.600' W 122° 20.067' Duwamish River	Launches, Ramp - concrete, solid - 2
BL-461	Yukon Harbor/ Harper Boat Access	Sector Map CPS-6 N 47° 31.033' W 122° 31.000' Yukon Harbor	Launches, Ramp - natural - 1 Trailer Parking, Gravel - 5
BL-466	Long Lake Park (Kitsap)	Sector Map CPS-5 N 47° 29.867' W 122° 34.900' Long Lake (Kitsap Co.)	Car Parking, Gravel - 10 Launches, Ramp - natural - 1

### Appendix A: Boat Launch Locations Summary

Reference Number	Site Name	Location	Facility Description
<b>Motorboat Launch Inventory</b>			
BL-470	Long Lake - Kitsap (WDFW)	Sector Map CPS-7 N 47° 29.133' W 122° 35.567' Long Lake (Kitsap Co.)	Car Parking, Gravel - 10 Fencing, Perimeter fence - 2 Launches, Ramp - concrete, plank - 1 Restrooms, Vault - 2 Trailer Parking, Gravel - 40
BL-492	Des Moines Marina	Sector Map CPS-7 N 47° 24.083' W 122° 19.783' Puget Sound	Car Parking, Paved and striped - 20 Launches, Hoist - fixed - 2 Restrooms, Flush - 1 Trailer Parking, Paved and striped - 80 Waste Disposal, Pumpout - 1 Waste Disposal, Trash receptacle - 8
BL-493	Crescent Lake (WDFW)	Sector Map CPS-7 N 47° 23.717' W 122° 34.050' Crescent Lake (Pierce Co.)	Car Parking, Gravel - 10 Launches, Ramp - gravel - 1 Restrooms, Vault - 1 Trailer Parking, Gravel - 10
BL-495	Burton Acres Park	Sector Map CPS-8 N 47° 23.400' W 122° 26.883' Quartermaster Harbor	Launches, Ramp - concrete, solid - 1 Restrooms, Flush - 1 Trailer Parking, Paved and striped - 18 Waste Disposal, Trash receptacle - 1
BL-501	Dockton Park	Sector Map CPS-8 N 47° 22.300' W 122° 27.050' Quartermaster Harbor	Car Parking, Paved and striped - 8 Launches, Loading float - 1 Launches, Ramp - concrete, plank - 2 Restrooms, Restrooms w/ showers - 1 Trailer Parking, Paved and striped - 12 Waste Disposal, Pumpout -

### Appendix A: Boat Launch Locations Summary

Reference Number	Site Name	Location	Facility Description
<b>Motorboat Launch Inventory</b>			
BL-515	Redondo Boat Launch	Sector Map CPS-8 N 47° 20.850' W 122° 19.467' Poverty Bay	Car Parking, Paved and striped - 30 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 2 Restrooms, Flush - 1 Trailer Parking, Paved and striped - 25 Waste Disposal, Trash receptacle - 3
BL-518	Gig Harbor Boat Ramp	Sector Map CPS-8 N 47° 20.117' W 122° 34.967' Gig Harbor	Fencing, Perimeter fence - 2 Launches, Ramp - concrete, solid - 1 Trailer Parking, Paved and striped - 4
BL-526	Point Defiance Waterfront	Sector Map CPS-9 N 47° 18.333' W 122° 30.817' Commencement Bay	Car Parking, Paved and striped - 100 Fencing, Perimeter fence - 1 Launches, Loading float - 2 Launches, Ramp - concrete, solid - 3 Trailer Parking, Gravel - 120 Trailer Parking, Paved and striped - 16 Waste Disposal, Trash receptacle - 2
BL-536	Ole & Charlie's Marina	Sector Map CPS-9 N 47° 17.083' W 122° 24.400' Commencement Bay	Car Parking, Paved and striped - 10 Fencing, Gates - 1 Fencing, Perimeter fence - 2 Launches, Hoist - fixed - 1 Trailer Parking, Paved and striped - 15 Waste Disposal, Trash receptacle - 2
BL-550	Totem Marina Moorage Assoc.	Sector Map CPS-9 N 47° 15.400' W 122° 26.300' Commencement Bay	Car Parking, Paved and striped - 40 Launches, Hoist - fixed - 2 Launches, Loading float - 2 Waste Disposal, Pumpout - Waste Disposal, Trash receptacle - 5

Appendix A: Boat Launch Locations Summary

Reference Number	Site Name	Location	Facility Description
<b>Motorboat Launch Inventory</b>			
BL-555	Narrows Marina	Sector Map CPS-8 N 47° 14.617' W 122° 33.483' The Narrows	Car Parking, Gravel - 10 Fencing, Gates - 1 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 1 Trailer Parking, Gravel - 50

## 5. Shoreline Information

### 5.1. Shoreline Types and Sensitivity

The type of shoreline, degree of exposure to waves and currents, and biological sensitivity are the main criteria for selecting appropriate treatment techniques. Each shoreline type has particular properties (including vegetation types) which facilitate or resist the penetration and persistence of oil. Areas of comparatively uniform sediment type and grain size experience a deeper penetration of oil. Grain size definitions are:

Mud	<0.0625 mm
Fine Sand	0.0625 - 2 mm
Medium to Coarse Sand	2 - 4 mm
Pebble/Cobble	4 - 256 mm

Persistence of oil in a particular area is directly related to the intensity of wave action, tides, and currents. Based on numerous oil spill studies of shoreline characteristics, treatment, and oil impact, the matrices in Chapter 5 were formulated following the basic prototype of the Environmental Sensitivity Index Atlas.

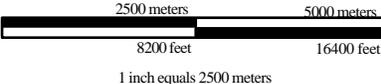
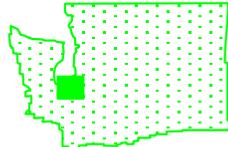
The environmental sensitivity index (ESI) system ranks coastal environments on a scale of 1-10 or 11 (less sensitive to more sensitive) with respect to oil spill sensitivity and potential biological injury. ESI is being used for mapping extensive areas of the coastline of the U.S. Generally speaking, areas exposed to high levels of physical energy, such as wave action and tidal currents, rank low on the scale while sheltered areas have the highest ranking. The shoreline types used in this manual are a combination of the two similar systems used for the Delaware/Pennsylvania/New Jersey ESI Atlas, and the Maryland and Virginia atlases. The numbering system for the Countermeasure Manual Shoreline Types does not correspond exactly to either atlas; however, the corresponding shoreline types can be identified easily from the ESI maps and reassigned the appropriate number (after field verification.) The shoreline ranking system provides a useful first step in the design of contingency plans because it identifies the priority areas that require maximum effort for protection and cleanup. Strike teams and contractors with this document can focus their activities on environmental priorities, particularly during the first few hours and days of the spill.<sup>8</sup>

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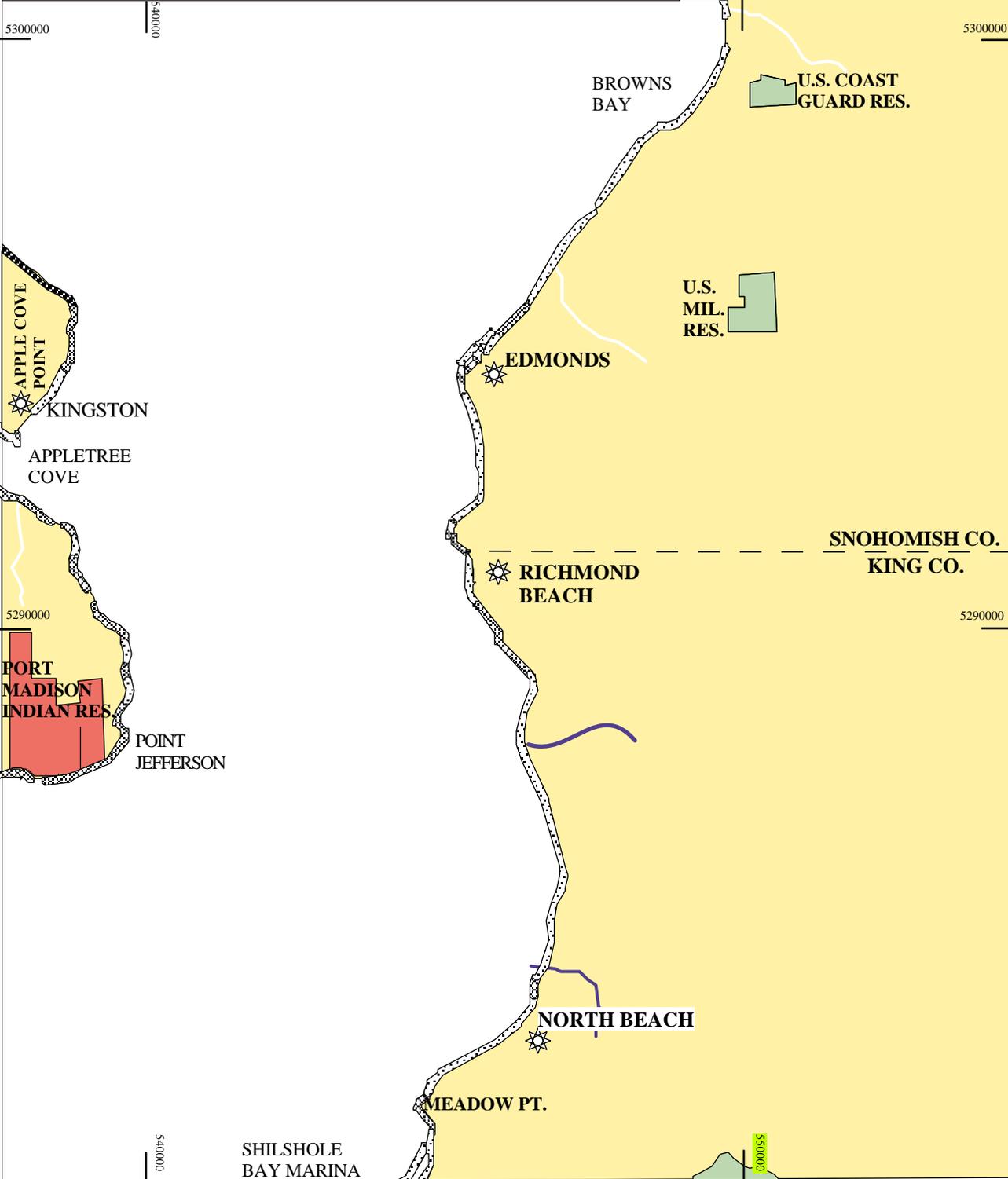
<sup>8</sup>Regional Response Team III. Draft, *Shoreline Countermeasures Manual*. (Department of the Interior, March 22, 1991).

5.2. Shoreline Type Maps

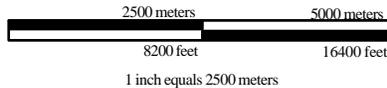
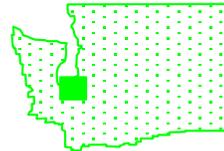
# EDMONDS SHORELINE TYPES



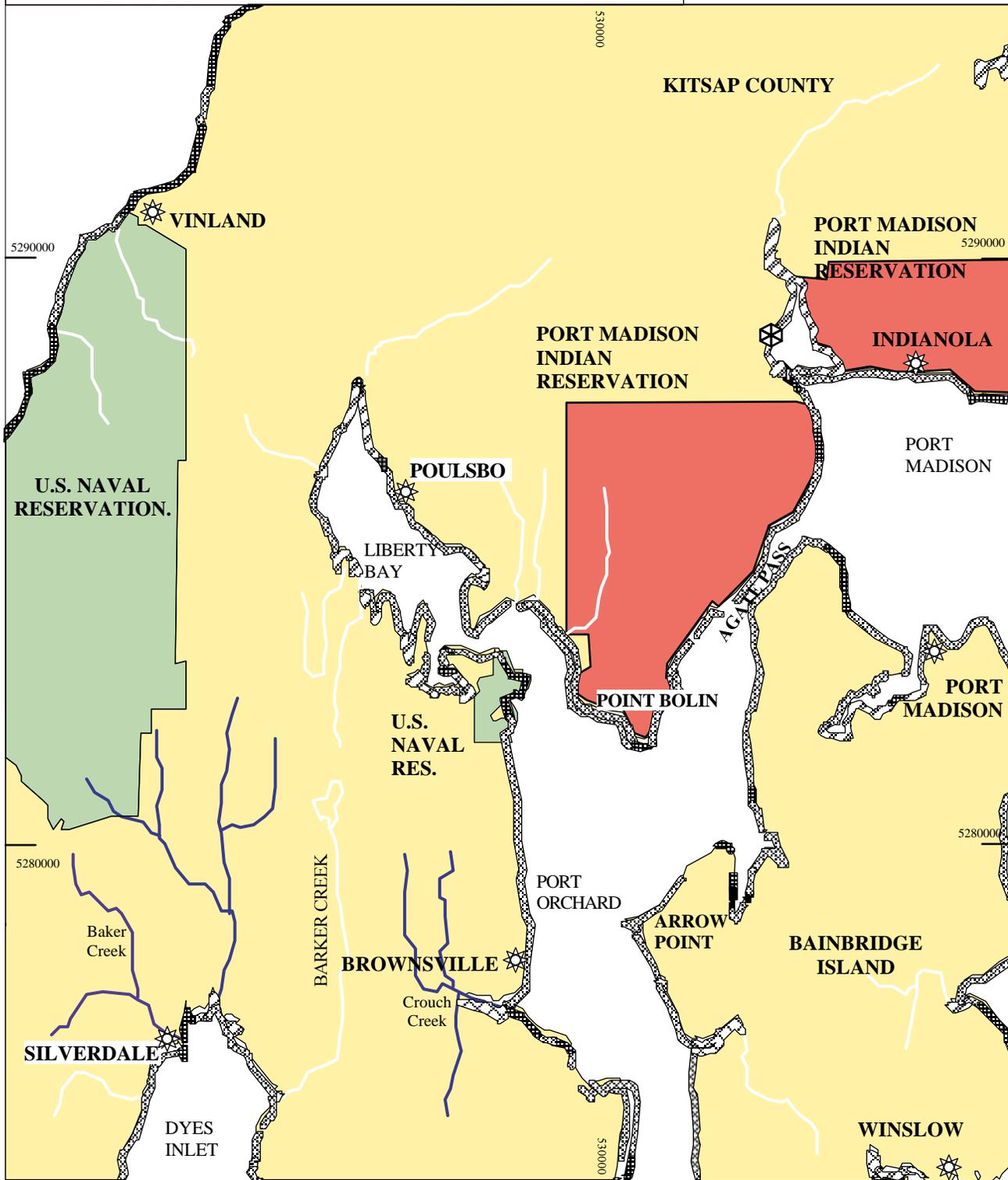
	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH



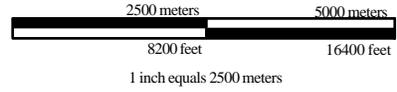
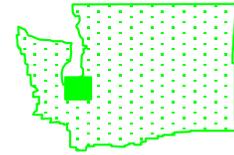
# PORT MADISON SHORELINE TYPES



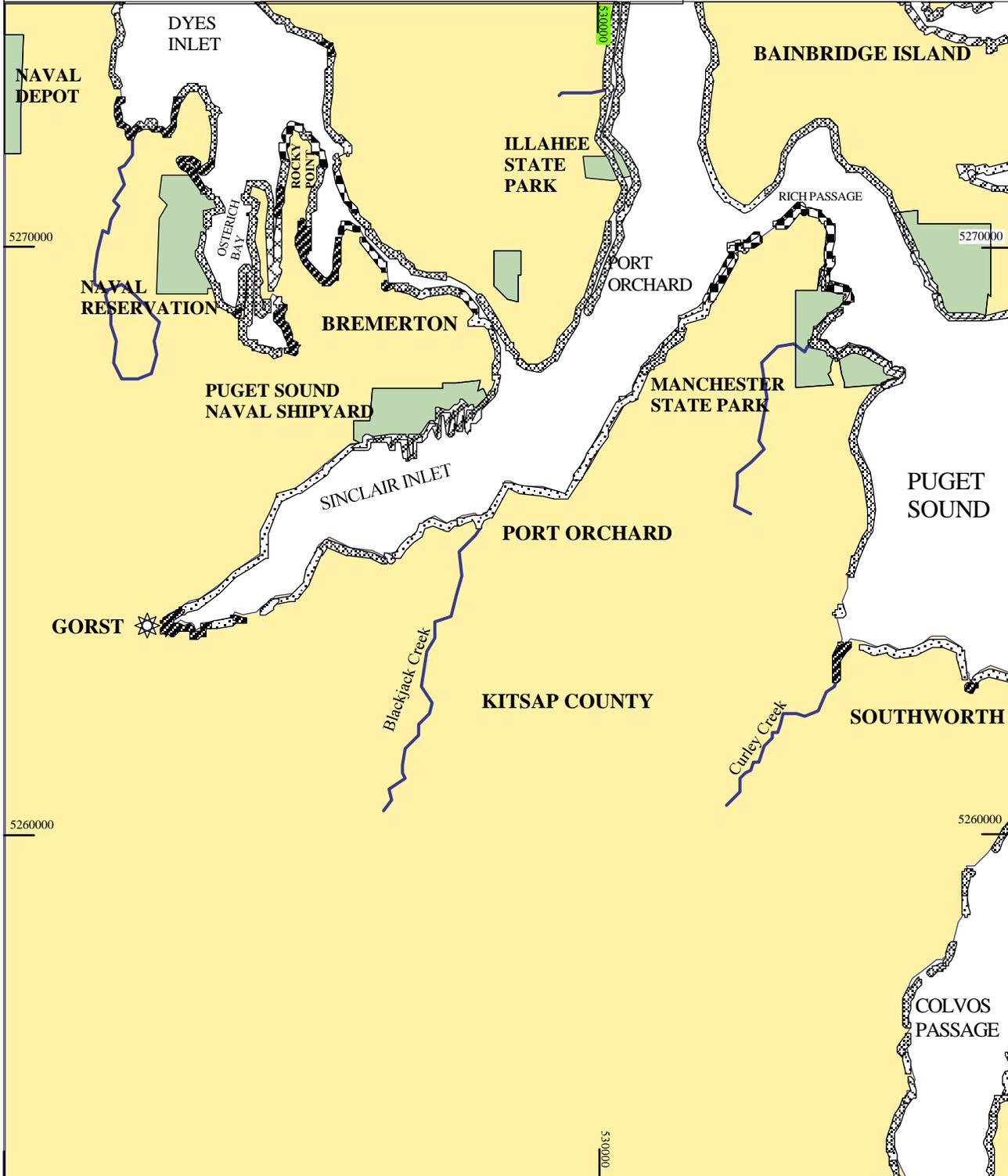
	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH



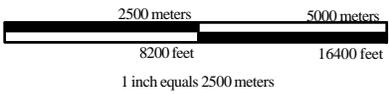
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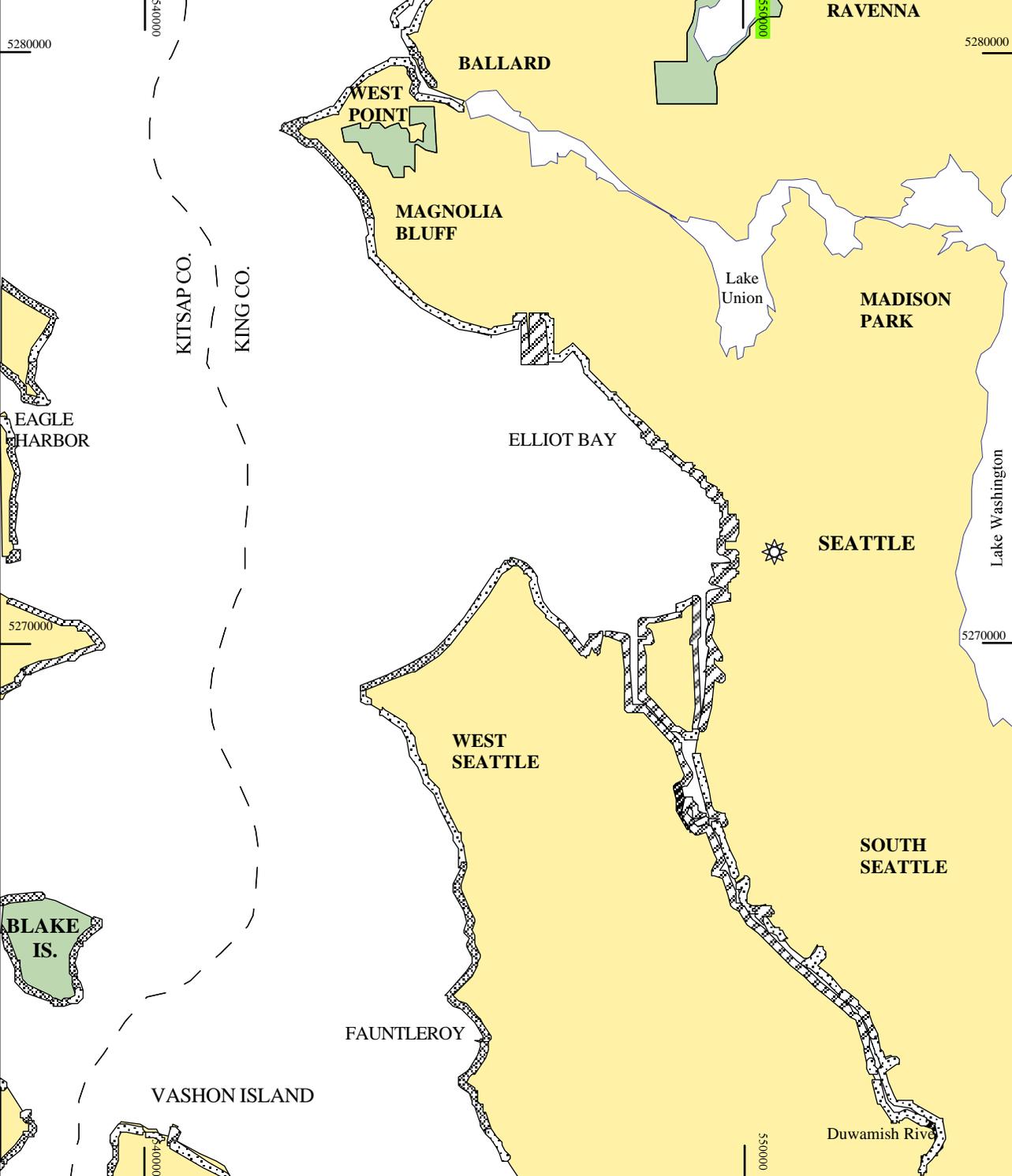
	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH



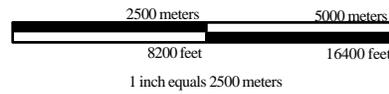
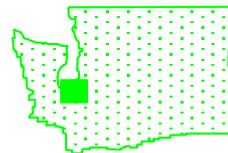
# SEATTLE SHORELINE TYPES



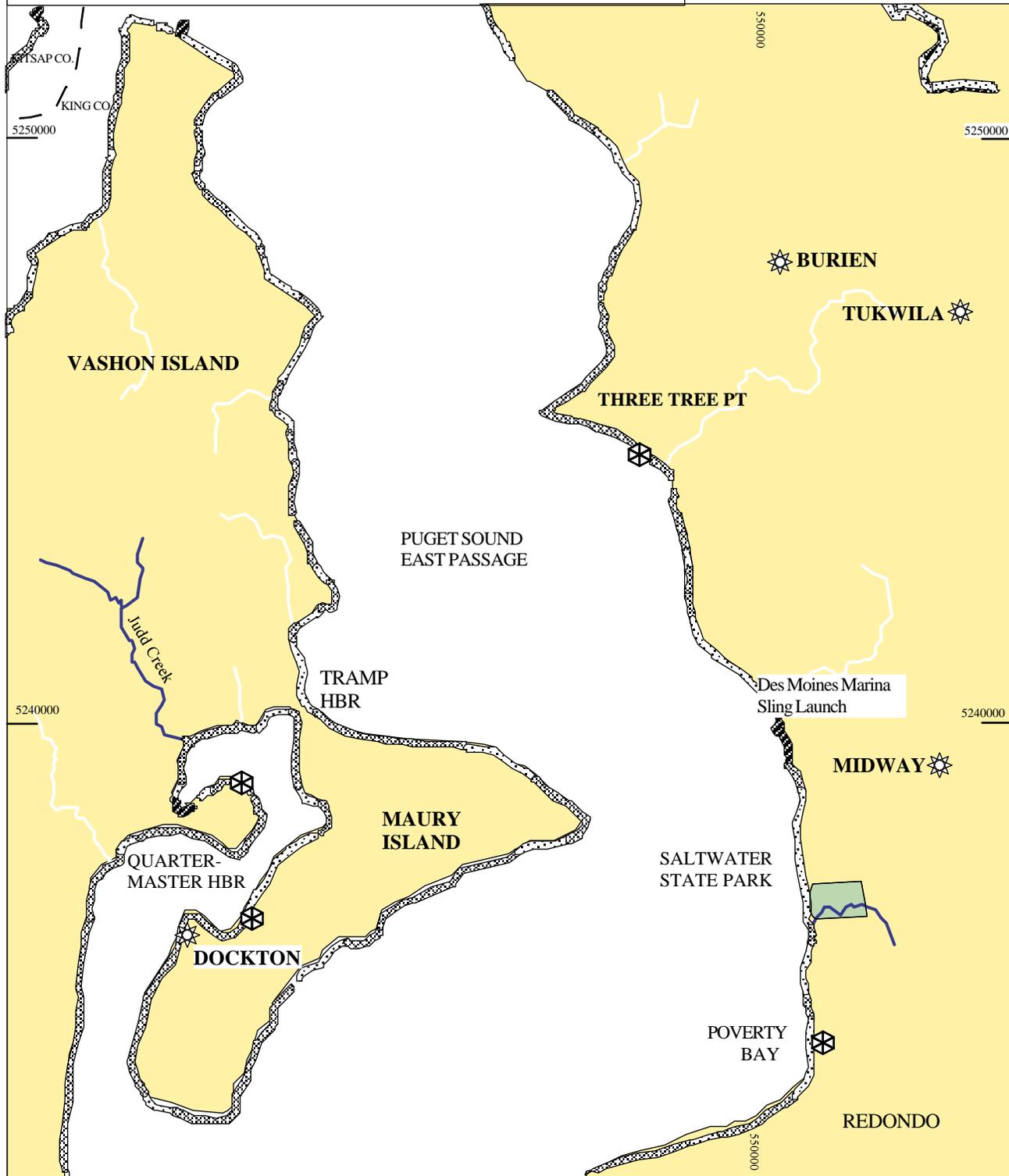
	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH



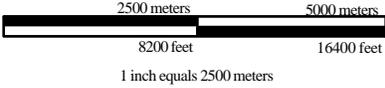
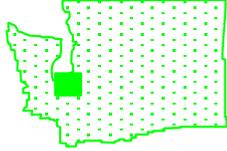
# EAST PASSAGE SHORELINE TYPES



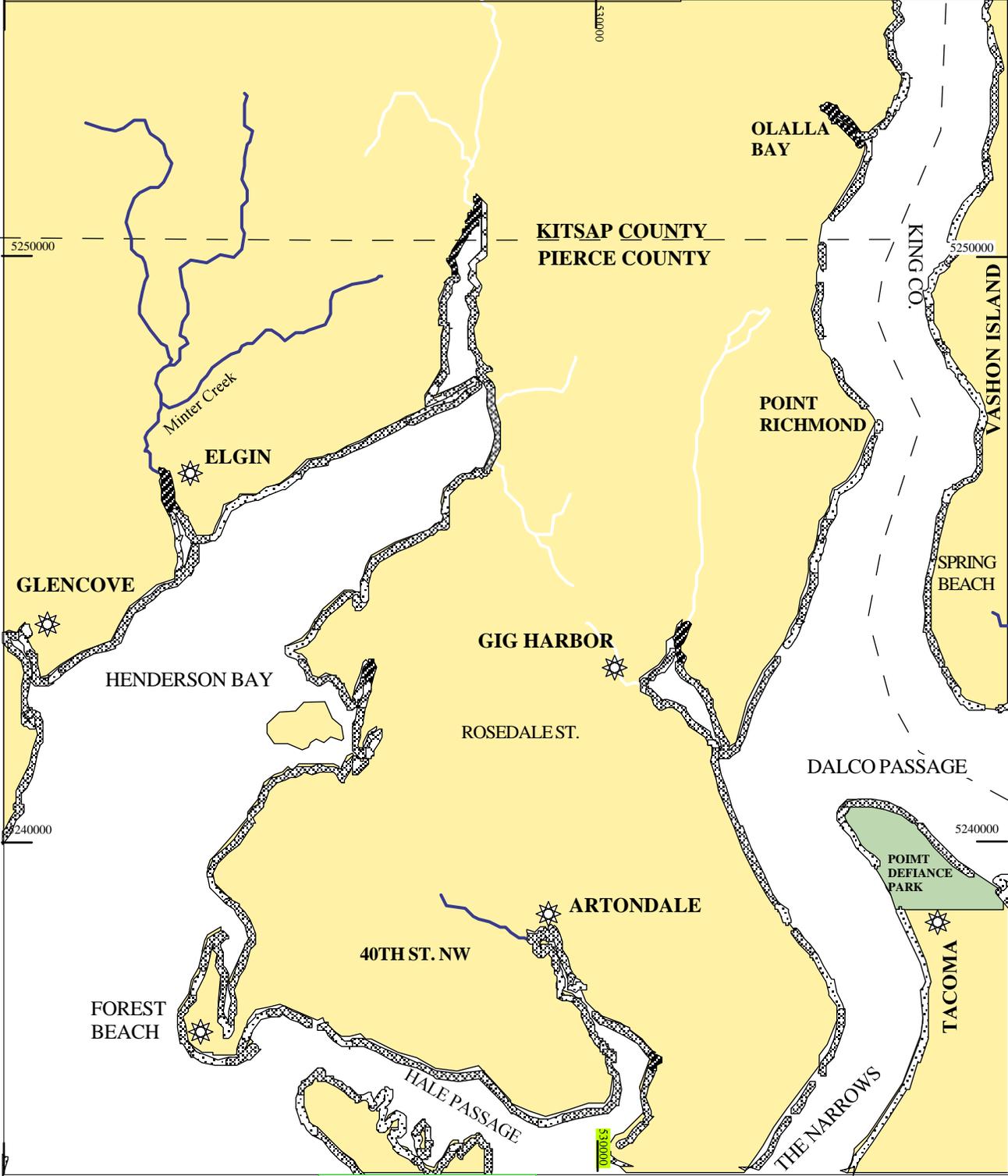
	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH



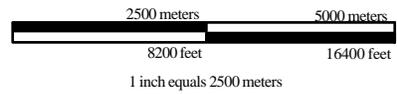
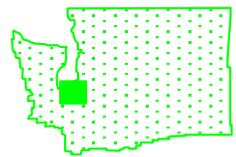
# GIG HARBOR SHORELINE TYPES



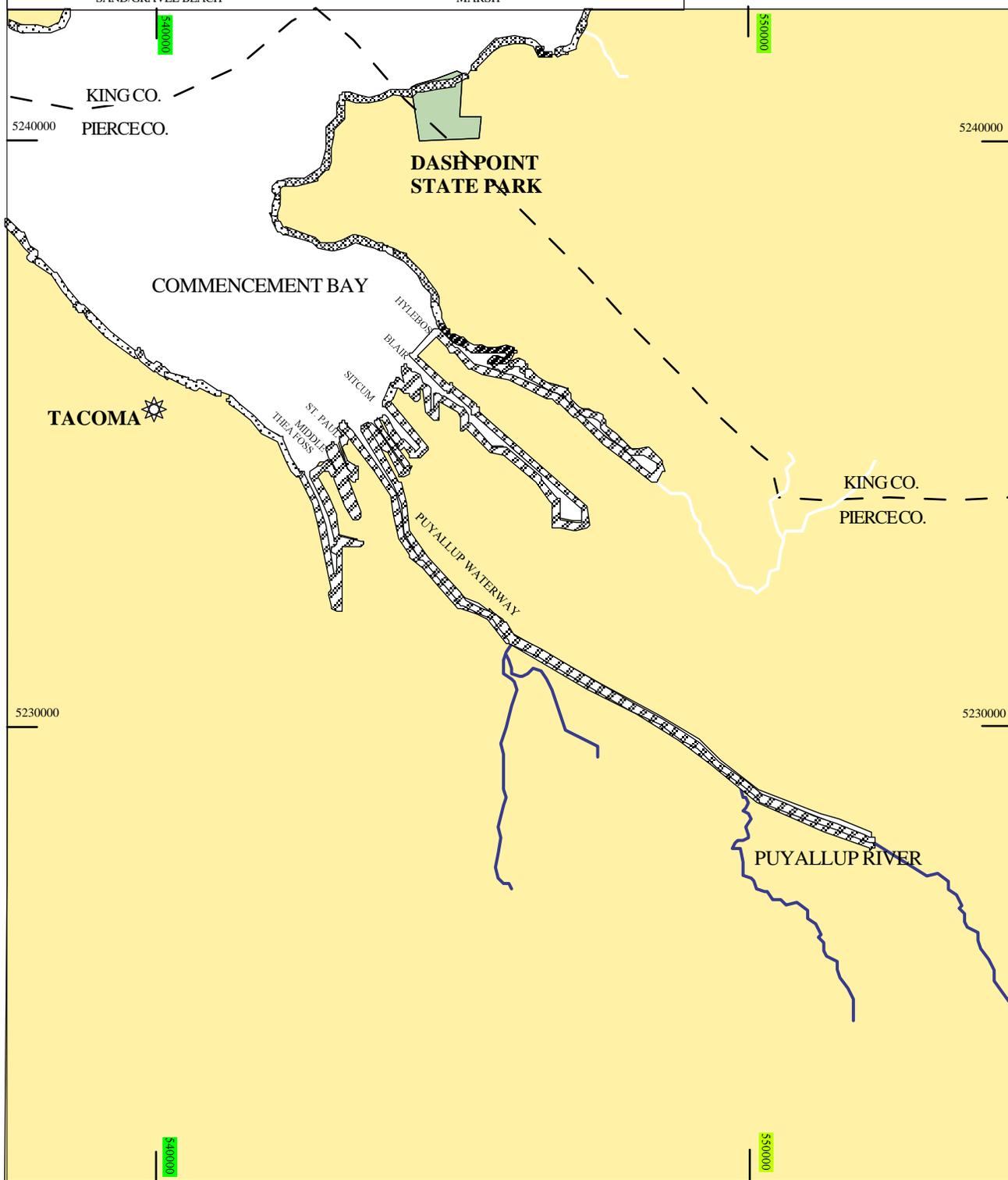
	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH



# COMMENCEMENT BAY SHORELINE TYPES



	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH



### 5.3 Shoreline Countermeasure Matrices

The matrices included here show which shoreline countermeasure techniques have been considered for the fourteen shoreline types described in Chapter 2 of the “Shoreline Countermeasures Manual & Matrices”, Northwest Area Plan, Chapter 9650, Page 9-37. Four matrices have been constructed for the major categories of oil (heavy, medium, light, very light).

Countermeasure methods are described in Chapters 3 and 4 of the manual. Countermeasures in Chapter 3 are traditional or conventional techniques that the OSC can use without any additional concurrence. However, the cutting of vegetation countermeasure should be used only during specific seasonal windows under specific conditions and with landowner approval. Countermeasures in Chapter 4 are described under a separate section called “Shoreline Countermeasure Methods Using Alternative Technology” may be useful in certain situations. These methods are considered more experimental and controversial in their application and potential impacts and require more formal review and consultation before implementing. The exact requirements are spelled out in the National Contingency Plan and the Northwest Area Plan. The Shoreline Countermeasures Matrices are a particularly dynamic component of the manual and should continue to be revised as the existing techniques are used and evaluated, and as both old and new techniques are refined.

Each matrix has a written explanation of how it is to be used as a countermeasure advisability matrix. The matrices are only a general guide for removing oil from shoreline substrates. They must be used in conjunction with the entire “Shoreline Countermeasures Manual” plus field observations and scientific advice. The countermeasures listed are not necessarily the best under all circumstances, and any listed technique may need to be used in conjunction with other techniques (including ones not listed herein). The Federal On-Scene Coordinator (FOSC) or the State OSC operating with the FOSC's authorization has the responsibility for and authority to determine which countermeasure(s) are appropriate for the various situations encountered.

Selection of countermeasure techniques to be used in each spill is based upon the degree of oil contamination, shoreline types, and the presence of sensitive resources. Extremely sensitive areas are generally limited to manual cleanup methods. It is important to note that the primary goal of countermeasure implementation is the removal of oil from the shoreline with no further injury or destruction to the environment. The three categories of guidance used in the matrices are defined as follows:

R	Recommended	May be the preferred method that best achieves the goal of minimizing destruction or injury to the environment
C	Conditional	Viable and possibly useful but may result in limited adverse effects to the environment
	Shaded	Not applicable or not generally recommended.

### SHORELINE COUNTERMEASURES MATRIX

**Heavy Oil (Heavy Crude Oils, Intermediate Fuel Oils, Bunker C & Heavily Weathered Medium Crudes)**

- Heavy oils with little or no evaporation or dissolution
- Water-soluble fraction likely to be <10ppm
- Heavy contamination of intertidal areas likely
- Severe impacts to waterfowl and fur-bearing mammals (coating and ingestion)
- Long-term contamination to sediments possible
- Weathers very slowly
- Dispersion seldom effective
- Shoreline cleanup difficult under all conditions

**SHORELINE TYPES CODES**

1- Exposed rock shores and vertical, hard man-made structure (e.g. seawalls)	6B - Gravel beaches - cobbles to boulders
2 - Exposed wave-cut platforms	6C - Exposed rip rap
3 - Fine to medium grained sand beaches & steep unvegetated river banks	7 - Exposed tidal flat
4 - Course grained sand beaches	8A- Sheltered vertical rock shores and vertical, hard man-made structures (e.g. seawalls, docks, bulkheads)
5 - Mixed sand and gravel beaches, including artificial fill containing a range of grain size and material	8B - Sheltered rubble slope
6A - Gravel beaches - pebbles to cobble	9A - Sheltered sand and mud flats
	9B - Sheltered vegetated low bank
	10 - Marshes

**SHORELINE TYPES**

COUNTERMEASURES	1	2	3	4	5	6A	6B	6C	7	8A	8B	9A	9B	10
<b>CONVENTIONAL METHODS</b>														
No action	C	C	C	C	C	C	C	C	R	C	C	R	C	R
Manual removal of oil	C	R	R	R	R	C	C	C		R	R		C	C
Passive collection of oil	R	R	R	R	R	R	R	R	C	R	R	C	R	R
Oiled debris removal	C	R	R	R	R	R	R	R	C	R	R	C	R	C
Trenching/recovery wells			C	C	C									
Oiled sediment removal			C	C	C	C		C					C	
Ambient water flooding (Deluge)			C	C	C	R	R	R		R	R		C	C
Amb water flush <50 psi	C	C			C	R	C	R		C	C		C	C
Amb water flush <100 psi	C	C					C	C		C	C			
Warm water flush <90°F	C						C	C		C				
Hot water flush >90°F	C									C				
Vacuum removal of oil	C	C	C	C	C	C	C	C		C	C		C	C
Sediment reworking			C	C	C	C								
Sediment Removal-cleaning-replacement			C	C	C	C		C						
Cutting oiled vegetation							C	C		C	C		C	C
<b>ALTERNATIVE METHODS*</b>														
In-situ burning on shore														
Chemical stabilization, protection, cleaning														
Nutrient enhancement			C	C	C	C	C	C						C
Microbial addition														

- R** Recommend - May be Preferred Alternative
- C** Conditional (Refer to NW Shoreline Countermeasures Manual)
- Shaded areas are Not Applicable or Not Generally Recommended
- \* Follow approved process defined in NCP and NW Area Plan

This countermeasure advisability matrix is only a general guide for removal of oil from shoreline substrates. It must be used in conjunction with the entire Shoreline Countermeasures Manual plus field observations and scientific advice. The countermeasures listed are not necessarily the best under all circumstances, and any listed technique may need to be used in conjunction with other techniques (including ones not listed herein). The Federal On-Scene Coordinator (FOSC) or the state OSC operating with the FOSC's authorization has the responsibility for and the authority to determine which countermeasure(s) are appropriate for various situations encountered. Selection of countermeasures is based on the degree of oil contamination, the shoreline type, and the presence of sensitive resources.

## SHORELINE COUNTERMEASURES MATRIX

### Medium Oil (Most Crude Oils & Some Heavily Weathered Light Crudes)

- About 1/3 will evaporate within 24 hours
- Maximum water-soluble fraction is 10-100ppm
- Oil contamination of intertidal areas can be severe and long-term
- Impact to waterfowl and fur-bearing mammals can be severe
- Chemical dispersion is an option within 1-2 days
- Cleanup most effective if conducted quickly

### SHORELINE TYPES CODES

1- Exposed rock shores and vertical, hard man-made structure (e.g. seawalls) 2 - Exposed wave-cut platforms 3 - Fine to medium grained sand beaches & steep unvegetated river banks 4 - Course grained sand beaches 5 - Mixed sand and gravel beaches, including artificial fill containing a range of grain size and material 6A - Gravel beaches - pebbles to cobble	6B - Gravel beaches - cobbles to boulders 6C - Exposed rip rap 7 - Exposed tidal flat 8A- Sheltered vertical rock shores and vertical, hard man-made structures (e.g. seawalls, docks, bulkheads) 8B - Sheltered rubble slope 9A - Sheltered sand and mud flats 9B - Sheltered vegetated low bank 10 - Marshes
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### SHORELINE TYPES

COUNTERMEASURES	1	2	3	4	5	6A	6B	6C	7	8A	8B	9A	9B	10
CONVENTIONAL METHODS														
No action	C	C	C	C	C	C	C	C	R	C	C	R	C	R
Manual removal of oil	C	R	R	R	R	C	C	C		R	R		C	C
Passive collection of oil	R	R	R	R	R	R	R	R	C	R	R	R	R	R
Oiled debris removal	C	R	R	R	R	R	R	R	C	R	R	C	R	C
Trenching/recovery wells			C	C	C									
Oiled sediment removal			C	C	C	C							C	
Ambient water flooding (Deluge)			C	C	C	R	R	R		R	R		C	C
Amb water flush <50 psi	C	C			C	R	C	R		R	R		C	C
Amb water flush <100 psi	C	C					C	C		C				
Warm water flush <90°F	C						C	C		C				
Hot water flush >90°F	C									C				
Vacuum removal of oil	C	C	R	R		C	R	R		C	C		C	C
Sediment reworking			C	C	C	C								
Sediment Removal-cleaning-replacement			C	C	C	C		C			C			
Cutting oiled vegetation							C	C		C	C		C	C
ALTERNATIVE METHODS*														
In-situ burning on shore														
Chemical stabilization, protection, cleaning														
Nutrient enhancement			C	C	C	C	C	C			C			C
Microbial addition														

- R** Recommend - May be Preferred Alternative
- C** Conditional (Refer to NW Shoreline Countermeasures Manual)
- Shaded areas are Not Applicable or Not Generally Recommended
- \* Follow approved process defined in NCP and NW Area Plan

This countermeasure advisability matrix is only a general guide for removal of oil from shoreline substrates. It must be used in conjunction with the entire Shoreline Countermeasures Manual plus field observations and scientific advice. The countermeasures listed are not necessarily the best under all circumstances, and any listed technique may need to be used in conjunction with other techniques (including ones not listed herein). The Federal On-Scene Coordinator (FOSC) or the state OSC operating with the FOSC's authorization has the responsibility for and the authority to determine which countermeasure(s) are appropriate for various situations encountered. Selection of countermeasures is based on the degree of oil contamination, the shoreline type, and the presence of sensitive resources.

## SHORELINE COUNTERMEASURES MATRIX

### Light Oil (Diesel, No 2 Fuel Oils, Light Crudes)

- Moderately volatile; will leave residue (up to 1/3 of spilled amount)
- Moderate concentrations of toxic (soluble) compounds
- Long-term contamination of intertidal resources possible
- Potential for subtidal impacts (dissolution, mixing, sorption onto suspended sediments)
- No dispersion necessary
- Cleanup can be very effective

### SHORELINE TYPES CODES

1 - Exposed rock shores and vertical, hard man-made structure (e.g. seawalls) 2 - Exposed wave-cut platforms 3 - Fine to medium grained sand beaches & steep unvegetated river banks 4 - Course grained sand beaches 5 - Mixed sand and gravel beaches, including artificial fill containing a range of grain size and material 6A - Gravel beaches - pebbles to cobble	6B - Gravel beaches - cobbles to boulders 6C - Exposed rip rap 7 - Exposed tidal flat 8A- Sheltered vertical rock shores and vertical, hard man-made structures (e.g. seawalls, docks, bulkheads) 8B - Sheltered rubble slope 9A - Sheltered sand and mud flats 9B - Sheltered vegetated low bank 10 - Marshes
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### SHORELINE TYPES

COUNTERMEASURES	1	2	3	4	5	6A	6B	6C	7	8A	8B	9A	9B	10
CONVENTIONAL METHODS														
No action	R	R	C	C	C	C	C	C	R	C	C	R	C	R
Manual removal of oil			C	C	C	C	C	C		R	R		C	
Passive collection of oil	C	R	R	R	R	R	R	R	C	R	R	C	R	R
Oiled debris removal	C	C	R	R	R	R	R	R	C	R	R	C	C	C
Trenching/recovery wells			C	C	C									
Oiled sediment removal			C	C	C	C								
Ambient water flooding (Deluge)			C	C	C	R	R	R			C			C
Amb water flush <50 psi		C			C	C	C	C		R	C			C
Amb water flush <100 psi														
Warm water flush <90°F														
Hot water flush >90°F														
Vacuum removal of oil							C	C						C
Sediment reworking			C	C	C	C								
Sediment Removal-cleaning-replacement			C	C	C									
Cutting oiled vegetation							C	C		C	C		C	C
ALTERNATIVE METHODS*														
In-situ burning of shore														
Chemical stabilization, protection, cleaning														
Nutrient enhancement			C	C	C	C	C	C						C
Microbial addition														

- R** Recommend - May be Preferred Alternative  
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 Shaded areas are Not Applicable or Not Generally Recommended  
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This countermeasure advisability matrix is only a general guide for removal of oil from shoreline substrates. It must be used in conjunction with the entire Shoreline Countermeasures Manual plus field observations and scientific advice. The countermeasures listed are not necessarily the best under all circumstances, and any listed technique may need to be used in conjunction with other techniques (including ones not listed herein). The Federal On-Scene Coordinator (FOSC) or the state OSC operating with the FOSC's authorization has the responsibility for and the authority to determine which countermeasure(s) are appropriate for various situations encountered. Selection of countermeasures is based on the degree of oil contamination, the shoreline type, and the presence of sensitive resources.

## SHORELINE COUNTERMEASURES MATRIX

### Very Light Oil (Jet fuels, Gasoline)

- Highly volatile (should all evaporate within 1-2 days)
- High concentration of toxic (soluble) compounds
- Result: Localized, severe impacts to water column and intertidal resources
- Duration of impact is a function of the resource recovery rate
- No dispersion necessary

### SHORELINE TYPES CODES

1- Exposed rock shores and vertical, hard man-made structure (e.g. seawalls) 2 - Exposed wave-cut platforms 3 - Fine to medium grained sand beaches & steep unvegetated river banks 4 - Course grained sand beaches 5 - Mixed sand and gravel beaches, including artificial fill containing a range of grain size and material 6A - Gravel beaches - pebbles to cobble	6B - Gravel beaches - cobbles to boulders 6C - Exposed rip rap 7 - Exposed tidal flat 8A- Sheltered vertical rock shores and vertical, hard man-made structures (e.g. seawalls, docks, 8B - Sheltered rubble slope 9A - Sheltered sand and mud flats 9B - Sheltered vegetated low bank 10 - Marshes
---	--

### SHORELINE TYPES

COUNTERMEASURES	1	2	3	4	5	6A	6B	6C	7	8A	8B	9A	9B	10
CONVENTIONAL METHODS														
No action	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Manual removal of oil														
Passive collection of oil			C	C	C	C	C	C						
Oiled debris removal	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Trenching/recovery wells			C	C	C									
Oiled sediment removal														
Ambient water flooding (Deluge)														C
Amb water flush <50 psi														
Amb water flush <100 psi														
Warm water flush <90°F														
Hot water flush >90°F														
Vacuum removal of oil														
Sediment reworking			C	C	C	C								
Sediment Removal-cleaning-replacement														
Cutting oiled vegetation														
ALTERNATIVE METHODS*														
In-situ burning on shore														
Chemical stabilization, protection, cleaning														
Nutrient enhancement														
Microbial addition														

- R** Recommend - May be Preferred Alternative  
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This countermeasure advisability matrix is only a general guide for removal of oil from shoreline substrates. It must be used in conjunction with the entire Shoreline Countermeasures Manual plus field observations and scientific advice. The countermeasures listed are not necessarily the best under all circumstances, and any listed technique may need to be used in conjunction with other techniques (including ones not listed herein). The Federal On-Scene Coordinator (FOSC) or the state OSC operating with the FOSC's authorization has the responsibility for and the authority to determine which countermeasure(s) are appropriate for various situations encountered. Selection of countermeasures is based on the degree of oil contamination, the shoreline type, and the presence of sensitive resources.

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## Purpose of Chapter 6

The information presented in this chapter highlights some of the more significant environmentally sensitive areas within the GRP region that could be impacted as a result of an oil spill. Consistent with the overall purpose of the GRP's, this information is only intended to provide a level of detail required during the initial phase of spill response. During an actual event, additional resource information will be available from the resource trustee agencies supporting the Environmental Unit in the Planning Section. Specific resource concerns for areas that already have designated protection strategies in Chapter 4 of the GRP may be found in the "Resources Protected" column in the matrix describing the individual strategies.

The information provided in Chapter 6 is intended for use in:

- Preparing an initial ICS 232 form (Resources-at-Risk summary) for Incident Command
- Identifying those sites where it may be necessary to implement Flight Restriction Zones in order to prevent disturbance/injury to sensitive wildlife species.
- Identifying sensitive shoreline habitats to assist SCAT teams in their initial assessments and to help personnel in the Environmental Unit in developing appropriate cleanup strategies.

Chapter 6 consists of two sets of maps and tables - one for wildlife and the other for fish, shellfish and selected sensitive marine habitats. These data are presented separately, both for ease of reading and because each of the two data sets has slightly different applications within the context of spill response.

The wildlife maps and tables present information on the location and seasonal sensitivity of key wildlife resources. Types of data included here are concentration areas for waterfowl, marine birds and shorebirds; seabird colonies; nesting areas for sensitive species such as eagles, herons and falcons; and marine mammal haulout sites. This information is intended for the rapid identification of areas where significant wildlife oiling impacts could be anticipated and to denote areas where flight restriction zones may be required to protect sensitive wildlife. Each site depicted on these maps is identified by a unique number in order to facilitate the process of communicating Flight Restriction Zone recommendations to the Operations Section in ICS. The tables accompanying the wildlife maps present information on the season(s) during which sites may be particularly sensitive to disturbance.

The fish/shellfish/marine habitat maps present general information on the location of baitfish spawning beaches, herring spawning areas, streams used by anadromous salmonids, hardshell clam concentrations, and kelp and eelgrass beds. This information will be most useful to personnel involved in assessing initial risks to fish and shellfish resources and to those conducting initial beach reconnaissance, pending availability of more detailed resource information and the formation of SCAT teams.

Because the operational uses of this information differ from those of the wildlife data, individual site identification numbers have not been assigned. Tables associated with these maps will identify the seasonal sensitivity of each resource. In addition, notes accompanying each table will provide information on the general distribution and seasonal sensitivity of those resources that are not mapped but may occur anywhere in the GRP region (ex. juvenile salmonids in shallow nearshore waters).

## **6. Sensitive Resource Description \***

### **6.1. Marine Mammals**

While marine mammals can be expected anywhere in the Central Puget Sound, their numbers are lower here than in any other GRP area. Although harbor seals can be found throughout, there are very few regular haulout locations. California and Steller (Northern) sea lions may be found within this region from late fall through mid-spring, especially in the vicinity of river mouths or on navigation buoys. Although relatively few Steller sea lions are found in this area, this species is of special concern because it is listed as a Threatened species. Other marine mammals occasionally found in Central Puget Sound include Dall's porpoise, harbor porpoise, orcas (killer whales), and gray whales. Only the harbor seal and harbor porpoise are considered year around residents.

### **6.2. Birds**

Although many species of birds nest and rear their young throughout the summer in this GRP area, the numbers and diversity of species increases dramatically during the migration and winter seasons. Breeding birds include great blue heron, osprey, bald eagle, glaucous-winged gull, pigeon guillemot and marbled murrelet. Species that pass through on spring and fall migration or winter here in large numbers include common, Pacific, and red-throated loons, horned red-necked and western grebes, double-crested, pelagic and Brandt's cormorants, Canada geese, brant, more than twenty species of ducks, over twenty species of shorebirds, Bonaparte's, mew, ring-billed, herring and Thayer's gulls, common murres and rhinoceros auklets.

Birds can be found in all parts of this GRP area but certain locations can be counted on to support large bird concentrations during the appropriate time of year. Shallow intertidal bays such as Quartermaster Harbor, Sinclair Inlet, and Miller Bay host large numbers of waterfowl, shorebirds and herons.

Areas where tides converge to create tide rips tend to concentrate baitfish such as herring and sandlance. Fish eating birds including loons, grebes, cormorants, gulls and alcids also congregate at these locations. Some of the major seabird concentration areas include Colvos Passage and the waters off of Point Defiance.

The three Endangered or Threatened species that breed in this GRP area are bald eagle, peregrine falcon and marbled murrelet.

### **6.3. Flight Restriction Zones**

Flight restriction zones have been designated in the GRP to minimize disturbance to certain wildlife species. An identified location could represent a marine mammal haulout site, a seabird or heron colony, or the individual nest of a sensitive species such as bald eagle. While some zones may be restricted year around, others will be in effect only during the months listed in the matrix.

The no-fly bubble is the area within a 1,500 foot radius and below 1,000 feet in altitude around the location.

All aircraft, including those from the government, contractors or media, are expected to avoid these zones when restrictions are in effect. In the event that one of these zones must be entered during a spill response, clearance must be obtained from the Washington Department of Fish and Wildlife (WDF&W) and the United States Fish and Wildlife Service (USFWS), or when marine mammals other than sea otters are concerned, the National Marine Fisheries Service (NMFS). Sea otters are managed by the United States Fish and Wildlife Service.

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\* Generated for the GRP by the Spill Response and Resource Protection Team of the Washington Department of Fish and Wildlife

During oil spills, pilots are also asked to avoid disturbing any large concentrations of birds and other wildlife. By keeping a safe distance or altitude, pilots can prevent the accidental hazing of unaffected wildlife into oiled areas and minimize the risk of aircraft/ bird collisions.

#### **6.4. Hazing**

Hazing or directed harassment, is a method used to drive or herd wildlife out of an area where they are at risk of becoming oiled. Hazing techniques include the use of visual and audio devices, personnel for herding, vessels and aircraft. In the right circumstances it can be an effective tool for protecting some wildlife species. In other cases it can be disastrous as unaffected wildlife can be driven into oiled areas, or forced to abandon nests or young.

National Marine Fisheries Service staff or their designees will perform all hazing of marine mammals other than sea otters. Before hazing can begin for all other species of wildlife, clearance must be obtained from the Washington Department of Fisheries and Wildlife and the United States Fish and Wildlife Service. All hazing efforts during a spill will be directed by these agencies. The deliberate harassment of wildlife without first securing permission from these agencies is a violation of Federal and State laws.

The following information must be provided for a determination on whether hazing might be authorized in a given situation.

1. Description of the situation where hazing authorization is being sought
2. Location to be hazed
3. Species of wildlife to be hazed and number of animals
4. Methods and equipment used
5. Date and time of hazing
6. Name, phone number, radio frequency, pager number and the amount of hazing experience of the individual requesting permission

The responsible agencies will evaluate each request on a case by case basis. All hazing of marine mammals, threatened and endangered species, and all hazing by aircraft will be performed only under authority and general supervision of WDF&W, USFWS, NMFS or persons designated by these agencies. Representatives of these agencies can be contacted through the planning section of the Unified Command System during the spill event.

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**EDMONDS FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE**

NOAA Chart 18474

Code	Location	Seabird Colony	Seabird Conc.	Waterfowl Conc.	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc.	Flight Exclusion	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
WC-2	Apple Cove Point					Yes		Yes												
WC-3	Deer Creek					Yes		Yes												
WC-4	South Appletree Cove					Yes		Yes												
WC-5	President Point					Yes		Yes												
WC-6	Point Jefferson					Yes		Yes												
WC-12	Shilshole Bay					Yes		Yes												

**\* FLIGHT AND GROUND ENTRY RESTRICTIONS**

 Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

 Sensitive season - Minimize overflight disturbance

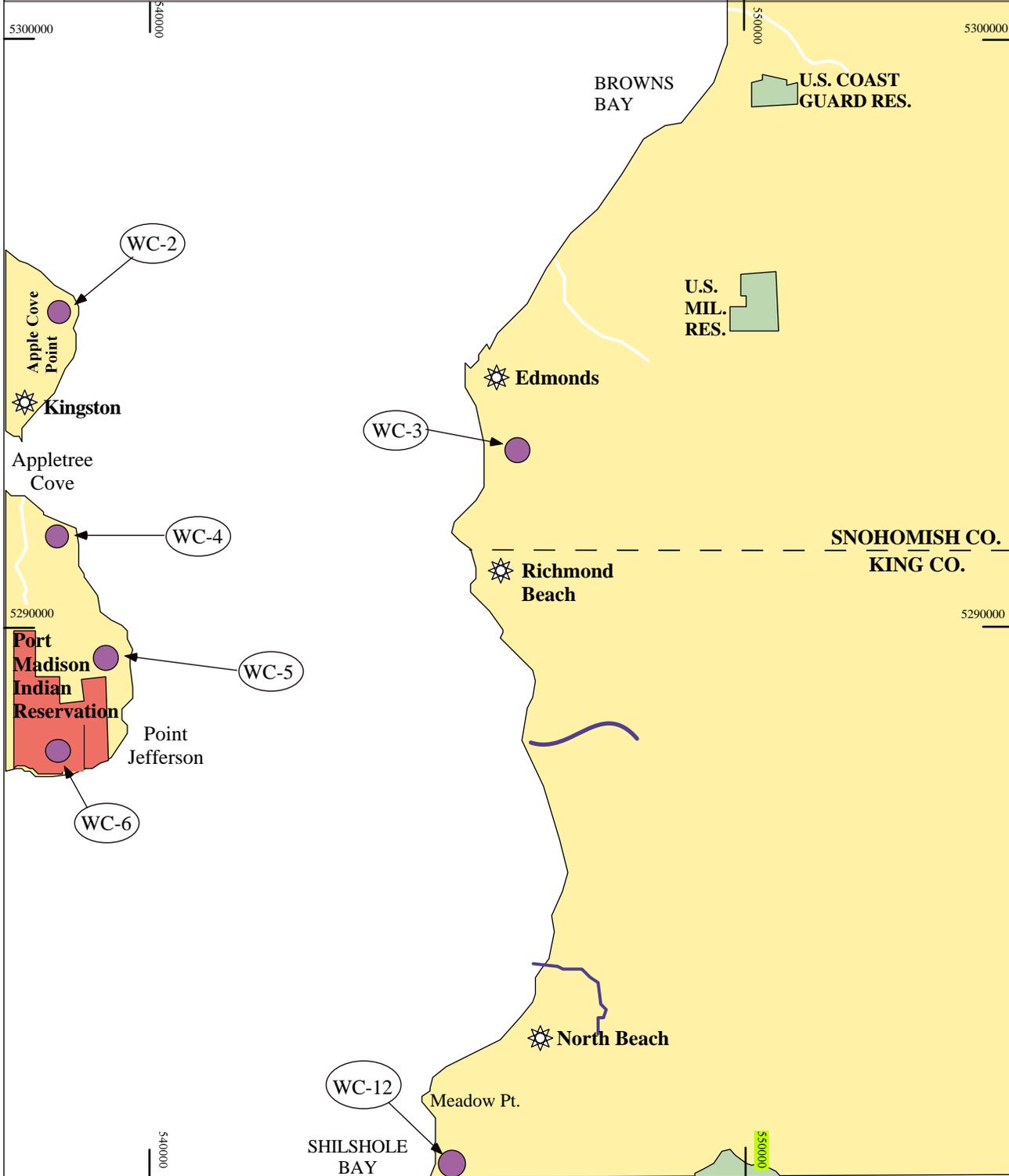
# EDMONDS

## FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES



1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

 Marine Mammal Haulout	 Park or Public Land	 Bird Concentration Area
 Sensitive Species Nesting	 Reservation	
 Boat Launch	 Town or City	



<b>PORT MADISON FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE</b>										1/2		Includes half of the month									
NOAA Chart 18474										Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Code	Location	Seabird Colony	Seabird Conc.	Waterfowl Conc.	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc.	Flight Exclusion													
WC-7	Miller Bay			Yes		Yes		No	[Pink shaded area]												
WC-8	Keyport Dock	Yes						No	[Pink shaded area]												
WC-9	Keyport					Yes		Yes	[Blue shaded area]												
WC-10	Port Madison					Yes		Yes	[Blue shaded area]												
WC-16	Dyes Inlet/ Clear Creek			Yes				Yes	[Pink shaded area]			1/2			1/2	[Pink shaded area]					

**\* FLIGHT AND GROUND ENTRY RESTRICTIONS**

Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

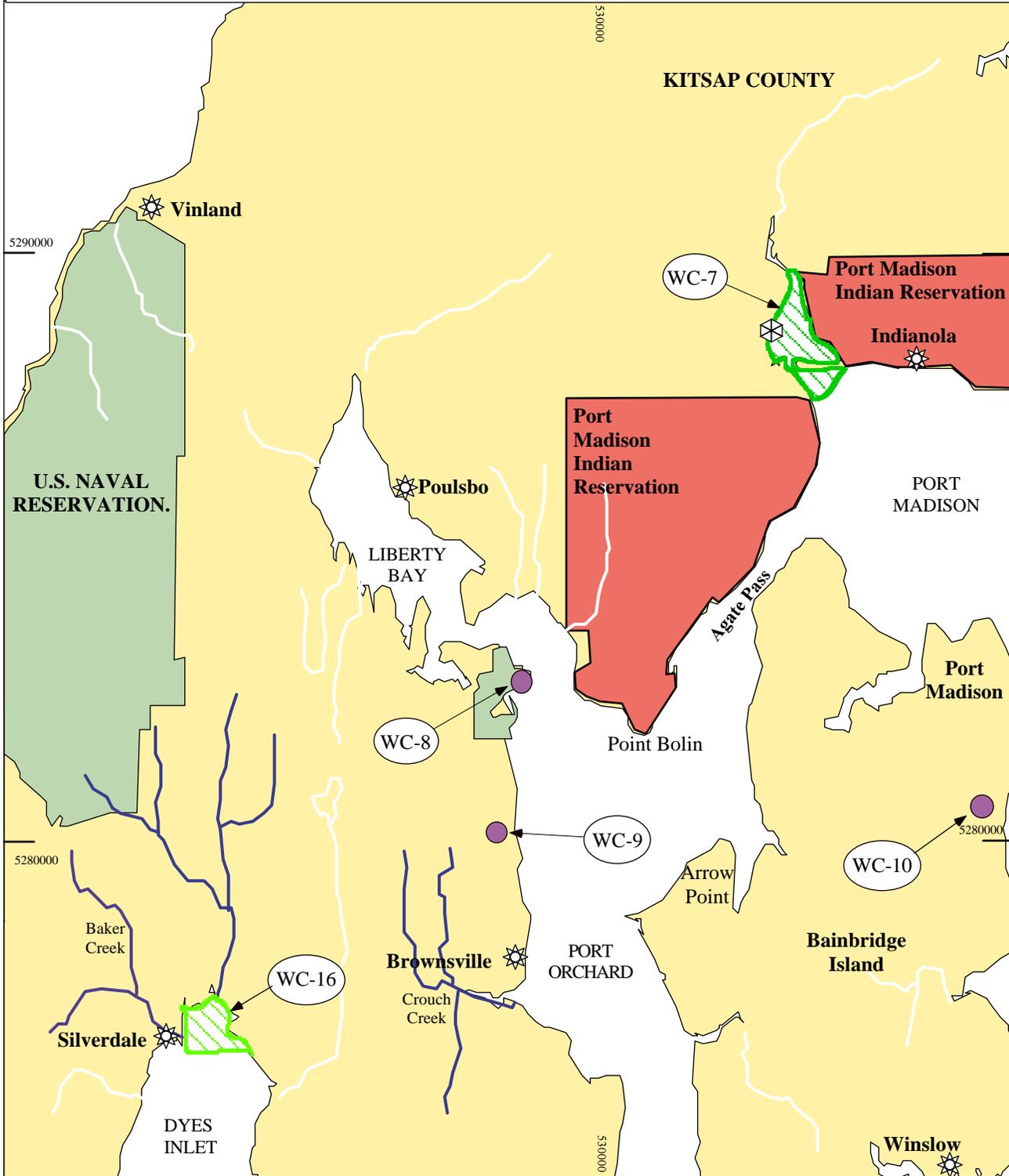
Sensitive season - Minimize overflight disturbance

# PORT MADISON FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES



1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

	Marine Mammal Haulout		Park or Public Land		Bird Concentration Area
	Sensitive Species Nesting		Reservation		Town or City
	Boat Launch				



1/2 Includes half of the month

**BREMERTON FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE**

NOAA Chart 18474

Code	Location	Seabird Colony	Seabird Conc.	Waterfowl Conc.	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc.	Flight Exclusion	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec				
WC-17	Ostrich Bay					Yes		Yes																
WC-18	Rocky Point			Yes				Yes																
WC-19	Sulpher Springs			Yes				Yes					1/2			1/2								
WC-20	South Port Washington Narrows			Yes				Yes																
WC-21	Gorst		Yes	Yes			Yes	Yes																
WC-22	East Port Orchard			Yes				Yes					1/2			1/2								
WC-23	Orchard Point			Yes				Yes					1/2			1/2								
WC-28	Sinclair Inlet					Yes		Yes																
WC-30	View Park					Yes		Yes																
WC-33	Command Point					Yes		Yes																
WC-35	Colvos Passage		Yes					No																
WC-45	Illahee					Yes		Yes																
WC-46	South tip of Bainbridge Island			Yes				No																

**\* FLIGHT AND GROUND ENTRY RESTRICTIONS**

Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

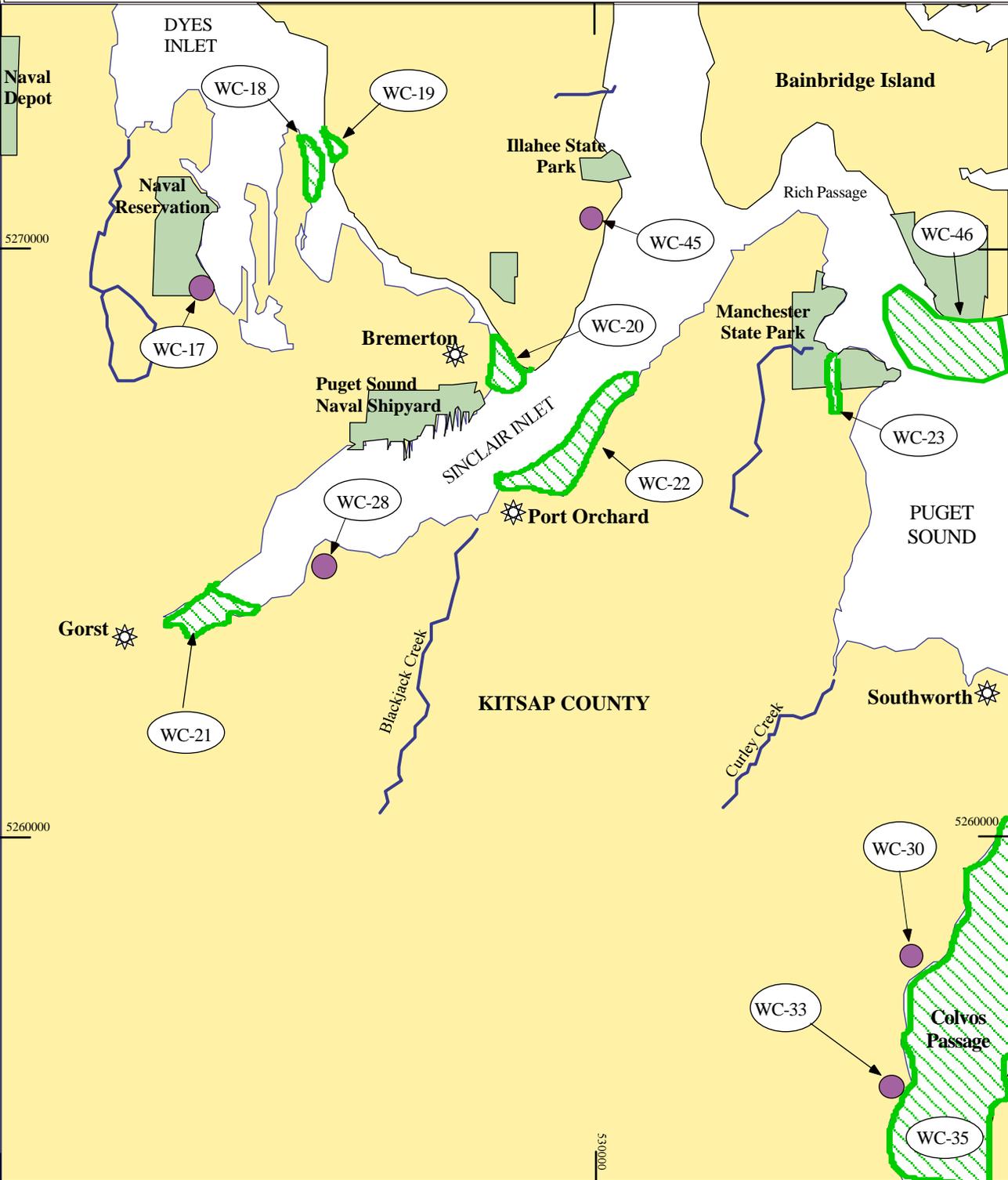
Sensitive season - Minimize overflight disturbance

# BREMERTON FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES



1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

Marine Mammal Haulout	Park or Public Land	Bird Concentration Area
Sensitive Species Nesting	Reservation	
Boat Launch	Town or City	



										1/2		Includes half of the month									
<b>SEATTLE FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE</b>																					
NOAA Chart 18474																					
Code	Location	Seabird Colony	Seabird Conc.	Waterfowl Conc.	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc.	Flight Exclusion	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
WC-13	Shilshole Bay				Yes			Yes	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	
WC-14	Yeomalt Point					Yes		Yes	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	
WC-24	Restoration Point					Yes		Yes	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	
WC-29	Blake Island					Yes		Yes	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	
WC-35	Colvos Passage		Yes					No	Pink	Pink	Pink	Pink	Pink	Pink	Pink	Pink	Pink	Pink	Pink	Pink	
WC-46	South tip of Bainbridge Island			Yes				No	Pink	Pink	Pink	Pink	1/2					Pink	Pink	Pink	
WC-47	Alki Point south to Point Williams			Yes				No	Pink	Pink	Pink	Pink	Pink	Pink	Pink	Pink	Pink	Pink	Pink	Pink	

**\* FLIGHT AND GROUND ENTRY RESTRICTIONS**

 Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

 Sensitive season - Minimize overflight disturbance

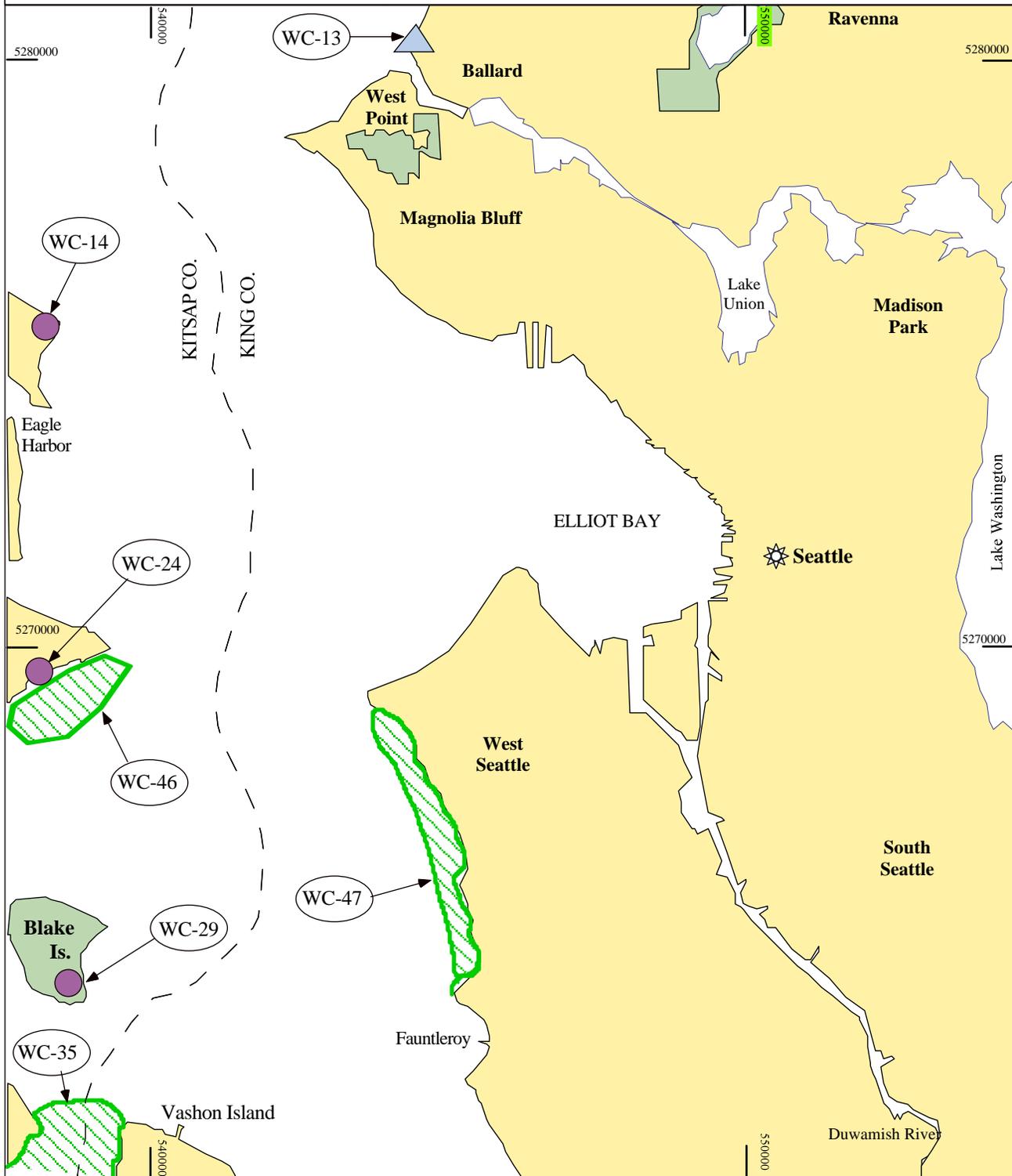
# SEATTLE

## FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES



1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

 Marine Mammal Haulout	 Park or Public Land	 Bird Concentration Area
 Sensitive Species Nesting	 Reservation	
 Boat Launch	 Town or City	



CENTRAL PUGET SOUND GRP

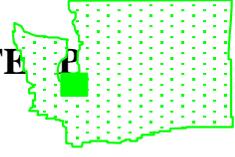
										1/2 Includes half of the month													
EAST PASSAGE FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE																							
NOAA Chart 18474																							
Code	Location	Seabird Colony	Seabird Conc.	Waterfowl Conc.	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc.	Flight Exclusion	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec			
WC-31	Sylvan Beach					Yes		Yes		[Blue shading]													
WC-32	Seahurst					Yes		Yes	1/2	[Blue shading]													
WC-34	Point Beals					Yes		Yes	[Blue shading]														
WC-35	Colvos Passage		Yes					No	[Pink shading]														
WC-36	Quartermaster Harbor					Yes		Yes	1/2	[Blue shading]													
WC-38	Neill Point					Yes		Yes	[Blue shading]														
WC-40	Redondo					Yes		Yes	[Blue shading]														
WC-42	Dumas Bay					Yes		Yes	[Blue shading]														
WC-48	Quartermaster Harbor		Yes	Yes				No	[Pink shading]				1/2	[Pink shading]									

**\* FLIGHT AND GROUND ENTRY RESTRICTIONS**

Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

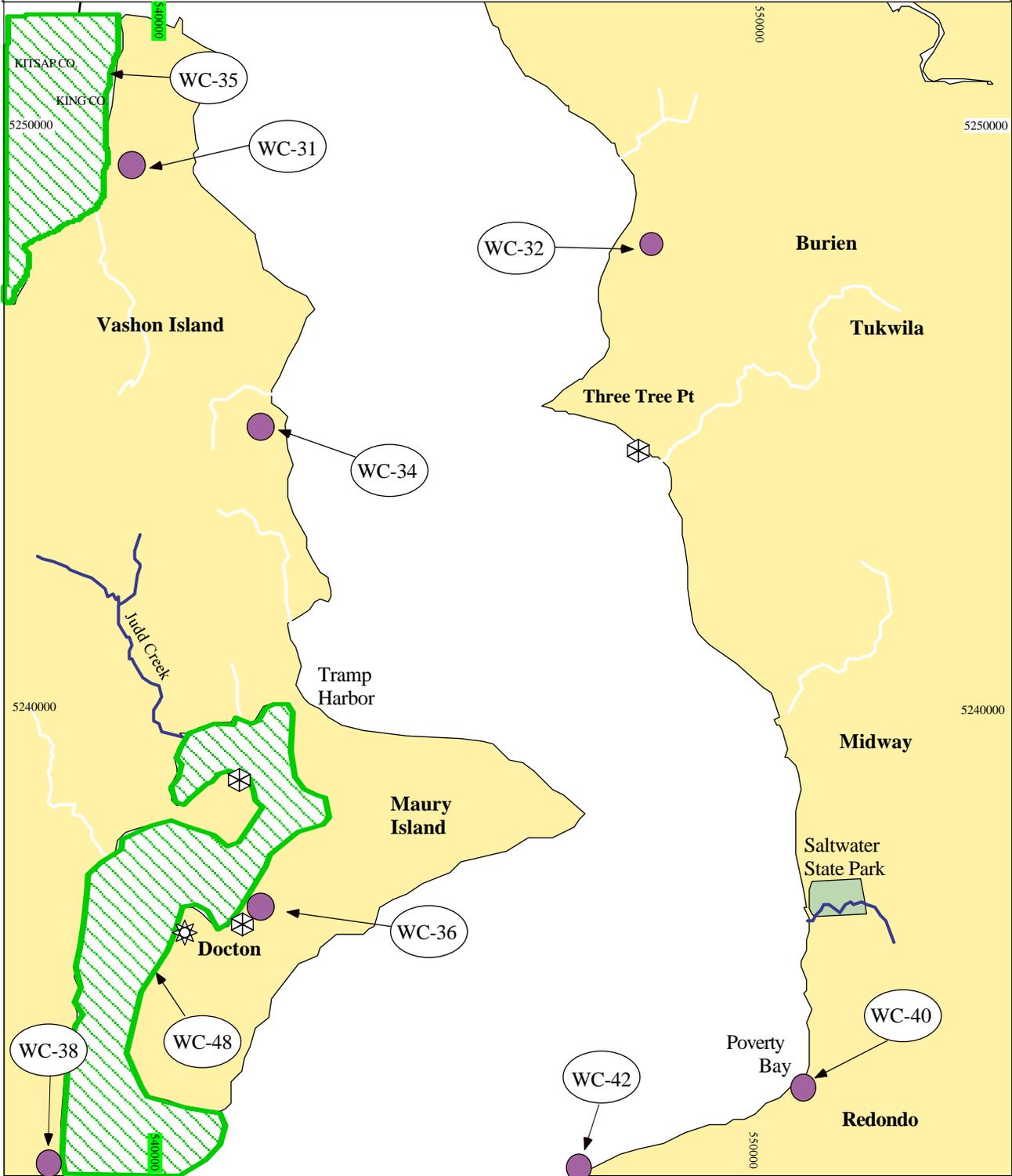
Sensitive season - Minimize overflight disturbance

# EAST PASSAGE FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE



1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

 Marine Mammal Haulout	 Park or Public Land	 Bird Concentration Area
 Sensitive Species Nesting	 Reservation	
 Boat Launch	 Town or City	



1/2 Includes half of the month

**GIG HARBOR FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE**

NOAA Chart 18474

Code	Location	Seabird Colony	Seabird Conc.	Waterfowl Conc.	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc.	Flight Exclusion	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
WSP-1	Tacoma Narrows		Yes	Yes				No	█			1/2						1/2	█		
WSP-2	Carr Inlet		Yes	Yes				No	█			█						█	█		
WSP-3	Burley Lagoon			Yes				No	█			█					█				
WSP-4	Rosedale Beach				Yes			Yes							█						
WSP-5	Cutts Island				Yes			Yes							█						
WSP-25	Horsehead Bay				Yes			Yes							█						
WC-35	Colvos Passage		Yes					No	█											█	
WC-37	Point Dalco					Yes		Yes	█												
WC-41	Point Defiance					Yes		Yes	█												

\* FLIGHT AND GROUND ENTRY RESTRICTIONS

█ Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

█ Sensitive season - Minimize overflight disturbance

# GIG HARBOR FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES



1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

 Marine Mammal Haulout	 Park or Public Land	 Bird Concentration Area
 Sensitive Species Nesting	 Reservation	
 Boat Launch	 Town or City	



COMMENCEMENT BAY FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE																							
NOAA Chart 18474																							
Code	Location	Seabird Colony	Seabird Conc.	Waterfowl Conc.	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc.	Flight Exclusion	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec			
WC-38	Neill Point					Yes		Yes		[Blue shaded]													
WC-42	Dumas Bay					Yes		Yes	[Blue shaded]								[Blue shaded]						
WC-44	Commencement Bay			Yes				Yes				[Pink shaded]											

**\* FLIGHT AND GROUND ENTRY RESTRICTIONS**

Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

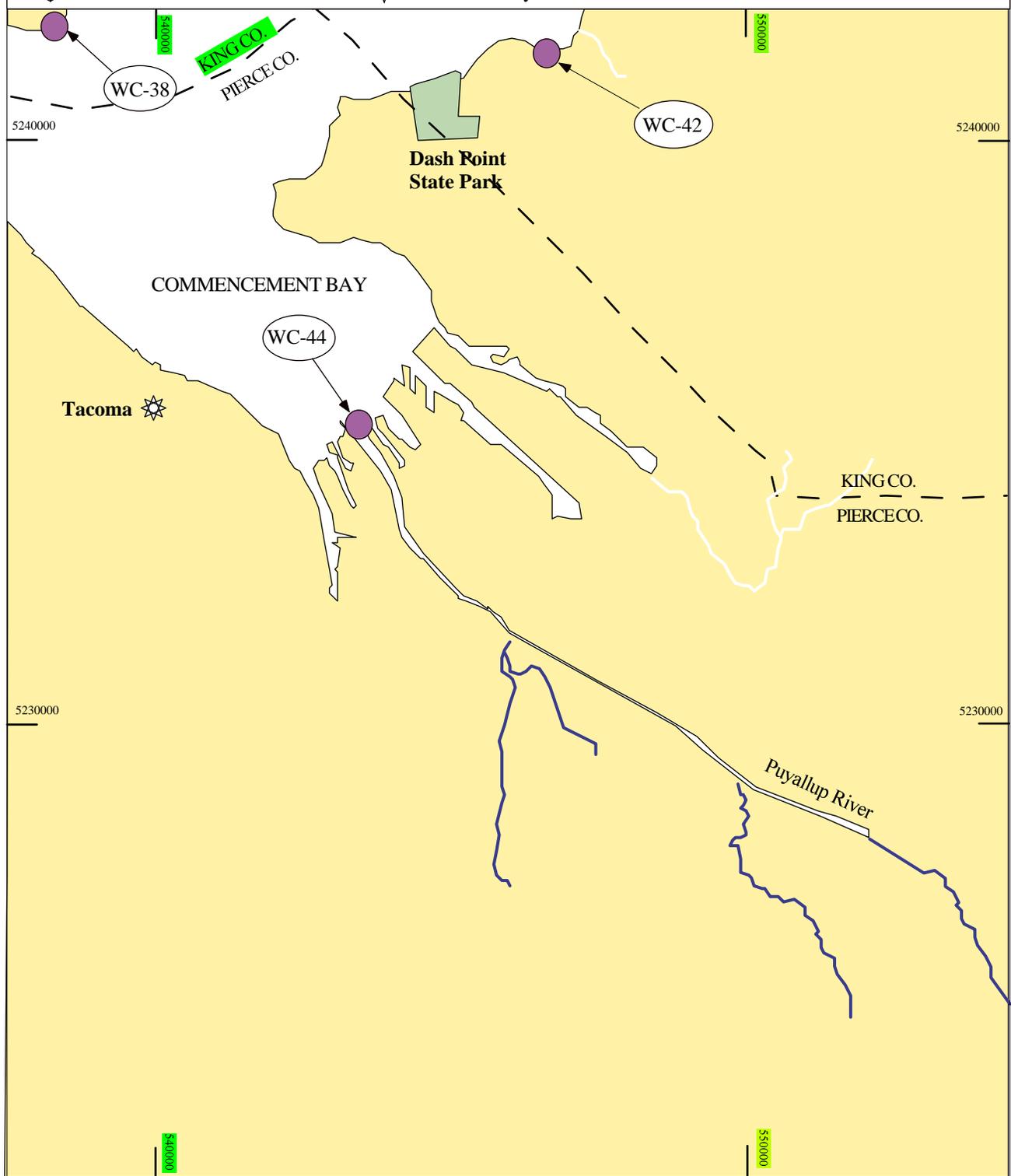
Sensitive season - Minimize overflight disturbance

# COMMENCEMENT BAY FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES



1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

 Marine Mammal Haulout	 Park or Public Land	 Bird Concentration Area
 Sensitive Species Nesting	 Reservation	
 Boat Launch	 Town or City	



## CENTRAL PUGET SOUND GRP

FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE SUMMARY																					
Code	Location	Seabird Colony	Seabird Conc.	Waterfowl Conc.	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc.	Flight Exclusion	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
WC-2	Apple Cove Point					Yes		Yes													
WC-3	Deer Cove					Yes		Yes													
WC-4	South Appletree Cove					Yes		Yes													
WC-5	President Point					Yes		Yes													
WC-6	Point Jefferson					Yes		Yes													
WC-7	Miller Bay			Yes				No													
WC-8	Keyport Dock	Yes						No													
WC-9	Keyport					Yes		Yes													
WC-10	Port Madison					Yes		Yes													
WC-12	Shilshole Bay					Yes		Yes													
WC-13	Shilshole Bay				Yes			Yes													
WC-14	Yeomalt Point					Yes		Yes													
WC-16	Dyes Inlet / Clear Creek			Yes				Yes													
WC-17	Ostrich Bay					Yes		Yes													
WC-18	Rocky Point			Yes				Yes													
WC-19	Sulphur Springs			Yes				Yes													
WC-20	South Port Washington Narrows			Yes				Yes													
WC-21	Gorst		Yes	Yes			Yes	Yes													
WC-22	East Port Orchard			Yes				Yes													
WC-23	Orchard Point			Yes				Yes													
WC-24	Restoration Point					Yes		Yes													
WC-28	Sinclair Inlet					Yes		Yes													
WC-29	Blake Island					Yes		Yes													
WC-30	View Park					Yes		Yes													

FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE SUMMARY (continued)																					
Code	Location	Seabird Colony	Seabird Conc.	Waterfowl Conc.	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc.	Flight Exclusion	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
WC-31	Sylvan Beach					Yes		Yes													
WC-32	Seahurst					Yes		Yes													
WC-33	Command Point					Yes		Yes													
WC-34	Point Beals					Yes		Yes													
WC-35	Colvos Passage		Yes					No													
WC-36	Quartermaster Harbor					Yes		Yes													
WC-37	Point Dalco					Yes		Yes													
WC-38	Neill Point					Yes		Yes													
WC-40	Redondo					Yes		Yes													
WC-41	Point Defiance					Yes		Yes													
WC-42	Dumas Bay					Yes		Yes													
WC-44	Commencement Bay																				
WC-45	Illahee					Yes		Yes													
WC-46	South tip of Bainbridge Island			Yes																	
WC-47	Alki Point south to Point Williams			Yes																	
WC-48	Quartermaster Harbor		Yes	Yes																	

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Subject	Name	Characteristics	Contact	Phone #
<b>Fire Department</b>				
	Bellevue Fire Dept.	King County	766 Bellevue Way SE / Bellevue, WA 98004	(425) 452-6892
	Bremerton Fire Dept.	Kitsap County	817 Pacific Ave. / Bremerton, WA 98310	(360) 478-5380
	Chief Tacoma Fire Dept. Hdqtrs.	Pierce County	901 Fawcett / Tacoma, WA 98402	(253)591-5737
	Dupont Fire Dept.	Pierce County	302 Louviers Ave. / Dupont, WA 98327	(253) 964-8414
	Edmonds Fire Dept.	Snohomish County	250 5th Ave. N / Edmonds, WA 98020	(425) 771-0215
	Seattle Fire Dept.	King County	301-2nd Avenue South / Seattle, WA 98104	(206) 386-1400
	King County Fire Dist. # 11	King County	1234 SW 112th / White Center	(206) 243-0330
	King County Fire Dist. #13	King County	10019 SW Bank Rd. / Vashon Island	(206)463-2405
	King County Fire Dist. #16	King County	18030 73rd Ave. NE / Bothell	(425) 486-2784
	King County Fire Dist. #2	King County	151100-8th Ave. SW / Burien	(206) 242-2040
	King County Fire Dist. #20	King County	12617-76th Ave. S / Skyway	(206)772-1430
	King County Fire Dist. #26	King County	2238 S 223rd / Des Moines	(206)878-2210
	King County Fire Federal Way	King County	31617-1st Ave. S / Federal Way	(253)839-6234
	King County Fire Dist. #4	King County	1016 N 175th / Shoreline	(206) 546-5716
	Kirkland Fire Dept.	King County	123-5th Ave. / Kirkland	(425) 828-1143
	Kitsap County Fire & Rescue, Dist. #1	Kitsap County	10955 Silverdale Way NW / Silverdale	(360) 692-2551
	North Kitsap Fire & Rescue	Kitsap County	11171 NE Highway 104 / Kingston	(360) 297-3619
	Kitsap County Fire Dist. #12	Kitsap County	4071 Chico Way NW / Bremerton	(360) 377-4744
	Kitsap County Fire Dist. #14	Kitsap County	7549 NE Twin Spits Road / Hansville	(360) 638-2263
	Central Kitsap Fire & Rescue	Kitsap County	7600 Military Road NE / Bremerton	(360) 692-0880
	Kitsap County Fire Dist. #18	Kitsap County	911 Liberty Lane / Poulsbo	(360) 779-3997
	Kitsap County Fire Dist. #2	Kitsap County	8895 Madison Ave N / Bainbridge Island	(206) 842-7686
	North Kitsap Fire & Rescue	Kitsap County	P.O. Box 41 / Kingston	(360) 297-3619
	Kitsap County Fire Dist. #7	Kitsap County	1974 Fircrest Dr. SE / Port Orchard	(360) 871-2411
	Lynnwood Fire Dept.	Snohomish County	19100 44th Ave. W / Lynnwood	(425) 775-3471
	Tacoma Fire Dept.	Pierce County	2015 54th Ave. E / Tacoma	(253) 922-8424

Subject	Name	Characteristics	Contact	Phone #
<b>Local Support Personnel</b>	Bremerton City Hall (Mayor's Office)	Kitsap County	239 Fourth St / Bremerton	(360) 478-5266
	City of Sea-Tac City Hall	King County	19215-28th Ave. S / Sea-Tac	(206) 241-9100
	Kirkland DEM	King County	123 Fifth Ave.	(425) 828-1283
	Seattle Office of Emergency Services	King County	301 Second Avenue S / Seattle	(206) 296-3830
	Tacoma Director of Emergency Management	Pierce County	420 Fawcett St / Tacoma	(253) 798-7470
	Seattle Police Dept.	King County	610 Third Avenue / Seattle	(206) 583-2111
	Tacoma Police Dept.	Pierce County	930 Tacoma Ave. S / Tacoma	(253) 593-4721
	King County DEM	King County	516 Third Ave. / Seattle	(206) 296-3830
	Kitsap County DEM	Kitsap County	1720 Warren / Bremerton	(360) 337-7119
	Pierce County DEM	Pierce County	930 Tacoma Ave. S / Tacoma	(253) 798-7470
	Pierce County Sheriff	Pierce County	Tacoma	(253) 798-4722
	Snohomish County Sheriff	Snohomish County	3000 Rockefeller / Everett	(425) 388-3414
	Kitsap County Sheriff	Kitsap County	614 Division St. / Port Orchard	(360) 337-7145
<b>Marinas/Port Docks</b>	Point Defiance Ramp	Pierce County	Point Defiance Park / next to Vashon ferry landing / Tacoma	
	Totem Marina	Pierce County	821 Dock St. / Tacoma	
	Olie & Charlie's Marina	Pierce County	Marine View Drive / Tacoma	
	Des Moines Marina	King County	Downtown Des Moines	
	East Gig Harbor access	Pierce County	South end of Randall Dr NW / Gig Harbor	
	Ollala Ramp	Kitsap County	Off Ollala Way/ Port Orchard	
	Armeni Ramp	King County	Next to Seacrest Boat House, off Harbor Ave./ Seattle	
	Sunnyside Ramp	King County	Sunnyside Ave. and N. Northlake Way/ Seattle	
	Meadowdale Marina	Snohomish County	162nd Ave. SW/ Meadowdale	
	Shilshole Ramp	King County	Seaview Ave. /Seattle	
	14th Street Ramp	King County	End of 14th St./ Ballard	
	Port of Edmonds Marina	Snohomish County	South end of Admiral Way/ Edmonds	
	Evergreen Park Boat Ramp	Kitsap County	Evergreen Park/ Bremerton	
	Lion's Field Park & Ramp	Kitsap County	Off Sheridan Road/ Bremerton	
	Illahee State Park Ramp	Kitsap County	Illahee State Park	
	Tracyton Ramp	Kitsap County	Town of Tracyton	
Brownsville Marina	Kitsap County	Town of Brownsville		
Silverdale Ramp	Kitsap County	Town of Silverdale		
Poulsbo Ramp	Kitsap County	Town of Poulsbo		

<b>Subject</b>	<b>Name</b>	<b>Characteristics</b>	<b>Contact</b>	<b>Phone #</b>
<b>Marinas/Port Docks (continued)</b>	Port Orchard Public Ramp	Kitsap County	Town of Port Orchard	
	Eagle Harbor Waterfront Park	Kitsap County	Eagle Harbor/ Bainbridge Island	
	Miller Bay Ramp	Kitsap County	On Miller Bay, near Suquamish	
	Annapolis Public Ramp	Kitsap County	Near Port Orchard	
<b>Housing/Feeding/Response Community Support</b>	Airlift Northwest	King County	6987 Perimeter Road/ Seattle	1-800-426-2430
	Auburn General Hospital	Pierce County	20 Second St NE/ Auburn	(253) 833-7711
	Ballard Community Hospital	King County	NW Market and Barnes/ Seattle	(206)782-2700
	Bremerton Naval Hospital	Kitsap County	Bremerton	(360) 475-4000
	Children's Hospital and Medical Center	King County	4800 Sand Point Way NE/ Seattle	(206) 526-2000
	Evergreen Hospital	King County	12040 NE 128th Street/ Kirkland	(425) 899-1000
	Fifth Avenue Hospital	King County	10560 Fifth Avenue NE/ Seattle	(206) 364-2050
	Group Health Central Hospital	King County	201 16th Avenue E/ Seattle	(206) 326-3000
	Group Health Eastside Hospital	King County	2700 152nd NE/ Redmond	(425) 883-5151
	Harborview Medical Center	King County	325 Ninth Avenue/ Seattle	(206) 731-3000
<b>Fishing Fleets &amp; Affiliated Organizations</b>	Puget Sound Gillnetters Assoc.	King County	Fisherman's Terminal/ Seattle	
<b>Boat Cleaning Capability</b>	Airo Services	Pierce County	4110 East 11th St./ Tacoma	(253)383-4916 24 hr. number
	Foss Environmental	King County	660 West Ewing St./ Seattle	1-800-337-7455 24 hr. number

## APPENDICES

## Appendix A: Summary of Protection Techniques

Protection Techniques	Description	Primary Logistical Requirements	Limitations
<b>ONSHORE</b>			
<b>Beach Berms</b>	A berm is constructed along the top of the mid-inter tidal zone from sediments excavated along the downgradient side. The berm should be covered with plastic or geo-textile sheeting to minimize wave erosion.	<ul style="list-style-type: none"> <li>• Bulldozer/Motor grader -1</li> <li>• Personnel - equipment operator &amp; 1 worker</li> <li>• Misc. - plastic or geotextile sheeting</li> </ul>	<ul style="list-style-type: none"> <li>• High wave energy</li> <li>• Large tidal range</li> <li>• Strong along shore currents</li> </ul>
<b>Geotextiles</b>	A roll of geotextile, plastic sheeting, or other impermeable material is spread along the bottom of the supra-tidal zone & fastened to the underlying logs or stakes placed in the ground.	<ul style="list-style-type: none"> <li>• Geotextile - 3 m wide rolls</li> <li>• Personnel - 5</li> <li>• Misc. - stakes or tie-down cord</li> </ul>	<ul style="list-style-type: none"> <li>• Low sloped shoreline</li> <li>• High spring tides</li> <li>• Large storms</li> </ul>
<b>Sorbent Barriers</b>	A barrier is constructed by installing two parallel lines of stakes across a channel, fastening wire mesh to the stakes & filling the space between with loose sorbents.	Per 30 meters of barrier <ul style="list-style-type: none"> <li>• Wire mesh - 70 m x 2 m</li> <li>• Stakes - 20</li> <li>• Sorbents - 30 m<sup>2</sup></li> <li>• Personnel - 2</li> <li>• Misc. - fasteners, support lines, additional stakes, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Waves &gt; 25 cm</li> <li>• Currents &gt; 0.5 m/s</li> <li>• Tidal range &gt; 2 m</li> </ul>
<b>Inlet Dams</b>	A dam is constructed across the channel using local soil or beach sediments to exclude oil from entering channel.	<ul style="list-style-type: none"> <li>• Loader - 1</li> <li>• Personnel - equipment operator &amp; 1 worker or several workers w/shovels</li> </ul>	<ul style="list-style-type: none"> <li>• Waves &gt; 25 cm</li> <li>• Tidal range exceeding dam height</li> <li>• Freshwater outflow</li> </ul>

<b>NEARSHORE</b>			
<b>Containment Booming</b>	Boom is deployed in a "U" shape in front of the oncoming slick. The ends of the booms are anchored by work boats or drogues. The oil is contained within the "U" & prevented from reaching the shore.	For 150 meters Slick: <ul style="list-style-type: none"> <li>• Boom - 280 m</li> <li>• Boats - 2</li> <li>• Personnel - boat crews &amp; 4 boom tenders</li> <li>• Misc. - tow lines, drogues, connectors, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• High winds</li> <li>• Swells &gt; 2 m</li> <li>• Breaking waves &gt; 50 cm</li> <li>• Currents &gt; 1.0 m/s</li> </ul>
<b>Exclusion Booming</b>	Boom is deployed across or around sensitive areas & anchored in place. Approaching oil is deflected or contained by boom.	Per 300 meters of Boom <ul style="list-style-type: none"> <li>• Boats - 1</li> <li>• Personnel - boat crew &amp; 3 boom tenders</li> <li>• Misc.- 6 anchors, anchor line, buoys, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Currents &gt; 0.5 m/s</li> <li>• Breaking waves &gt; 50 cm</li> <li>• Water depth &gt; 20 m</li> </ul>
<b>Deflection Booming</b>	Boom is deployed from the shoreline away from the approaching slick & anchored or held in place with a work boat. Oil is deflected away from shoreline.	Single Boom, 0.75 m/s knot current <ul style="list-style-type: none"> <li>• Boom - 60 m</li> <li>• Boats - 1</li> <li>• Personnel - boat crew + 3</li> <li>• Misc. - 3 anchors, line, buoys, recovery unit</li> </ul>	<ul style="list-style-type: none"> <li>• Currents &gt; 1.0 m/s</li> <li>• Breaking waves &gt; 50 cm</li> </ul>
<b>Diversion Booming</b>	Boom is deployed from the shoreline at an angle towards the approaching slick & anchored or held in place with a work boat. Oil is diverted towards the shoreline for recovery.	Single Boom, 0.75 m/s knot current <ul style="list-style-type: none"> <li>• Boom - 60 m</li> <li>• boats - 1</li> <li>• Personnel - boat crew + 3</li> <li>• Misc. - 3 anchors, line, buoys, recovery unit</li> </ul>	<ul style="list-style-type: none"> <li>• Currents &gt; 1.0 m/s</li> <li>• Breaking waves &gt; 50 cm</li> </ul>
<b>Skimming</b>	Self-propelled skimmers work back & forth along the leading edge of a windrow to recover the oil. Booms may be deployed from the front of a skimmer in a "V" configuration to increase sweep width. Portable skimmers are placed within containment booms in the area of heaviest oil concentration.	Self-propelled (None) Towed <ul style="list-style-type: none"> <li>• Boom - 200 m</li> <li>• Boats - 2</li> <li>• Personnel - boat crews &amp; 4 boom tenders</li> <li>• Misc. - tow lines, bridles, connectors, etc.</li> </ul> Portable <ul style="list-style-type: none"> <li>• Hoses - 30 m discharge</li> <li>• Oil storage - 2000 liters</li> </ul>	<ul style="list-style-type: none"> <li>• High winds</li> <li>• Swells &gt; 2 m</li> <li>• Breaking waves &gt; 50 cm</li> <li>• Currents &gt; 1.0 m/s</li> </ul>

Source is R. Miller of Clean Sound Cooperative.

## **Appendix B: Original Geographic Response Plan Contributors**

### **Local Representatives**

Byron Haley, Metro Park District Tacoma

**Ed Bruett, Kitsap Co. DEM**

**Richard Lawson, Tacoma Fire Dept.**

**John Komorita, King County**

**Bill Lokey, Pierce County DEM**

**Shad Burcham, King County DEM**

### **Industry and Response Contractors**

Ruel Harder, Seattle Steam Co.

Bob Wiechert, Clean Sound Cooperative

Mike Kelley, Clean Sound Cooperative

Mac McCarthy, Clean Sound Cooperative

John Waters, Clean Sound Cooperative

Bob Bunton, ARCO

Svenk Eklof, PWES

John Murphy, GENWEST SYS.

John Crawford, FOSS

Steve Collar, Crowley Marine

Greg Narum, Simpson Tacoma Kraft Co.

Bill Park, MSRC

Mike LaTorre, MSRC

Dru Wojtanik, Ecology and Environment

Tim Clark, Clean Sound Cooperative

Thom Davis, Global Environmental

Ron Larsen, Global Environmental

Gary Putnam, Shell Oil

Aaron Anderson, Olympus Enviro.

Edward Traina, Shell Oil Co.

Donald Johnson, Shell Oil Co.

Karen Grein-Nagle, Olympic Pipeline

Mike Mattingly, AIRO Services

Ray Burke, Sound Refining

Mike Brady, Riedel Environmental Services

Trygve Enger, Foss Environmental

Trip Ellison, Riedel Environmental Services

Jim Riedel, Riedel Environmental Services

Dick Shabro, Olympus Enviro

Harold Haskins, U.S. Oil

Harry Hutchins, Marine Exchange

Mike Vomund, Chevron

Global Diving and Salvage

### **Federal Representatives**

**U.S. Coast Guard**

Curtis Shaw

Bill Edgar

**Environmental Protection Agency**

Carl Kitz

**U.S. Navy**

Greg Conner

Bob Cairns

Donald Dodds

**NOAA**

Sharon Christopherson

George Galasso

**U.S. Fish and Wildlife Service**

Curtis Shaw

Jeff Momot

### **State Representatives**

**Office of Archeology & Historic Preservation**

Rob Whitlam

**Washington State Department of Ecology**

Paul O'Brien

Dick Logan

Paul Heimowitz

Jeff Bash

Dick Storey

Elin Abramson

Scott Zimmerman

Karen Rennaker

David Mora

Bridget Hoover

Shari Harris-Dunning

**Washington Department of Fish and Wildlife**

Brian Benson

Bill Graeber

Barry Troutman

Jeff Skriletz

Sara LaBorde

**Office of Marine Safety**

Roy Robertson

**Washington State Maritime Commission**

Bob Dorn

**Washington Department of Natural Resources**

Dave Jamison

**Parks and Recreation Commission**

Mike Ramsey

### **Other**

Susan Berta, WSU Island Co. Beach Watchers

Richard Shafer

Shirley Flies, Puget Sound Alliance

Ken Moser, Puget Soundkeeper

**Appendix C: Geographic Response Plan Comments/Corrections/Suggestions**

If you have any questions regarding this document or find any errors, please notify one of the following agencies: or use tear out sheet (page C-3)

- Washington Department of Ecology, SPPR program, Natural Resources Unit
- USCG Marine Safety Office Puget Sound, Planning Department
- USCG Marine Safety Office Portland
- Oregon Department of Environmental Quality
- Idaho Emergency Response Commission
- Environmental Protection Agency Region 10

**Phone Numbers:**

Washington DOE	(360) 407-6972
USCG MSO Puget Sound	(206) 217-6213
USCG MSO Portland	(503) 240-9307
Oregon DEQ	(503) 229-5774
Idaho ERC	(208) 334-3263
EPA	(206) 553-6901

**Bulletin Board System (BBS):**

USCG MSO Puget Sound	(206) 217-6216
USCG MSO Portland	(503) 240-9308

**Internet/E-mail Address:**

WADOE	dal	d461@ecy.wa.gov
OR DEQ	W	YLIE.Jack@deq.state.or.us
USCG MSO Puget Sound		jlehto@pacnorwest.uscg.mil
USCG MSO Portland		mwilcox@pacnorwest.uscg.mil
USEPA	shel	drake.beth@epamail.epa.gov

**Address:**

Commanding Officer United States Coast Guard MSO Puget Sound Planning Department 1519 Alaskan Way South Seattle, WA 98134-1192	Washington Department Of Ecology SPPR Program Natural Resources Unit P.O. Box 47600 Olympia, WA 98504-7600	Office Of The Governor Idaho Emergency Response Commission 1109 Main Statehouse Boise, ID 83720-7000
Commanding Officer United States Coast Guard Planning Department MSO Portland 6767 North Basin Ave Portland, OR 97217-3992	Oregon Department of Environmental Quality Water Quality Division 811 SW Sixth Avenue Portland, OR 97204	Environmental Protection Agency Emergency Response Branch 1200 Sixth Avenue Seattle, WA 98101

*Geographic Response Plan*

**Comments/Corrections/Suggestions**

Directions:

Fill in your name, address, agency, and phone number. Fill in the blanks regarding the location of information in the plan being commented on. Make comments in the space provided. Add extra sheets as necessary. Submit to: Dale Davis

Department of Ecology  
Spills Program  
300 Desmond Drive  
P.O. Box 47600  
Olympia, WA 98504-7600  
dald461@ecy.wa.gov

Name: _____	Title: _____	Agency: _____
Address: _____		
City: _____	State/Province: _____	Zip/Postal Code: _____
Phone: (____) _____	E-Mail: _____	

GRP: _____	Page Number: _____
Location on page (chapter, section, paragraph) (e.g. 2.1, paragraph 3): _____	

Comments: _____
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Northwest Area Committee  
c/o Washington Department of Ecology  
Spills Program  
Natural Resources Unit - GRP Corrections  
P.O. Box 47600  
Olympia, WA 98504-7600