WASHINGTON DESCHUTES
Geographic Response Plan
(WADE-GRP)
WASHINGTON DESCHUTES

Geographic Response Plan

(WADE-GRP)

JUNE 2017
### Required Notifications for Oil Spills & Hazardous Substance Releases

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<td>Federal Notification - National Response Center</td>
<td>(800) 424-8802*</td>
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<tr>
<td>State Notification - Washington Emergency Management Division</td>
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### Other Contact Numbers

#### U.S. Coast Guard

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<tr>
<th>Sector Puget Sound</th>
<th>(206) 217-6200</th>
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<td>- Emergency / Watchstander</td>
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<td>- Command Center</td>
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<td>- Incident Management</td>
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<td>13th Coast Guard District</td>
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<td>National Strike Force</td>
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<td>- Pacific Strike Team</td>
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#### U.S. Environmental Protection Agency

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<td>- RCRA / CERCLA Hotline</td>
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#### National Oceanic Atmospheric Administration

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#### Response Contractors (OSRO & PRC)

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<td>(206) 623-0621*</td>
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<td>NRC Environmental Services</td>
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#### Washington State

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<th>(360) 586-3065</th>
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<td>Dept of Ecology</td>
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<td>- Headquarters (Lacey)</td>
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<td>- Oil Spill Team</td>
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<td>Dept of Health</td>
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<td>Dept of Natural Resources</td>
<td>(360) 902-1064</td>
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<td>- After normal business hours</td>
<td>(360) 556-3921</td>
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<tr>
<td>Dept of Transportation</td>
<td>(360) 705-7000</td>
</tr>
<tr>
<td>State Parks &amp; Recreation Commission</td>
<td>(360) 902-8544*</td>
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<tr>
<td>State Patrol - District 1</td>
<td>(253) 538-3240*</td>
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<td>State Patrol - District 5</td>
<td>(360) 449-7909*</td>
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<td>(360) 473-0172*</td>
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#### Tribal Contacts

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<th>Chehalis Confederated Tribes</th>
<th>(360) 273-5911</th>
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<td>- Public Safety</td>
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#### Industry Contacts

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<th>BNSF (Service Interruption Desk)</th>
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<td>(888) 271-8880*</td>
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<tr>
<td>Tacoma Rail</td>
<td>(253) 396-3161*</td>
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<td>Union Pacific Railroad</td>
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#### Local Government

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<th>Lewis County Sheriff</th>
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<td>Thurston County Sheriff</td>
<td>(360) 786-5500*</td>
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<tr>
<td>City of Olympia - Spill Response</td>
<td>(360) 753-8333*</td>
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<tr>
<td>City of Rainier</td>
<td>(360) 446-2265</td>
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<td>City of Tenino</td>
<td>(360) 264-2368</td>
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<tr>
<td>City of Tumwater</td>
<td>(360) 754-5855</td>
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* Contact Numbers staffed 24-hour/day
Before you print this document

Chapter 4 with appendices (pages 27–98) and Appendix 6A (page 112) of this document are provided in “landscape” page orientation; all other chapters and appendices are oriented in “portrait.” The appendices in Chapter 4 (pages 59–98) have been designed for duplex printing (front and back side of paper), “open to top” configuration.
Purpose and Use of this Plan

This Geographic Response Plan (GRP) constitutes the federal and state on-scene coordinators’ orders during the initial phase of an oil spill response in the planning area. It's meant to aid the response community during the initial phase of an oil spill, from the time a spill occurs until a Unified Command is established. The plan prioritizes tactical response strategies based on locations where spills might occur, and the proximity and relative priority of those locations to sensitive natural, cultural, and economic resources. By using this document it's hoped that immediate and proper action can be taken to reduce oil’s impact on sensitive resources.
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CHAPTER 1

Introduction

This plan focuses on sensitive resource protection after an oil spill occurs on or near the water. It serves as the federal and state on-scene-coordinators’ orders during the initial phase of an oil spill response in the planning area. It has been approved by Regional Response Team 10 and the Chairs and Co-Chairs of the Northwest Area Committee. Geographic Response Plans (GRPs) are living documents that can be revised at any time based on new information from comments and lessons learned from drills and spills. These changes are typically reflected as interim updates on the websites for each GRP until they are fully incorporated into the plan during a future update. We value your input and hope that you’ll let us know how the plan might be improved. Please submit comments online at http://www.rrt10nwac.com/Comment. Comments may also be emailed to GRPs@ecy.wa.gov or submitted by mail using the form and information provided in the appendix of this chapter.

The planning area for the Washington Deschutes River Geographic Response Plan (WADE-GRP) is approximately 312 square miles, and resides in Grays Harbor, Lewis, and Thurston Counties. Portions of WRIA 11 (Nisqually), WRIA 13 (Deschutes), WRIA 14 (Kennedy-Goldsborough), and WRIA 23 (Upper Chehalis) fall within this planning area. The Washington Deschutes GRP is bordered by the South Puget Sound GRP to the north, Nisqually River GRP to the northeast, and the Chehalis River GRP to the south and west.

Additional information about the planning area, including physical features, hydrology, climate and winds, tides and currents, and oil spill risks, can be found in Chapter 2 (Site Description). Information about potential response options in the planning area can be found in Chapter 3 (Response Options and Considerations). The bulk of this plan is contained in Chapter 4 (Response Strategies and Priorities). It provides information on tactical response strategies and the order they should be implemented, based on Potential Oil Spill Origin Points (POSOPs) and the proximity and relative priority of sensitive resources near those point locations. Area and sector maps and information on staging areas and boat launch locations are also provided in that chapter.

**Control and Containment of an Oil Spill are a Higher Priority than the Implementation of GRP Response Strategies**

If in the responder’s best judgment, control and containment at or near the source of a spill isn’t feasible, or if the source is controlled and contained but oil has spread out beyond initial containment, then the priorities laid out in Section 4.3 of this plan should take precedence until a Unified Command is formed. Oil spill response priorities, beyond those described in this plan, should rely on aerial observations and spill trajectory modeling. A booming strategy listed as a high priority in Section 4.3 would not necessarily be implemented if a spill trajectory did not warrant action in that area; however, the priority tables should be followed until oil spill trajectory information becomes available. During an incident, modifications to the deployment priorities
provided in Section 4.3 of this plan may be made if approved by the Incident Commander, Unified Command, or are identified as necessary by the Environmental Unit.

The downstream movement of oil and the time it takes to mobilize response resources to deploy GRP strategies must always be considered when setting strategy implementation priorities. The strategies discussed in this plan have been designed for use with oils that float on water and may not be suitable for other petroleum products or hazardous substances. For information about non-floating oil spill response, refer to the Non-Floating Oil Spill Response Tool in the Northwest Area Contingency Plan (NWACP), Section 9412. For hazardous substance spills, refer to the NWACP, Chapter 7000. For policy on gasoline and flammable liquid spills refer to the NWACP, Section 4622.

Information meant to support initial Environmental Unit functions can be found in Chapter 6 of this plan (Resources at Risk). Chapter 6 and its appendix provide information about the type and location of natural and economic resources in the area. Specific information about the location of cultural sites in the planning area was taken into consideration in the development of this plan but, because of the confidential nature of the material, details about cultural and historic sites aren’t included in this document.

1.1 GRP CHAPTERS AND APPENDICES

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1.2 GEOGRAPHIC RESPONSE PLAN DEVELOPMENT PROCESS

GRPs are part of the Northwest Area Contingency Plan, just developed and revised separately. The plans are prepared through the efforts of, and in cooperation with, Washington Department of Ecology, Oregon Department of Environmental Quality, Idaho Bureau of Homeland Security, U.S. Coast Guard, U.S. Environmental Protection Agency, as well as other state and federal agencies, tribes, local governments, natural resource trustees, response organizations, emergency responders, and communities. GRPs are developed through workshops, field work, and meetings. Participants identify resources that may be at risk of injury from spills and work to develop oil spill response or notification strategies to reduce the chance of injury to those resources.
After compiling information on sensitive resources in the area, site visits are conducted to gather data and determine if spill response strategies near those resources should be added, modified, or deleted. In this, the anticipated effectiveness of existing strategies are reviewed, modifications made as determined necessary, potentially unsafe or ineffective strategies removed, and new strategies added to the plan. Unfortunately, the dynamics of marine and inland water environments, and the present limitations of response technology, make the development of strategies for all sensitive resource locations impracticable. A draft plan is produced after site visits are completed, and made available for public review and comment before a final version of the GRP is produced and published. A responsiveness summary is also published that addresses public comments received during the GRP update and development process.

1.3 STANDARDIZED RESPONSE LANGUAGE

In order to avoid confusion in response terminology, this plan uses standard National Interagency Incident Management System, Incident Command System (NIIMS ICS) terminology.

1.4 TERMINOLOGY AND DEFINITIONS

The glossary provided in Section 1910 of the NWACP and other sections of the area plan with glossaries independent of Section 1910 should be used when seeking the meaning of terms used in this plan.
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APPENDIX 1A

Comments, Corrections, or Suggestions

Geographic Response Plans (GRPs) are living documents that can be revised at any time based on new information from comments and lessons learned from drills and spills. These changes are typically reflected as interim updates on the websites for each GRP until they are fully incorporated into the plan during a future update.

We value your input and hope that you'll submit comments on how this plan might be improved. If you have any questions or comments, suggestions for improvement, or find errors in this document please submit comments online at http://www.rrt10nwac.com/Comment, email them to us at GRPs@ecy.wa.gov, or forward them via U.S. Mail to the following agencies:

United States Environmental Protection Agency
Region 10
Office of Environmental Cleanup
1200 Sixth Avenue
Room ECL-116
Seattle, WA 98101

Washington State Department of Ecology
Spill Prevention, Preparedness, and Response (GRPs)
P.O. Box 47600
Olympia, WA 98504-7600

The form on the following page of this attachment can be used to submit comments by mail. Contact information is requested so that we can give you a call if more information or comment clarification is needed.

Please use the GRP Field Report Form for providing information on GRP strategy field visits or the testing of response strategies. The form is available online at http://www.ecy.wa.gov/programs/spills/preparedness/GRP/Form-GRPFieldReport.pdf. Additional information on Geographic Response Plans is available at http://www.rrt10nwac.com/GRP.
GRP Comment Form

Today’s Date: ____________________________

Your Name: ______________________________

Title: _________________________________

Company/Agency: _______________________

Address: ________________________________

City: ________________________________

State/Province: ___________________________ Zip: ________________________________

Email: ________________________________ Ph: ________________________________

GRP Page Number: ______________________ Section or Paragraph: ________________

Comment(s): ____________________________

__________________________________________________________________________

Mail Completed Form to:

US Environmental Protection Agency
Region 10
Office of Environmental Cleanup
1200 Sixth Avenue Room ECL-116
Seattle, WA 98101

Washington State Department of Ecology
Spills Program (GRPs)
P.O. Box 47600
Olympia, WA 98504-7600
CHAPTER 2

Site Description

2.1 CHAPTER INTRODUCTION

This chapter provides a description of the physical features, hydrology, climate, and winds in the Washington Deschutes River GRP planning area, and an oil spill risk assessment in Section 2.6. The WADE-GRP planning area covers approximately 312 square miles to the south of Puget Sound. The planning area resides primarily in Thurston, with small portions located in Greys Harbor and Lewis Counties. It fully or partially includes the communities of Lacey, Littleロック, Olympia, Rainier, Tenino, and Tumwater. The northern border of the planning area stops at Capitol Lake, adjacent to the most southerly portion of Puget Sound, which is covered by the South Puget Sound GRP; the WADE planning area does not contain any land adjacent to marine waters. The WADE GRP borders the Chehalis River GRP planning area to the west and southwest. The eastern boundary of the planning area is well within the lowlands, with the base of Mount Rainier more than 30 miles to the east. Joint Base Lewis-McChord and the Nisqually Indian Community border the WADE GRP to the northeast and fall within the Nisqually GRP planning area. No tribal reservations are located here, but along with the Nisqually, the Chehalis, Muckleshoot, Puyallup, Squaxin, and Yakama Tribes all have potential interests in the planning area.

2.2 PHYSICAL FEATURES

The main physical feature of this planning area is the Deschutes River and its many (at least a dozen) tributaries. The headwaters of the Deschutes River are located to the southeast of Olympia, in the mountainous and heavily forested areas of the Gifford Pinchot National Forest. From there the river travels 57 miles in a northwesterly direction until it empties into Capital Lake and Budd Inlet. Approximately 25 miles of the Deschutes River fall within this planning area. A second river, the Skookumchuck River, flows approximately 12 miles in an east to west direction through the southern part of the planning area. This river, along with its numerous tributaries, such as Hanaford Creek, flows into the Chehalis River. Small farms, suburban development, and the urban area around Olympia characterize Land use surrounding the middle and lower Deschutes River.1 Olympia is at the northern boundary of the plan. The northwestern side consists of the Capital State Military Forest surrounding Capital Peak, while the eastern side includes portions of the Fort Lewis Military Reservation. Although both of these areas are heavily forested, only a small portion in the southeast corner of the planning area, characterized by heavily forested timberland, is used for logging.

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The name “Deschutes” comes from the French for “of the falls.” A series of falls are present along the river including one in the upper Deschutes at Deschutes Falls Park and one at the present town of Tumwater. Tumwater Falls has been an active area for development from the time the first American/European settlers arrived in Washington, in 1845, to present times. Initially the power of the falls was used to mill lumber, then in 1890 a hydroelectric plant was constructed at the dam to create electricity, which led the Capital Brewing Company to build a brewery beside the falls in 1896 and the power of the falls was used to brew beer until the facility closed in 2003.²

Three features within this GRP planning area have seen significant alterations by man. The Deschutes River used to flow directly into Budd Inlet at the bottom of Tumwater Falls. In 1951 a dam was built, at what is now 5th Avenue in Olympia, in order to create Capital Lake. This freshwater lake resulted in a reflecting pool for the Capital building. A second significant alteration in the area was the development of the Black Lake Ditch. This ditch was built in the 1920’s to drain wetlands for agricultural and industrial use. Now Black Lake, located just west of Tumwater, drains to both the north and south. Black Lake Ditch, which flows north for more than 12 miles, connects Black Lake to Percival Creek, Budd Inlet, and Puget Sound. The south outlet connects the lake to the Black River, Chehalis River, and eventually Grays Harbor.³ The third major alteration was the building of the Skookumchuck Dam and Reservoir. This four-mile long reservoir, most of which is outside the planning area, was built in 1970 to provide water to the Centralia Coal Plant. In 1990, a small powerhouse was built to produce hydropower from the site.

2.3 HYDROLOGY

The Washington Deschutes River (25.1 Miles) is the major surface water source in the watershed. The WADE-GRP planning area also includes: Black Lake Ditch (12.1 Miles), Blooms Ditch (8.5 Miles), Hanaford Creek (8.7 Miles), Salmon Creek (7.5 Miles), Skookumchuck River (11.8 Miles), and Waddell Creek (10.9 Miles), as well as smaller sections of numerous other creeks, ditches, and wetlands.

Annual flow in the Deschutes River averages 393 cfs at Tumwater, while flow at the mouth of the river is somewhat higher. Flow in the watershed’s rivers and streams comes from two sources, overland runoff during wetter periods, and ground water discharge. Ground water sustains streamflow in this area and are usually stable during the dry summer months.⁴ Of the water allocated in the Deschutes watershed, 87% is from ground water, with the surface water allocation (~13%) primarily used for irrigation.⁵

Average annual precipitation in the watershed is 51 inches per year, with approximately 40 to 60 inches per year falling in the lower elevations, and 60 to 90 inches in the higher elevations that

commonly see winter snowfall. The majority of the precipitation (80%) falls between October and March, while less than seven percent falls between June and August.\(^6\)

The Deschutes River is quickly modified by local rainfall and runoff, rising and falling faster than any other river in Thurston County, and causing minor flooding (low-lying roads and pasturelands) when the river level reaches a gage height of about 9.5 feet. Many residences in the area are at risk of flooding. The Deschutes River is determined to have reached flood stage when water levels reach 11 feet; when the water reaches 13.5 feet, there is widespread risk of flooding for roadways and communities.\(^7\)

Portions of WRIA 11 (Nisqually), WRIA 13 (Deschutes), WRIA 14 (Kennedy-Goldsborough), and WRIA 23 (Upper Chehalis) fall within the geographic boundaries of this plan. Most of the precipitation arrives during the winter months when water demands are the lowest. During the summer, the snowpack is gone, there is little rain, and naturally low stream flows are dependent on groundwater inflow. At the same time the demand for water for human uses, including irrigation, are at the yearly maximum. This means that groundwater and surface water are least available when water demands are the highest.

**WRIA 11** (Nisqually): This watershed consists of the Nisqually River and numerous tributary creeks and streams. The lower Nisqually Watershed is one of the most intensely farmed basins in western Washington. The annual precipitation in the Nisqually Watershed ranges from 40 inches in the lower Nisqually Watershed to over 120 inches per year in the Cascade Mountains.

**WRIA 13** (Deschutes): The Deschutes Watershed consists of the Deschutes River and numerous tributary creeks and streams. This watershed is one of the most intensely farmed basins in western Washington, and the annual precipitation ranges from 40 inches to over 80 inches per year.

**WRIA 14** (Kennedy-Goldsborough): The Kennedy-Goldsborough Watershed consists of the Kennedy, Skookum, Mill/Gosnell, Goldsborough, Johns creeks and other creeks and streams. Annual precipitation in the Kennedy-Goldsborough Watershed ranges from 40 to 80 inches per year.

**WRIA 23** (Upper Chehalis): Annual precipitation in the Lower and Upper Chehalis Watersheds ranges from 40 inches in the lowland valleys to over 100 inches in the Cascade and Willapa foothills. Most of the precipitation arrives during the winter months when water demands are the lowest. Only a fraction becomes available for human and economic uses.

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2.4 CLIMATE AND WINDS

The climate in the Washington Deschutes planning area, within Thurston and Lewis Counties, is mild. The area gets between 49 and 75 inches of rain per year, above the US average of 39 inches; however, the snowfall ranges between 9 and 16 inches, lower than the average US city, which gets 26 inches of snow per year. Although raining a great deal of the year, the perceived humidity comfort levels do not vary but remain close to zero throughout the year. The number of days with any measurable precipitation averages between 100 and 105, and there are usually between 136-138 sunny days per year. The average percentage of the sky covered by clouds experiences extreme seasonal variation over the course of the year, with the cloudier part of the year beginning in October and lasting over 8 months. Temperatures typically vary between 34 and 81 degrees. The July high is 76-77 degrees, while the January low is 32-35 degrees. The average hourly wind speed in the WADE-GRP planning area does not vary significantly over the course of the year, remaining within 0.4 miles per hour of 2.1 miles per hour throughout, although wind direction does change, with winds coming predominantly from the west from April to October and from the south the remainder of the year.

2.5 TIDES AND CURRENTS

There are no tidally influenced areas within the planning area. The flow speed on the main fork of the Deschutes River at the E Street Bridge gage (river mile 0.7) has an annual mean velocity of 444 cfs, while at the gage near Rainier (river mile 22.75) the river flow speed has an annual mean velocity of 256 cfs. Each portion of the river will have faster or slower speeds based on a variety of factors, including channel width, channel depth, debris blockages, and elevation change, among others. Sloughs and side channels will have significantly lower flow speeds commensurate with their channel width, depth, and vegetation.

2.6 RISK ASSESSMENT

The Washington Deschutes River is plentiful in natural, cultural, and economic resources, all at risk of injury from oil spills. Potential oil spill risks include, but aren't limited to, road transportation, rail transportation, oil pipelines, aircraft, and recreational boating. This section briefly discusses these risks and how they could impact the WADE-GRP planning area.

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**Oil Types:** Both refined petroleum products and crude oil are transported in bulk within this planning area.

Crude oil and refined products contain a mix of hydrocarbons with varying properties; different types of crude oil and refined products will behave differently when spilled. Recent changes in oil production have led to an increase in the movement of Bakken light crude and diluted bitumen from Canada transported through the planning area via rail.

Crude oil from the Bakken fields in North Dakota has properties similar to gasoline or diesel, and poses a higher risk of fire because much of it will evaporate quickly into flammable vapors. Unlike gasoline, the heavier hydrocarbons in the crude will persist in the environment after the light ends evaporate or burn. Bitumen from the oil sands in Alberta, Canada, is heavy, almost asphalt-like, until it is mixed with lighter oil products known as diluents to create diluted bitumen. Once mixed, the diluted bitumen will initially float on water after being spilled. Environmental conditions, such as the density of the receiving waters and sediment load of the receiving waters, will affect how long diluted bitumen floats. As the light diluents evaporate, the remaining heavy constituents may sink into the water column. There are specific response actions recommended for non-floating oils, detailed in the Non-Floating Oil Spill Response Tool in the Northwest Area Contingency Plan (NWACP), Section 9412.

**Road Systems:** Vehicle traffic on roadways pose an oil spill risk in areas where they run adjacent to the shorelines, or cross over lakes, rivers, creeks, and ditches, that drain into the Washington Deschutes River. Major roadways include: Interstate 5 (14.4 Miles), Hwy 101 (2.6 Miles), Hwy 121 (9.1 Miles), Hwy 507 (21.4 Miles), and Hwy 510 (5.0 Miles). Interstate 5 carries West Coast traffic between Canada and Mexico and poses the most significant risk of highway spills, due to the frequency of large tank trucks carrying a number of fuel types. I-5 crosses the Washington Deschutes River in the planning area, and there are several smaller highways with bridges or causeways where vehicles cross the Deschutes, the Skookumchuck, and/or their tributaries.

A vehicle spill onto one of these bridges or roadways can cause fuel or oil to flow from hardened surfaces into a river or its tributaries. Commercial trucks can contain hundreds to thousands of gallons of fuel and oil, especially fully loaded tank trucks, and may carry almost any kind of cargo, including hazardous waste or other materials that might injure sensitive resources if spilled. Smaller vehicle accidents pose a risk as well, a risk commensurate to the volume of fuel and oil they carry.

**Rail Transportation and Facilities:** Rail companies transport oil via both unit trains and manifest trains in this area. Unit trains include: up to four locomotives, buffer cars, and 118 loaded tank cars transporting oil in 714-barrel (29,998 gallon) capacity USDOT-approved tank cars. Manifest trains include: up to four locomotives, a mix of non-oil merchandise cars, and one or more 714-barrel (29,998 gallon) capacity USDOT-approved tank cars carrying refined oil products, such as diesel, lubrication oil, or...
gasoline. These trains may include emptied tank cars, each with residual quantities of up to 1,800 gallons of crude oil or petroleum products. Every train locomotive typically holds a few hundred gallons of engine lubrication oil, plus saddle tanks that each have an approximate capacity of 5,000 gallons of diesel fuel. Manifest trains may also transport biological oils and non-petroleum chemicals.

Unit trains carrying crude currently operate on specific routes. Unit trains carrying crude from the Bakken Formation in North Dakota enter Washington State near Spokane, continue along the Columbia River to Vancouver, and then head north along I-5. This main rail line, used by both BNSF and Union Pacific, enters the planning area from the south at the town of Bucoda and exits to the NE near the town of Nisqually, crossing both the Skookumchuck and Washington Deschutes Rivers, as well as numerous tributaries.

More than 44 miles of BNSF rail track, 38 miles of Union Pacific (UP) track, and 22.5 miles of Tacoma Eastern Railroad’s Mountain Division track are present in this planning area. Trains from both of the major carriers, BNSF and UP, generally contain mixed cargo loads, and may include the transport of hazardous materials, including dilbit and Bakken crude oil. Tacoma Mountain Railway (a division of Tacoma Eastern Railroad) operates a line between Chehalis and Tacoma that enters the planning area east of Rainier and continues west to Maytown where it leaves the planning area before travelling south, parallel to I-5, toward Chehalis. In April of 2017, Tacoma Rail reported that it did not move unit trains of crude within the planning area. While the main spill risk in the planning area is from the movement of refined petroleum products (i.e. gasoline, diesel fuel) and other chemicals, the main spill risk from trains on the Tacoma Mountain line are from locomotive saddle tanks.

**Oil Pipelines:** One petroleum pipeline, the BP Olympic Pipe Line, passes through this area with more than 17 miles of pipeline carrying refined products to southern Washington and Oregon. The BP Olympic Pipeline travels 400 miles from the Cherry Point refinery to Portland, Oregon, with additional input lines from the refineries at Phillips 66 Ferndale, Tesoro Anacortes, and Shell Anacortes. It delivers to the terminals at Harbor Island in Seattle, jet fuel to SeaTac airport, and facilities in Tacoma before exporting 1.3 billion gallons per year across the Columbia River to Oregon.

**Aircraft:** The Olympia Regional Airport is the main airport within the planning area. Owned and managed by the Port of Olympia, it is a public use, general aviation airport located four miles south of Olympia and is primarily used for recreational and transit purposes. There are currently no airlines providing scheduled passenger service to this airport. Several other small private landing fields are also in the planning area. The potential exists for aircraft failures during inbound or outbound flights that result in a spill by releasing aviation fuel to either the Washington Deschutes River, the Skookumchuck River, or one of their tributaries.

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purposes. There are currently no airlines providing scheduled passenger service to this airport. Several other small private landing fields are also in the planning area. The potential exists for aircraft failures during inbound or outbound flights that result in a spill by releasing aviation fuel to either the Washington Deschutes River, the Skookumchuck River, or one of their tributaries.

**Recreational Boating:** Accidents involving recreational watercraft on the Washington Deschutes and Skookumchuck Rivers have the potential to result in spills of a few gallons of gasoline up to hundreds of gallons of diesel fuel. Examples of such accidents might include vessel collisions, allisions, groundings, fires, sinking, or explosions.

**Other Spill Risks:** Other potential oil spill risks in the area include road run-off during rain events, fuel storage areas (including waste oil storage), on-shore or near shore construction activities where heavy equipment is being operated, and the migration of spilled oil through soil on lands adjacent to the river or along creek/stream banks.

### 2.7 REFERENCES


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CHAPTER 3
Response Options and Considerations
(Reserved)
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WASHINGTON DESCHUTES RIVER

Geographic Response Plan

(WADE-GRP)

CHAPTER 4
Response Strategies and Priorities

JUNE 2017
Before you print this document

This chapter and its appendices, as well as the appendix at the end of Chapter 6, are provided in “landscape” page orientation. The detailed 2-page information sheets for response strategies, notification strategies, staging areas, and boat launch locations in appendices 4A through 4D (pages 59–98) have been designed for duplex printing (front and back side of paper), "open to top" configuration.
4.1 CHAPTER INTRODUCTION

This chapter provides information on GRP response strategies and the order they should be implemented, based on Potential Oil Spill Origin Points (POSOPs) and the proximity and relative priority of sensitive resources near those point locations. Area maps, sector maps, and information on staging areas and boat launch locations are also provided in this chapter. During a spill incident, GRP response strategies should be implemented as soon as possible. Unless circumstances unique to a particular spill situation dictate otherwise, the priority tables in Section 4.3 should be used to decide the order that GRP strategies are deployed. The downstream movement of oil and the time it takes to mobilize response resources to deploy GRP strategies must always be considered when setting implementation priorities. Information on resources at risk, sensitive areas, and flight restrictions can be found in Chapter 6 of this plan. Information on shoreline countermeasures can be found in the Northwest Area Shoreline Countermeasures Manual (NWACP Section 9420). The Northwest Area Contingency Plan (NWACP) is available online at http://www.rrt10nwac.com/NWACP/Default.aspx.

The GRP strategies provided in this chapter have been created to reduce spilled oil's impact on sensitive resources. They are not everything that should or could be done during a response to lessen the chance of injury to natural, cultural, and economic resources at risk from oil spills. Control and containment of an oil spill is always a higher priority than the implementation of GRP response strategies. Although designed to be implemented during the initial phase of an oil spill, GRP strategies may continue to be used throughout a response at the discretion of the Incident Commander, Unified Command, or the Environmental Unit.

4.1.1 On-site Considerations

**Before Deploying a GRP Strategy (Questions to Ask)**

- Are conditions safe? Response managers and responders must first determine if efforts to implement a response strategy would pose an undue risk to worker safety or the public, based on conditions present during the time of the emergency. No strategy should be implemented if doing so would threaten public safety or present an unreasonable risk to the safety of responders.

- Has initial control and containment been sufficiently achieved? Control and containment of the spill at or near the source are always higher priorities than the deployment of GRP response strategies, especially when concurrent response activities are not possible.

- How far downstream or out into the river, lake, or marine environment is the spilled oil likely to travel before response personnel will be ready and able to deploy GRP response strategies?
• Are permits required? Consult the Northwest Area Contingency Plan Permit Summary Table (NWACP Section 9401) for information specific to your location and circumstance.

• Will equipment or vehicles need to be staged on or near a roadway? If so, traffic control may be required. Contact the Washington State Patrol, or local, county, municipality, or tribal police for assistance. At minimum, Washington Department of Transportation (WSDOT) guidelines for work zone traffic control should be followed when working on or near a roadway.

  o Lewis County Sherriff (360) 748-9286
  o Thurston County Sherriff (360) 786-5500
  o Washington State Patrol District #1 (360) 586-4443

**During Strategy Implementation (Things to Remember)**

• On-scene conditions (weather, currents, tides, waves, river speed, and debris) may require that strategies be modified in order to be effective. There is a significant chance that weather and conditions experienced at a particular strategy location during an actual spill event will be different from when data was gathered during field visits. Response managers and responders may modify the strategies provided in this chapter as needed to meet the challenges experienced during an actual response.

• 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.

• The GRP response strategies provided in this chapter were designed for use with persistent heavy oils that float on water and may not be suitable for other petroleum products or hazardous substances.

**After Strategy Implementation (Things to Understand)**

• Oil containment boom should be maintained and periodically monitored to ensure its effectiveness. Changes in river or current speed will likely require modifications to boom deflection angles (see Table 4.1). Depending on conditions, some booming strategies may require around-the-clock tending.
**Water Speed and Boom Deflection Angle**

Measure the speed that water is moving by anchoring a line with two floating markers/buoys attached that are spaced 100 feet apart. Time the movement of floating debris between the two buoys, and then use Table 4.1 to estimate the water speed based on the travel time of the debris between the two buoys. You can also measure 100 feet along a straight portion of river bank or shoreline, and time the movement of debris between those points, but this method is generally less accurate than using the buoys. The maximum boom deflection angle is also provided in the table, based on the water speed measurements.

**Table 4.1: Water Speed Drift Measurement Table**

<table>
<thead>
<tr>
<th>Time to Drift 100 Feet (seconds)</th>
<th>Velocity (ft/sec)</th>
<th>Velocity (m/sec)</th>
<th>Velocity (knots)</th>
<th>Max Boom Deflection Angle (degrees)</th>
<th>Boom required for 100-foot Profile to Current (feet)</th>
<th>Anchors needed if Placed Every 50 feet (number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>16.7</td>
<td>5.1</td>
<td>10.00</td>
<td>4.0</td>
<td>1,429</td>
<td>30</td>
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<tr>
<td>8</td>
<td>12.5</td>
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<td>5.4</td>
<td>1,071</td>
<td>22</td>
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<td>12</td>
<td>10.0</td>
<td>3.1</td>
<td>6.00</td>
<td>6.7</td>
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<td>18</td>
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<tr>
<td>14</td>
<td>8.3</td>
<td>2.5</td>
<td>5.00</td>
<td>8.0</td>
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<td>15</td>
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<td>17</td>
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<td>2.2</td>
<td>4.29</td>
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<td>1.8</td>
<td>3.53</td>
<td>11.4</td>
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</tr>
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<td>3.00</td>
<td>13.5</td>
<td>429</td>
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<td>1.3</td>
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<td>16.3</td>
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<td>20.5</td>
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<td>7</td>
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<td>27.8</td>
<td>214</td>
<td>5</td>
</tr>
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<td>&gt;86</td>
<td>1.7</td>
<td>0.5</td>
<td>1.00</td>
<td>44.4</td>
<td>143</td>
<td>4</td>
</tr>
</tbody>
</table>
4.1.2 Historical River Flow Ranges

Streamflow data from U.S. Geological Survey (USGS) was used to determine the mean monthly discharge for rivers and streams in the planning area. Stream discharge is recorded in cubic feet per second (cfs); velocities in miles per hour (mph) or nautical miles per hour (knots) are not available. Table 4.1 provides information that can be used to calculate local river velocities on-site, based on the time it takes a floating object to drift 100 feet downstream from any given point in a river or creek. Additional information for USGS gage stations in the planning area are provided below (hyperlinked column headers), and may include real-time or near real-time streamflow data. The USGS National Water System Mapper is useful for locating gage stations of interest, and is available online at https://maps.waterdata.usgs.gov/mapper/index.html

Table 4.2: Historical River Streamflow Ranges

| Month | Deschutes at E St Bridge  
USGS 12080010 (data from 1990 to 2017) | Deschutes near Rainer  
USGS 12079000 (data from 1987 to 2017) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>873</td>
<td>547</td>
</tr>
<tr>
<td>Feb</td>
<td>626</td>
<td>354</td>
</tr>
<tr>
<td>Mar</td>
<td>771</td>
<td>456</td>
</tr>
<tr>
<td>Apr</td>
<td>539</td>
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<td>May</td>
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<td>184</td>
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<td>Jun</td>
<td>233</td>
<td>113</td>
</tr>
<tr>
<td>Jul</td>
<td>143</td>
<td>52</td>
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<tr>
<td>Aug</td>
<td>111</td>
<td>35</td>
</tr>
<tr>
<td>Sep</td>
<td>121</td>
<td>49</td>
</tr>
<tr>
<td>Oct</td>
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<td>110</td>
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<td>Nov</td>
<td>632</td>
<td>414</td>
</tr>
<tr>
<td>Dec</td>
<td>777</td>
<td>506</td>
</tr>
</tbody>
</table>
Figure 4-1: Mean Monthly Outflow for the Deschutes River
4.2 AREA OVERVIEW MAPS

The following maps provide a geographic overview of the WADE-GRP planning area. Sector maps in Section 4.4 of this chapter provide more detail on the location of response strategies, notification strategies, staging areas, boat launch locations, and Potential Oil Spill Origin Points (POSOPs). Detailed information for each location can be found in the matrices of Section 4.5 or in the chapter appendices. Priority tables for potential oil spill origin points can be found in Section 4.3.2.

The following area maps are provided for reference:

- Response Strategy Locations
- Notification Strategy Locations
- Staging Areas
- Boat Launch Locations
- Potential Oil Spill Origin Points
Figure 4-2: Response Strategy Locations
Figure 4-3: Notification Strategy Locations
Figure 4-4: Staging Area Locations
Figure 4-5: Boat Launch Locations
Figure 4-6: Potential Oil Spill Origin Points in Area
4.3 STRATEGY AND RESPONSE PRIORITIES

4.3.1 General Response Priorities

The following list provides the order of response priorities after an oil spill in the planning area occurs.

- **Safety is always the number one priority.** Do not implement GRP strategies or take actions that will unduly jeopardize public, worker, or personal safety.

- Notify local public health and safety personnel.

- Control and contain the source of the spill; mobilize resources to the spill location. Source control and containment are always a higher priority than the implementation of GRP strategies.

- Determine the priority or order GRP strategies should be implemented based on the location of the spill or affected area. Priorities based on POSOPs are included in this chapter and should be used unless the situation or circumstances dictate otherwise (see Section 4.3.2).

- As response resources become available, implement the GRP Strategies in order of priority or as necessary based on the scenario, trajectory, or conditions of the day.

- Permits may be required, Consult the Northwest Area Contingency Plan Permit Summary Table (NWACP Section 9401) for information.

4.3.2 Strategy Priorities based on Potential Oil Spill Origin Points

Potential Oil Spill Origin Points (POSOPs) are geographic locations that have a defined list of response strategy implementation priorities provided in a table within Section 4.3. The placement of each POSOP is often based on spill risks in the area. Occasionally POSOPs are generalized to ensure implementation priorities are developed throughout an entire planning area.

These points are displayed on area overview and sector maps as red boxes. In establishing priorities during a response, or selecting an appropriate POSOP, the downstream and/or tidal movement of spilled oil and the time it takes to mobilize and deploy response resources must be considered. Generally, on streams, creeks, and rivers, GRP strategies should first be implemented downstream, well beyond the furthest extent of the spill, with deployments continuing upstream towards the spill source and in some cases slightly beyond. POSOPs are alphabetically designated.
The following tables provide the strategy implementation order for Potential Oil Spill Origin Points in the WADE-GRP; points WADE-A through WADE-D. The priority tables provided in this section were developed using a combination of variables, including: notification time, travel time for responders and equipment, average and seasonal flow rates, average winds, deployment time, proximity to the spill source, trustee input, the relative priority of the resources at risk, and other considerations.

Source control and containment are a higher priority than GRP strategy implementation
Table 4.3: WADE-A

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<th>Implementation Priority</th>
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<th>Strategy Matrix</th>
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<td>47</td>
<td>53</td>
<td>73</td>
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<td>SK00-19.3</td>
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<td>54</td>
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### Table 4.4: WADE-B

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### Table 4.5: WADE-C

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<td>WADE-11.0</td>
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<td>55</td>
<td>83</td>
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4.4 SECTOR MAPS (STRATEGY LOCATIONS)

Figure 4-7: Sector Map WADE-1
Figure 4-8: Sector Map WADE-2
Figure 4-9: Sector Map WADE-3
Figure 4-10: Sector Map WADE-4
Figure 4.10: Sector Map WADE-5
4.5 MATRICES

4.5.1 Naming Conventions (Short Names)

Each strategy, staging area, and boat launch location in this document has been given a unique “Short Name” which includes one to six letters denoting the associated waterbody. Following the letters are numbers that specify the location. On rivers or other linear waterbodies, the location is named by river mile: the distance from the mouth of the river or creek upstream to the site location. Some short names indicate whether the site is located on river right, river left, or mid-river by an “R”, “L” or “M” after the river mile. On lakes, the numbers indicate the location by shoreline mile, typically starting at the northernmost point and increasing clockwise around the lake. In marine areas, the numbers do not have a geographic meaning. Notification strategies are indicated by an “-N” at the end of the name. Staging Areas and Boat Launches are indicated by the prefix “SA” or “BL”.

“WADE” for the Washington Deschutes River Area is the only short name waterbody designation associated with this plan (WADE-GRP).
### 4.5.2 Response Strategy Matrices

<table>
<thead>
<tr>
<th>Strategy Name</th>
<th>Location</th>
<th>Strategy Type</th>
<th>Boom Length</th>
<th>Boat Req?</th>
<th>Staging Area</th>
<th>Resources At Risk</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLOOM-1.1</td>
<td>Blooms Ditch at Littlerock Road -122.99241</td>
<td>Collection</td>
<td>Boom 100ft, Sorbent 100ft</td>
<td>No</td>
<td>Onsite Stage onsite along the road on the SE side of the ditch about 150 yards away</td>
<td>Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat, Wetland Habitat</td>
<td>Busy road, may need to close one lane. Ditch drains into the Black River</td>
</tr>
<tr>
<td>CAPLK-1.5</td>
<td>Simmons Lane SW at 1-5 Overpass (Hand Launch) -122.90267</td>
<td>Collection</td>
<td>Boom 400ft</td>
<td>Yes</td>
<td>Onsite Stage onsite at the Tumwater Historical Park, bathrooms, trash pick up, with lots of parking, room for decon area.</td>
<td>Herons, Raptors, Recreational Use Area, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat, Wetland Habitat</td>
<td>Launch onsite at the Tumwater Historical Park, there is a gravel boat ramp. Coordinate with the City of Tumwater for access after dusk. All gear, boats, boots etc. must be decontaminated after contact with the river/lake to prevent the spread of New Zealand Mudsnails.</td>
</tr>
<tr>
<td>HANA-3.9</td>
<td>Hanaford Valley Road Crossing Hanaford Creek (BP 1 -122.81871)</td>
<td>Collection</td>
<td>Boom 100ft, Sorbent 100ft</td>
<td>No</td>
<td>Onsite Stage onsite, pull off road on either end of the bridge</td>
<td>Freshwater Wetlands, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat</td>
<td>Narrow road, may need to block off one lane.</td>
</tr>
<tr>
<td>Strategy Name</td>
<td>Location</td>
<td>Strategy Type</td>
<td>Boom Length</td>
<td>Boat Req?</td>
<td>Staging Area</td>
<td>Resources At Risk</td>
<td>Comments</td>
</tr>
<tr>
<td>---------------</td>
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</tr>
<tr>
<td>JOHNC-0.9</td>
<td>19550 Johnson Creek Road SE (BP 166-2) 46.79956 -122.75014</td>
<td>Collection</td>
<td>Boom 100ft, Sorbent 100ft</td>
<td>No</td>
<td>Onsite Stage onsite using roadside parking</td>
<td>Freshwater Wetlands, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat</td>
<td>Narrow road, may need to block off a lane.</td>
</tr>
<tr>
<td>JOHNC-2.6</td>
<td>18950 Johnson Creek Road SE (BP 166-1) 46.81488 -122.73254</td>
<td>Collection</td>
<td>Boom 100ft, Sorbent 100ft</td>
<td>No</td>
<td>Onsite Stage onsite along the road, sharp curves nearby so have adequate safety protocols in place.</td>
<td>Freshwater Wetlands, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat</td>
<td>Narrow road, close one lane if needed</td>
</tr>
<tr>
<td>SAMNC-1.2</td>
<td>Salmon Creek at Littlerock Road 46.94026 -122.98764</td>
<td>Collection</td>
<td>Boom 100ft, Sorbent 100ft</td>
<td>No</td>
<td>Onsite Stage onsite at edge of gravel company drive to the NW</td>
<td>Freshwater Wetlands, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat</td>
<td>Entrance to gravel company to the NW has room for parking. Salmon Creek drains into the Black River.</td>
</tr>
<tr>
<td>SKOO-15.2</td>
<td>4415 Skookumchuck Road SE (BP 171-2) 46.80754 -122.82399</td>
<td>Collection</td>
<td>Boom 200ft, Sorbent 200ft</td>
<td>Yes</td>
<td>Onsite Stage onsite, parking on shoulder away from the bridge</td>
<td>Freshwater Wetlands, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat</td>
<td>Can hand launch on left bank upstream of bridge. May need to close down one lane of traffic.</td>
</tr>
<tr>
<td>Strategy Name</td>
<td>Location</td>
<td>Strategy Type</td>
<td>Boom Length</td>
<td>Boat Req?</td>
<td>Staging Area</td>
<td>Resources At Risk</td>
<td>Comments</td>
</tr>
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</tr>
<tr>
<td>SKOO-19.3</td>
<td>8441 Skookumchuck Road SE (BP-171-1) 46.79610 -122.76080</td>
<td>Collection</td>
<td>Boom 200ft</td>
<td>Yes</td>
<td>Onsite Stage onsite, there is a pull of on the SE side of the bridge near anchor point B</td>
<td>Freshwater Wetlands, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat</td>
<td>Hand launch may be easiest on river right just upstream of the bridge. May have to close one lane of traffic on bridge for vac truck use.</td>
</tr>
<tr>
<td>SOHAC-4.2</td>
<td>Little Hanaford Road Crossing South Hanaford Creek 46.70609 -122.86270</td>
<td>Collection</td>
<td>Boom 100ft, Sorbent 100ft</td>
<td>No</td>
<td>Onsite Stage onsite, pull off beside the road on the NW side near anchor point B</td>
<td>Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat</td>
<td>Park on shoulder unless farmer gives permission to use his field.</td>
</tr>
<tr>
<td>WADE-0.7</td>
<td>E Street Bridge Crossing Deschutes R (BP 165-3) 47.01154 -122.90344</td>
<td>Collection</td>
<td>Boom 100ft</td>
<td>Yes</td>
<td>Onsite Stage onsite in the parking lot on river right on the downstream side of the bridge</td>
<td>Freshwater Wetlands, Herons, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat</td>
<td>Hand launch onsite from the old Olympia Brewing Co parking area. Call Dana Commercial Real Estate to coordinate access 360-402-5500</td>
</tr>
<tr>
<td>WADE-1.0</td>
<td>Tumwater Valley Golf Club 47.00721 -122.90385</td>
<td>Collection</td>
<td>Boom 200ft</td>
<td>Yes</td>
<td>Onsite Stage in the Tumwater Valley Golf Club parking lot, vac truck can access river just before parking lot turn off</td>
<td>Freshwater Wetlands, Herons, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat</td>
<td>Hand launch onsite from downstream of the parking area. Call to coordinate access</td>
</tr>
<tr>
<td>Strategy Name</td>
<td>Location</td>
<td>Strategy Type</td>
<td>Boom Length</td>
<td>Boat Req?</td>
<td>Staging Area</td>
<td>Resources At Risk</td>
<td>Comments</td>
</tr>
<tr>
<td>---------------</td>
<td>----------</td>
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</tr>
<tr>
<td>WADE-2.9</td>
<td>Pioneer Park 46.99518 -122.88114</td>
<td>Collection</td>
<td>Boom 200ft</td>
<td>Yes</td>
<td>Onsite Stage onsite at the SE corner of the park just downstream of the Henderson Blvd. Bridge</td>
<td>Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat</td>
<td>Hand launch onsite. Coordinate with City of Tumwater Parks and Rec for access.</td>
</tr>
<tr>
<td>WADE-11.0</td>
<td>River Park Community Club (BP 165-2) Hand Launch 46.93088 -122.82594</td>
<td>Collection</td>
<td>Boom 200ft</td>
<td>Yes</td>
<td>Onsite Stage onsite</td>
<td>Freshwater Wetlands, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat</td>
<td>Hand launch onsite at the River Park Community Club</td>
</tr>
<tr>
<td>WADE-18.4</td>
<td>10025 WA-507 Crossing Deschutes River (BP 165-1) 46.87278 -122.73032</td>
<td>Collection</td>
<td>Boom 200ft</td>
<td>Yes</td>
<td>Onsite Stage onsite at the pull-off on the SW side of the road, small vac truck can access this spot.</td>
<td>Freshwater Wetlands, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat</td>
<td>Hand launch onsite on the SW side of the bridge. May need to close one lane of traffic if using a vac truck to collect from the bridge on the NE side.</td>
</tr>
</tbody>
</table>
### 4.5.3 Notification Strategy Matrices

<table>
<thead>
<tr>
<th>Strategy Name</th>
<th>Location</th>
<th>Strategy Type</th>
<th>Resources at Risk</th>
<th>Implementation</th>
<th>Comments</th>
<th>Sector Map (Page #)</th>
<th>Strategy Details (Page#)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKOO-22.2-N</td>
<td>Skookumchuck Dam 46.78482 -122.71771</td>
<td>Notification</td>
<td>Steelhead</td>
<td>Call 360 330 8316 to notify Dam Hydro Operator that a spill has occurred and to delay any fish releases.</td>
<td>Inform Skookumchuck Dam of oil spill in area so that release of fish won't coincide with ongoing spill response efforts.</td>
<td>47</td>
<td>91</td>
</tr>
<tr>
<td>WADE-0.5-N</td>
<td>Tumwater Falls Hatchery 47.01471 -122.90393</td>
<td>Notification</td>
<td>Economic Resource, Fish Hatchery, Public Lands/Facilities, Salmon Concentrations and Habitat, T/E Species</td>
<td>Notify the Tumwater Falls Hatchery Manager M-F 8-5 at 360-586-2801, after hours and weekends call 360-790-6095</td>
<td>Notify the Tumwater Falls Hatchery about the spill so they can take timely action to protect the resources under their control</td>
<td>49</td>
<td>93</td>
</tr>
</tbody>
</table>
4.5.4 Staging Area Matrices


*No GRP Staging Areas Currently Exist for this Planning Area*
4.5.5 Boat Launch Matrices

No GRP Boat Launch Locations Currently Exist for this Planning Area
APPENDIX 4A

Response Strategy 2-Pagers
## RESPONSE STRATEGIES LIST

<table>
<thead>
<tr>
<th>BLOOM-1.1</th>
<th>CAPLK-1.5</th>
<th>HANA-3.9</th>
<th>JOHNC-0.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOHNC-2.6</td>
<td>SAMNC-1.2</td>
<td>SKOO-15.2</td>
<td>SKOO-19.3</td>
</tr>
<tr>
<td>SOHAC-4.2</td>
<td>WADE-0.7</td>
<td>WADE-1.0</td>
<td>WADE-2.9</td>
</tr>
<tr>
<td>WADE-11.0</td>
<td>WADE-18.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Blooms Ditch at Littlerock Road

**Position - Location:** 46° 55.477', -122° 59.545'  
46° 55' 28.6", -122° 59' 32.7"  
46.92462, -122.99241  
Olympia

**Strategy Objective:** Collection: Collect oil moving downstream on Blooms Ditch

**Implementation:** Secure 100 ft of boom on the upstream side of the bridge on ditch right, at/near Point A (46.92466 -122.99234). Walk boom across the bridge and downstream, securing it at/near Point B (47.92458, -122.9924). Use shoreside anchoring systems or existing features to secure boom to banks. Extend remaining boom back and forth across creek, inside of Points A & B. Back hard boom with sorbent. Adjust boom angle and quantity/placement of anchors as needed, based on stream flow and environmental conditions. If oil collecting beyond sorbent’s capacity, use vac truck or skimmer/storage for collection.

**Staging Area:** Onsite: Stage onsite along the road on the SE side of the ditch about 150 yards away

**Site Safety:** Slips, Trips, Falls; Water Hazard

**Field Notes:** Busy road, may need to close one lane. Follow WSDOT guidelines for work zone traffic control. Ditch drains into the Black River

**Watercourse:** Ditch - Blooms Ditch

**Resources at Risk:** Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat, Wetland Habitat

### Recommended Equipment

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchoring System(s) - Shoreside</td>
<td>4 Each</td>
<td></td>
</tr>
<tr>
<td>Boom - B3 (River Boom) or equivalent</td>
<td>100 Feet</td>
<td></td>
</tr>
<tr>
<td>Boom - Sorbent</td>
<td>1 Each</td>
<td></td>
</tr>
<tr>
<td>Heaving Line(s)</td>
<td>1 Each</td>
<td></td>
</tr>
<tr>
<td>Vac Truck or Skimmer and Storage</td>
<td>1 Each</td>
<td></td>
</tr>
</tbody>
</table>

### Recommended Personnel

<table>
<thead>
<tr>
<th>Position</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olympia</td>
<td>46.92462, -122.99241</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Role</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laborer</td>
<td>2</td>
</tr>
<tr>
<td>Supervisor</td>
<td>1</td>
</tr>
</tbody>
</table>
Blooms Ditch at Littlerock Road

BLOOM-1.1 Photo: View of Blooms Ditch from the bridge on Little Rock Road, site of BLOOM-1.1 collection strategy

Site Contact

No Information
Unknown:

Nearest Address

11202 Littlerock Rd SW
Olympia, WA 98512

Driving Directions

1. Head north from Longview on I-5 North
2. At exit 95 bear right onto ramp to WA-121 N toward Littlerock / Maytown (0.23 miles)
3. Turn left on Maytown Rd SW (WA-121) (0.2 miles)
4. Turn right to stay on Maytown Rd SW (2.79 miles)
5. Turn right on Littlerock Rd SW (Olympia St) (1.99 miles)
6. Finish at 11202 Littlerock Rd SW, 98512, on the right
**Simmons Lane SW at 1-5 Overpass (Hand Launch)  **  
**CAPLK-1.5**

| Position - Location: | 47° 1.405', -122° 54.160' | 47° 1' 24.3", -122° 54' 9.6" | 47.02342, -122.90267 | Tumwater |

| Strategy Objective: | Collection : Collect oil moving downstream on Capital Lake |

**Implementation:** Using workboat, secure 400 ft of boom to bank on river right, at/near Point A (47.0237, -122.90174) below just above the I-5 Bridge. Tow boom downstream, securing it to shore on river left, at/near Point B (47.02319, -122.90315). Use shoreside anchoring systems or existing features to secure boom to banks. Use additional anchoring systems to keep boom secure in water. Adjust boom angle and quantity/placement of anchors as needed, based on stream flow and environmental conditions. Use vac truck or skimmer/storage for collection at Point B.

| Staging Area: | Onsite : Stage onsite at the Tumwater Historical Park, bathrooms, trash pick up, with lots of parking, room for decon area. |

| Site Safety: | Slips, Trips, Falls; Water Hazard |

| Field Notes: | Launch onsite at the Tumwater Historical Park, there is a gravel boat ramp. Cut locks on gate afterhours and notify the City of Tumwater of access. All gear, boats, boots etc. must be decontaminated after contact with the river/lake to prevent the spread of New Zealand Mudsnails. |

| Watercourse: | Reservoir - Capital Lake |

| Resources at Risk: | Herons, Raptors, Recreational Use Area, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat, |

**Recommended Equipment**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchoring System(s) - (anchor, lines, floats)</td>
<td>5 Each</td>
</tr>
<tr>
<td>Anchoring System(s)- Shoreside</td>
<td>2 Each</td>
</tr>
<tr>
<td>Bolt Cutters</td>
<td>1 Each</td>
</tr>
<tr>
<td>400 Feet Boom - B3 (River Boom) or equivalent</td>
<td>1 Each</td>
</tr>
<tr>
<td>Bridle(s) - Towing (appropriately sized for boom)</td>
<td>1 Each</td>
</tr>
<tr>
<td>Heaving Line(s)</td>
<td>1 Each</td>
</tr>
<tr>
<td>Machete(s) - (or other vegetation cutting tool)</td>
<td>1 Each</td>
</tr>
<tr>
<td>Vac Truck or Skimmer and Storage</td>
<td>1 Each</td>
</tr>
<tr>
<td>Workboat(s) - of adequate size for type and amount of boom</td>
<td>1 Each</td>
</tr>
</tbody>
</table>

**Recommended Personnel**

<table>
<thead>
<tr>
<th>Role</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boat Operator</td>
<td>1</td>
</tr>
<tr>
<td>Laborer</td>
<td>2</td>
</tr>
<tr>
<td>Supervisor</td>
<td>1</td>
</tr>
</tbody>
</table>
Simmons Lane SW at 1-5 Overpass (Hand Launch)

CAPLK-1.5 Photo: View of boom deployment angle and anchor point A taken from river left near anchor point B

Site Contact

**City of Tumwater Parks and Recreation**
Land/Property Contact: Manages Historic Park, Pioneer Park, & Golf Course
360-239-6314

**Washington Department of Enterprise Services (WDES)**
Land/Property Contact: Manages Capitol Lake in Olympia
360-725-0000

Nearest Address

602 Deschutes Pkwy SW
Tumwater, WA 98501

Driving Directions

1. Head north from Longview on I-5 North
2. At exit 103 bear right onto ramp to Deschutes Way (0.22 miles)
3. Turn left on Deschutes Way SW (0.26 miles)
4. Continue on Deschutes Pkwy SW (0.28 miles)
5. At 602 Deschutes Pkwy SW, 98501, turn right onto Grant Street into the Tumwater Historical Park (500 ft)
6. Take the first left and follow the drive back to the end of the park beside the I-5 Overpass (0.25 miles)
# Hanaford Valley Road Crossing Hanaford Creek (BP 1)

**Position - Location:** 46° 45'.4780", -122° 49'.123"  
46° 45'.8", -122° 49'.7.4"  
46.763000, -122.81871  
Centralia

**Strategy Objective:** Collection  
Collect oil moving downstream on Hanaford Creek

**Implementation:**  
Secure 100 ft of boom on the upstream side of the bridge on creek right, at/near Point A (46.763, -122.8186). Walk boom across bridge, securing it on creek left at/near Point B (46.76295, -122.81869). Use shoreside anchoring systems or existing features to secure boom to banks. Extend remaining boom back and forth across creek, inside of Points A & B. Back hard boom with sorbent. Adjust boom angle and quantity/placement of anchors as needed, based on stream flow and environmental conditions. If oil collecting beyond sorbent’s capacity, use vac truck or skimmer/storage for collection.

**Staging Area:**  
Onsite: Stage onsite, pull off road on either end of the bridge

**Site Safety:**  
Slips, Trips, Falls; Water Hazard; Narrow Lane Road; Heavy Vegetation

**Field Notes:**  
Narrow road, may need to block off one lane. Follow WSDOT guidelines for work zone traffic control.

**Watercourse:**  
Creek - Hanaford Creek

**Resources at Risk:**  
Freshwater Wetlands, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat

## Recommended Equipment

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchoring System(s)- Shoreside</td>
<td>4 Each</td>
<td></td>
</tr>
<tr>
<td>Boom - B3 (River Boom) or equivalent</td>
<td>100 Feet</td>
<td></td>
</tr>
<tr>
<td>Boom - Sorbent</td>
<td>1 Each</td>
<td></td>
</tr>
<tr>
<td>Heaving Line(s)</td>
<td>1 Each</td>
<td></td>
</tr>
<tr>
<td>Machete(s) - (or other vegetation cutting tool)</td>
<td>1 Each</td>
<td></td>
</tr>
<tr>
<td>Vac Truck or Skimmer and Storage</td>
<td>1 Each</td>
<td></td>
</tr>
</tbody>
</table>

## Recommended Personnel

<table>
<thead>
<tr>
<th>Role</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laborer</td>
<td>2</td>
</tr>
<tr>
<td>Supervisor</td>
<td>1</td>
</tr>
</tbody>
</table>
Hanaford Valley Road Crossing Hanaford Creek (BP 1)  

HANA-3.9 Photo: View from bridge of Hanaford Creek looking upstream at location to deploy HANA-3.9

**Site Contact**

No Information  
Unknown:

**Nearest Address**

1441 Big Hanaford Rd  
Centralia, WA 98531

**Driving Directions**

1. Head north on I-5 from Longview, WA  
2. Take exit 82 for Centralia  
3. Go northwest on Harrison Ave toward Ellsbury St (0.37 miles)  
4. Turn right on Johnson Rd (0.41 miles)  
5. Turn right on W Reynolds Ave (1.34 miles)  
6. Turn left on WA-507 (N Pearl St) (7.22 miles)  
7. Turn right on W 6th St (0.06 miles)  
8. Turn right on S Main St (0.07 miles)  
9. Turn left on E 7th St (0.16 miles)  
10. Continue on Tono Rd SE (3.92 miles)  
11. Make sharp right on Big Hanaford Rd (0.01 miles)  
12. Finish at 1441 Big Hanaford Rd, 98531, on the right
19550 Johnson Creek Road SE (BP 166-2)  

**Position - Location:** 46° 47.974', -122° 45.008'  
**Staging Area:** Onsite: Stage onsite using roadside parking  
**Site Safety:** Slips, Trips, Falls; Water Hazard; Heavy Vegetation  
**Implementation:** Secure 100 ft of boom on the downstream side of the bridge on creek left, at/near Point A (46.7995, -122.75017). Walk boom across the bridge and downstream, securing it on creek right at/near Point B (46.7996, -122.7502). Use shoreside anchoring systems or existing features to secure boom to banks. Extend remaining boom back and forth across creek, inside of Points A & B. Back hard boom with sorbent. Adjust boom angle and quantity/placement of anchors as needed, based on stream flow and environmental conditions. If oil collecting beyond sorbent’s capacity, use vac truck or skimmer/storage for.

**Strategy Objective:** Collect oil moving downstream on Johnson Creek  
**Staging Area:** Onsite: Stage onsite using roadside parking  
**Site Safety:** Slips, Trips, Falls; Water Hazard; Heavy Vegetation  
**Field Notes:** Narrow road, may need to block off a lane. Follow WSDOT guidelines for work zone traffic control.

**Watercourse:** Creek - Johnson Creek  
**Resources at Risk:** Freshwater Wetlands, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat

**Recommended Equipment**

- 4 Each Anchoring System(s) - Shoreside
- 100 Feet Boom - B3 (River Boom) or equivalent
- 100 Feet Boom - Sorbent
- 1 Each Heaving Line(s)
- 1 Each Machete(s) - (or other vegetation cutting tool)
- 1 Each Vac Truck or Skimmer and Storage

**Recommended Personnel**

- 2 Laborer
- 1 Supervisor
JOHNC-0.9 Photo: View of Johnson Creek downstream taken from the bridge; site of JOHNC-0.9 collection strategy

**Site Contact**

**No Information**  
Unknown:

**Nearest Address**

19629 Johnson Creek Rd SE  
Tenino, WA 98589

**Driving Directions**

1. Head north from Longview on I-5 North  
2. Go on I-5 S (US-12 E) (3.28 miles)  
3. At exit 88 take ramp on the right toward Tenino / Rochester / Oakville (0.39 miles)  
4. Turn right on Old Highway 99 SW (7.65 miles)  
5. Turn right on WA-507 (2.23 miles)  
6. Turn left on 184th Ave SW (0.64 miles)  
7. Bear right on Skookumchuck Rd SE (1.84 miles)  
8. Turn left to stay on Skookumchuck Rd SE (0.7 miles)  
9. Turn left on Johnson Creek Rd SE (0.5 miles)  
10. Finish at the bridge just before you get to 19629 Johnson Creek Rd SE, 98589
18950 Johnson Creek Road SE (BP 166-1)  JOHNC-2.6

**Position - Location:** 46° 48.893', -122° 43.952'  46° 48' 53.6", -122° 43' 57.1"  46.81488, -122.73254  Tenino

**Strategy Objective:** Collection : Collect oil moving downstream on Johnson Creek

**Implementation:** Secure 100 ft of boom on the upstream side of the bridge on creek left, at/near Point A (46.8149, -122.73248). Walk boom across the bridge and downstream, securing it on creek right at/near Point B (46.8149, -122.7326). Use shoreside anchoring systems or existing features to secure boom to banks. Extend remaining boom back and forth across creek, inside of Points A & B. Back hard boom with sorbent. Adjust boom angle and quantity/placement of anchors as needed, based on stream flow and environmental conditions. If oil collecting beyond sorbent’s capacity, use vac truck or skimmer/storage for co

**Staging Area:** Onsite : Stage onsite along the road, sharp curves nearby so have adequate safety protocols in place.

**Site Safety:** Slips, Trips, Falls; Water Hazard; Heavy Vegetation; Narrow Road

**Field Notes:** Narrow road, close one lane if needed. Follow WSDOT guidelines for work zone traffic control.

**Watercourse:** Creek - Johnson Creek

**Resources at Risk:** Freshwater Wetlands, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat

**Recommended Equipment**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchoring System(s)- Shoreside</td>
<td>4 Each</td>
</tr>
<tr>
<td>Boom - B3 (River Boom) or equivalent</td>
<td>100 Feet</td>
</tr>
<tr>
<td>Boom - Sorbent</td>
<td>1 Each</td>
</tr>
<tr>
<td>Heaving Line(s)</td>
<td>1 Each</td>
</tr>
<tr>
<td>Machete(s) - (or other vegetation cutting tool)</td>
<td>1 Each</td>
</tr>
<tr>
<td>Vac Truck or Skimmer and Storage</td>
<td>1 Each</td>
</tr>
</tbody>
</table>

**Recommended Personnel**

<table>
<thead>
<tr>
<th>Position - Location</th>
<th>Tenino</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource - Location</td>
<td>Creek</td>
</tr>
<tr>
<td>Site - Location</td>
<td>Johnson Creek</td>
</tr>
</tbody>
</table>

2 Laborer

1 Supervisor

Appendix 4B
JOHNC-2.6 Photo: View of Johnson Creek looking upstream from the bridge to where JOHNC-2.6 collection strategy will be deployed

**Site Contact**

No Information

Unknown:

**Nearest Address**

18924 Johnson Creek Rd SE
Tenino, WA 98589

**Driving Directions**

1. Head north from Longview on I-5 N
2. At exit 88 take ramp on the right toward Tenino / Rochester / Oakville (0.39 miles)
3. Turn right on Old Highway 99 SW (7.44 miles)
4. Continue on 6th Ave W (Old Highway 99 SW) (0.4 miles)
5. Bear left on Park Ave W (0.26 miles)
6. Turn left on 4th Ave W and immediately turn right on Ritter St S (0.14 miles)
7. Turn right on WA-507 (Sussex Ave W) (5.76 miles)
8. Turn right on Johnson Creek Rd SE (4.52 miles)
9. Finish at the bridge just before you reach 18924 Johnson Creek Rd SE, 98589
# Appendix 4B

## Salmon Creek at Littlerock Road

**Position - Location:** 46° 56.16', -122° 59.258'  
46° 56' 24.9", -122° 59' 15.5"  
46.9406, -122.9876

**Strategy Objective:** Collect oil moving downstream on Salmon Creek

**Implementation:** Secure 100 ft of boom on the downstream side of the bridge on creek right, at/near Point A (46.9403, -122.9876). Walk boom across the bridge and downstream, securing it on creek left at/near Point B (46.9403, -122.9877). Use shoreside anchoring systems or existing features to secure boom to banks. Extend remaining boom back and forth across creek, inside of Points A & B. Back hard boom with sorbent. Adjust boom angle and quantity/placement of anchors as needed, based on stream flow and environmental conditions. If oil collecting beyond sorbent’s capacity, use vac truck or skimmer/storage for... 

**Staging Area:** Onsite: Stage onsite at edge of gravel company drive to the NW

**Site Safety:** Slips, Trips, Falls; Water Hazard

**Field Notes:** Entrance to gravel company to the NW has room for parking. Follow WSDOT guidelines for work zone traffic control. Salmon Creek drains into the Black River.

**Watercourse:** Creek - Salmon Creek

**Resources at Risk:** Freshwater Wetlands, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat

### Recommended Equipment

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchoring System(s)- Shoreside</td>
<td>4 Each</td>
<td></td>
</tr>
<tr>
<td>Boom - B3 (River Boom) or equivalent</td>
<td>100 Feet</td>
<td></td>
</tr>
<tr>
<td>Boom - Sorbent</td>
<td>1 Each</td>
<td></td>
</tr>
<tr>
<td>Heaving Line(s)</td>
<td>1 Each</td>
<td></td>
</tr>
<tr>
<td>Vac Truck or Skimmer and Storage</td>
<td>1 Each</td>
<td></td>
</tr>
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</table>

### Recommended Personnel

<table>
<thead>
<tr>
<th>Role</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>Laborer</td>
<td>2</td>
</tr>
<tr>
<td>Supervisor</td>
<td>1</td>
</tr>
</tbody>
</table>
Salmon Creek at Littlerock Road

SAMNC-1.2 Photo: View of Salmon Creek and the bridge crossing on Little Rock Road taken from the N shore

**Site Contact**

No Information
Unknown:

**Nearest Address**

10201 Littlerock Rd SW
Olympia, WA 98512

**Driving Directions**

1. Head north from Longview on I-5 North
2. At exit 99 take ramp on the right to WA-121 S toward 93rd Ave. (0.41 miles)
3. Turn left on 93rd Ave SW (WA-121) (1.74 miles)
4. Turn left on Littlerock Rd SW (1.13 miles)
5. Finish just past 101201 Littlerock Rd SW, 98512, on the right
### 4415 Skookumchuck Road SE (BP 171-2)  
**Position - Location:** 46° 48.452', -122° 49.439'  
**Strategy Objective:** Collection: Collect oil moving downstream on the Skookumchuck River

#### Implementation:
Using hand launch workboat, secure 200 ft of boom to bank on river right, at/near Point A (46.80756, -122.8238) below the bridge. Tow boom downstream, securing it to shore on river left, at/near Point B (46.80741, -122.8039). Use shoreside anchoring systems or existing features to secure boom to banks. Use additional anchoring systems to keep boom secure in water. Adjust boom angle and quantity/placement of anchors as needed, based on stream flow and environmental conditions. Use vac truck or skimmer/storage for collection at Point B.

#### Staging Area:
Onsite: Stage onsite, parking on shoulder away from the bridge

#### Site Safety:
Slips, Trips, Falls; Water Hazard; Heavy Vegetation

#### Field Notes:
Can hand launch on left bank upstream of bridge. May need to close down one lane of traffic. Follow WSDOT guidelines for work zone traffic control.

#### Watercourse:
River - Skookumchuck River

#### Resources at Risk:
Freshwater Wetlands, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat

### Recommended Equipment

<table>
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<th>Item</th>
<th>Quantity</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Anchoring System(s)- Shoreside</td>
<td>4 Each</td>
<td></td>
</tr>
<tr>
<td>Boom - B3 (River Boom) or equivalent</td>
<td>200 Feet</td>
<td></td>
</tr>
<tr>
<td>Boom - Sorbent</td>
<td>200 Feet</td>
<td></td>
</tr>
<tr>
<td>Bridle(s) - Towing (appropriately sized for boom)</td>
<td>1 Each</td>
<td></td>
</tr>
<tr>
<td>Vac Truck or Skimmer and Storage</td>
<td>1 Each</td>
<td></td>
</tr>
<tr>
<td>Workboat(s) - (hand-launch)</td>
<td>1 Each</td>
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### Recommended Personnel

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<tr>
<th>Role</th>
<th>Quantity</th>
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<tbody>
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<td>Boat Operator</td>
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<tr>
<td>Laborer</td>
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</tr>
<tr>
<td>Supervisor</td>
<td>1</td>
</tr>
</tbody>
</table>
SKOO-15.2 Photo: View of the bridge from upstream on river left, a spot where you can handlaunch

Site Contact

No Information
Unknown :

Nearest Address

4421 Skookumchuck Rd SE
Tenino, WA 98589

Driving Directions

1. Head north from Longview on I-5 North
2. At exit 88 take ramp on the right toward Tenino / Rochester / Oakville (0.39 miles)
3. Turn right on Old Highway 99 SW (7.65 miles)
4. Turn right on WA-507 (2.23 miles)
5. Turn left on 184th Ave SW (0.64 miles)
6. Bear right on Skookumchuck Rd SE (1.68 miles)
7. Finish at the bridge just before you get to 4421 Skookumchuck Rd SE, 98589
Position - Location: 46° 47' 46.0", -122° 45' 38.9" 46.79610, -122.76080 Tenino

Strategy Objective: Collection: Collect oil moving downstream on the Skookumchuck River

Implementation: Using hand launch workboat, secure 200 ft of boom to bank on river left at/near Point A (46.7958, -122.7613) below the side channel. Tow boom downstream, securing it to shore on river right, at/near Point B underneath the bridge (46.7961, -122.7608). Use shoreside anchoring systems or existing features to secure boom to banks. Use additional anchoring systems to keep boom secure in water. Adjust boom angle and quantity/placement of anchors as needed, based on stream flow and environmental conditions. Use vac truck or skimmer/storage for collection at Point B.

Staging Area: Onsite: Stage onsite, there is a pull of on the SE side of the bridge near anchor point B

Site Safety: Slips, Trips, Falls; Water Hazard; Heavy Vegetation

Field Notes: Hand launch may be easiest on river right just upstream of the bridge. May have to close one lane of traffic on bridge for vac truck use. Follow WSDOT guidelines for work zone traffic control.

Watercourse: River - Skookumchuck River

Resources at Risk: Freshwater Wetlands, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat

Recommended Equipment

- 2 Each Anchoring System(s) - (anchor, lines, floats)
- 2 Each Anchoring System(s) - Shoreside
- 200 Feet Boom - B3 (River Boom) or equivalent
- 1 Each Bridle(s) - Towing (appropriately sized for boom)
- 1 Each Machete(s) - (or other vegetation cutting tool)
- 1 Each Vac Truck or Skimmer and Storage
- 1 Each Workboat(s) - (hand-launch)

Recommended Personnel

- 1 Boat Operator
- 2 Laborer
- 1 Supervisor
8441 Skookumchuck Road SE (BP-171-1)  SKOO-19.3

SKOO-19.3 Photo: View upriver of anchor point A, taken from below bridge at anchor point B

Site Contact

No Information
Unknown:

Nearest Address

8441 Skookumchuck Rd SE
Tenino, WA 98589

Driving Directions

1. Head north from Longview on I-5 North
2. At exit 88 take ramp on the right toward Tenino / Rochester / Oakville (0.39 miles)
3. Turn right on Old Highway 99 SW (7.65 miles)
4. Turn right on WA-507 (2.23 miles)
5. Turn left on 184th Ave SW (0.64 miles)
6. Bear right on Skookumchuck Rd SE (1.84 miles)
7. Turn left to stay on Skookumchuck Rd SE (3.11 miles)
8. Finish at 8441 Skookumchuck Rd SE, 98589, on the right
Little Hanaford Road Crossing South Hanaford Creek  SOHAC-4.2

<table>
<thead>
<tr>
<th>Position - Location:</th>
<th>46° 42' 36.5&quot;, -122° 51.762'</th>
<th>46° 42' 21.9&quot;, -122° 51' 45.7&quot;</th>
<th>46.70609, -122.86270</th>
<th>Centralia</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Strategy Objective:</th>
<th>Collection</th>
<th>Collect oil moving downstream on South Hanaford Creek</th>
</tr>
</thead>
</table>

| Implementation: | Secure 100 ft of boom on the downstream side of the bridge on creek right, at/near Point A (46.7061, -122.8626). Walk boom across the bridge and downstream, securing it on creek left at/near Point B (46.7061, -122.8628). Use shoreside anchoring systems or existing features to secure boom to banks. Extend remaining boom back and forth across creek, inside of Points A & B. Back hard boom with sorbent. Adjust boom angle, quantity/placement of anchors, based on stream flow and environmental conditions. If oil collecting beyond sorbent’s capacity, use vac truck or skimmer/storage for collection |

<table>
<thead>
<tr>
<th>Staging Area:</th>
<th>Onsite: Stage onsite, pull off beside the road on the NW side near anchor point B</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Site Safety:</th>
<th>Slips, Trips, Falls; Water Hazard</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Field Notes:</th>
<th>Park on shoulder unless farmer gives permission to use his field. Follow WSDOT guidelines for work zone traffic control.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Watercourse:</th>
<th>Creek - South Hanaford Creek</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Resources at Risk:</th>
<th>Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Recommended Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Each</td>
</tr>
<tr>
<td>100 Feet</td>
</tr>
<tr>
<td>100 Feet</td>
</tr>
<tr>
<td>1 Each</td>
</tr>
<tr>
<td>1 Each</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Recommended Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Laborer</td>
</tr>
<tr>
<td>1 Supervisor</td>
</tr>
</tbody>
</table>

Appendix 4B
Little Hanaford Road Crossing South Hanaford Creek

SOHAC-4.2 Photo: View of the location of SOHAC-4.2 collection strategy taken from the bridge

Site Contact

No Information
Unknown :

Nearest Address

2385 Little Hanaford Rd
Centrailia, WA  98531

Driving Directions

1. Head north from Longview on I-5
2. At exit 81 take ramp on the right to WA-507 N toward Mellen St (0.48 miles)
3. Continue on Ellisbury St (0.33 miles)
4. Turn right on Mellen St (WA-507) (0.25 miles)
5. Turn left on Yew St (0.55 miles)
6. Turn left on W Main St (0.02 miles)
7. Bear right on Harrison Ave (0.24 miles)
8. Turn right on W 1st St (0.8 miles)
9. Turn left on N Tower Ave (WA507 N) (0.42 miles)
10. Turn right on E 6th St (0.19 miles)
11. Continue on Marion St (0.2 miles)
12. At fork keep left on Marion St (0.35 miles)
13. Continue on Little Hanaford Rd (0.87 miles)
14. Bear right on Loop Rd (0.48 miles)
15. Turn right on Little Hanaford Rd (1.59 miles)
16. Turn left at Salzer Valley Rd to stay on Little Hanaford Rd (1.7 miles)
17. Finish at 2385 Little Hanaford Rd, 98531
E Street Bridge Crossing Deschutes R (BP 165-3)  WADE-0.7

Position - Location:  47° 692', -122° 54.206'  47° 0' 41.5", -122° 54' 12.4"  47.01154, -122.90344  Tumwater

Strategy Objective:  Collection : Collect oil moving downstream on Deschutes River

Implementation:  Using hand launch workboat, secure 200 ft of boom to bank on river left at/near Point A (47.01112, -122.9034). Tow boom downstream, securing it to shore on river right, at/near Point B underneath the bridge (47.0117, -122.9033). Use shoreside anchoring systems or existing features to secure boom to banks. Use additional anchoring systems to keep boom secure in water. Adjust boom angle and quantity/placement of anchors as needed, based on stream flow and environmental conditions. Use vac truck or skimmer/storage for collection at Point B.

Staging Area:  Onsite : Stage onsite in the parking lot on river right on the downstream side of the bridge

Site Safety:  Slips, Trips, Falls; Water Hazard; Heavy Vegetation

Field Notes:  Hand launch onsite from the old Olympia Brewing Co parking area. Call Dana Commercial Real Estate to coordinate access 360-402-5500

Watercourse:  River - Deschutes River

Resources at Risk:  Freshwater Wetlands, Herons, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat

Recommended Equipment

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Anchoring System(s) - (anchor, lines, floats)</td>
<td>2 Each</td>
<td></td>
</tr>
<tr>
<td>Anchoring System(s)- Shoreside</td>
<td>2 Each</td>
<td></td>
</tr>
<tr>
<td>Bolt Cutters</td>
<td>1 Each</td>
<td></td>
</tr>
<tr>
<td>Boom - B3 (River Boom) or equivalent</td>
<td>100 Feet</td>
<td></td>
</tr>
<tr>
<td>Bridle(s) - Towing (appropriately sized for boom)</td>
<td>1 Each</td>
<td></td>
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<tr>
<td>Heaving Line(s)</td>
<td>1 Each</td>
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<td>Vac Truck or Skimmer and Storage</td>
<td>1 Each</td>
<td></td>
</tr>
<tr>
<td>Workboat(s) - (hand-launch)</td>
<td>1 Each</td>
<td></td>
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Recommended Personnel

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<thead>
<tr>
<th>Role</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>Boat Operator</td>
<td>1</td>
</tr>
<tr>
<td>Laborer</td>
<td>2</td>
</tr>
<tr>
<td>Supervisor</td>
<td>1</td>
</tr>
</tbody>
</table>
E Street Bridge Crossing Deschutes R (BP 165-3)  WADE-0.7

WADE-0.7 Photo: View of anchor point B, collection spot, for WADE-0.7 underneath the bridge in front of the old Olympia Brewing Co

Site Contact

Dana Commercial Real Estate
Land/Property Contact : Access to Olympia Brewing Co Property

Olympia, WA  98501
360-402-5500

Nearest Address

4101 Capitol Blvd
Tumwater, WA  98501

Driving Directions

1. Head north from Longview on I-5 North
2. At exit 103 bear right onto ramp to Deschutes Way (0.2 miles)
3. Turn right on E St SW (0.06 miles)
4. Cross Capitol Blvd (0.02 miles)
5. Take E St SW across the river and turn left into the old Anheuser-Busch factory parking lot. Then take an immediate left toward the downstream side of the E Street Bridge where the strategy is located.
## Tumwater Valley Golf Club

### Position - Location:
- 47° 433', -122° 54.231'
- 47° 0' 26.0", -122° 54' 13.9"
- 47.00721, -122.90385

### Strategy Objective:
Collection: Collect oil moving downstream on the Washington Deschutes River

### Implementation:
Using hand launch workboat, secure 200 ft of boom to bank on river right at/near Point A (47.007, -122.9033). Tow boom downstream, securing it to shore on river left, at/near Point B (47.0072, -122.904). Use shoreside anchoring systems or existing features to secure boom to banks. Use additional anchoring systems to keep boom secure in water. Adjust boom angle and quantity/placement of anchors as needed, based on stream flow and environmental conditions. Use vac truck or skimmer/storage for collection at Point B.

### Staging Area:
Onsite: Stage in the Tumwater Valley Golf Club parking lot, vac truck can access river just before parking lot turn off.

### Site Safety:
Slips, Trips, Falls; Water Hazard; Heavy Vegetation; Steep Banks; Heavy Vegetation

### Field Notes:
Hand launch onsite from downstream of the parking area. Call to notify City of Tumwater Parks and Rec of access.

### Watercourse:
River - Above a Dam - WA Deschutes River above the Tumwater Falls Dam

### Resources at Risk:
Freshwater Wetlands, Herons, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat

### Recommended Equipment

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Item Description</th>
</tr>
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<tbody>
<tr>
<td>2 Each</td>
<td>Anchoring System(s) - (anchor, lines, floats)</td>
</tr>
<tr>
<td>2 Each</td>
<td>Anchoring System(s) - Shoreside</td>
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<tr>
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<td>Bolt Cutters</td>
</tr>
<tr>
<td>200 Feet</td>
<td>Boom - B3 (River Boom) or equivalent</td>
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<tr>
<td>1 Each</td>
<td>Heaving Line(s)</td>
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</tr>
<tr>
<td>1 Each</td>
<td>Workboat(s) - (hand-launch)</td>
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### Recommended Personnel

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<tr>
<th>Quantity</th>
<th>Position</th>
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<tbody>
<tr>
<td>1</td>
<td>Boat Operator</td>
</tr>
<tr>
<td>2</td>
<td>Laborer</td>
</tr>
<tr>
<td>1</td>
<td>Supervisor</td>
</tr>
</tbody>
</table>
Tumwater Valley Golf Club

WADE-1.0 Photo: View of downstream anchor point B, collection site, and an area just beyond where a boat can be hand launched

Site Contact

City of Tumwater Parks and Recreation
Municipality (County/City): Manages Historic Park, Pioneer Park, & Golf Course
360-239-6314

Tumwater Valley Golf Club
Land/Property Contact: Golf Course Operations Mgr
360-943-9500

Nearest Address

4611 Tumwater Valley Dr. SE
Tumwater, WA 98501

Driving Directions

1. Head north on I-5 from Longview, WA
2. At exit 103 bear right onto ramp to Deschutes Way (.2 miles)
3. Turn right on E St SW (.09 miles)
4. Turn right on Tumwater Valley Dr SE (.37 miles)
5. Turn left to stay on Tumwater Valley Dr SE ()
6. Finish at 4611 Tumwater Valley Dr. SE, 98501, on the left
Pioneer Park

**Position - Location:**
46° 59.711', -122° 52.868'  
46° 59' 42.6", -122° 52' 52.1"  
46.99518, -122.88114  
Tumwater

**Strategy Objective:**
Collection: Collect oil moving downstream on Deschutes River

**Implementation:**
Using hand launch workboat, secure 200 ft of boom to bank on river left at/near Point A (46.995, -122.8806). Tow boom downstream, securing it to shore on river right, at/near Point B (46.9954, -122.88125), just below the bridge. Use shoreside anchoring systems or existing features to secure boom to banks. Use additional anchoring systems to keep boom secure in water. Adjust boom angle and quantity/placement of anchors as needed, based on stream flow and environmental conditions. Use vac truck or skimmer/storage for collection at Point B.

**Staging Area:**
Onsite: Stage onsite at the SE corner of the park just downstream of the Henderson Blvd. Bridge

**Site Safety:**
Slips, Trips, Falls; Water Hazard; Heavy Vegetation

**Field Notes:**
Hand launch onsite. Cut locks on gate afterhours and notify City of Tumwater Parks and Rec of access.

**Watercourse:**
River - Deschutes River

**Resources at Risk:**
Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat

**Recommended Equipment**

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<tr>
<td>2 Each</td>
<td>Anchoring System(s) - (anchor, lines, floats)</td>
</tr>
<tr>
<td>2 Each</td>
<td>Anchoring System(s) - Shoreside</td>
</tr>
<tr>
<td>1 Each</td>
<td>Bolt Cutters</td>
</tr>
<tr>
<td>200 Feet</td>
<td>Boom - B3 (River Boom) or equivalent</td>
</tr>
<tr>
<td>1 Each</td>
<td>Bridle(s) - Towing (appropriately sized for boom)</td>
</tr>
<tr>
<td>1 Each</td>
<td>Heaving Line(s)</td>
</tr>
<tr>
<td>1 Each</td>
<td>Machete(s) - (or other vegetation cutting tool)</td>
</tr>
<tr>
<td>1 Each</td>
<td>Vac Truck or Skimmer and Storage</td>
</tr>
<tr>
<td>1 Each</td>
<td>Workboat(s) - (hand-launch)</td>
</tr>
</tbody>
</table>

**Recommended Personnel**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Boat Operator</td>
<td>Tumwater 46.99518, -122.88114</td>
</tr>
<tr>
<td>2 Laborer</td>
<td></td>
</tr>
<tr>
<td>1 Supervisor</td>
<td></td>
</tr>
</tbody>
</table>
Pioneer Park

WADE-2.9 Photo: View of anchor point B, collection area, taken from the end of the road, looking upriver towards anchor point A.

Site Contact

City of Tumwater Parks and Recreation Department
Land/Property Contact: Contact for park access
Tumwater, WA 98501
360-754-4160

Nearest Address

5801 Henderson Blvd SE
Tumwater, WA 98501

Driving Directions

1. Head north from Longview on I-5 North
2. At exit 101 bear right onto ramp toward Tumwater Blvd / Olympia Airport (0.37 miles)
3. Turn right on Tumwater Blvd SW (0.57 miles)
4. At roundabout, take the second exit to proceed on Tumwater Blvd SW (1.41 miles)
5. Turn left on Henderson Blvd SE (1.0 miles)
6. Turn left into the park and take the first left to go back toward the river. Finish at 5801 Henderson Blvd SE, 98501
### River Park Community Club (BP 165-2) Hand Launch

| Position - Location: | 46° 55.853', -122° 49.556' | 46° 55.512", -122° 49' 33.4" | 46.93088, -122.82594 | Olympia |

**Strategy Objective:** Collection: Collect oil moving downstream on Deschutes River

**Implementation:** Using hand launch workboat, secure 200 ft of boom to bank on river right at/near Point A (46.9306, -122.8257). Tow boom downstream, securing it to shore on river left, at/near Point B (46.931, -122.82616). Use shoreside anchoring systems or existing features to secure boom to banks. Use additional anchoring systems to keep boom secure in water. Adjust boom angle and quantity/placement of anchors as needed, based on stream flow and environmental conditions. Use vac truck or skimmer/storage for collection at Point B.

**Staging Area:** Onsite: Stage onsite

**Site Safety:** Slips, Trips, Falls; Water Hazard; Heavy Vegetation

**Field Notes:** Hand launch onsite at the River Park Community Club

**Watercourse:** River - Deschutes River

**Resources at Risk:** Freshwater Wetlands, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat

#### Recommended Equipment

- 2 Each Anchoring System(s) - (anchor, lines, floats)
- 2 Each Anchoring System(s) - Shoreside
- 200 Feet Boom - B3 (River Boom) or equivalent
- 1 Each Bridle(s) - Towing (appropriately sized for boom)
- 1 Each Heaving Line(s)
- 1 Each Machete(s) - (or other vegetation cutting tool)
- 1 Each Vac Truck or Skimmer and Storage
- 1 Each Workboat(s) - (hand-launch)

#### Recommended Personnel

- 1 Boat Operator
- 2 Laborer
- 1 Supervisor
River Park Community Club (BP 165-2) Hand Launch

WADE-11.0 Photo: View from anchor point B, the collection point, looking upstream toward anchor point A

<table>
<thead>
<tr>
<th>Site Contact</th>
</tr>
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<tbody>
<tr>
<td>No Information</td>
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<table>
<thead>
<tr>
<th>Nearest Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>10802 Skagit Dr SE</td>
</tr>
<tr>
<td>Olympia, WA 98501</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Driving Directions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Head north from Longview on I-5 North</td>
</tr>
<tr>
<td>2. At exit 95 bear right onto ramp to WA-121 N toward Littlerock / Maytown (0.23 miles)</td>
</tr>
<tr>
<td>3. Turn right on Maytown Rd SW (WA-121) (2.44 miles)</td>
</tr>
<tr>
<td>4. Turn left on Tilley Rd S (WA-121) (1.72 miles)</td>
</tr>
<tr>
<td>5. Turn right on 113th Ave SE (1.23 miles)</td>
</tr>
<tr>
<td>6. Continue on McCorkie Rd SE (1.36 miles)</td>
</tr>
<tr>
<td>7. Make sharp right on Old Highway 99 SE (0.55 miles)</td>
</tr>
<tr>
<td>8. Turn left on Waldrick Rd SE (1.73 miles)</td>
</tr>
<tr>
<td>9. Make sharp left on Skagit Dr SE (0.49 miles)</td>
</tr>
<tr>
<td>10. Turn left at Cowlitz Dr SE to stay on Skagit Dr SE (0.18 miles)</td>
</tr>
<tr>
<td>11. Finish at the River Park Community Club, 10802 Skagit Dr SE, 98501, at the end of the road. Strategy is on the right.</td>
</tr>
</tbody>
</table>
10025 WA-507 Crossing Deschutes River (BP 165-1)  WADE-18.4

Position - Location:  46° 52.367', -122° 43.819'  46° 52' 22.0", -122° 43' 49.2"  46.87278, -122.73032  Rainier

Strategy Objective:  Collection : Collect oil moving downstream on Deschutes River

Implementation:  Using hand launch workboat, secure 200 ft of boom to bank on river left at/near Point A (46.8724, -122.73). Tow boom downstream, securing it mid-river at/near Point B. Then anchor to shore downstream on river right at/near anchor point C (46.873, -122.73) under the bridge on the NE side, below both side streams. Use additional anchoring systems to keep boom secure in water. Adjust boom angle and quantity/placement of anchors as needed, based on stream flow and environmental conditions. Use vac truck or skimmer/storage for collection at Point C.

Staging Area:  Onsite : Stage onsite at the pull-off on the SW side of the road, small vac truck can access this spot.

Site Safety:  Slips, Trips, Falls; Water Hazard; Heavy Vegetation

Field Notes:  Hand launch onsite on the SW side of the bridge. May need to close one lane of traffic if using a vac truck to collect from the bridge on the NE side.

Watercourse:  River - Deschutes River

Resources at Risk:  Freshwater Wetlands, Raptors, Sensitive Nesting Species, T/E Species, Waterfowl and Salmonid Concentrations and Habitat

Recommended Equipment

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Description</th>
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<tr>
<td>Anchoring System(s)</td>
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<tr>
<td>Anchoring System(s)-</td>
<td>2</td>
<td>Shoreside</td>
</tr>
<tr>
<td>Boom - B3 (River Boom)</td>
<td>200</td>
<td>or equivalent</td>
</tr>
<tr>
<td>Bridle(s) - Towing</td>
<td>1</td>
<td>(appropriately sized for boom)</td>
</tr>
<tr>
<td>Heaving Line(s)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Machete(s) - (or other vegetation cutting tool)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Vac Truck or Skimmer and Storage</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Workboat(s) - (hand-launch)</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Recommended Personnel

<table>
<thead>
<tr>
<th>Role</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>Boat Operator</td>
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</tr>
<tr>
<td>Laborer</td>
<td>2</td>
</tr>
<tr>
<td>Supervisor</td>
<td>1</td>
</tr>
</tbody>
</table>
WADE-18.4 Photo: View of anchor point C at the base of the bridge, taken from the staging area

**Site Contact**

No Information
Unknown:

**Nearest Address**

9916 State Route 507
Rainier, WA 98576

**Driving Directions**

1. Head north from Longview on I-5 North
2. At exit 88 take ramp on the right toward Tenino / Rochester / Oakville (0.39 miles)
3. Turn right on Old Highway 99 SW (7.44 miles)
4. Continue on 6th Ave W (Old Highway 99 SW) (0.4 miles)
5. Bear left on Park Ave W (0.26 miles)
6. Turn left on 4th Ave W and immediately turn right on Ritter St S (0.14 miles)
7. Turn right on WA-507 (Sussex Ave W) (6.16 miles)
8. Finish at 9916 State Route 507, 98576
APPENDIX 4B

Notification Strategy 2-Pagers
NOTIFICATION STRATEGIES – LIST

SKOO-22.2-N       WADE-0.5-N
**Skookumchuck Dam**

**Position - Location:** 46° 47.089', -122° 43.063'  46° 47' 5.4", -122° 43' 3.8"  46.78482, -122.71771  Tenino

**Strategy Objective:** Notification: Inform Skookumchuck Dam of oil spill in area so that release of fish won’t coincide with ongoing spill response efforts.

**Implementation:** Call 360 330 8316 to notify Dam Hydro Operator that a spill has occurred and to delay any fish releases.

**Field Notes:** Actual location is 46.784818,-122.717371

**Watercourse:** River - Below a Dam - Skookumchuck River

**Resources at Risk:** Steelhead

---

**Communication Process and Action:**

Call the following numbers in order and notify of oil spill:

- Skookumchuck Dam Hydro Operator
  360 330 8316 / 360 264 2624

- TransAlta Centralia Generation Unit #1 Control Operator (24/7) 360 330 2321

- Skookumchuck Dam Hydro Supervisor
  360 807 8020 / 360 508 0059

- Alternate Skookumchuck Dam Hydro Supervisor
  360 330 2362

Note: Skookumchuck Dam/TransAlta staff will make the decision whether or not the scheduled release of fish should be delayed because of the spill. Release location is the Skookumchuck River, which drains into the Chehalis River at Centralia.
Skookumchuck Dam

No Photograph Available

SKOO-22.2-N Photo: No photograph currently available for this strategy location.

Site Contact

TransAlta - Skookumchuck Dam
Emergency Contact:
10540 Skookumchuck Rd SE
Tenino, WA 98589
360-330-8316

Nearest Address

10540 Skookumchuck Rd SE
Tenino, WA 98589

Driving Directions

1. From I-5, take exit 88
2. Take ramp right toward Tenino / Oakville / Rochester
3. Turn right onto Old Highway 99 SW
4. In 7.6 mi, turn right onto WA-507
5. In 2.2 mi, turn left onto 184th Ave SW
6. In 0.6 mi, road name changes to Skookumchuck Rd SE
7. In 1.8 mi, turn left to stay on Skookumchuck Rd SE
8. In 5 mi, the WDFW Skookumchuck Fish Hatchery will be on your left.
9. Contact TransAlta dam security office for escort to facility.
**Tumwater Falls Hatchery**

<table>
<thead>
<tr>
<th><strong>Position - Location</strong></th>
<th>WADE-0.5-N</th>
</tr>
</thead>
<tbody>
<tr>
<td>47° 0.529', -122° 54.237'</td>
<td>47° 0' 52.9&quot;, -122° 54' 14.2&quot;</td>
</tr>
</tbody>
</table>

**Washington Deschutes River GRP**  
**JUNE 2017**

**Strategy Objective:** Notify the Tumwater Falls Hatchery Manager M-F 8-5 at 360-586-2801, after hours and weekends call 360-790-6095

**Implementation:** Notify the Tumwater Falls Hatchery Manager M-F 8-5 at 360-586-2801, after hours and weekends call 360-790-6095

**Field Notes:** Hatchery has water intakes and outfall. It is a fish ladder system.

**Watercourse:** River - Above a Dam - Washington Deschutes River, 100 yards above the Tumwater Falls Dam

**Resources at Risk:** Economic Resource, Fish Hatchery, Public Lands/Facilities, Salmon Concentrations and Habitat, T/E Species

**Communication Process and Action:**

Call the Tumwater Falls Hatchery M-F 8-5 at 360-586-2801, after hours and weekends call 360-790-6095, and inform the Manager of any significant oil spill or potential spill that impacts or threatens to impact the Deschutes River upstream of river mile 0.5. The Hatchery Manager will determine and take whatever actions they deem necessary and appropriate to protect the resources under their control, including shutting off water intake or delaying the capture or release of fish.
Tumwater Falls Hatchery

**Site Contact**

**Tumwater Falls Hatchery**
Primary Contact: WDFW Hatchery Manager

Tumwater, WA 98501
360-586-2801

**Nearest Address**

114 Deschutes Way SW
Tumwater, WA 98501

**WADE-0.5-N Photo:** No photo currently available for this strategy location

**Driving Directions**

1. Head south on I-5 S toward Portland
2. At exit 103 bear right onto ramp to 2nd Ave. (0.24 miles)
3. Continue on N 2nd Ave SW (0.1 miles)
4. Turn left on Custer Way SW (0.13 miles)
5. Make sharp right on Boston St SE (0.13 miles)
6. Turn left on Deschutes Way SW (0.02 miles)
7. Turn left again into Tumwater Falls Park, finish at 114 Deschutes Way SW, 98501, on the left
APPENDIX 4C

Staging Area 2-Pagers
No GRP Staging Area Locations Currently Exist for this Planning Area
APPENDIX 4D

Boat Launch 2-Pagers
No GRP Boat Launch Locations Currently Exist for this Planning Area
CHAPTER 5

(Reserved)
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CHAPTER 6

Resources at Risk

6.1 CHAPTER INTRODUCTION

This chapter provides a summary of natural, cultural, and economic resources at risk in the planning area. It provides general information on habitat, fish, and wildlife resources, and locations in the area where sensitive natural resource concerns exist. It offers a summary of cultural resources that include fundamental procedures for the discovery of cultural artifacts and human skeletal remains. General information about flight restrictions, wildlife deterrence, and oiled wildlife can be found near the end of this chapter. A list of economic resources in the area is provided in the chapter’s appendix.

This chapter is purposely broad in scope and should not be considered comprehensive. Some of the sensitive resources described in this chapter cannot be addressed in Chapter 4 (Response Strategies and Priorities) because it is not possible to conduct effective response activities in these locations. Additional information from private organizations or federal, state, tribal, and local government agencies should also be sought during spills.

This material is presented with enough detail to give general information about the area during the first phase of a spill response. During an actual incident, more information about resources at risk will be available from the Environmental Unit within the Planning Section.

The information provided in this chapter can be used in:

- Assisting the Environmental Unit (EU) and Operations Sections in developing additional response strategies beyond those found in Chapter 4.
- Providing resource-at-risk “context” to responders, clean-up workers, and others during the initial phase of a spill response in the GRP area.
- Briefing responders and incident command staff that may be unfamiliar with sensitive resource concerns in the GRP area.
- Providing background information for personnel involved in media presentations and public outreach during a spill incident.

6.2 NATURAL RESOURCES AT RISK - SUMMARY

Most biological communities are susceptible to the effects of oil spills. Plant communities on land, aquatic plants; microscopic plants and animals; and larger animals, such as fish, amphibians and reptiles, birds, mammals, and a wide variety of invertebrates, are all potentially at risk from
smothering, acute toxicity, and/or the chronic long-term effects that may result from being exposed to spilled oil.

This area contains a wide variety of aquatic, riparian, and upland habitats. These habitats support many of Washington’s anadromous salmonid species as well as a complex diversity of other wildlife including mammals, birds, and amphibians. Due to their life histories and/or behaviors, some of these species are unlikely to be directly oiled during a spill incident but may be disturbed by other operations such as cleanup, reconnaissance, or fire suppression activities. Some of the bird species are resident throughout the year, but many others seasonally migrate outside the basin. A number of the species found in this area are classified as threatened or endangered under the Federal Endangered Species Act or Washington State guidelines.

Classification types are listed below, with the abbreviation of each type provided in the brackets (to the right of the classification):

- Federal Endangered (FE)
- Federal Threatened (FT)
- State Endangered (SE)
- State Threatened (ST)
- State Sensitive (SS)

Federal and State Threatened and Endangered species that may occur within this area, at some time of year, include:

**Birds:**

- Common loon [SS]
- Marbled murrelet [FT/SE]*
- Northern spotted owl [FT/SE]*
- Streaked horned lark [FT/SE]*
- Yellow-billed cuckoo [FT]*

**Mammals:**

- Mazama (Western) pocket gopher - includes: Olympia, Tenino, Roy Prairie, and Yelm subspecies [FT/ST]*
- Western gray squirrel [ST]*
Fish:
- Bull trout [FT]
- Chinook salmon [FT/SC]
- Olympic mudminnow [SS]
- Steelhead [FT]

Amphibian:
- Oregon spotted Frog [FT/SE]
- Western pond turtle [SE]

Insect/invertebrates:
- Mardon skipper [SE]*
- Taylor’s checkerspot [FE/SE]*

Plants:
- Golden paintbrush [FT]
- Kincaid’s lupine [FT]
- Marsh sandwort [FE]
- Nelson’s checker-mallow [FT]
- Water howellia [FT]

* Unlikely to be directly oiled during a spill incident.

6.2.1 General Resource Concerns

6.2.1a – Habitats:

- Many rivers and streams throughout this region provide spawning and rearing habitat for a number of salmonid species [including Chinook, chum, Coho, pink, and sockeye salmon, as well as cutthroat (resident and coastal), Dolly Varden, rainbow, and steelhead trout]. Passerine birds commonly nest in riparian habitat during the spring and summer.

- Wetlands in this region range from freshwater emergent, freshwater forested, freshwater ponds and lakes. All wetland types support a diverse array of bird, insect and fish and wildlife species.
• **Restoration sites** where significant efforts have been expended to restore natural functions in a degraded habitat.

6.2.1b – Fish:

• **Salmonids** species (resident and anadromous) are present within this region, with spawning occurring throughout the area’s rivers and streams. Juvenile salmonids use these streams for feeding, rearing, and as migration corridors.

• **Resident species** including trout (cutthroat and rainbow) and various warm water species (bass, etc.) are also present throughout this area.

6.2.1c – Wildlife:

• **Waterfowl concentrations** of various species may be found throughout the region in wetlands and agricultural fields near rivers and creeks. Concentrations especially prevalent from fall through spring.

• **Sensitive nesting** species in the region include bald eagles, passerine birds, ducks (including cavity-nesting), and great blue herons.

• **Resident and migratory songbirds** heavily utilize riparian habitats year-round and are susceptible to oiling/oil ingestion if riparian vegetation and shorelines become contaminated.

• **Mammals** common to the area include deer and elk, bats, and various semi-aquatic species such as muskrat, beaver, river otter, etc. Semi-aquatic mammals are largely dependent on riverine areas, ponds, tributaries, and riparian forests for den sites and foraging areas.

• **Amphibians** may be present in the undisturbed shallow lakes and emergent wetlands associated with this region.

• Listed **butterflies** are present in some the prairie habitats of this region.

6.2.2 Specific Geographic Areas of Concern
(Nota: May include sensitive sites in bordering GRP regions - see map at end of chapter)


Figure 6-1: Specific Geographic Areas of Concern
6.3 CULTURAL RESOURCES AT RISK - SUMMARY

Culturally significant resources are present within the planning area. Information regarding the type and location of cultural resources is maintained by the Washington Department of Archeology and Historic Preservation (WDAHP). This sensitive information is made available to the Washington Department of Ecology for oil spill preparedness and response planning. The Tribal Historic Preservation Offices (THPOs) or Cultural Resource Departments of local tribes (Table 6.1) may also be able to provide information on cultural resources at risk in the area and should be contacted, along with WDAHP, through normal trustee notification processes when significant oil spills, or smaller spills above reportable thresholds, occur in the area.

During a spill response, after the Unified Command is established, information related to specific archeological concerns will be coordinated through the Environmental Unit. In order to ensure that tactical response strategies do not inadvertently harm culturally sensitive sites, WDAHP should be consulted before disturbing any soil or sediment during a response action. WDAHP and/or the Tribal governments may assign a person, or provide a list of professional archeologists that can be contracted, to monitor response activities and cleanup operations for the protection of cultural resources. Due to the sensitive nature of such information, details regarding the location and type of cultural resources present are not included in this document.

Table 6.1 WADE-GRP Cultural Resource Contacts

<table>
<thead>
<tr>
<th>Contact</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington Department of Archaeology and Historic Preservation</td>
<td>(360) 586-3065</td>
<td><a href="mailto:Rob.Whitlam@dahp.wa.gov">Rob.Whitlam@dahp.wa.gov</a></td>
</tr>
<tr>
<td>Chehalis Confederated Tribes</td>
<td>360-709-1747</td>
<td><a href="mailto:dpen@chehalistribe.org">dpen@chehalistribe.org</a></td>
</tr>
<tr>
<td>Muckleshoot Tribe Archaeologist</td>
<td>253-876-3272</td>
<td><a href="mailto:laura.murphy@muckleshoot.nsn.us">laura.murphy@muckleshoot.nsn.us</a></td>
</tr>
<tr>
<td>Nisqually Tribes, THPO</td>
<td>360-456-5221x2180</td>
<td><a href="mailto:wall.jackie@nisqually-nsn.gov">wall.jackie@nisqually-nsn.gov</a></td>
</tr>
<tr>
<td>The Puyallup Tribe of Indians</td>
<td>253-573-7986</td>
<td><a href="mailto:brandon.reynon@puyalluptribe.com">brandon.reynon@puyalluptribe.com</a></td>
</tr>
<tr>
<td>Squaxin Island Tribe, THPO</td>
<td>360-432-3850</td>
<td>r <a href="mailto:foster@squaxin.us">foster@squaxin.us</a></td>
</tr>
<tr>
<td>Yakama Tribes, THPO</td>
<td>509-865-5121x4840</td>
<td><a href="mailto:kate@yakama.com">kate@yakama.com</a></td>
</tr>
</tbody>
</table>
6.3.1 Discovery of Human Skeletal Remains

Any human remains, burial sites, or burial-related materials that are discovered during a spill response must be treated with respect at all times (photographing human remains is prohibited to all except the appropriate authorities). Refer to Section 9403 of the Northwest Area Contingency Plan for National Historic Preservation Act Compliance Guidelines during an emergency response.

6.3.2 Procedures for the Discovery of Cultural Resources

If any person monitoring work activities or involved in spill response believes that they have encountered cultural resources, all work must be stopped immediately and the Incident Commander and Cultural Resource Specialist notified. The area of work stoppage must be adequate to provide for the security, protection, and integrity of the material or artifact(s) discovered.

Prehistoric cultural resources: (May include, but are not limited to, any of the following items)

- Lithic debitage (stone chips and other tool-making byproducts)
- Flaked or ground stone tools
- Exotic rock, minerals, or quarries
- Concentrations of organically stained sediments, charcoal, or ash
- Fire-modified rock
- Rock alignments or rock structures
- Bone (burned, modified, or in association with other bone, artifacts, or features)
- Shell or shell fragments
- Petroglyphs and pictographs
- Fish weirs, fish traps, and prehistoric water craft
- Culturally modified trees
- Physical locations or features (traditional cultural properties)

Historic cultural material: (May include any of the following items over 50 years old)

- Bottles, or other glass
- Cans
- Ceramics
- Milled wood, brick, concrete, metal, or other building material
- Trash dumps
- Homesteads, building remains
- Logging, mining, or railroad features
- Piers, wharves, docks, bridges, dams, or shipwrecks
6.4 ECONOMIC RESOURCES AT RISK SUMMARY

Socio-economic sensitive resources are facilities or locations that rely on a body of water to be economically viable. Because of their location, they could be severely impacted if an oil spill were to occur. Economically sensitive resources are separated into three categories: critical infrastructure, water dependent commercial areas, and water dependent recreation areas. Appendix 6A of this chapter provides a list of economic resources for this planning area.

6.5 GENERAL INFORMATION

6.5.1 Flight restriction zones

Flight restriction zones may be recommended by the Environmental Unit (Planning Section) for the purpose of reducing disturbances that could result in injury to wildlife during an oil spill. By keeping a safe distance or altitude from identified sensitive areas, pilots can lessen the risk of aircraft/bird collisions, prevent the accidental hazing of wildlife into oiled areas, and avoid causing the abandonment of nests.

Implementation of Flight Restriction Zones will take place within the Air Operations Branch (Operations Section) after a Unified Command is formed. The Planning Section’s Environmental Unit will work with the Air Ops Branch Director to resolve any potential conflicts with flight activities that are essential to the spill response effort. Typically, the area within a 1,500-foot radius and below 1,000 feet in altitude is restricted to flying in areas that have been identified as sensitive; however, some areas have more restrictive zones. In addition to restrictions associated with wildlife, Tribal authorities may also request notification when overflights are likely to affect culturally sensitive areas within reservations. See Section 9301.3.2 and Section 9301.3.3 of the Northwest Area Contingency Plan for more information on the use of aircraft and helicopters in open water and shoreline responses.

6.5.2 Wildlife Deterrence

After a Unified Command is formed, the Wildlife Branch (Operations Section), in consultation with the appropriate trustee agencies and the Environmental Unit, will evaluate wildlife deterrent options for the purpose of keeping un-oiled birds away from oil during a spill. The "Bird Deterrence Unit" in the Wildlife Branch would participate in operations. Deterrence options might include the use of acoustic or visual deterrent devices, boats, aircraft or other situation-appropriate tools. For more information see the Northwest Wildlife Response Plan (NWACP Section 9310) and Northwest Area Wildlife Deterrence Resources (NWACP Section 9311).
6.5.3 Oiled Wildlife

Attempting to capture oiled wildlife can be hazardous to both the animal and the person attempting the capture. Response personnel should not approach or attempt to recover oiled wildlife. Responders should report their observations of oiled wildlife to the Wildlife Branch so appropriate action can be taken. Information provided should include the location, date, and time of the sighting, and the estimated number and kind of animals observed. Early on in the response, before a Unified Command is established, oiled wildlife sightings should be reported to Washington Emergency Management Division. For more information see the Northwest Wildlife Response Plan (NWACP Section 9310).
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APPENDIX 6A

List of Economic Resources

(RESERVED)