



State of Oregon  
Department of  
Environmental  
Quality



DEPARTMENT OF  
**ECOLOGY**  
State of Washington



# NISQUALLY RIVER Geographic Response Plan

**(NR GRP)**



**NISQUALLY RIVER**  
**Geographic Response Plan**

**(NR GRP)**

# SPILL RESPONSE CONTACT SHEET

## Required Notifications for Oil Spills & Hazardous Substance Releases

<b>Federal Notification - National Response Center</b>	<b>(800) 424-8802*</b>
<b>State Notification - Washington Emergency Management Division</b>	<b>(800) 258-5990*</b>

<b>U.S. Coast Guard</b>	
<b>Pacific Strike Team</b>	<b>(415) 883-3311*</b>
<b>Sector Puget Sound</b>	
- Emergency	<b>(206) 217-6001*</b>
- Watchstander	<b>(206) 217-6002*</b>
- Incident Management Division	(206) 217-6214
- Port & Waterways Safety	(206) 217-6042
<b>13th Coast Guard District</b>	<b>(800) 982-8813</b>
<b>National Strike Force Coordination Center</b>	<b>(252) 331-6000</b>
- Pacific Strike Team	(415) 883-3311

<b>U.S. Environmental Protection Agency (EPA)</b>	
<b>Region 10 Spill Response</b>	<b>(206) 553-1263*</b>
- Washington Ops Office	(360) 753-9437
- RCRA/CERCLA Hotline	(800) 424-9346
- Public Affairs	(206) 553-1203

<b>National Oceanic Atmospheric Administration</b>	
<b>Scientific Support Coordinator</b>	<b>(206) 526-6829</b>
Weather	(206) 526-6087

<b>Other Federal Agencies</b>	
<b>U.S. Army Corps of Engineers</b>	<b>(206) 764-3400</b>
<b>U.S. Army Joint Base Lewis-McChord</b>	<b>(253) 967-0015</b>
<b>U.S. Department of the Interior</b>	<b>(503) 326-2489</b>
<b>U.S. Fish &amp; Wildlife Service</b>	<b>(509) 891-6839</b>

<b>Tribal Contacts</b>	
<b>Nisqually Indian Tribe</b>	<b>(360) 459-9603</b>

<b>Utilities, Pipeline Companies, &amp; Railroads</b>	
<b>BNSF Railway</b>	<b>(800) 832-5452*</b>
<b>Centralia City Light</b>	<b>(360) 888-2617*</b>
<b>Olympic Pipeline Control Center</b>	<b>(888) 271-8880*</b>
<b>Tacoma Power</b>	<b>(360) 502-8344</b>

<b>Washington State</b>	
<b>Dept. Archaeology &amp; Historic Preservation</b>	<b>(360) 586-3065</b>
<b>Dept. of Ecology</b>	(360) 407-6000
- Headquarters (Spills Program)	<b>(360) 407-7455</b>
- Southwest Regional Office (Response)	<b>(360) 407-6370</b>
<b>Dept. of Fish and Wildlife</b>	(360) 902-2200
- Oil Spill Team (24hour Pager)	<b>(360) 534-8233*</b>
- Region 6	<b>(360) 249-4628</b>
- Emergency HPA Assistance	<b>(360) 902-2537*</b>
<b>Dept. of Health</b>	
- Shellfish	<b>(360) 236-3330</b>
- Shellfish (Afterhours)	(360) 789-8962
- Drinking Water	<b>(800) 521-0323</b>
- Drinking Water (Afterhours)	(877) 481-4901
<b>Dept. of Natural Resources (Aquatic Lands)</b>	<b>(360) 902-1064</b>
<b>Dept. of Transportation</b>	<b>(360) 705-7000</b>
<b>Parks and Recreation Commission</b>	<b>(360) 902-8544</b>
<b>Washington State Patrol - District 1</b>	<b>(253) 538-3240</b>

<b>Response Contractors (OSRO &amp; PRC)</b>	
<b>Clean Harbors</b>	<b>(800) 645-8265</b>
<b>Cowlitz Clean Sweep</b>	<b>(360) 423-6316</b>
<b>Global Diving &amp; Salvage (GDS)</b>	<b>(206) 623-0621*</b>
<b>Marine Spill Response Corporation (MSRC)</b>	<b>(425) 252-1300*</b>
<b>Moran Environmental Recovery (MER)</b>	<b>(888) 233-5338</b>
<b>NRC Environmental Services</b>	<b>(800) 337-7455*</b>

<b>Local Government</b>	
<b>City of Roy - Fire Department</b>	<b>(253) 843-2286</b>
<b>City of Yelm - Police</b>	<b>(360) 458-5080</b>
<b>Pierce County - Emergency Management</b>	<b>(253) 798-6595</b>
<b>Pierce County - Sheriff</b>	<b>(253) 798-4058</b>
<b>South Pierce - Fire &amp; Rescue</b>	<b>(253) 847-4333</b>
<b>Thurston County - Emergency Management</b>	<b>(360) 867-2800</b>
<b>Thurston County - Fire District #2</b>	<b>(360) 458-2799</b>
<b>Thurston County - Sheriff</b>	<b>(360) 786-5500</b>

\* Contact numbers staffed 24-hour/day

## Before you print this document

Chapter 4 with appendices (Pages [27-168](#)) and Appendix 6A (Page [179](#)) of this document are provided in “landscape” page orientation; all other chapters and appendices are oriented in “portrait.” The appendices in Chapter 4 (Pages [69-168](#)) 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: from the time a spill occurs until a Unified Command is established. Its main focus is sensitive resource protection. The plan prioritizes tactical response strategies based on locations where spills might occur and the proximity of those locations to natural, cultural, and economic resources at risk of injury. By using this document it's hoped that immediate and proper action can be taken to reduce spilled oil's impact on sensitive resources within the planning area.

After a spill occurs, control and containment at, or near, the spill source are top priorities. Beyond those efforts, the tactical response strategies provided in this plan should be implemented using the priority tables in Chapter 4, unless overflight observations, spill trajectory models, or unique circumstances dictate otherwise.

This plan also provides information about the type and location of natural and economic resources in the area. Specific information about the location of cultural sites were taken into consideration in the development of this plan but such information cannot be provided in this document due to the confidential nature of the resources.



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# CHAPTER 1

## INTRODUCTION

This plan focuses on sensitive resource protection after an oil spill occurs. It serves as the federal and state on-scene-coordinators' orders during the initial phase of an oil spill response in the Nisqually River area. It has been approved by Regional Response Team 10 and the Chairs and Co-Chairs of the Northwest Area Committee. Changes to this document are expected as more testing is conducted through drills, site visits, and actual use in spill situations. 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](mailto:GRPs@ecy.wa.gov) or submitted by mail using the form and information provided in the appendix of this chapter.

The Nisqually River GRP planning area covers waters from the river's confluence with the Puget Sound at the Nisqually Delta to the La Grande Dam at river mile 42. Major tributaries include the Mashel River, Ohop Creek, McAllister Creek, Muck Creek, Tanwax Creek, Toboton Creek, Powell Creek, Yelm Creek, Thompson Creek, Harts Creek, Horn Creek, and Murray Creek. The coverage area includes the USFWS Nisqually National Wildlife Refuge, lands of the Nisqually Indian Tribe, Joint Base Lewis-McChord, and the communities of Nisqually, Yelm, McKenna, Roy, and La Grande. The Nisqually River forms the boundary between Pierce and Thurston Counties. Additional information about the planning area, including physical features, hydrology, climate and winds, tides and currents, and 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. It provides information on tactical response strategies and the order they should be implemented, based on potential spill origin points and their proximity to sensitive resources. 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 of an oil spill 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. It's important to note that 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 didn't warrant action in that area; however, the priority tables should be followed until 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 or Unified Command.

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 persistent oils that float on water and may not be suitable for other petroleum products or hazardous substances. For hazardous substance spills, refer to the [Northwest Area Contingency Plan](#) (NWACP), Chapter 7000.

Information meant to support initial Environmental Unit functions can be found in Chapter 6 (Resources at Risk). That chapter and its appendix provide specific 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 were taken into consideration in the development of this plan but such information cannot be provided in this document due to the confidential nature of the resources.

## 1.1 GRP CHAPTERS AND APPENDICES

<a href="#">Chapter 1</a>	Introduction
<a href="#">Appendix 1A</a>	GRP Comment Form
<a href="#">Chapter 2</a>	Site Description
<a href="#">Chapter 3</a>	Response Options and Considerations
<a href="#">Chapter 4</a>	Response Strategies and Priorities
<a href="#">Appendix 4A</a>	Response Strategies (2-Pagers)
<a href="#">Appendix 4B</a>	Notification Strategies (2-Pagers)
<a href="#">Appendix 4C</a>	Staging Areas (2-Pagers)
<a href="#">Appendix 4D</a>	Boat Launch Locations (2-Pagers)
<a href="#">Chapter 5</a>	Reserved
<a href="#">Chapter 6</a>	Resources at Risk
<a href="#">Appendix 6A</a>	List of Economic Resources

## 1.2 GEOGRAPHIC RESPONSE PLAN DEVELOPMENT PROCESS

GRPs are part of the [Northwest Area Contingency Plan](#), revised and distributed separately. They've been developed for the marine and inland waters of Washington, Oregon, and Idaho. The plans are prepared through the efforts of, and in cooperation with, Washington Department of Ecology, Oregon Department of Environmental Quality, Idaho State Emergency Response Commission, U.S. Coast Guard, U.S. Environmental Protection Agency, as well as other state and federal agencies, tribal and local governments, response organizations, emergency responders, and communities. GRPs are developed through workshops and meetings with representatives of these organizations as well as local oil spill emergency response experts, industry, environmental and conservation organizations, ports, and pilots, among others. Participants identify resources that may be at risk of injury from spills and attempt 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 determine 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 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 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

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](mailto: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>.



## CHAPTER 2

### SITE DESCRIPTION

#### 2.1 CHAPTER INTRODUCTION

This chapter provides a description of the physical features, hydrology, climate and winds that characterize the Nisqually River area. It also includes an overview of the area's oil spill risks. The planning area includes the Nisqually River riparian habitat, extending from the mouth of the river delta upstream to the LaGrande Dam. Upstream to downstream, the Nisqually River passes through or by the towns and communities of La Grande, Yelm, Roy, McKenna, and the Nisqually Reservation. The Pierce County side of the Nisqually Reservation is managed by the U.S. Army and Air Force Joint Base Lewis McChord (JBLM) as a military training and operations area. The planning area is divided by Pierce and Thurston counties, of which the river serves as the boundary. This GRP consists of Water Resource Inventory Area 11 (WRIA-11, Nisqually).

#### 2.2 PHYSICAL FEATURES

The Nisqually River covers a distance of 78 miles from its headwaters on Mt. Rainier's Nisqually Glacier to its terminus at Puget Sound. This GRP focuses on the lower Nisqually portion of the riparian habitat downstream of the LaGrande Dam, which is preceded by the 2-mile long La Grande Reservoir, the 8-mile long Alder Lake Reservoir and the remaining 26 miles of the upper Nisqually. The Alder and LaGrande Dams are operated in concert with each other though Tacoma Public Utilities' Nisqually River Project. Annually, the Alder and LaGrande produce 200 million and 345 million kilowatt hours of electricity, respectively.<sup>1</sup> They are separated by the 2 mile long La Grande Reservoir. Downstream of the La Grande Reservoir, the river following the LaGrande Dam is characterized by steep gorge terrain. As a result, the LaGrande Dam and Reservoir complex are not publicly accessible.<sup>2</sup>

Below the confluence of the Nisqually with the Mashel River downstream of the LaGrande Powerhouse, the terrain flattens out around the river as it meanders towards the Puget Sound. This change in topography marks the beginning of greater development surrounding the river. At river mile 26.2, just upstream of Yelm, the river flow is diverted by the Centralia Dam. The 4-foot high dam diverts up to 800 cubic feet of water per second (cfs) into the Centralia Canal. The Centralia Canal runs 9.1 miles through the City of Yelm and feeds a designated wetland area built by Centralia City Light as a flood mitigation measure. The Canal rejoins the Nisqually on the downstream side of Yelm at river mile 13. Located at the downstream end of the Canal is the Centralia Power House, a

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<sup>1</sup> Tacoma Public Utilities (n.d.) *Tacoma Power Hydroelectric Projects*. (Pamphlet).

<sup>2</sup> Tacoma Public Utilities. (2015). *LaGrande Dam*. Retrieved from: <http://www.mytpu.org/tacomapower/about-tacoma-power/dams-power-sources/hydro-power/nisqually-river-project/lagrande-dam.htm>

hydropower facility that supplies 12 million watts of electricity to the city of Centralia.<sup>3</sup> Between the Centralia Dam and the LaGrande Power House, the river is often inaccessible by boat.

Downstream of this point, the river enters the reservation land of the Nisqually Indian Tribe. The Nisqually Reservation is approximately 5,000 acres, of which the northeastern 3,300 acres on the Pierce County side of the Nisqually River is managed by Joint Base Lewis McChord as a military training and operations area.<sup>4</sup> Located between river miles 12 and 13 is a fish weir and a JBLM military vehicle bridge, both of which span the width of the river. The weir is in place seasonally from early July through late October. It is used by the Nisqually tribe for trapping and counting salmon. The reservation is also home to the Nisqually Clear Creek and Kalama Creek fish hatcheries. There are several river access locations on the reservation land and on property owned by the tribe, which are primarily used for fishing access. At the northern most portion of the reservation, the river flows into the Nisqually National Wildlife Refuge.

Located at the mouth of the river where it joins Puget Sound, the Nisqually National Wildlife Refuge serves as a preserve for the Nisqually Delta area. Encompassing almost 3,000 acres, this area consists of very sensitive habitat, both environmentally and culturally.<sup>5</sup> The refuge is home to “over 300 species of birds, mammals, fish, reptiles, and amphibians.”<sup>6</sup> It is also noted for being an important area for migratory birds. In addition to a designated Sanctuary, the refuge also has delineations for Nisqually Indian Tribe lands, a Washington Department of Fish and Wildlife Hunting Area, a Nisqually NWR Hunting Area, Private/other lands (within the approved refuge boundary) and a Research Natural Area.

The U.S. Fish and Wildlife Service estimates that boat use in the Refuge for motorized and non-motorized craft is 6,700 visits per year. This figure has been limited due to the physical constraints of the delta, but is increasing according to the USFWS.<sup>7</sup> The Sanctuary is permanently closed to recreational access, and the Research Natural Area is closed to boat traffic from October 1 to March 31. A major transportation corridor cuts through the approved refuge boundary outside of the southern edge of the Sanctuary and the eastern side of the Research Natural Area. This consists of the Interstate 5 freeway and Burlington Northern Santa Fe (BNSF) rail tracks serving both BNSF and Union Pacific trains. Rail tracks cross the Nisqually at three points in this GRP, with one being an abandoned (as of publication) Tacoma Eastern Railroad line at river mile 22. The remaining active lines are operated by BNSF and cross at river miles 4 and 20.

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<sup>3</sup> City of Centralia. (n.d.) *Yelm Hydroproject*. Retrieved from: <http://www.cityofcentralia.com/Page.asp?NavID=359>

<sup>4</sup> Nisqually Indian Tribe. (n.d.) *Heritage*. Retrieved from: <http://www.nisqually-nsn.gov/index.php/heritage/>

<sup>5</sup> U.S. Fish and Wildlife Service. (n.d.) *Nisqually National Wildlife Refuge*. Retrieved from: <http://www.fws.gov/refuges/profiles/index.cfm?id=13529>

<sup>6</sup> US Fish and Wildlife Service. (2013). *Nisqually National Wildlife Refuge*. (Visitor’s Brochure).

<sup>7</sup> U.S. Fish and Wildlife Service (2004). *Nisqually National Wildlife Refuge Final Comprehensive Conservation Plan and Environmental Impact Statement (CCP/EIS)*. pg. 1-19

The shoreline of the lower Nisqually River consists of various habitat types, which include: sand beaches, sand and gravel beaches, sand and cobble beaches, rocky shores, and sheltered marshes.<sup>8</sup> The geomorphology of the river was shaped by Mt. Rainier; landslides, avalanches and volcanic activity created lahars in the Nisqually, which have shaped the watershed over many millennia.<sup>9</sup> These lahars graded the river valley to Puget Sound building upon the ancient post-glacial landforms.<sup>10</sup> Over the course of time, these foundations were sculpted into the modern day Nisqually River through alluvial sediment transport and manmade intervention.

## 2.3 HYDROLOGY

The flow of the Nisqually River in this planning area is primarily controlled by the flood gates of the three dams. The reservoir for the Alder Dam has a capacity of 241,950 acre-feet, while the reservoir connecting it to the La Grande Dam has a capacity of 2,700 acre-feet.<sup>11</sup> In addition to the flow rate of the spillways, the lower Nisqually also receives input from the Mashel River and several small tributaries. A collection of creeks which serve as tributaries to the Nisqually in this section are as follows: Ohop, Tanwax, Muck, Lacamas, Toboton, Powell, Yelm, Thompson, Hart, Horn and Murray.

The mean winter flow (December-January) in the Nisqually is approximately 2,200 cfs.<sup>12</sup> In the spring, the flow is around 1,400 cfs. During the summer the flow ranges from 937 cfs in June to its lowest monthly average of 463 cfs in August. The flow starts to rise in October as the fall to winter transition begins.<sup>13</sup> Between the two geographical ends of this planning area, there is a change in altitude of 750 feet, from the base of the La Grande Dam to the Nisqually Delta at sea level.

Water Resource Inventory Areas (WRIAs): The Nisqually River planning area is contained entirely within WRIA 11 Nisqually. 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.

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<sup>8</sup> Washington State Department of Ecology. (2003). *Nisqually River Geographic Response Plan*. Retrieved from: <http://www.ecy.wa.gov/programs/spills/preparedness/GRP/NisquallyRiver/NisquallyRiver-AllChapters.pdf> pg.2-1

<sup>9</sup> United States Geological Survey. (n.d.). *Significant Lahars at Mount Rainier*. Retrieved from: [http://volcanoes.usgs.gov/volcanoes/mount\\_rainier/mount\\_rainier\\_geo\\_hist\\_79.html](http://volcanoes.usgs.gov/volcanoes/mount_rainier/mount_rainier_geo_hist_79.html).

<sup>10</sup> Pringle, Patrick and Scott, Kevin. (2001). *Postglacial Influence of Volcanism on the Landscape and Environmental History of the Puget Lowland, Washington: A Review of Geologic Literature and Recent Discoveries, with Emphasis on the Landscape Disturbances Associated with Lahars, Lahar Runouts, and Associated Flooding*. Retrieved from: [http://archives.eopugetsound.org/conf/2001PS\\_ResearchConference/sessions/oral/4d\\_pring.pdf](http://archives.eopugetsound.org/conf/2001PS_ResearchConference/sessions/oral/4d_pring.pdf) pg.3, 9

<sup>11</sup> Low Impact Hydropower Institute (2015). LIHI Certificate #8 – Nisqually Project, Washington. Retrieved from: <http://lowimpacthydro.org/lihi-certificate-8-nisqually-project-washington-ferc-1862/>

<sup>12</sup> United States Geological Survey (2015). National Water Information System: Web Interface. USGS 12086500 Nisqually River at La Grande, WA . Retrieved from: [http://waterdata.usgs.gov/nwis/inventory/?site\\_no=12086500&agency\\_cd=USGS](http://waterdata.usgs.gov/nwis/inventory/?site_no=12086500&agency_cd=USGS)

<sup>13</sup> United States Geological Survey. (2015). *USGS Surface-Water Monthly Statistics for the Nation – USGS 12089500 Nisqually River at McKenna, WA*. Retrieved from: [http://waterdata.usgs.gov/nwis/monthly/?referred\\_module=sw&site\\_no=12089500&por\\_12089500\\_15=1179344,00060,15,1947-10,2014-02&format=html\\_table&date\\_format=YYYY-MM-DD&rdb\\_compression=file&submitted\\_form=parameter\\_selection\\_list](http://waterdata.usgs.gov/nwis/monthly/?referred_module=sw&site_no=12089500&por_12089500_15=1179344,00060,15,1947-10,2014-02&format=html_table&date_format=YYYY-MM-DD&rdb_compression=file&submitted_form=parameter_selection_list).

Precipitation is greatest during the winter, resulting in larger river flows. Water discharge during the summer is significantly reduced. During this time, flow in the lower Nisqually is subject to the dam flood gates. They are calibrated to ensure a balance between downstream water management and maintaining an optimal shoreline level on the Alder Lake Reservoir for recreational purposes.<sup>14</sup>

In this planning area, there are a number of water intakes, most of which are spring-fed intakes and wells. These include the spring-fed Nisqually Tribe fish hatcheries on Clear Creek and Kalama Creek and numerous municipal and private ground-water wells. Below the La Grande Dam, the Centralia City Light Diversion Dam at river mile 26.2 diverts water directly from the Nisqually River.

## 2.4 CLIMATE AND WINDS

The Nisqually River GRP planning area falls within the South Puget Sound region of Washington, reaching up to the Cascade foothills at the base of Mt. Rainier. The lower reaches of the Nisqually River are influenced by south Puget Sound's maritime climate with cool summers and mild winters, and the area is protected from strong south-southwest winds associated with winter storms by the Olympic and Cascade mountain ranges.<sup>15</sup> Annual precipitation averages around 50 inches in the lower portions of the Nisqually. Snowfall varies along the river, with this GRP's planning area receiving infrequent snow due to its lower altitude in comparison to the upper Nisqually. Mean high temperatures in the winter can range from mid to upper 40s (F) with low temperatures ranging from low to upper 30s (F). Summer mean high temperatures are usually in the mid to upper 70s (F) with low temperatures in the upper 40s to low 50s (F).<sup>16</sup>

Prevailing winds in the area are generally from the south year round, based on historical averages from nearby Gray Army Airfield at JBLM.<sup>17</sup> Average wind speed at the airport is 6.4 mph. The lightest winds are usually experienced in September at 5.6 mph average. Winds are typically strongest in March with average wind speeds of 7.5 mph.<sup>18</sup>

## 2.5 TIDES AND CURRENTS

Tidal influence on the lower Nisqually River extends approximately 3.3 miles upstream near the town of Nisqually. The mean tidal range (MHW - MLW) for South Puget Sound is 9.4 to 10.48 feet.

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<sup>14</sup> Tacoma Public Utilities. (n.d.) *Nisqually River Project*. Retrieved from:

<https://www.mytpu.org/tacomapower/about-tacoma-power/dams-power-sources/hydro-power/nisqually-river-project/>.

<sup>15</sup> U.S. Fish and Wildlife Service (2004). *Nisqually National Wildlife Refuge Final Comprehensive Conservation Plan and Environmental Impact Statement (CCP/EIS)*. Ch. 3 Affected Environment. Pg. 3-1.

<sup>16</sup> National Oceanic and Atmospheric Administration (n.d.) *NOWData – NOAA Online Weather Data*. Retrieved from: <http://www.weather.gov/climate/xmacis.php?wfo=sew>

<sup>17</sup> Western Region Climate Center. (n.d.). *Average Wind Direction* (Fort Lewis AAF, WA (KGRF)). Retrieved from <http://www.wrcc.dri.edu/htmlfiles/westwinddir.html>.

<sup>18</sup> Western Region Climate Center. (n.d.). *Average Wind Speeds - MPH* (Fort Lewis AAF, WA (KGRF)). Retrieved from: <http://www.wrcc.dri.edu/climatedata/climtables/westwind>.

The diurnal tidal range (MHHW - MLLW) is 13.1 to -3.5 feet.<sup>19</sup> The river current in the planning area is predicated on the flow rate of the dam spillways and input from the Mashel River and its various tributary creeks. The flow rate from the creeks is predominately determined by runoff from precipitation.

## 2.6 RISK ASSESSMENT

The Nisqually River area is plentiful in natural, cultural, and economic resources, all at risk of injury from oil spills. Potential oil spill risks include, but are not limited to, road transportation, rail transportation, oil pipelines, aircraft, recreational boating, and other oil spill risks. This section briefly discusses these risks and how they could impact the Nisqually River and the greater GRP planning area.

### Road Transportation

Vehicle traffic on roadways poses a risk of oil spills in the area. Commercial trucks can contain hundreds to thousands of gallons of fuel and oil, and almost any kind of hazardous waste or material. An accident involving a fully loaded tank truck on the Interstate-5 Bridge or on State Route 507 crossing over the Nisqually River could result in a substantial oil spill. Highways 7 and 161 have crossings over two tributaries of the Nisqually, the Mashel River and Ohop Creek. There are also several local roads which intersect the river and its tributaries in the area. Smaller vehicle accidents pose a similar risk, though they carry smaller volumes of fuel and oil. Spills from vehicles onto roadways could cause fuel or oil to flow from ditches or hardened surfaces into streams, creeks, wasteways, or storm water systems that flow into the Nisqually or its tributaries.

### Rail Transportation

Train locomotives typically hold several thousand gallons of diesel fuel and large quantities of lube and motor oils. Loaded train tank cars can each contain tens of thousands of gallons of crude oil or other petroleum products. Hazardous material spills from rail cars also present a risk to the river. Burlington Northern Santa Fe (BNSF) rail lines cross the Nisqually River at approximately river miles 4 and 20. There is an out of service (as of publishing) Tacoma Eastern Railroad line that crosses the Nisqually at river mile 22. A Tacoma Eastern Railroad line crosses the Mashel River, a tributary of the Nisqually, at river mile 6.6.

### Oil Pipelines

The Olympic Pipeline Company pipeline crosses the Nisqually River at approximately river mile 19. It carries a range of petroleum products including gasoline, diesel, and aviation turbine fuel. Manual block valves are located on both sides of the river crossing, approximately 2 miles apart.<sup>20</sup> If the pipeline were to leak or rupture, impact to sensitive resources in the area could be substantial.

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<sup>19</sup> U.S. Fish and Wildlife Service (2004). Nisqually National Wildlife Refuge Final Comprehensive Conservation Plan and Environmental Impact Statement (CCP/EIS). Ch. 3 Affected Environment. Pg. 3-3.

<sup>20</sup> Olympic Pipeline Company (2013). *Olympic Pipeline Company Spill Response Plan*. Appendix C. Pg. C-28.

### **Aircraft**

The Western Airpark and airfields located at Joint Base Lewis McChord are located within or near the planning area. There is always a potential for aircraft failures during inbound and outbound flights that could result in fuel releases to water.

### **Recreational Boating**

Accidents involving recreational water craft on the Nisqually Delta could result in spills of a few gallons of fuel oil to several dozen gallons. Types of incidents could include a vessel grounding, fire, sinking, or explosion. Bilge discharges could also occur and have the potential to impact sensitive resources on the river. Vessels and personal watercraft are not allowed in certain parts of the Nisqually delta, but there are certain areas within the delta where vessels are allowed, which could present a substantial spill risk to sensitive sites in the area. The U.S. Coast Guard defines the Nisqually as a navigable waterway for appropriate small craft, but access is considered to be tidally dependent at the I-5 bridge crossing.<sup>21</sup>

### **Joint Base Lewis-McChord**

The U.S. military conducts field training on JBLM throughout the year, which requires transport and storage of fuel in the area. To reach the training areas at Joint Base Lewis McChord, military units cross the Nisqually River either at the Nisqually River military vehicle bridge or ford the river at the tank crossing site. A worst-case scenario spill would involve an accident on the bridge or at the tank crossing site involving a 7,500 gallon military tanker truck with fuel overturning and spilling the majority of its fuel into the river. The probability of such a spill is considered small, and no spills into the river from military training have been recorded. However, with continued military training activity, this potential remains.<sup>22</sup>

### **Other Spill Risks**

Other potential oil spill risks in the area include road run-off during rain events, on-shore or near shore construction or farming activities where heavy equipment is being operated, and the migration of spilled oil through soil on lands adjacent to the lake or along stream banks.

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<sup>21</sup> United States Coast Guard. *Navigability Determinations for the Thirteenth District*. Retrieved from: [https://www.uscg.mil/d13/docs/CG\\_Navigable\\_Waterways.pdf](https://www.uscg.mil/d13/docs/CG_Navigable_Waterways.pdf)

<sup>22</sup> Washington State Department of Natural Resources. (2011). Nisqually Reach Aquatic Reserve Management Plan. Pg. 46. Retrieved from : <http://www.nisquallyestuary.org/managementplan.pdf>

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**Note 1:** Collection for Skimming Operations response options should include use of enhanced skimming using a U-boom, V – boom, or J – boom configuration in waters large enough for boats to maneuver (e.g., lake, large river).

**Note 2:** Vessel Based Skimming Operations response options should include use of advancing skimmers: weir, belt, brush, drum, or other skimmer types.

**Note 3:** Shore Based Skimming Operations response options should include use of fixed skimmers: weir, belt, brush, drum, or other skimmer types.

**Note 4:** Shoreline Protection should include the deployment of response strategies (boom) to divert and collect oil off of the water before shoreline areas are impacted, or deflect and exclude oil away from shoreline areas. These strategies include those published in this document (GRP response strategies), those provided in other plans (e.g., facility contingency plans), and “ad-hoc” strategies developed during the spill itself. A culvert block or underflow dam might be installed to aid in the recovery of spilled oil in small streams or those with intermittent flow.

**Note 5:** Shoreside Cleanup options depend on safe and efficient access to locations and the type of river, creek, or stream bank present. Potential activities could include flooding, flushing, manual removal, vacuum, mechanical removal, sorbents, vegetation cutting, mechanical tilling/aeration, and/or sediment reworking/surf washing.

**Note 6:** This sheet doesn’t represent all locations where Tribes and Tribal Nations have lands or areas of specific interest (including lands established by treaty or rights to Usual and Accustom areas). Early coordination with tribal governments is highly recommended during a response, regardless of the spill location or potential impact areas.

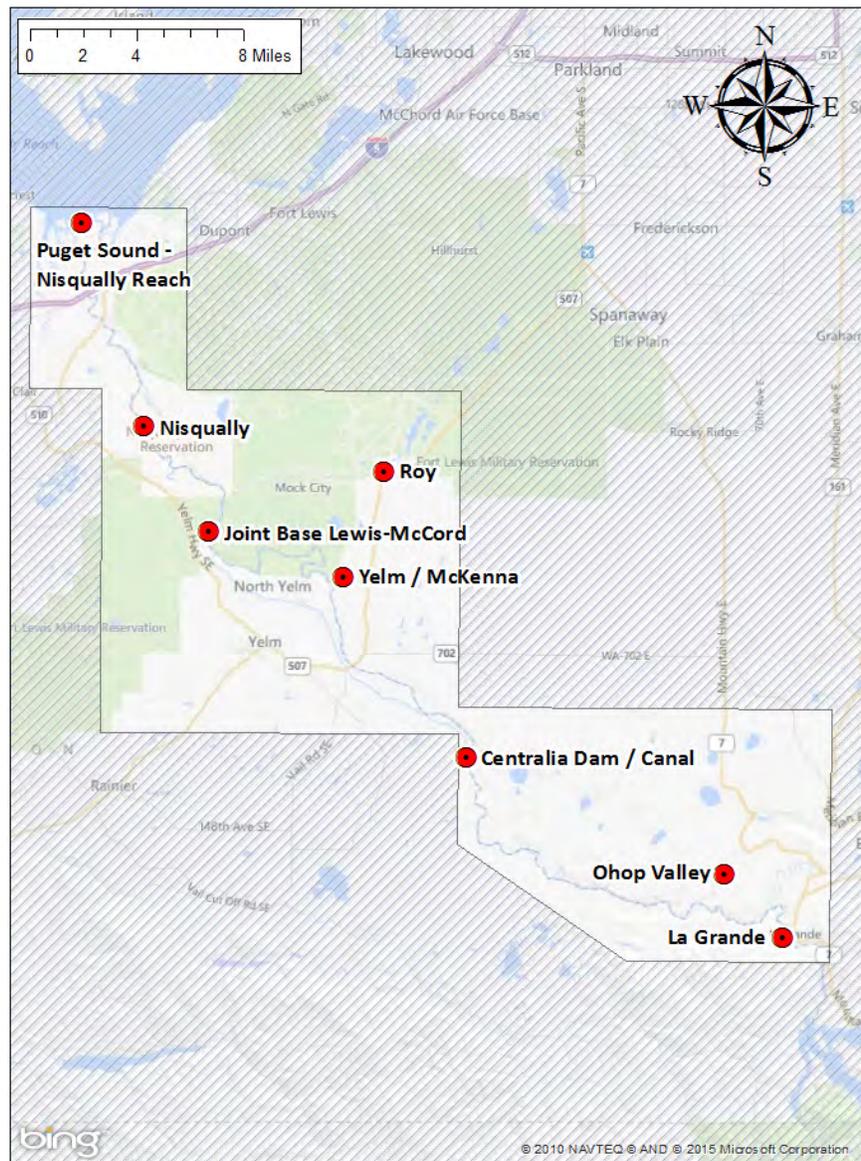


Figure 3-1: Response Options and Considerations Area

**NISQUALLY RIVER  
GEOGRAPHIC RESPONSE PLAN**

**(NR GRP)**

**CHAPTER 4**

**RESPONSE STRATEGIES AND PRIORITIES**

## 4.1 CHAPTER INTRODUCTION

This chapter provides information on GRP response strategies and the order (priority) they should be implemented based on Potential Oil Spill Origin Points (POSOPs), and the proximity of sensitive resources to them. 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 movement of oil and the time it takes to mobilize response resources to deploy GRP strategies must always be considered when setting implementation priorities. Response equipment type and location information can be found on the Western Response Resource List (WRRL). The WRRL is available online at <http://www.wrri.us>. 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. 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 or Unified Command.

### 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? Source control and containment of the spill at or near the source of a spill 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 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 emergency 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 \(WADOT\) guidelines](#) for work zone traffic control should be followed when working on or near a roadway.
  - Thurston County Emergency Management (360) 867-2800
  - Pierce County Emergency Management (253) 798-6595
  - Washington State Patrol District 1 (253) 538-3240
  - City of Yelm Police (360) 458-5080
  - City of Roy Fire Department (253) 843-2286
  - Pierce County Sheriff (253) 798-4058
  - South Pierce Fire and Rescue (253) 847-4333
  - Thurston County Sheriff (360) 786-5500
  - Thurston County Fire Dist. No 2 (360) 458-2799

### ***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 that when data was gathered during field visits. Response managers and responders must remain flexible and 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.
- Oil containment boom must be free of twists, gaps, and debris in order to remain effective.
- 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 4-9). Depending on conditions, some booming strategies may require around-the-clock tending.
- Although designed for implementation during the initial phase of an oil spill, GRP strategies may continue to be deployed and implemented throughout the entire lifespan of a response, as determined appropriate and necessary by the Incident Commander or Unified Command.

***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.

**4.1.2 Historical River Streamflow 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 <http://maps.waterdata.usgs.gov/mapper/index.html>.

**Table 4-1 Water Speed Drift Measurement**

<b>Time to Drift 100 Feet (seconds)</b>	<b>Velocity (ft/sec)</b>	<b>Velocity (m/sec)</b>	<b>Velocity (knots)</b>	<b>Max Boom Deflection Angle (degrees)</b>	<b>Boom required for 100-foot Profile to Current (feet)</b>	<b>Anchors needed if Placed Every 50 feet (number)</b>
6	16.7	5.1	10.00	4.0	1,429	30
8	12.5	3.8	7.50	5.4	1,071	22
10	10.0	3.1	6.00	6.7	857	18
12	8.3	2.5	5.00	8.0	714	15
14	7.1	2.2	4.29	9.4	612	13
17	5.9	1.8	3.53	11.4	504	11
20	5.0	1.5	3.00	13.5	429	10
24	4.2	1.3	2.50	16.3	357	8
30	3.3	1.0	2.00	20.5	286	7
40	2.5	0.8	1.50	27.8	214	5
60	1.7	0.5	1.00	44.4	143	4
>86	≤1.2	≤0.35	≤0.70	90.0	100	3

*Source: Oil Spill Response in Fast Currents. A Field Guide. U.S. Coast Guard Research and Development Center. October, 2001*

**Table 4-2 Historic Streamflow for the Nisqually River (2012-2014)**

	<i>Monthly average flow in Cubic Feet per Second (cfs)</i>			
	<b>Nisqually River at McKenna</b> <a href="#">(USGS 12089500)</a>	<b>Nisqually River at La Grande</b> <a href="#">(USGS 12086500)</a>	<b>Nisqually River at La Grande Dam</b> <a href="#">(USGS 12086000)</a>	<b>Centralia Power Canal near McKenna</b> <a href="#">(USGS 12089208)</a>
<b>Jan</b>	2,200	2,060	No Data	632
<b>Feb</b>	2,090	1,960	--	655
<b>Mar</b>	1,640	1,640	--	649
<b>Apr</b>	1,400	1,490	--	657
<b>May</b>	1,220	1,490	--	622
<b>Jun</b>	936	1,280	--	616
<b>Jul</b>	595	998	--	526
<b>Aug</b>	470	797	--	415
<b>Sep</b>	533	814	--	375
<b>Oct</b>	815	1,070	--	413
<b>Nov</b>	1,620	1,610	--	510
<b>Dec</b>	2,250	2,100	--	621

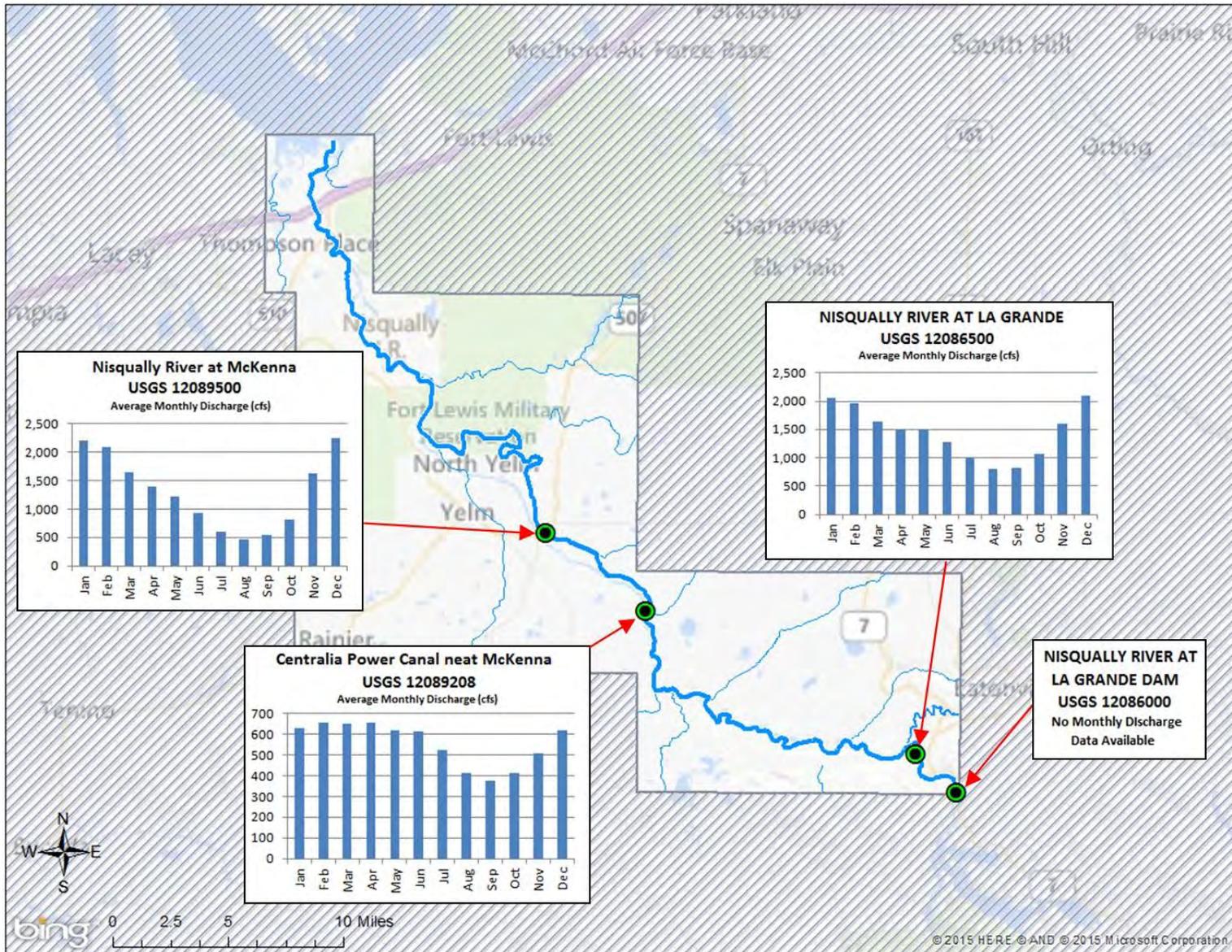


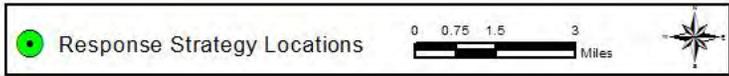
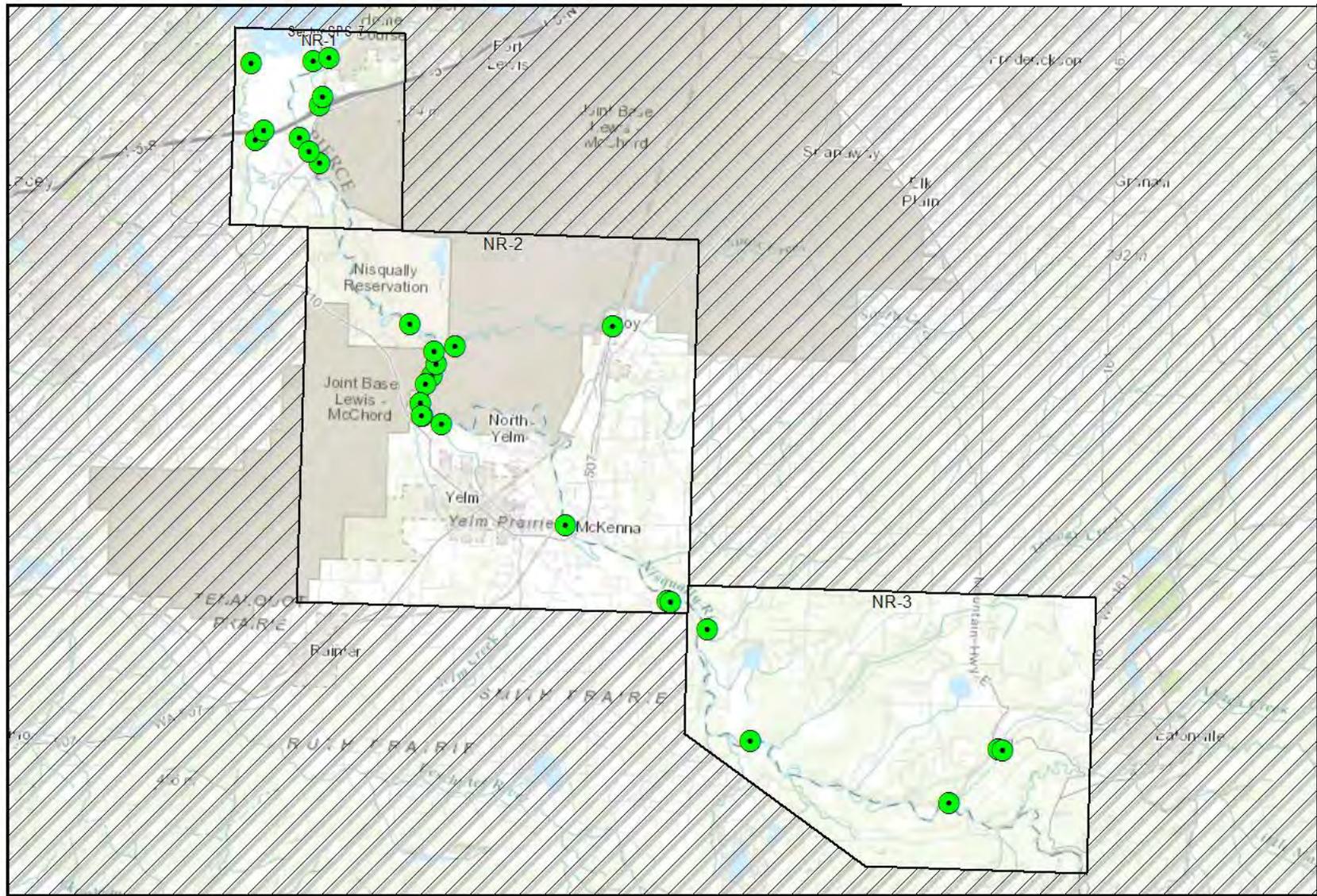
Figure 4-1: Historic streamflow for Nisqually River

## 4.2 AREA MAPS

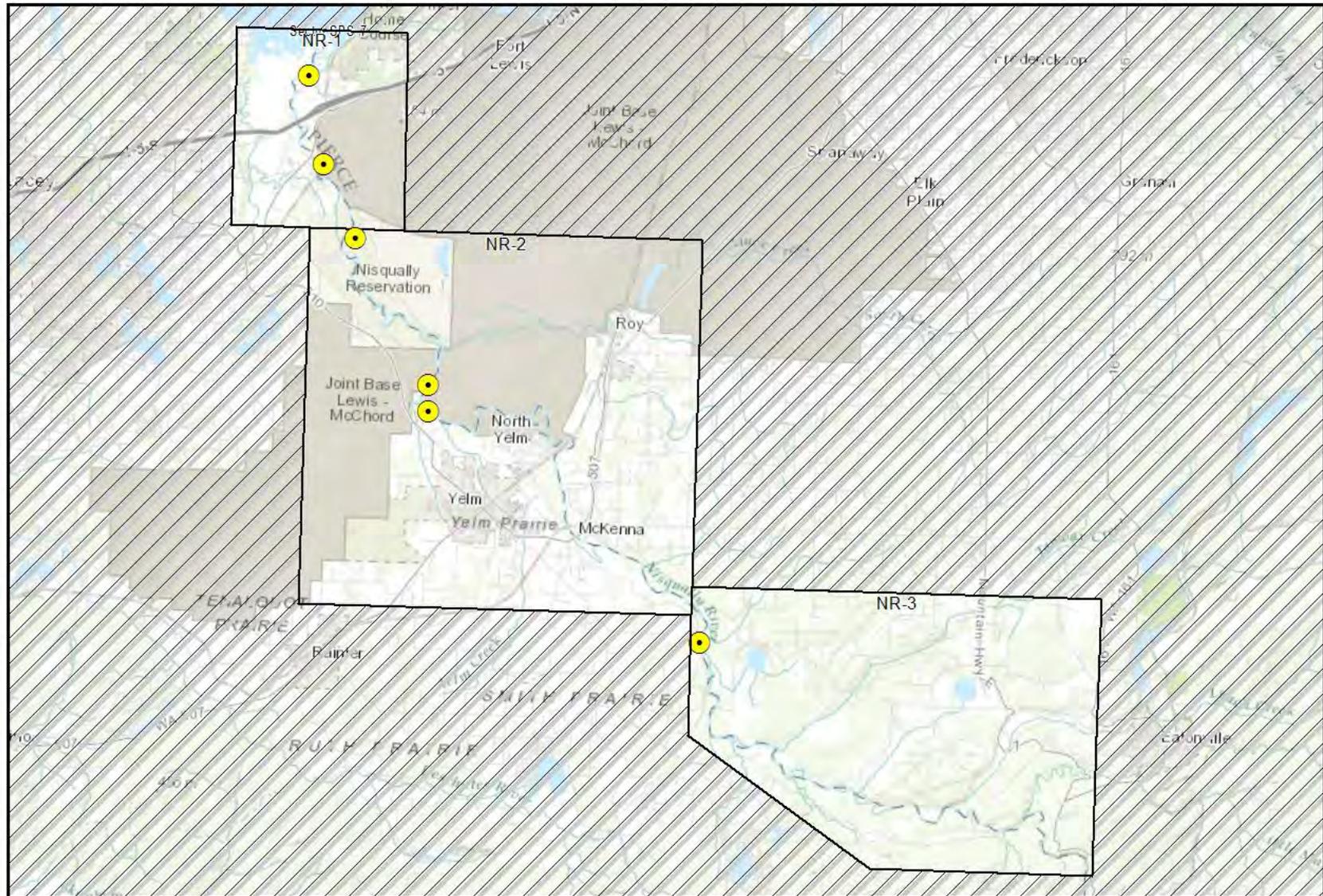
The following maps provide a geographic overview of the Nisqually River GRP area. Sector maps in Section 4.4 of this chapter provide more detail on the location of response strategies, notification strategies, staging areas, boat launch locations, and POSOPs. Detailed information for each location can 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:

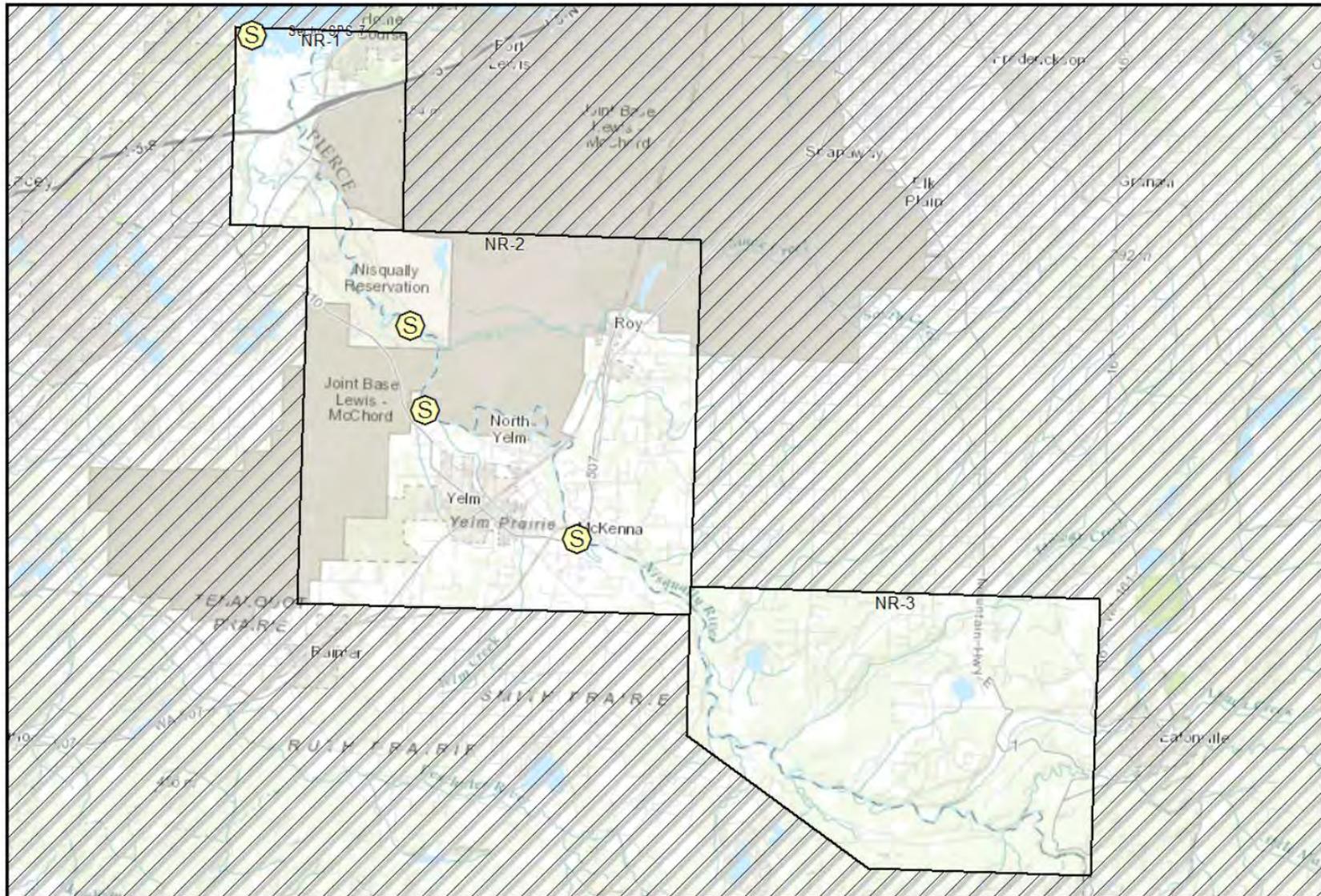
- Response Strategy Locations
- Notification Strategy Locations
- Staging Areas
- Boat Launch Locations
- Potential Oil Spill Origin Points



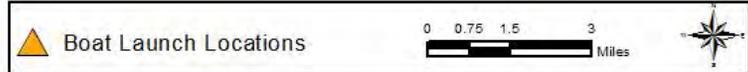
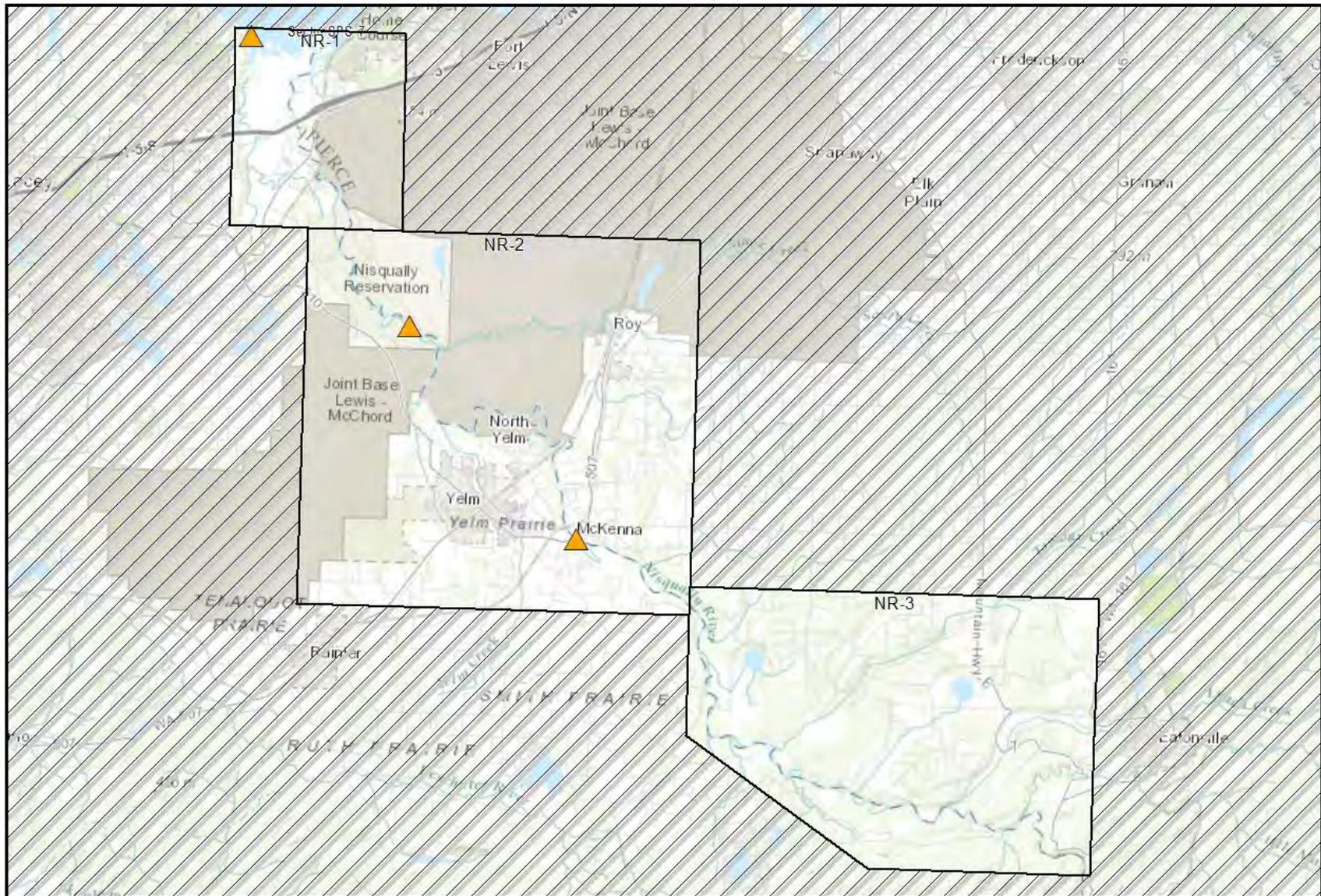
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan,



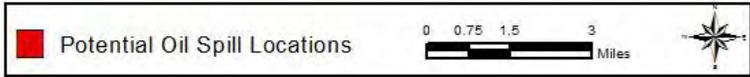
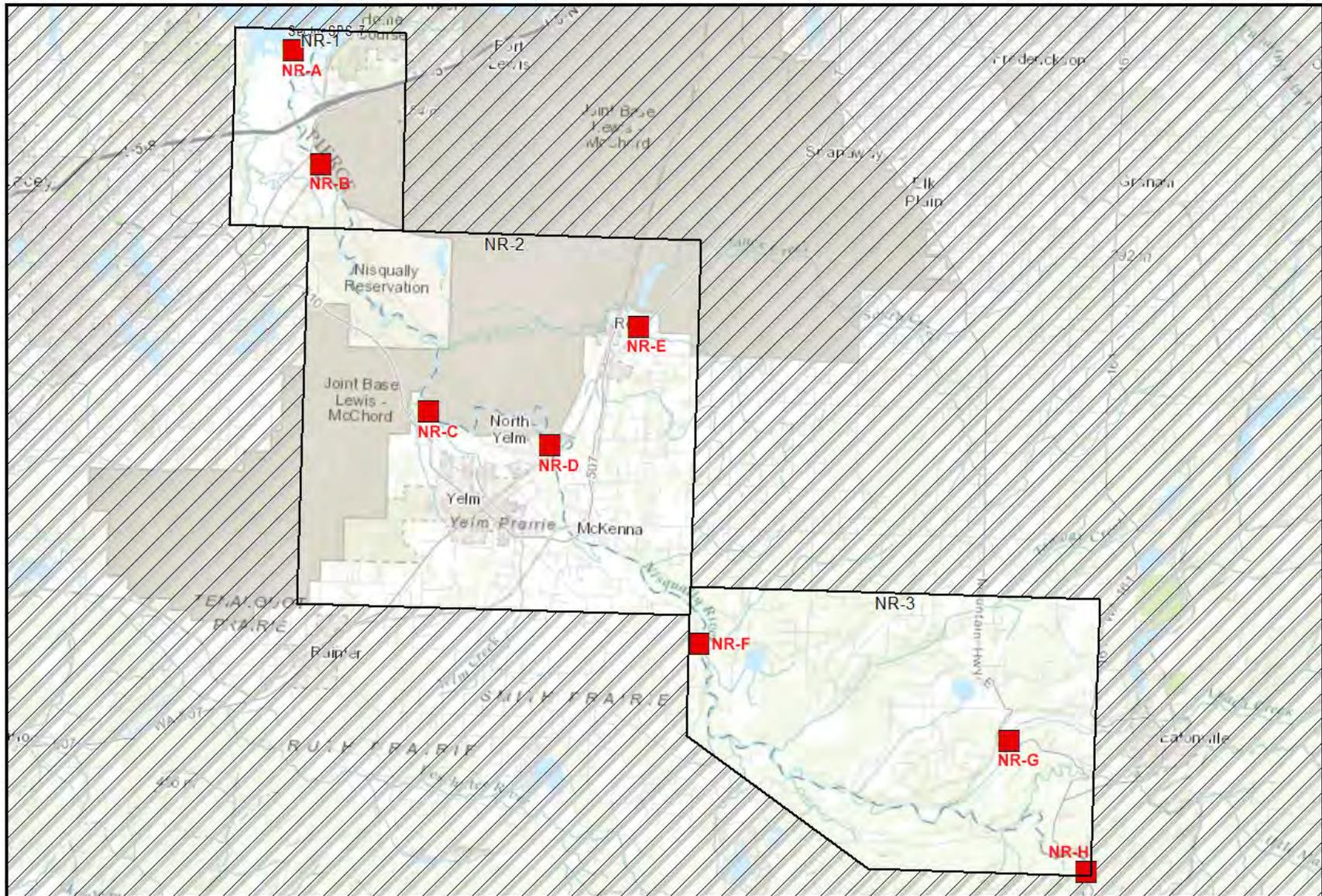
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan,



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan,



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan,



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan,

## 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 into the Nisqually River area.

1. Safety is always the number one priority. Do not implement GRP strategies or take actions that will unduly jeopardize public, worker, or personal safety.
2. Notify local public health and safety personnel.
3. 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.
4. Determine the priority or order GRP strategies should be implemented based on the location of the spill or affected area. Priorities based on Potential Oil Spill Origin Points are included in this chapter and should be used unless the situation or circumstances dictate otherwise (see Section 4.3.2).
5. As response resources become available, implement the GRP Strategies in order of priority.
6. In Washington State, if strategy implementation reduces, interrupts, or diverts the flow of water in streams, including the installation of a culvert block or underflow dam, an Emergency HPA must be obtained from WDFW (24-hour pager: (360) 534-8233).

### 4.3.2 Strategy Priorities based on Potential Spill Origin Points

Potential Oil Spill Origin Points (POSOP) are geographic locations that have a defined list of response strategy implementation priorities in a matching table of Section 4.3. The placement of each POSOP is often based on spill risks in the area, including oil pipelines, railways, highways/roadways, tributaries, and vessel movements. Intersections of two or more of these risk locations typically represent a higher spill risk than any one individually, increasing the probability of an oil spill. 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 response priorities during a response, or selecting an appropriate POSOP, the downstream and tidal movement of spilled oil and the time it takes to mobilize and deploy response

resources must be considered. Generally, 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 POSOPs in the Nisqually River area; points NR-A through NR-H. These priority tables were determined using a combination of variables, including: notification time, travel time for responders and equipment, average and seasonal flow rates, average winds, tides or currents, deployment time, proximity to potential spill sources, and other considerations.

***Source control and containment are a higher priority than GRP strategy implementation***

**Table 4-3: Priority Table “NR-A” (Nisqually Reach/South Puget Sound)**

<b>"NR-A" (Nisqually Reach/South Puget Sound)</b>					
<b>Implementation Priority</b>	<b>Strategy Number</b>	<b>Sector Map Page#</b>	<b>Strategy Matrix Page#</b>	<b>Strategy Details Page#</b>	<b>Remarks</b>
1	<a href="#"><u>NR-0.6</u></a>	<a href="#"><u>50</u></a>	<a href="#"><u>58</u></a>	<a href="#"><u>93</u></a>	Best Implemented at High Tide
2	<a href="#"><u>RDSL-0.4</u></a>	<a href="#"><u>50</u></a>	<a href="#"><u>63</u></a>	<a href="#"><u>127</u></a>	Best Implemented at High Tide
3	<a href="#"><u>MCALC-0.6</u></a>	<a href="#"><u>50</u></a>	<a href="#"><u>56</u></a>	<a href="#"><u>81</u></a>	Best Implemented at High Tide
4	<a href="#"><u>NRTA-0.1</u></a>	<a href="#"><u>50</u></a>	<a href="#"><u>62</u></a>	<a href="#"><u>121</u></a>	Best Implemented at High Tide
5	<a href="#"><u>RDSL-1.8</u></a>	<a href="#"><u>50</u></a>	<a href="#"><u>63</u></a>	<a href="#"><u>129</u></a>	Best Implemented at High Tide
6	<a href="#"><u>NR-3.15</u></a>	<a href="#"><u>50</u></a>	<a href="#"><u>58</u></a>	<a href="#"><u>95</u></a>	Best Implemented at High Tide
7	<a href="#"><u>MCALC-2.15</u></a>	<a href="#"><u>50</u></a>	<a href="#"><u>56</u></a>	<a href="#"><u>83</u></a>	Best Implemented at High Tide
8	<a href="#"><u>MCALC-2.6</u></a>	<a href="#"><u>50</u></a>	<a href="#"><u>56</u></a>	<a href="#"><u>85</u></a>	Best Implemented at High Tide

**Table 4-4: Priority Table “NR-B” (Nisqually River - Highway/Railroad Crossings ~ RM 4.15)**

<b>"NR-B" (Highway/Railroad Crossings on Nisqually River ~ River Mile 4.15)</b>					
<b>Implementation Priority</b>	<b>Strategy Number</b>	<b>Sector Map Page#</b>	<b>Strategy Matrix Page#</b>	<b>Strategy Details Page#</b>	<b>Remarks</b>
1	<a href="#">NR-0.6</a>	<a href="#">50</a>	<a href="#">58</a>	<a href="#">93</a>	Best Implemented at High Tide
2	<a href="#">RDSL-0.4</a>	<a href="#">50</a>	<a href="#">63</a>	<a href="#">127</a>	Best Implemented at High Tide
3	<a href="#">MCALC-0.6</a>	<a href="#">50</a>	<a href="#">58</a>	<a href="#">81</a>	Best Implemented at High Tide
4	<a href="#">RDSL-1.8</a>	<a href="#">50</a>	<a href="#">63</a>	<a href="#">129</a>	Best Implemented at High Tide
5	<a href="#">NR-0.1</a>	<a href="#">50</a>	<a href="#">62</a>	<a href="#">121</a>	Best Implemented at High Tide
6	<a href="#">NR-3.15</a>	<a href="#">50</a>	<a href="#">58</a>	<a href="#">95</a>	Best Implemented at High Tide
7	<a href="#">NR-3.7</a>	<a href="#">50</a>	<a href="#">58</a>	<a href="#">97</a>	Best Implemented at High Tide
8	<a href="#">NR-4.1</a>	<a href="#">50</a>	<a href="#">59</a>	<a href="#">99</a>	Best Implemented at High Tide

**Table 4-5: Priority Table “NR-C” (Nisqually River - Centralia Power House ~ RM 13.2)**

<b>"NR-C" (Centralia City Light Power House on Nisqually River ~ River Mile 13.2)</b>					
<b>Implementation Priority</b>	<b>Strategy Number</b>	<b>Sector Map Page#</b>	<b>Strategy Matrix Page#</b>	<b>Strategy Details Page#</b>	<b>Remarks</b>
1	<a href="#">NR-0.6</a>	<a href="#">50</a>	<a href="#">58</a>	<a href="#">93</a>	Best Implemented at High Tide
2	<a href="#">RDSL-0.4</a>	<a href="#">50</a>	<a href="#">63</a>	<a href="#">127</a>	Best Implemented at High Tide
3	<a href="#">MCALC-0.6</a>	<a href="#">50</a>	<a href="#">56</a>	<a href="#">81</a>	Best Implemented at High Tide
4	<a href="#">RDSL-1.8</a>	<a href="#">50</a>	<a href="#">63</a>	<a href="#">129</a>	Best Implemented at High Tide
5	<a href="#">NR-0.1</a>	<a href="#">50</a>	<a href="#">62</a>	<a href="#">121</a>	Best Implemented at High Tide
6	<a href="#">NR-3.15</a>	<a href="#">50</a>	<a href="#">58</a>	<a href="#">95</a>	Best Implemented at High Tide
7	<a href="#">NR-3.7</a>	<a href="#">50</a>	<a href="#">58</a>	<a href="#">97</a>	Best Implemented at High Tide
8	<a href="#">NR-4.1</a>	<a href="#">50</a>	<a href="#">59</a>	<a href="#">99</a>	Best Implemented at High Tide
9	<a href="#">NR-10.5</a>	<a href="#">52</a>	<a href="#">59</a>	<a href="#">101</a>	
10	<a href="#">NR-11.65</a>	<a href="#">52</a>	<a href="#">59</a>	<a href="#">103</a>	

**Table 4-6: Priority Table "NR-D" (Nisqually River - Pipeline Crossing Area ~ RM 19.6)**

<b>"NR-D" (Pipeline Crossing Area on Nisqually River ~ River Mile 19.6)</b>					
<b>Implementation Priority</b>	<b>Strategy Number</b>	<b>Sector Map Page#</b>	<b>Strategy Matrix Page#</b>	<b>Strategy Details Page#</b>	<b>Remarks</b>
1	<a href="#">NR-4.1</a>	<a href="#">50</a>	<a href="#">59</a>	<a href="#">99</a>	Best Implemented at High Tide
2	<a href="#">NR-10.5</a>	<a href="#">52</a>	<a href="#">59</a>	<a href="#">101</a>	
3	<a href="#">NR-11.65</a>	<a href="#">52</a>	<a href="#">59</a>	<a href="#">103</a>	
4	<a href="#">NR-12.0</a>	<a href="#">52</a>	<a href="#">60</a>	<a href="#">105</a>	
5	<a href="#">NR-12.25</a>	<a href="#">52</a>	<a href="#">60</a>	<a href="#">107</a>	
6	<a href="#">NR-12.55</a>	<a href="#">52</a>	<a href="#">60</a>	<a href="#">109</a>	Deploy from July through October
7	<a href="#">NR-13.05</a>	<a href="#">52</a>	<a href="#">60</a>	<a href="#">111</a>	
8	<a href="#">NR-13.7</a>	<a href="#">52</a>	<a href="#">61</a>	<a href="#">113</a>	

**Table 4-7: Priority Table “NR-E” (Lacamas Creek - Pipeline/Highway Crossing)**

<b>"NR-E"</b> <i>(Pipeline/Highway Crossing on Lacamas Creek ~ Creek Mile 0.4)</i>					
<b>Implementation Priority</b>	<b>Strategy Number</b>	<b>Sector Map Page#</b>	<b>Strategy Matrix Page#</b>	<b>Strategy Details Page#</b>	<b>Remarks</b>
1	<a href="#">NR-3.7</a>	<a href="#">50</a>	<a href="#">58</a>	<a href="#">97</a>	
2	<a href="#">NR-4.1</a>	<a href="#">50</a>	<a href="#">59</a>	<a href="#">99</a>	
3	<a href="#">NR-10.5</a>	<a href="#">52</a>	<a href="#">59</a>	<a href="#">101</a>	
4	<a href="#">MUCK-0.5</a>	<a href="#">52</a>	<a href="#">57</a>	<a href="#">89</a>	
5	<a href="#">MUCK-5.5</a>	<a href="#">51</a>	<a href="#">57</a>	<a href="#">91</a>	

**Table 4-8: Priority Table “NR-F” (Nisqually River - Diversion Dam and Canal ~ RM 26.9)**

<b>"NR-F" (Centralia Diversion Dam/Centralia Canal on Nisqually River ~ River Mile 26.9)</b>					
<b>Implementation Priority</b>	<b>Strategy Number</b>	<b>Sector Map Page#</b>	<b>Strategy Matrix Page#</b>	<b>Strategy Details Page#</b>	<b>Remarks</b>
1	<a href="#">NR-12.25</a>	<a href="#">52</a>	<a href="#">60</a>	<a href="#">107</a>	
2	<a href="#">NR-12.55</a>	<a href="#">52</a>	<a href="#">60</a>	<a href="#">109</a>	Deploy from July through October
3	<a href="#">NR-13.05</a>	<a href="#">52</a>	<a href="#">60</a>	<a href="#">111</a>	
4	<a href="#">CCAN-0.15R</a>	<a href="#">52</a>	<a href="#">55</a>	<a href="#">73</a>	
5	<a href="#">CCAN-0.15L</a>	<a href="#">52</a>	<a href="#">55</a>	<a href="#">71</a>	
6	<a href="#">NR-13.7</a>	<a href="#">52</a>	<a href="#">61</a>	<a href="#">113</a>	
7	<a href="#">NR-22.15</a>	<a href="#">51</a>	<a href="#">61</a>	<a href="#">115</a>	
8	<a href="#">CCAN-7.96</a>	<a href="#">51</a>	<a href="#">55</a>	<a href="#">75</a>	
9	<a href="#">CCAN-8.0</a>	<a href="#">51</a>	<a href="#">55</a>	<a href="#">77</a>	

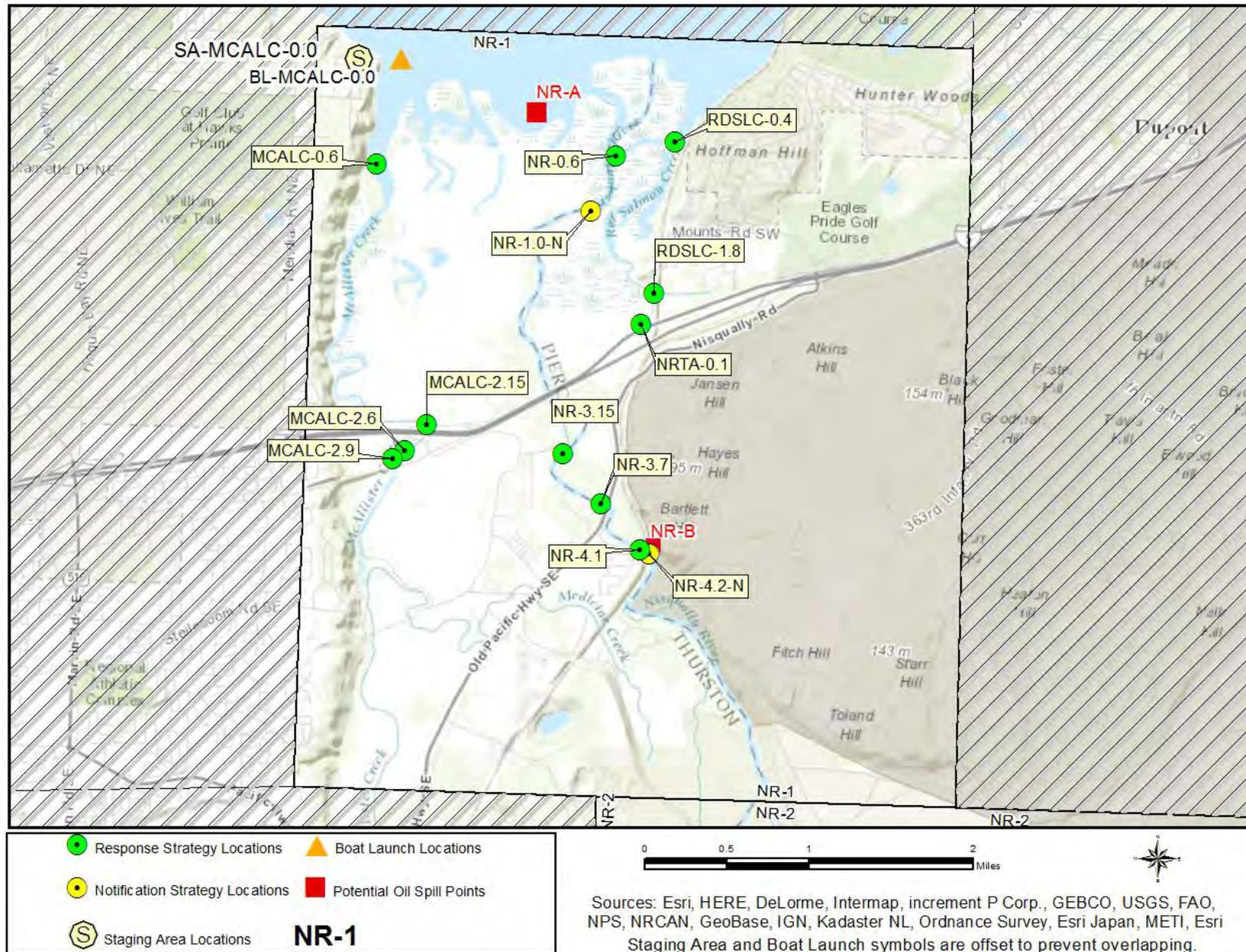
**Table 4-9: Priority Table “NR-G” (Ohop Creek at Highway 7)**

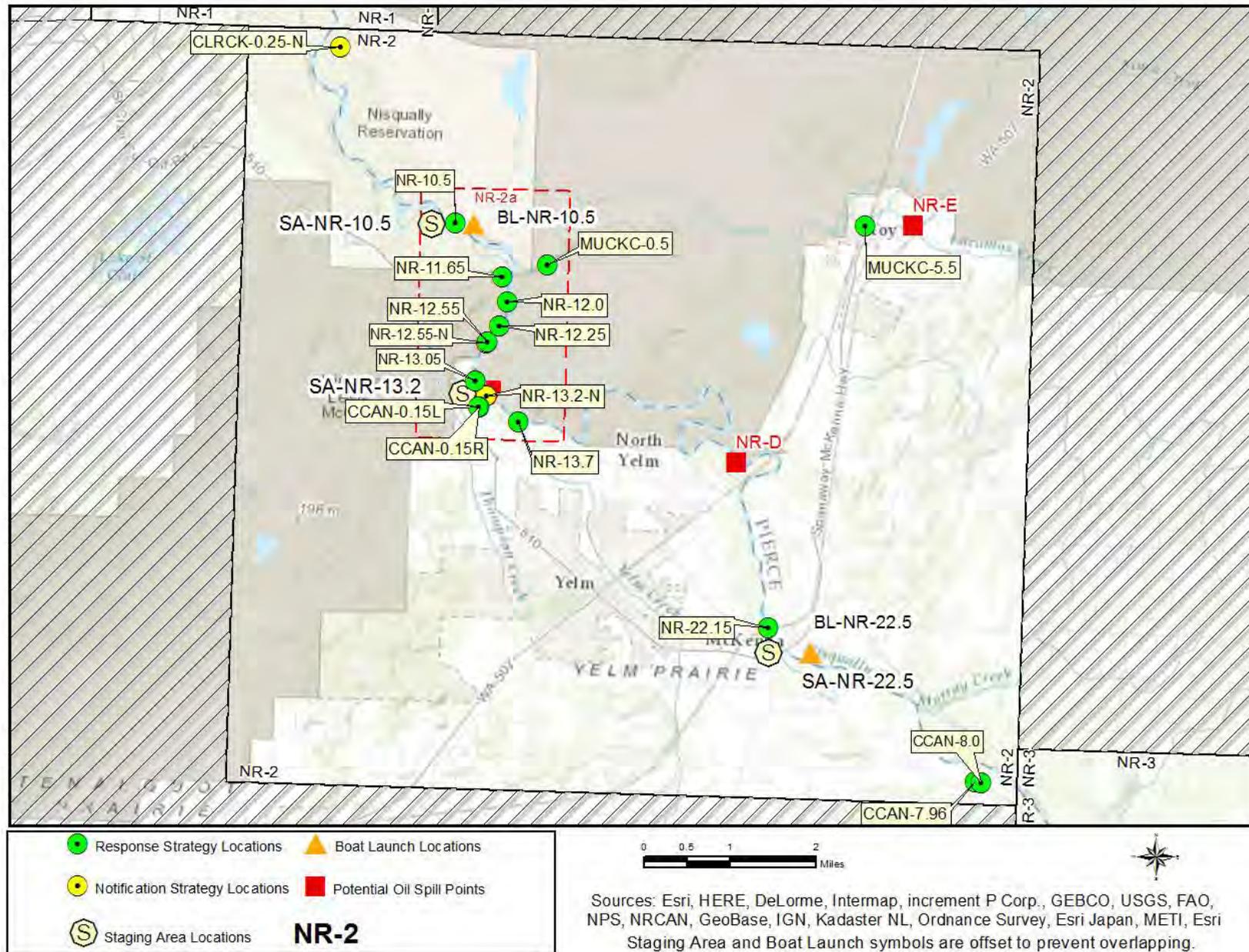
<b>"NR-G" (Ohop Creek at Highway 7 ~ Creek Mile 2.5)</b>					
<b>Implementation Priority</b>	<b>Strategy Number</b>	<b>Sector Map Page#</b>	<b>Strategy Matrix Page#</b>	<b>Strategy Details Page#</b>	<b>Remarks</b>
1	<a href="#">NR-22.15</a>	51	61	115	
2	<a href="#">NR-30.7</a>	53	61	117	
3	<a href="#">NR-36.7</a>	53	62	119	
4	<a href="#">CCAN-0.15R</a>	52	55	73	
5	<a href="#">CCAN-0.15L</a>	52	55	71	
6	<a href="#">CCAN-7.96</a>	51	55	75	
7	<a href="#">CCAN-8.0</a>	51	55	77	
8	<a href="#">OHPC-1.7</a>	53	62	123	
9	<a href="#">OHPC-1.9</a>	53	62	125	

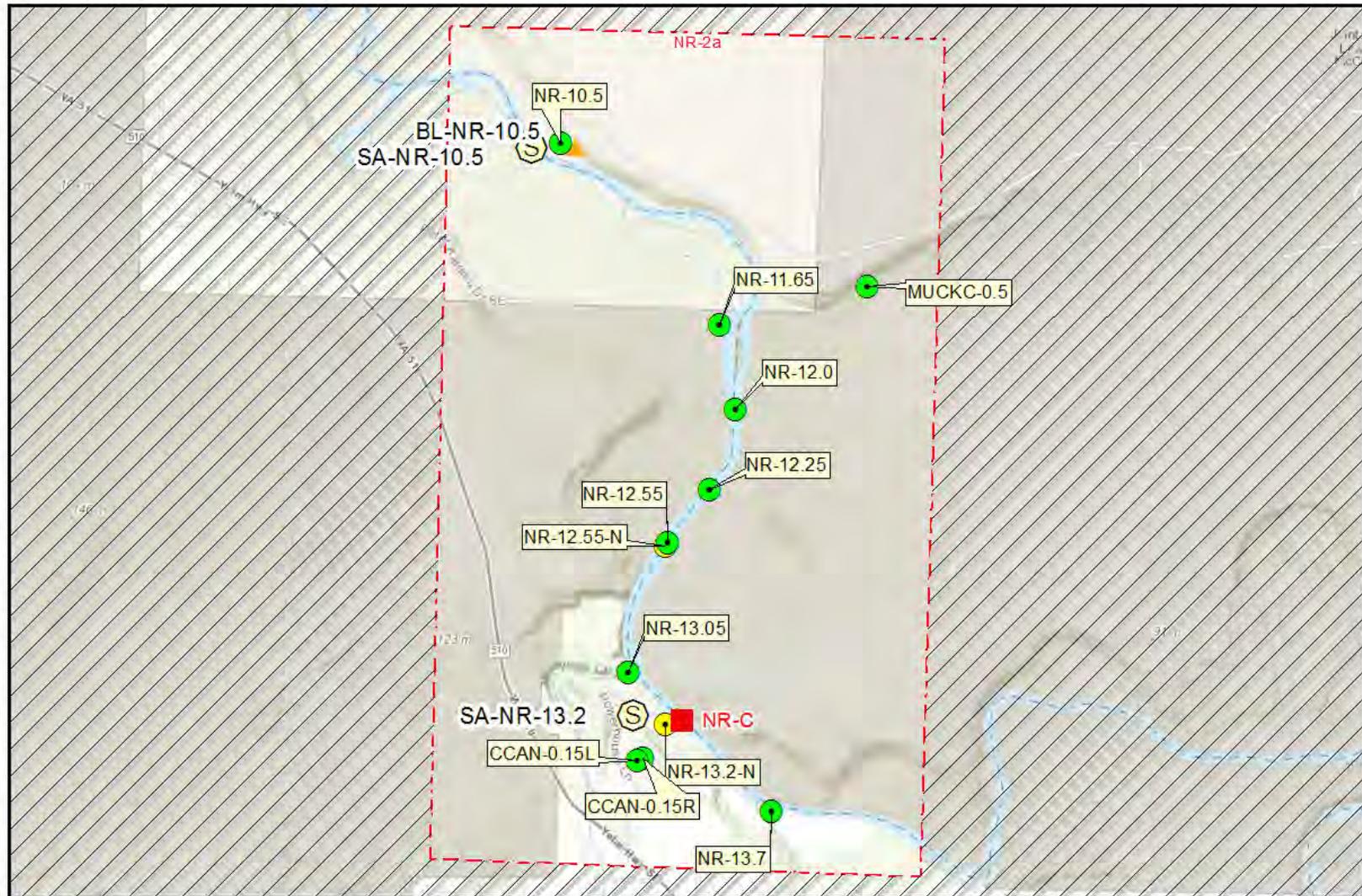
**Table 4-10: Priority Table “NR-H” (Nisqually River near La Grande Dam ~ RM 41.85)**

<b>"NR-H"</b> <i>(Nisqually River - Immediately Downstream of La Grande Dam ~ River Mile 41.85)</i>					
<b>Implementation Priority</b>	<b>Strategy Number</b>	<b>Sector Map Page#</b>	<b>Strategy Matrix Page#</b>	<b>Strategy Details Page#</b>	<b>Remarks</b>
1	<a href="#">NR-22.15</a>	<a href="#">51</a>	<a href="#">61</a>	<a href="#">115</a>	
2	<a href="#">NR-30.7</a>	<a href="#">53</a>	<a href="#">61</a>	<a href="#">117</a>	
3	<a href="#">CCAN-0.15R</a>	<a href="#">52</a>	<a href="#">55</a>	<a href="#">73</a>	
4	<a href="#">CCAN-0.15L</a>	<a href="#">52</a>	<a href="#">55</a>	<a href="#">71</a>	
5	<a href="#">CCAN-7.96</a>	<a href="#">51</a>	<a href="#">55</a>	<a href="#">75</a>	
6	<a href="#">CCAN-8.0</a>	<a href="#">51</a>	<a href="#">55</a>	<a href="#">77</a>	

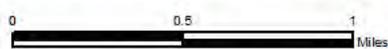
4.4 SECTOR MAPS (STRATEGY LOCATIONS)



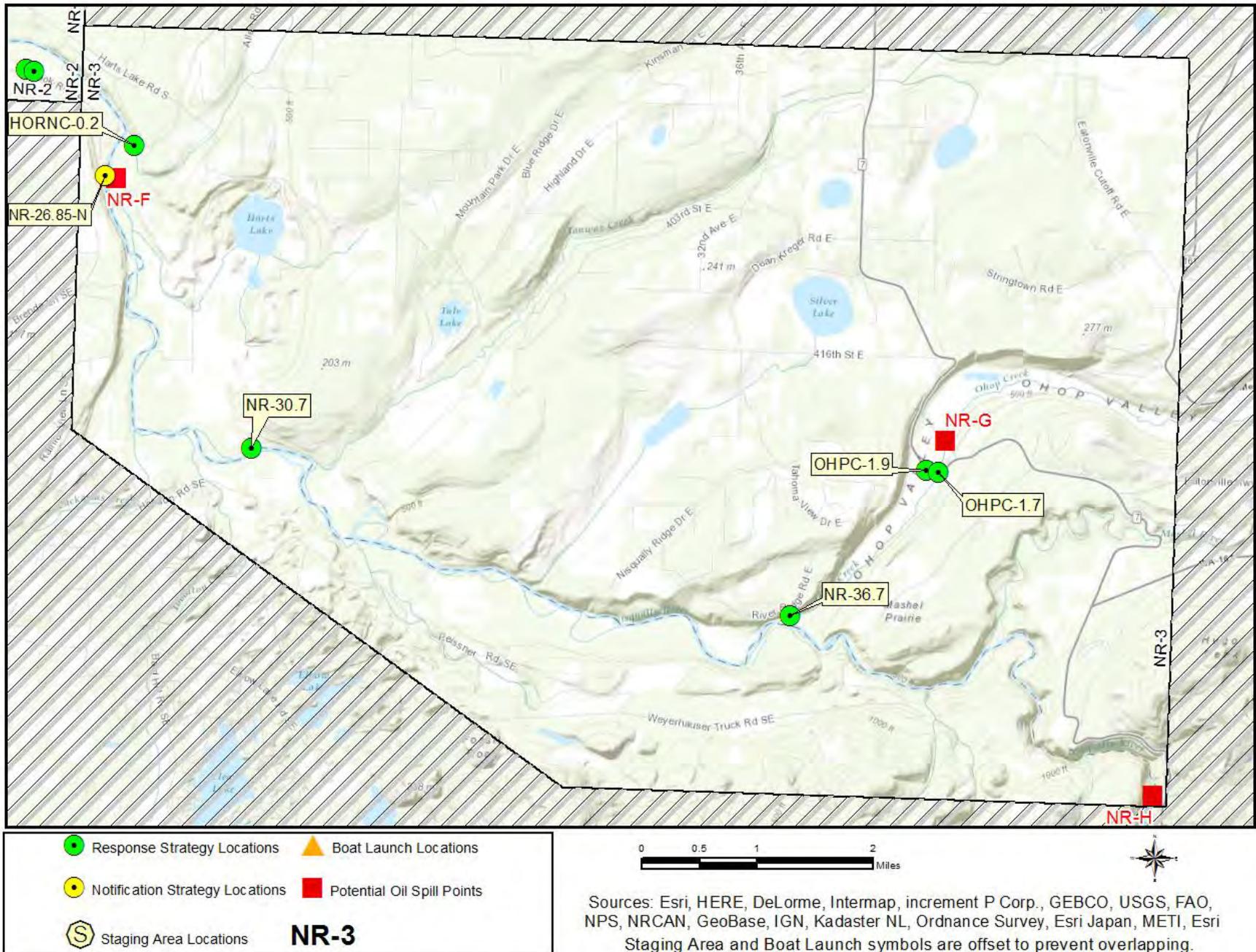




	Response Strategy Locations		Boat Launch Locations
	Notification Strategy Locations		Potential Oil Spill Locations
	Staging Area Locations	<b>NR-2a</b>	



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri  
 DRAFT. Staging Area and Boat Launch symbols are offset to prevent overlapping.





4.5.2 Response Strategy Matrices

Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources at Risk	Comments	Sector Map (Page#)	Strategy Details (Page#)
<a href="#">CCAN-0.15L</a>	Centralia Canal #1 46.97310 -122.63761	Collection	Boom 200ft	No	Onsite  Open fields on either side of canal	Downstream Resources, Power Generation	Centralia City Light Power House- Call Power House Operator at (360)-458-3901 during day hours, and (360) 888-2617 after hours before implementing strategy.	<a href="#">52</a>	<a href="#">71</a>
<a href="#">CCAN-0.15R</a>	Centralia Canal #2 46.97320 -122.63720	Collection	Boom 100ft	No	Onsite  Stage equipment and vacuum truck on site in open fields on either side of the canal.	Downstream Resources, Power Generation	Centralia City Light Power House- Call Power House Operator at (360)-458-3901 during day hours and (360) 888-2617 after hours before implementing strategy.	<a href="#">52</a>	<a href="#">73</a>
<a href="#">CCAN-7.96</a>	Centralia Canal Wildlife Area #1 46.91220 -122.51281	Exclusion	Boom 100ft	Yes	Onsite  Stage on Centralia Canal Road near 46.91244, -122.51395	Power Generation, Waterfowl Concentrations, Wetland Habitat	Wetland is shallow and marshy. A flat-bottom shallow-water boat may be required, depending on water level.	<a href="#">51</a>	<a href="#">75</a>
<a href="#">CCAN-8.0</a>	Centralia Canal Wildlife Area #2 46.91191 -122.51136	Exclusion	Boom 100ft	Yes	Onsite  Stage on Centralia Canal Road 46.91244, -122.51395	Power Generation, Waterfowl Concentrations, Wetland Habitat	Wetland is shallow and marshy. A flat-bottom shallow-water boat may be required, depending on water level.	<a href="#">51</a>	<a href="#">77</a>

Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources at Risk	Comments	Sector Map (Page#)	Strategy Details (Page#)
<a href="#">HORNC-0.2</a>	Horn Creek at Wilcox Farms  46.90294 -122.49269	Exclusion	Boom 100ft, Sorbent 200ft	No	Onsite  Stage from Wilcox Farms field and farm roads	Downstream Resources, Federal Lands, Salmon Habitat, Tribal Lands/ Resources	Farm road access to strategy is through Wilcox Farms "West Gate".	<a href="#">53</a>	<a href="#">79</a>
<a href="#">MCALC-0.6</a>	McAllister Creek  47.09164 -122.72741	Exclusion	Boom 800ft	Yes	Remote  Stage at Zittel's Marina, SA-SPS-1	Downstream Resources, Estuary Resources, Federally Protected Area/Lands	Wide, shallow creek in Nisqually Wildlife Refuge.	<a href="#">50</a>	<a href="#">81</a>
<a href="#">MCALC-2.15</a>	Lower McAllister Creek  47.06876 -122.72000	Exclusion	Boom 100ft, Sorbent 100ft	No	Onsite  Equipment can be staged in grass area off of I-5 ramp from Brown Farm Rd. NE (at I-5 mile 114).	Downstream Resources, Salmon Habitat, Tribal Lands/Resources, Waterfowl and Shorebird Concentrations	Grass pull-out area off of I-5 on ramp from Brown Farm Rd. at I-5 mile 114. One-way traffic travelling westbound to I-5 South.	<a href="#">50</a>	<a href="#">83</a>
<a href="#">MCALC-2.6</a>	McAllister Creek at Nisqually Plaza RV Park Bridge  47.06641 -122.72275	Exclusion	Boom 100ft, Sorbent 100ft	No	Onsite  Stage in Nisqually Plaza RV Park gravel parking area on west side of property	Downstream Resources, Salmon Habitat, Tribal Lands/Resources, Waterfowl and Shorebird Concentrations	RV park property. Contact Nisqually Plaza RV Park office at (360) 491-3831 or (360) 349-0133 for access.	<a href="#">50</a>	<a href="#">85</a>

Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources at Risk	Comments	Sector Map (Page#)	Strategy Details (Page#)
<a href="#">MCALC-2.9</a>	McAllister Creek 47.06564 -122.72426	Diversion	Boom 100ft, Sorbent 100ft	No	Onsite  Stage at Nisqually Plaza RV Park in gravel parking area on the west end of property	Downstream Resources, Salmon Habitat, Tribal Lands/Resources, Waterfowl and Shorebird Concentrations	RV park property. Contact Nisqually Plaza RV Park office at (360) 491-3831 or (360) 349-0133 for access.	<a href="#">50</a>	<a href="#">87</a>
<a href="#">MUCKC-0.5</a>	Muck Creek 46.99737 -122.62158	Collection	Boom 100ft, Sorbent 100ft	No	Onsite  Stage onsite on JBLM roads.	Downstream Resources, Fisheries , Salmon Habitat, Sensitive Resources	Site is reached by Joint Base Lewis McChord primitive vehicle access roads. Roads may be rough and eroded in places; 4x4 vehicle recommended.	<a href="#">52</a>	<a href="#">89</a>
<a href="#">MUCKC-5.5</a>	Muck Creek 47.00547 -122.54329	Collection	Boom 100ft, Sorbent 100ft	No	Onsite  Stage at City Park. Site is officially closed at dusk, but is ungated. Bring lighting if arriving after dark.	Habitat Restoration Site/Project, Public Recreation Site/Area, Salmon Habitat	Creek access at Warren Street bridge and City Park.	<a href="#">51</a>	<a href="#">91</a>

Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources at Risk	Comments	Sector Map (Page#)	Strategy Details (Page#)
<a href="#">NR-0.6</a>	Judson Slough - River Mile 0.6  47.09294 -122.69642	Exclusion	Boom 400ft	Yes	Remote  Stage at SA-SPS-2. May use SA-MCALC-0.0, but boat launch is HIGH TIDE ONLY.	Estuary Resources	Best implemented at high tide; shallow water. Underwater obstructions may be present. Shallow estuary with Nisqually River. Two major creek drainages and many intermittent tidal streams.	<a href="#">50</a>	<a href="#">93</a>
<a href="#">NR-3.15</a>	Frank's Landing  47.06656 -122.70231	Collection	Boom 400ft	Yes	Onsite  Stage in parking area at boat ramp onsite	Downstream Resources, Estuary Resources, Federally Protected Area/Lands, Fisheries , Tribal Lands/ Resources	Access is restricted outside of school hours. Contact Wa He Lut Facilities Manager for access.	<a href="#">50</a>	<a href="#">95</a>
<a href="#">NR-3.7</a>	Mounts Road Bridge Fishing Access Site  47.06217 -122.69718	Collection	Boom 600ft	No	Onsite  Stage on river right just downstream of bridge through Joint Base Lewis McChord access roads (not gated)	Downstream Resources, Estuary Resources, Fisheries	Access river right via JBLM access road (may be limited during high water). Access river left through apartment complex. Gravel roads on north side of Mounts Road Bridge (river right) are owned/maintained by Joint Base Lewis-McChord.	<a href="#">50</a>	<a href="#">97</a>

Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources at Risk	Comments	Sector Map (Page#)	Strategy Details (Page#)
<a href="#">NR-4.1</a>	WDFW Fishing Access Site  47.05828 -122.69199	Collection	Boom 500ft	Yes	Onsite  Stage at WDFW fishing access site.	Downstream Resources, Estuary Resources, Federally Protected Area/Lands, Fish and Wildlife Resources, Fisheries	This is a heavily used fishing access point during salmon seasons (late summer through fall).	<a href="#">50</a>	<a href="#">99</a>
<a href="#">NR-10.5</a>	Frank's Camp Fishing Access  47.00413 -122.64450	Collection	Boom 600ft	Yes	Onsite  Stage at gravel fishing access site, SA-NR-10.5	Downstream Resources, Fisheries , Salmon, Tribal Lands/ Resources	Fishing access location for Nisqually Tribe. There may be fishermen present.	<a href="#">52</a>	<a href="#">101</a>
<a href="#">NR-11.65</a>	Nisqually River Side Channel at Peter Kalama Road  46.99521 -122.63240	Deflection	Boom 400ft	Yes	Remote  Stage at SA-NR-10.5	Backwater Habitat, Downstream Habitat, Salmon Habitat, Tribal Lands/ Resources	Launch boat at BL-NR-10.5. Shoreside crew drive to site via Peter Kalama Road. A network of roads on west side may provide rough shoreside access to this location from Peter Kalama Rd.	<a href="#">52</a>	<a href="#">103</a>

Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources at Risk	Comments	Sector Map (Page#)	Strategy Details (Page#)
<a href="#">NR-12.0</a>	JBLM Access Point 46.99098 -122.63106	Deflection	Boom 400ft	Yes	Remote  Stage on site or at SA-NR-10.5	Salmon Habitat, Wetland Habitat	Access point from Joint Base Lewis McChord military operations and training area tank bridge	<a href="#">52</a>	<a href="#">105</a>
<a href="#">NR-12.25</a>	Nisqually Tank Crossing 46.98690 -122.63279	Collection	Boom 800ft	Yes	Onsite  Stage on road on west side of bridge	Downstream Resources, Fisheries , Tribal Lands/ Resources	Road access - note that cell phones do not work at this site.	<a href="#">52</a>	<a href="#">107</a>
<a href="#">NR-12.55</a>	Nisqually Tribe Fish Weir 46.98416 -122.63581	Sorbent	Sorbent 600ft	No	Onsite  Stage at parking area on Thurston County side, river left.	Downstream Resources, Economic Resources, Tribal Lands/Resources	The Nisqually Tribe Fish Weir is in place July through the end of October and creates a 50% dam. Call Nisqually Tribe to determine if weir is present. River right access is through Joint Base Lewis McChord military operations area.	<a href="#">52</a>	<a href="#">109</a>
<a href="#">NR-13.05</a>	Mouth of Thompson Creek 46.97753 -122.63840	Exclusion	Boom 100ft, Sorbent 200ft	No	Remote  Stage at SA-NR-13.2, Centralia Power Plant	Downstream Resources, Federal Lands, Fisheries , Salmon Habitat, Tribal Lands/Resources	Site access via trail from north end of west parking area at Centralia Power Plant. Contact Power House Operator for directions.	<a href="#">52</a>	<a href="#">111</a>

Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources at Risk	Comments	Sector Map (Page#)	Strategy Details (Page#)
<a href="#">NR-13.7</a>	Mouth of Yelm Creek  46.97072 -122.62760	Exclusion	Boom 100ft,  Sorbent 100ft	No	Onsite  Private property, agricultural land	Downstream Resources, Federal Lands, Fisheries , Power Generation, Salmon Habitat, Tribal Lands/ Resources	Private property with creek access via short pedestrian trail. Access to property requires crossing narrow bridge with no railings. Vac truck may be staged on west side of bridge.	<a href="#">52</a>	<a href="#">113</a>
<a href="#">NR-22.15</a>	Milwaukee Railroad Bridge - McKenna  46.93724 -122.56457	Collection	Boom 400ft	Yes	Onsite  Stage at large dirt parking area under railroad bridge	Downstream Resources, Federal Lands, Fisheries , Salmon Habitat, Tribal Lands/ Resources	Access is through McKenna Water District Property-through barbed wire fence. Make contact with McKenna Water District before accessing property.	<a href="#">51</a>	<a href="#">115</a>
<a href="#">NR-30.7</a>	Castle Lane SE  46.86538 -122.46976	Collection	Boom 1000ft	Yes	Onsite  Stage onsite at private access road. Launch workboat from site.	Downstream Resources	River access through private property on Castle Lane SE. Make contact with on-site property owners before accessing property. Vac-truck or skimmer/storage collection at Point B.	<a href="#">53</a>	<a href="#">117</a>

Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources at Risk	Comments	Sector Map (Page#)	Strategy Details (Page#)
<a href="#">NR-36.7</a>	Mouth of Ohop Creek  46.84595 -122.37040	Exclusion	Boom 100ft,  Sorbent 100ft	Yes	Onsite  Stage at large turn-around/landing area at end of Washington State Parks road	Downstream Resources, Federal Lands, Fisheries , Power Generation, Salmon Habitat, Tribal Lands/ Resources	Road access through Washington State Parks property (undeveloped park land). Locked gate. Contact Washington State Parks or Sheriff's Office (after hours) for vehicle access.	<a href="#">53</a>	<a href="#">119</a>
<a href="#">NRTA-0.1</a>	Unnamed Creek  47.07812 -122.69259	Culvert Block	Sorbent 50ft	No	Onsite  Stage at small pull-out area off of Mounts Rd., 200ft. north of gate.	Downstream Resources, Salmon Habitat, Tribal Lands/Resources, Waterfowl and Shorebird Concentrations	Access is through locked gate. Property is owned by the Nisqually Indian Tribe. Contact Nisqually Emergency Management for access.	<a href="#">50</a>	<a href="#">121</a>
<a href="#">OHPC-1.7</a>	Ohop Creek  46.86436 -122.34389	Collection	Boom 100ft,  Sorbent 200ft	No	Onsite  Stage at gravel pull-out on south side of Highway 200ft. from strategy site.	Downstream Resources, Habitat Restoration Site/Project, Salmon Habitat	Ohop Creek at Highway 7 bridge. Little space for staging- follow WSDOT guidelines for work zone traffic control.	<a href="#">53</a>	<a href="#">123</a>
<a href="#">OHPC-1.9</a>	Ohop Creek  46.86456 -122.34604	Collection	Boom 100ft,  Sorbent 200ft	No	Onsite  Stage from gravel pull-out and field 225ft. east of bridge.	Downstream Resources, Habitat Restoration Site/Project	Little space for staging equipment. Follow WSDOT guidelines for work zone traffic control.	<a href="#">53</a>	<a href="#">125</a>

Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources at Risk	Comments	Sector Map (Page#)	Strategy Details (Page#)
<a href="#">RDSL-0.4</a>	Red Salmon Creek at Mouth  47.09433 -122.68886	Exclusion	Boom 700ft	Yes	Remote  Stage and launch boat from Solo Point (BL-SPS-2)	Downstream Resources, Estuary Resources, Federally Protected Area/Lands	Red Salmon Creek is very shallow in this area and may not be accessible except for at high tide.	<a href="#">50</a>	<a href="#">127</a>
<a href="#">RDSL-1.8</a>	Red Salmon Creek Culvert  47.08094 -122.69103	Culvert Block		No	Onsite  Stage from pull-out on Mounts Rd. 700ft. from culvert. Use WSDOT guidelines for work zone traffic control.	Salmon Habitat, Sensitive Wetland Area, Waterfowl and Shorebird Concentrations	Strategy is off of Mounts Rd. to the west of the golf course and below railroad tracks.	<a href="#">50</a>	<a href="#">129</a>

4.5.3 Notification Strategy Matrices

Strategy Name	Location	Strategy Type	Resources at Risk	Implementation	Comments	Sector Map (Page#)	Strategy Details (Page#)
<a href="#">CLRCK-0.25-N</a>	Clear Creek Fish Hatchery  47.03322 -122.67387	Notification	Salmon - Chinook, Salmon - Coho	Notify Nisqually Natural Resources of a spill that could impact juvenile fish or hatchery resources. Hatchery personnel will close gates to keep juvenile fish from entering river if gates are open at the time of the spill.	Notify Clear Creek Fish Hatchery of spills to the Nisqually River	<a href="#">51</a>	<a href="#">133</a>
<a href="#">NR-1.0-N</a>	Nisqually Wildlife Refuge  47.08800 -122.69952	Notification	Aquatic Mammals, Bald Eagle, Canadian Goose Nesting Habitat, Cormorants, Cranes, Estuary Resources, Federally Protected Area/Lands, Great Blue Heron, Grebes - Concentrations, Mud Flat(s), Seabird and Waterfowl Concentrations	Call Refuge Project Leader, who will initiate internal notifications and take actions to reduce injury to the resources under the control of the Refuge.	Notify USFWS Wildlife Refuge of spill potentially impacting the Nisqually River and Nisqually Delta.	<a href="#">50</a>	<a href="#">135</a>
<a href="#">NR-4.2-N</a>	Joint Base Lewis McChord  (Military Base)  47.05793 -122.69081	Notification	Federal Lands	Call Joint Base Lewis McChord Emergency Operations Center. They will initiate internal notification (Military Police, JBLM Fire, Range Control), and evacuate the area as necessary if spill presents health and safety risk to military personnel and staff in the vicinity of the river.	Notify Joint Base Lewis McChord military training and operations area of a spill impacting the Nisqually River	<a href="#">50</a>	<a href="#">137</a>

Strategy Name	Location	Strategy Type	Resources at Risk	Implementation	Comments	Sector Map (Page#)	Strategy Details (Page#)
<a href="#">NR-12.55-N</a>	Nisqually Tribe Fish Weir  46.98394 -122.63594	Notification	Economic Resource, Fisheries , Salmon, Tribal Lands/ Resources	Call Nisqually Natural Resources and Emergency Management. Nisqually Tribe will take actions to reduce injury to resources under their control. If weir is in place, deploy NR-12.55.	Notify Nisqually Tribe of a spill that could impact their fish weir. Weir is in place early July through the end of October	<a href="#">52</a>	<a href="#">139</a>
<a href="#">NR-13.2-N</a>	Centralia Power House  46.97496 -122.63561	Notification	Downstream Resources, Economic Resource, Power Generation, Salmon, Steelhead	Notify Centralia Power House Operator of a spill that could impact the Centralia Dam or the Centralia Canal. Centralia City Light personnel will take actions to reduce injury to resources under their control.	Notify Centralia Power House Operator of spills that may impact Centralia Canal or Centralia Power House	<a href="#">52</a>	<a href="#">141</a>
<a href="#">NR-26.85-N</a>	Centralia City Light Diversion Dam  46.89910 -122.49791	Notification	Power Generation, Public Health and Safety, Wetlands Restoration Site	Call Centralia City Light Power House Operator. They will make a determination whether conditions of the spill necessitate a shut down the water intake from the dam. Intake can be completely shut down in 15-20min.	Contact Centralia City Light of oil spill impacting the Nisqually River or Centralia Canal	<a href="#">53</a>	<a href="#">143</a>

4.5.4 Staging Area Matrices

Strategy Name	Location	Position	Nearest Address	Contact	Strategies Served	Comments	Sector Map (Page #)	Strategy Details (Page#)
<a href="#">SA-MCALC-0.0</a>	Luhr Beach	47.10091 -122.72729	4849 D Milluhr Rd NE Olympia, WA 98516	WDFW Region 6 Property Manager 360-249-4628 - and - Nisqually Reach Nature Center 360-459-0387		WDFW Luhr Beach Parking and Staging	<a href="#">50</a>	<a href="#">147</a>
<a href="#">SA-NR-10.5</a>	Frank's Camp Fishing Access Site	47.00391 -122.64485	5381 Old Reservation Rd SE Olympia, WA 98513	Nisqually Tribe Emergency Management Olympia, WA 98513 360-486-5440	NR-12.0, MUCKC-0.5	Frank's Camp Fishing Access Parking and Staging	<a href="#">52</a>	<a href="#">149</a>
<a href="#">SA-NR-13.2</a>	Centralia Power House	46.97539 -122.63614	14024 Yelm Hwy SE Yelm, WA 98597	Centralia City Light Power House Operator 14024 Yelm Hwy SE Yelm, WA 98597 360-888-2617	NR-13.05	Centralia Power House Parking and Staging	<a href="#">52</a>	<a href="#">151</a>
<a href="#">SA-NR-22.5</a>	McKenna Park	46.93312 -122.55921	35711 Spanaway- McKenna Hwy Yelm, WA 98597	Centralia City Light Power House Operator 14024 Yelm Hwy SE Yelm, WA 98597 360-888-2617	NR-22.15	McKenna Park Staging Area	<a href="#">51</a>	<a href="#">153</a>

4.5.5 Boat Launch Location Matrices

Strategy Name	Name	Position	Nearest Address	Contact	Strategies Served	Comments	Sector Map (Page#)	Strategy Details (Page#)
<a href="#">BL-MCALC-0.0</a>	Luhr Beach	47.10091 -122.72729	4849 D Milluhr Rd NE Olympia, WA 98516	WDFW Region 6 Property Manager 360-249-4628 - and - Nisqually Reach Nature Center 360-459-0387		Paved WDFW boat launch. Use at high water only!	<a href="#">50</a>	<a href="#">161</a>
<a href="#">BL-NR-10.5</a>	Frank's Camp Fishing Access Site	47.00391 -122.64485	5381 Old Reservation Rd SE Olympia, WA 98513	Nisqually Tribe Emergency Management Olympia, WA 98513 360-486-5440	NR-12.0	Frank's Camp Fishing Access Gravel Boat Ramp	<a href="#">52</a>	<a href="#">163</a>
<a href="#">BL-NR-22.5</a>	McKenna Park	46.93312 -122.55921	35711 Spanaway-McKenna Hwy Yelm, WA 98597	Centralia City Light Power House Operator 14024 Yelm Hwy SE Yelm, WA 98597 360-888-2617	NR-22.15	McKenna Park Boat Launch	<a href="#">51</a>	<a href="#">165</a>

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**Appendix 4A**  
**Response Strategy 2-Pagers**

## RESPONSE STRATEGIES – LIST

<a href="#"><u>CCAN-0.15L</u></a>	<a href="#"><u>MCALC-2.15</u></a>	<a href="#"><u>NR-3.15</u></a>	<a href="#"><u>NR-12.25</u></a>	<a href="#"><u>NR-36.7</u></a>
<a href="#"><u>CCAN-0.15R</u></a>	<a href="#"><u>MCALC-2.6</u></a>	<a href="#"><u>NR-3.7</u></a>	<a href="#"><u>NR-12.55</u></a>	<a href="#"><u>NRTA-0.1</u></a>
<a href="#"><u>CCAN-7.96</u></a>	<a href="#"><u>MCALC-2.9</u></a>	<a href="#"><u>NR-4.1</u></a>	<a href="#"><u>NR-13.05</u></a>	<a href="#"><u>OHPC-1.7</u></a>
<a href="#"><u>CCAN-8.0</u></a>	<a href="#"><u>MUCKC-0.5</u></a>	<a href="#"><u>NR-10.5</u></a>	<a href="#"><u>NR-13.7</u></a>	<a href="#"><u>OHPC-1.9</u></a>
<a href="#"><u>HORNC-0.2</u></a>	<a href="#"><u>MUCKC-5.5</u></a>	<a href="#"><u>NR-11.65</u></a>	<a href="#"><u>NR-22.15</u></a>	<a href="#"><u>RDSLCL-0.4</u></a>
<a href="#"><u>MCALC-0.6</u></a>	<a href="#"><u>NR-0.6</u></a>	<a href="#"><u>NR-12.0</u></a>	<a href="#"><u>NR-30.7</u></a>	<a href="#"><u>RDSLCL-1.8</u></a>

# Centralia Canal #1 CCAN-0.15L

**Position - Location:** 46° 58.386', -122° 38.256'      46° 58' 23.2", -122° 38' 15.4"      46.97310, -122.63761      Yelm

**Strategy Objective:** Collection : Collect oil from canal before power house water intakes and exclude from area

**Implementation:** Secure end of 200ft length of boom to bank on canal right near Point A (46.97288, -122.63764; about 80ft upstream from point where canal widens before power house). Using line, extend boom downstream/north and across canal about 80ft, securing it to bank on canal left at/near Point B (46.97309, -122.63765). Extend remainder of boom across canal/NE about ~100ft, securing it to shore at/near Point C (46.97322, -122.6373, about 15ft south from east side of water intake structure). Use vac-truck or skimmer/storage collection at Point B.

**Staging Area:** Onsite: Open fields on either side of canal

**Site Safety:** Slips, trips, and falls. Use caution around screening equipment. Stay clear of power house water intakes.

**Field Notes:** Centralia City Light Power House- Call Power House Operator at (360)-458-3901 during day hours, and (360) 888-2617 after hours before implementing strategy.

**Watercourse:** Other - Canal

**Resources at Risk:** Downstream Resources, Power Generation



### Recommended Equipment

3	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)
200	Feet	Line - 3/8" poly line
1	Each	Vac Truck or Skimmer and Storage

### Recommended Personnel

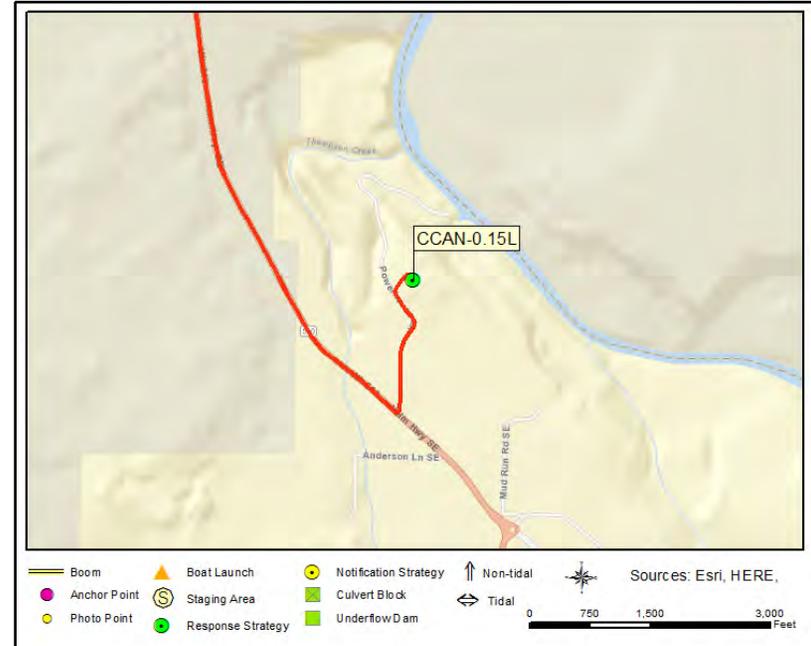
2	Laborer
1	Supervisor

**Centralia Canal #1**

**CCAN-0.15L**



CCAN-0.15L Photo: Anchor point on channel left for deflection strategy



**Site Contact**

**Centralia City Light**  
 Emergency Contact : Power House Operator  
 14024 Yelm Hwy SE  
 Yelm, WA 98597  
 360-888-2617

**Nearest Address**

14012 Yelm Hwy SE  
 Yelm, WA 98597

**Driving Directions**

- From I-5 S
1. Head west on I-5 S
  2. Take exit 109 for Martin Way toward College St/ Sleater-Kinney Rd N 0.2 mi
  3. Turn left onto Martin Way SE -1.4 mi
  4. Turn right onto Kinwood St SE -0.7 mi
  5. Turn left onto Pacific Ave SE-1.3 mi
  6. At the traffic circle, continue straight onto WA-510 E -4.8 mi
  7. At the traffic circle, take the 1st exit and stay on WA-510 E -0.2 mi
  8. At the traffic circle, take the 2nd exit and stay on WA-510 E
  9. Turn left at Centralia Power Plant entrance-4.0 miles.
  10. Drive through Centralia City Light roads to boat launch and staging area.
- 14024 Yelm Hwy SE  
 Yelm, WA 98597
- \*Gate is locked outside of business hours. For access, call Power House Operator at (360)-888-2617.

## Centralia Canal #2

CCAN-0.15R

**Position - Location:** 46° 58.392', -122° 38.232'      46° 58' 23.5", -122° 38' 13.9"      46.97320, -122.63720      Yelm

**Strategy Objective:** Collection : Collect and recover oil in diversion channel

**Implementation:** From field at Centralia City Light Power House, deploy boom across diversion channel opening. At Point A and Point B secure boom ends to fencing. Collect oil using vacuum truck or skimmer/storage from canal center where main channel and diversion channel split.

**Staging Area:** Onsite: Stage equipment and vacuum truck on site in open fields on either side of the canal.

**Site Safety:** Slips, trips, and falls. Use caution around intake screens and equipment. Stay clear of power house water intakes.

**Field Notes:** Centralia City Light Power House- Call Power House Operator at (360)-458-3901 during day hours and (360) 888-2617 after hours before implementing strategy.

**Watercourse:** Other - Canal

**Resources at Risk:** Downstream Resources, Power Generation



### Recommended Equipment

100	Feet	Boom - B3 (River Boom) or equivalent
2	Each	Bridle(s) - Piling (appropriately sized for boom)
1	Each	Vac Truck or Skimmer and Storage

### Recommended Personnel

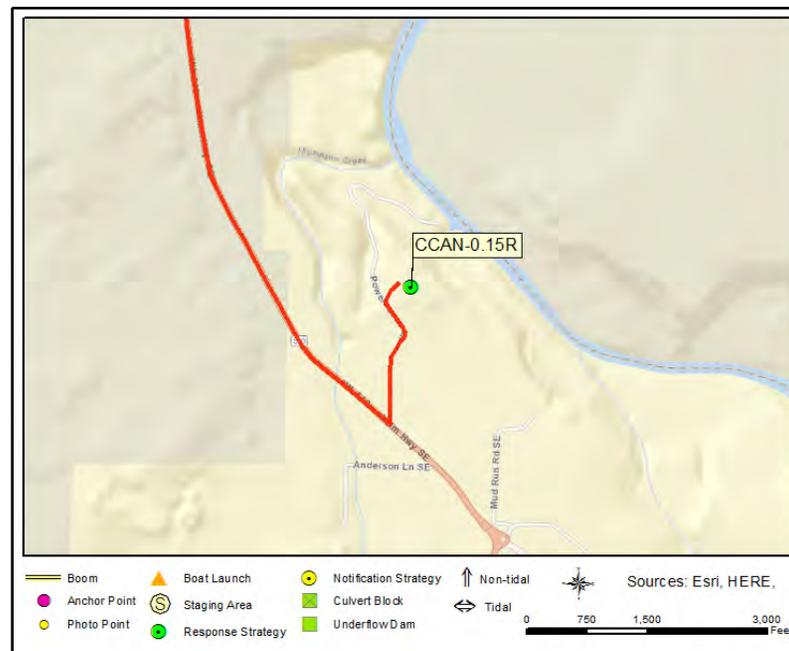
2	Laborer
1	Supervisor

**Centralia Canal #2**

**CCAN-0.15R**



CCAN-0.15R Photo: Fish diversion channel at Centralia Power House from canal center



**Site Contact**

**Centralia City Light**  
 Land/Property Contact : Power House Operator  
 14024 Yelm Hwy SE  
 Yelm, WA 98597  
 360-888-2617

**Nearest Address**

14024 Yelm Hwy SE  
 Yelm, WA 98597

**Driving Directions**

- From I-5 S
1. Head west on I-5 S
  2. Take exit 109 for Martin Way toward College St/ Sleater-Kinney Rd N 0.2 mi
  3. Turn left onto Martin Way SE -1.4 mi
  4. Turn right onto Kinwood St SE -0.7 mi
  5. Turn left onto Pacific Ave SE -1.3 mi
  6. At the traffic circle, continue straight onto WA-510 E -4.8 mi
  7. At the traffic circle, take the 1st exit and stay on WA-510 E -0.2 mi
  8. At the traffic circle, take the 2nd exit and stay on WA-510 E
  9. Turn left at Centralia Power Plant entrance -4.0 miles.
  10. Drive through Centralia City Light roads to boat launch and staging area.

14024 Yelm Hwy SE  
 Yelm, WA 98597

\*Gate is locked outside of business hours. For access, call Power House Operator at (360)-888-2617.

# Centralia Canal Wildlife Area #1 CCAN-7.96

**Position - Location:** 46° 54.732', -122° 30.769'      46° 54' 43.9", -122° 30' 46.1"      46.91220, -122.51281      Yelm

**Strategy Objective:** Exclusion : Keep oil out of wetland area on canal right

**Implementation:** Launch shallow water workboat from canal right adjacent to Centralia Canal Road (46.912435, -122.513947) and tow 100ft boom upstream ~300ft to strategy location. Secure upstream end of boom to shore at/near Point A (46.912175, -122.512705). Pull boom across entrance to wetland area and secure remaining boom end downstream along canal right at/near Point B. Use anchoring posts or trees to secure boom ends to banks of canal at Points A and B.

**Staging Area:** Onsite: Stage on Centralia Canal Road near 46.912435, -122.513947

**Site Safety:** Slips, trips, and falls. Use caution around snags and submerged debris.

**Field Notes:** Wetland is shallow and marshy. A flat-bottom shallow-water boat may be required, depending on water level.

**Watercourse:** Freshwater Wetland - Centralia Canal Wetland

**Resources at Risk:** Power Generation, Waterfowl Concentrations, Wetland Habitat



### Recommended Equipment

2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Workboat(s) - (hand-launch)

### Recommended Personnel

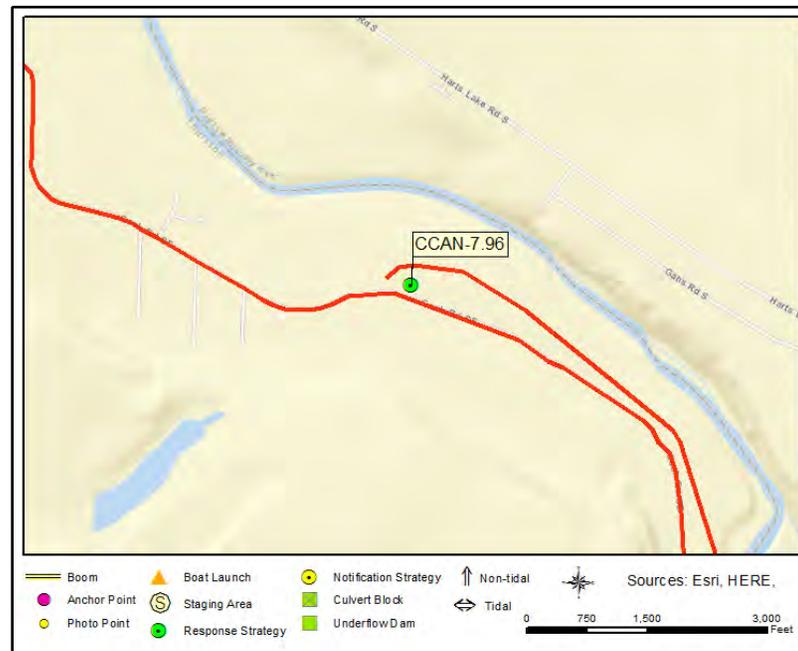
1	Boat Operator
2	Laborer
1	Supervisor

**Centralia Canal Wildlife Area #1**

**CCAN-7.96**



CCAN-7.96 Photo: Centralia Canal wetland looking ESE from canal right



**Site Contact**

**Centralia City Light**  
 Emergency Contact : Power House Operator  
 14024 Yelm Hwy SE  
 Yelm, WA 98597  
 360-888-2617

**Nearest Address**

20000 Cook Road SE  
 Yelm, WA 98597

**Driving Directions**

- From I-5 S
1. Head southwest on I-5 S toward Exit 119
  2. Take exit 116 for Mounts Rd toward Old Nisqually (0.5 mi)
  3. Turn left onto Mounts Rd SW/ Nisqually Rd SW/ Old Pacific Hwy SE  
Continue to follow Old Pacific Hwy SE (3.8 mi)
  4. Turn left onto Reservation Rd SE (2.7 mi)
  5. At the traffic circle, take the 2nd exit onto WA-510 E (0.3 mi)
  6. At the traffic circle, take the 2nd exit and stay on WA-510 E (4.2 mi)
  7. Keep right to continue toward WA-510 E/ W Yelm Ave (495 ft)
  8. Merge onto WA-510 E/ W Yelm Ave  
Continue to follow W Yelm Ave (3.1 mi)
  9. Turn right onto Bald Hill Rd SE (1.4 mi)
  10. Turn left onto Vail Rd SE (0.3 mi)
  11. Take the 2nd right onto Cook Rd SE (4.1 mi)
  12. Turn left onto Centralia Canal Rd (1 mi)
- Destination is on the left, just before Centralia Canal Road turns to the right 90 degrees.

**Centralia Canal Wildlife Area #2** **CCAN-8.0**

**Position - Location:** 46° 54.715', -122° 30.682'      46° 54' 42.9", -122° 30' 40.9"      46.91191, -122.51136      Yelm

**Strategy Objective:** Exclusion : Keep oil out of wetland area on canal left

**Implementation:** Launch shallow water workboat from canal right adjacent to Centralia Canal Road (46.912435, -122.513947) and tow 100ft boom upstream ~700ft to strategy location on canal left. Secure upstream end of boom to shore at/near Point A (46.911946, -122.51128). Pull boom across entrance to wetland area and secure remaining boom end downstream along canal left at/near Point B. Use anchoring posts or trees to secure boom ends to banks of canal at Points A and B.

**Staging Area:** Onsite: Stage on Centralia Canal Road (46.912435, -122.513947)

**Site Safety:** Slips, trips, and falls. Use caution around snags and submerged hazards.

**Field Notes:** Wetland is shallow and marshy. A flat-bottom shallow-water boat may be required, depending on water level.

**Watercourse:** Freshwater Wetland - Centralia Canal Wetland

**Resources at Risk:** Power Generation, Waterfowl Concentrations, Wetland Habitat



**Recommended Equipment**

2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
1	Feet	Workboat(s) - (hand-launch)

**Recommended Personnel**

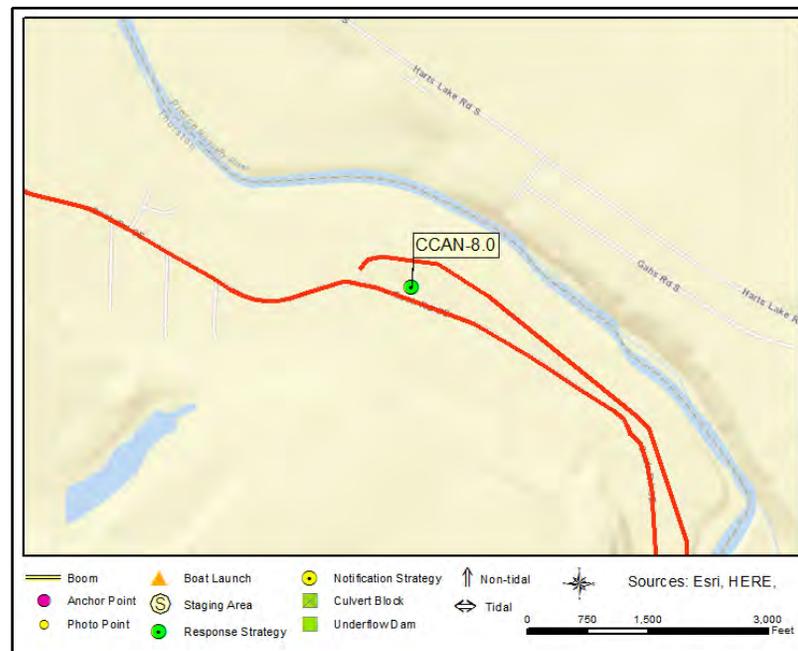
1	Boat Operator
2	Laborer
1	Supervisor

**Centralia Canal Wildlife Area #2**

**CCAN-8.0**



CCAN-8.0 Photo: Centralia Canal wetland area- looking SW from canal left



**Site Contact**

**Centralia City Light**  
 Emergency Contact : Power House Operator  
 14024 Yelm Hwy SE  
 Yelm, WA 98597  
 360-888-2617

**Nearest Address**

20000 Cook Road SE  
 Yelm, WA 98597

**Driving Directions**

- From I-5 S
1. Head southwest on I-5 S toward Exit 119
  2. Take exit 116 for Mounts Rd toward Old Nisqually (0.5 mi)
  3. Turn left onto Mounts Rd SW/ Nisqually Rd SW/ Old Pacific Hwy SE  
Continue to follow Old Pacific Hwy SE (3.8 mi)
  4. Turn left onto Reservation Rd SE (2.7 mi)
  5. At the traffic circle, take the 2nd exit onto WA-510 E (0.3 mi)
  6. At the traffic circle, take the 2nd exit and stay on WA-510 E (4.2 mi)
  7. Keep right to continue toward WA-510 E/ W Yelm Ave (495 ft)
  8. Merge onto WA-510 E/ W Yelm Ave  
Continue to follow W Yelm Ave (3.1 mi)
  9. Turn right onto Bald Hill Rd SE (1.4 mi)
  10. Turn left onto Vail Rd SE (0.3 mi)
  11. Take the 2nd right onto Cook Rd SE (4.1 mi)
  12. Turn left onto Centralia Canal Rd (1 mi)

## Horn Creek at Wilcox Farms

**HORNC-0.2**

**Position - Location:** 46° 54.176', -122° 29.561'      46° 54' 10.6", -122° 29' 33.7"      46.90294, -122.49269      Roy

**Strategy Objective:** Exclusion : Prevent oil travelling downstream on Horn Creek from entering Nisqually River

**Implementation:** Deploy multiple lengths of hard boom across Horn Creek. Place multiple lengths of sorbent boom upstream, downstream, and within hard boom. Use shoreside anchoring systems or natural anchoring points to secure boom to creek banks. If oil collecting beyond capacity of sorbents, use vac-truck or skimmer/storage for collection. It's possible to wade across creek or use small hand-launch boat to access creek right.

**Staging Area:** Onsite: Stage from Wilcox Farms field and farm roads

**Site Safety:** Slips, trips, and falls. Heavily vegetated creek bed with potential for snags and submerged debris.

**Field Notes:** Farm road access to strategy is through Wilcox Farms "West Gate".

**Watercourse:** Creek - Harts Creek

**Resources at Risk:** Downstream Resources, Federal Lands, Salmon Habitat, Tribal Lands/Resources



### Recommended Equipment

2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
100	Feet	Line - 3/8" poly line
1	Each	Vac Truck or Skimmer and Storage

### Recommended Personnel

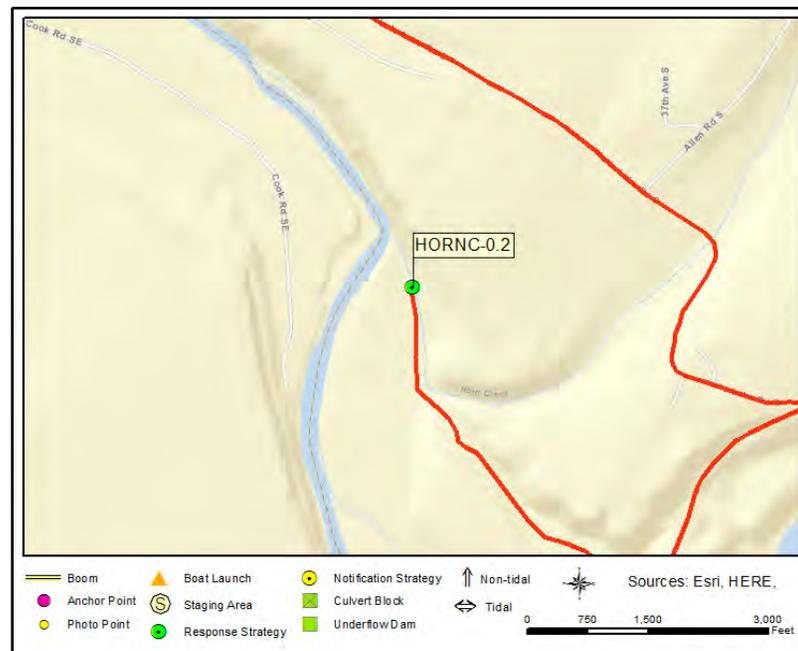
3	Laborer
1	Supervisor

**Horn Creek at Wilcox Farms**

**HORNC-0.2**



HORNC-0.2 Photo: Looking downstream on creek left at Horn Creek



**Site Contact**

**Wilcox Farms**  
 Primary Contact :  
 40400 Harts Lake Valley Rd  
 Roy, WA 98580  
 360-458-6650

**Nearest Address**

40400 Harts Lake Valley Rd  
 Roy, WA 98580

**Driving Directions**

- From I-5 S
1. At exit 116 take ramp on the right toward Mounts Road/Old Nisqually
  2. Turn left on Nisqually Rd (Old Pacific Hwy) (2.19 miles)
  3. Continue on Old Pacific Hwy SE (3.38 miles)
  4. Make sharp left on WA-510 (St Clair Cut-Off Rd SE) (9.32 miles)
  5. Continue on WA-507 (Yelm Ave E) (2.89 miles)
  6. Turn right on WA-702 (State Route 702 S) (0.58 miles)
  7. Turn right on Harts Lake Rd S (Harts Lake Loop Rd S) (4.49 miles)
  8. Make sharp right on Harts Lake Valley Rd S (Harts Lake Loop Rd S) (0.55 miles)
  9. Turn right at gate labeled "Wilcox Farms West Gate" (get the key from the Wilcox Farms main office or call 24-hour phone number listed in site contacts). Follow until you see the road job sharply to the left. To the right is the strategy access site.

# McAllister Creek MCALC-0.6

**Position - Location:** 47° 5.498', -122° 43.645'      47° 5' 29.9", -122° 43' 38.7"      47.09164, -122.72741      Olympia

**Strategy Objective:** Exclusion : Keep oil out of McAllister Creek or oil in creek out of Puget Sound

**Implementation:** PRIOR TO IMPLEMENTATION, NOTIFY NISQUALLY WILDLIFE REFUGE PROJECT LEADER (Call 360-742-9153). From Zittel's Marina (BL-SPS-1) transport 800ft boom to strategy location using work boat. Secure end of boom to shore on creek left at/near Point A (47.091167, -122.72878). Pull boom downstream (towards Puget Sound) about 325ft and across to creek right, securing it to shore at/near Point B (47.09213, -122.726001). Use anchoring systems to keep boom secure in water. Use shoreside anchoring system or trees to secure boom ends to creek banks at Points A and B.

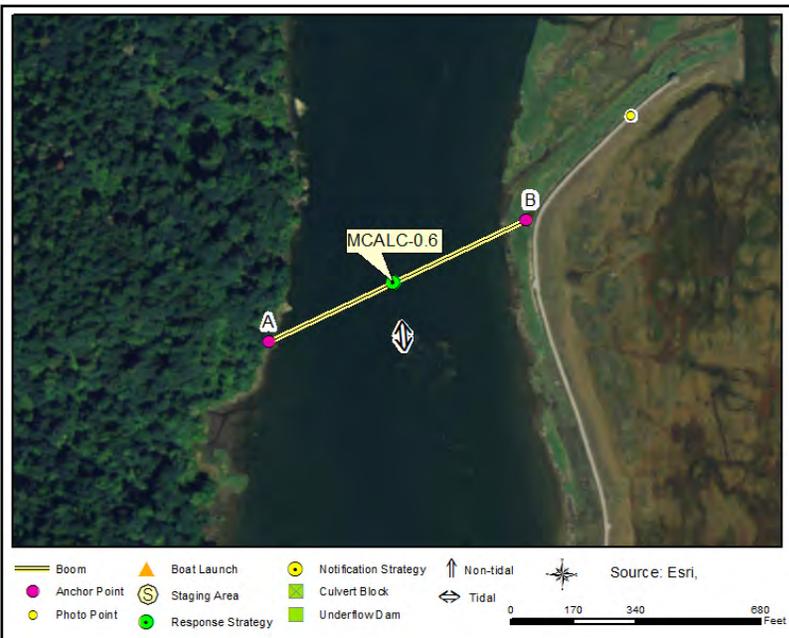
**Staging Area:** Remote: Stage at Zittel's Marina, SA-SPS-1

**Site Safety:** Slips, trips, and falls. Water is very shallow in this area , beware of grounding potential. Avoid walking in tidal mud.

**Field Notes:** Wide, shallow creek in Nisqually Wildlife Refuge.

**Watercourse:** Estuary - McAllister Creek at Nisqually National Wildlife Refuge

**Resources at Risk:** Downstream Resources, Estuary Resources, Federally Protected Area/Lands



### Recommended Equipment

6	Each	Anchoring System(s) - (anchor, lines, floats)
2	Each	Anchoring System(s)- Shoreside
800	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Bridle(s) - Bridge Pier (appropriately sized for boom)
1	Each	Workboat(s) - (jet drive)

### Recommended Personnel

1	Boat Operator
3	Laborer
1	Supervisor

**McAllister Creek**

**MCALC-0.6**



MCALC-0.6 Photo: Creek right on McAllister Creek looking SW from Nisqually Wildlife Refuge boardwalk



**Site Contact**

**USFWS Nisqually Wildlife Refuge**  
 Pre-Notification Required : Project Leader  
 100 Brown Farm Rd.  
 Olympia, WA 98516  
 360-742-9153

**Nearest Address**

9144 Gallea Street Northeast  
 Olympia, WA 98516

**Driving Directions**

- Directions to Zittle's Marina (BL-SPS-1/SA-SPS-1) from I-5 (South)
1. At exit 111 take ramp on the right to WA-510 E/Marvin Rd toward Yelm (0.23 miles)
  2. At fork keep left on Marvin Rd North (0.49 miles)
  3. Turn left on WA-510 (Marvin Rd NE) (0.15 miles)
  4. Bear right on Marvin Rd NE (0.21 miles)
  5. At roundabout, take 1st exit to proceed northwest on Marvin Rd NE (0.19 miles)
  6. At roundabout, take 2nd exit to proceed northwest on Marvin Rd NE (1.11 miles)
  7. At roundabout, take 2nd exit to proceed north on Marvin Rd NE (2.01 miles)
  8. Turn left on 56th Ave NE (0.49 miles)
  9. Continue on Puget Beach Rd NE (0.73 miles)
  10. Turn left on 63rd Ave NE (1.25 miles)
  11. Turn right on Johnson Point Rd NE (2.89 miles)
  12. Turn right on 92nd Ave NE (0.24 miles)
  13. Bear right on Gallea St NE (0.04 miles)
  14. Finish at 9144 Gallea Street Northeast, 98516, on the left

## Lower McAllister Creek

## MCALC-2.15

**Position - Location:** 47° 4.126', -122° 43.200'      47° 4' 7.5", -122° 43' 12.0"      47.06876, -122.72000      Olympia

**Strategy Objective:** Exclusion : Keep oil from moving upstream or downstream (depending on spill source) on McAllister Creek

**Implementation:** From grass pull-out off ramp to I-5 southbound at mile 114, secure end of 100ft boom to creek left at/near Point A (upstream side of bridge). Using line and bridge, walk remaining boom end across to creek right; remove slack in boom and secure to creek right at/near Point B. Deploy sorbent boom on upstream and downstream sides of hard boom in same manner. Use shoreside anchoring systems or bridge pilings to secure boom to creek banks at Points A and B.

**Staging Area:** Onsite: Equipment can be staged in grass area off of I-5 ramp from Brown Farm Rd. NE (at I-5 mile 114).

**Site Safety:** Slips, trips, and falls. Fast-moving freeway traffic.

**Field Notes:** Grass pull-out area off of I-5 on ramp from Brown Farm Rd. at I-5 mile 114. One-way traffic travelling westbound to I-5 South.

**Watercourse:** Creek - McAllister Creek

**Resources at Risk:** Downstream Resources, Salmon Habitat, Tribal Lands/Resources, Waterfowl and Shorebird Concentrations



### Recommended Equipment

2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
100	Feet	Boom - Sorbent
2	Each	Bridle(s) - Bridge Pier (appropriately sized for boom)
100	Feet	Line - 3/8" poly line

### Recommended Personnel

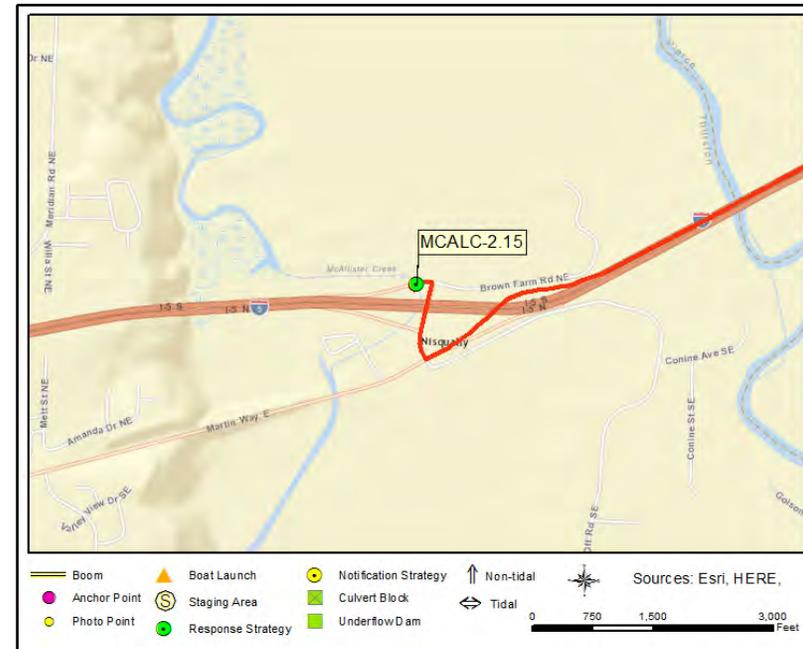
2	Laborer
1	Supervisor

Lower McAllister Creek

MCALC-2.15



MCALC-2.15 Photo: From creek left looking north at I-5 ramp bridge over McAllister Creek



Site Contact

**No Information**  
Not Determined :

Nearest Address

10246 Martin Way E  
Olympia, WA 98516

Driving Directions

From I-5 S

1. Head west on I-5 S toward Exit 116
2. Take exit 114 toward Nisqually (0.4 mi)
3. Continue onto Martin Way E (161 ft)
4. Turn right onto Brown Farm Rd NE (0.2 mi)
5. Turn left onto the I-5 S ramp to Olympia/ Portland (213 ft)

Strategy site is on the left.

## McAllister Creek at Nisqually Plaza RV Park Bridge MCALC-2.6

**Position - Location:** 47° 3.985', -122° 43.365'      47° 3' 59.1", -122° 43' 21.9"      47.06641, -122.72275      Olympia

**Strategy Objective:** Exclusion : Keep oil from moving upstream or downstream (depending on spill source) on McAllister Creek

**Implementation:** From Nisqually Plaza RV Park bridge over McAllister Creek, deploy 100ft hard boom under bridge. Secure boom ends to bridge pilings at Point A and Point B. Place sorbent boom on upstream and downstream side of hard boom. Maintain response strategy during tidal changes.

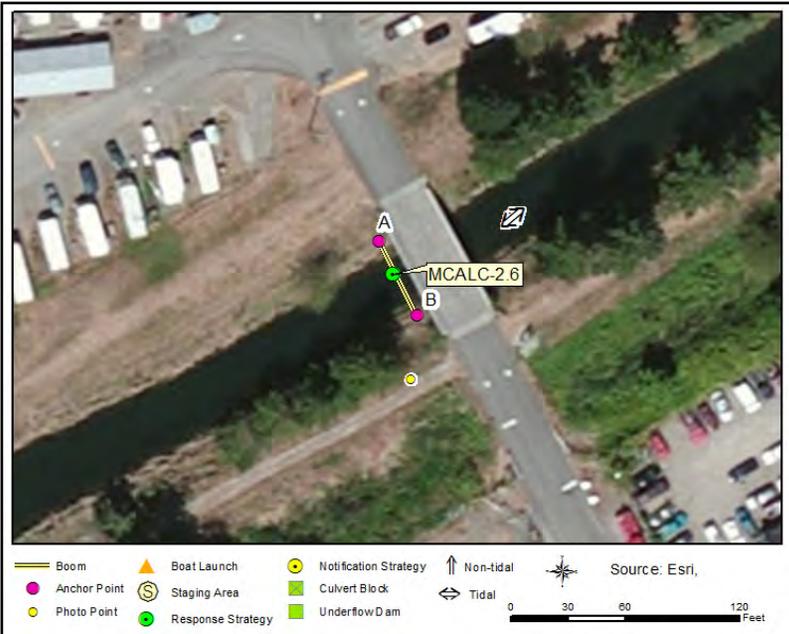
**Staging Area:** Onsite: Stage in Nisqually Plaza RV Park gravel parking area on west side of property

**Site Safety:** Slips, trips, and falls. RV and vehicle traffic over bridge. Steep bank to creek.

**Field Notes:** RV park property. Contact Nisqually Plaza RV Park office at (360) 491-3831 or (360) 349-0133 for access.

**Watercourse:** Creek - McAllister Creek

**Resources at Risk:** Downstream Resources, Salmon Habitat, Tribal Lands/Resources, Waterfowl and Shorebird Concentrations



### Recommended Equipment

2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
100	Feet	Boom - Sorbent
2	Each	Bridle(s) - Bridge Pier (appropriately sized for boom)

### Recommended Personnel

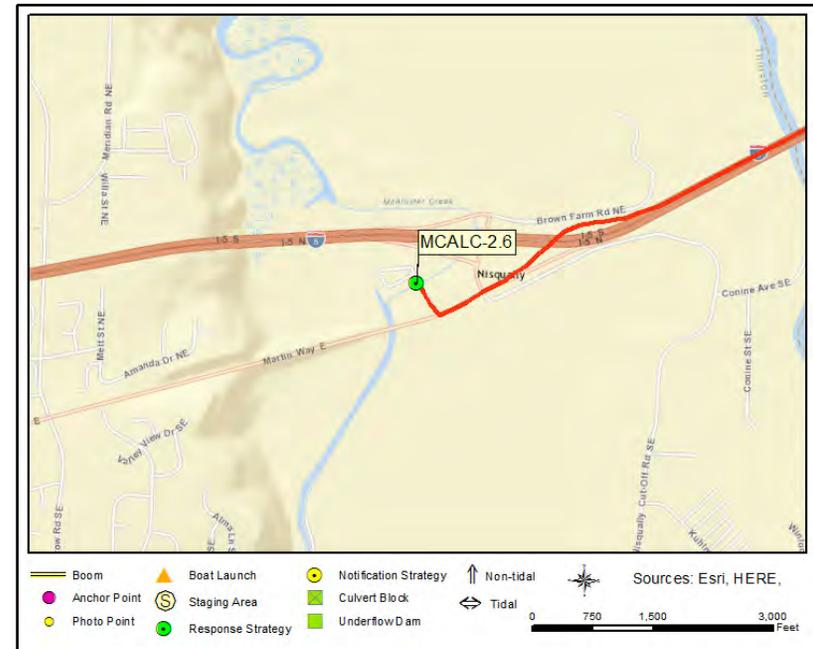
1	Laborer
1	Supervisor

# McAllister Creek at Nisqually Plaza RV Park Bridge

# MCALC-2.6



MCALC-2.6 Photo: Creek right at bridge crossing McAllister Creek to Nisqually Plaza RV Park



### Site Contact

**Nisqually Plaza RV Park**  
 Land/Property Owner : Owner/Operator  
 10220 Martin Way E.  
 Olympia, WA 98516  
 360-491-3831

### Nearest Address

10220 Martin Way E  
 Olympia, WA 98516

### Driving Directions

- From I-5 S
1. Go west on I-5 toward 116
  2. At exit 114 take ramp toward Nisqually (0.42 miles)
  3. Continue on Martin Way E (0.22 miles)
  4. Turn right on road between Chevron and Shell gas stations. Continue to bridge (400ft).

# McAllister Creek MCALC-2.9

**Position - Location:** 47° 3.938', -122° 43.456'      47° 3' 56.3", -122° 43' 27.3"      47.06564, -122.72426      Olympia

**Strategy Objective:** Diversion : Divert oil moving downstream towards collection site to the north

**Implementation:** From Nisqually Plaza RV Park, deploy 100ft hard boom across McAllister Creek to divert oil into natural collection area (small side channel to the north). Back hard boom with sorbent boom as needed to collect product or reduce sheen. Anchor at Point A and Point B using shoreside anchor systems. If oil is travelling upstream during high tide, adjust boom angle as needed for collection and use vac-truck or skimmer/storage on creek left at/near Point A.

**Staging Area:** Onsite: Stage at Nisqually Plaza RV Park in gravel parking area on the west end of property

**Site Safety:** Slips, trips, and falls. Steep banks to creek.

**Field Notes:** RV park property. Contact Nisqually Plaza RV Park office at (360) 491-3831 or (360) 349-0133 for access.

**Watercourse:** Creek - McAllister Creek

**Resources at Risk:** Downstream Resources, Salmon Habitat, Tribal Lands/Resources, Waterfowl and Shorebird Concentrations



### Recommended Equipment

2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
100	Feet	Boom - Sorbent
1	Each	Vac Truck or Skimmer and Storage

### Recommended Personnel

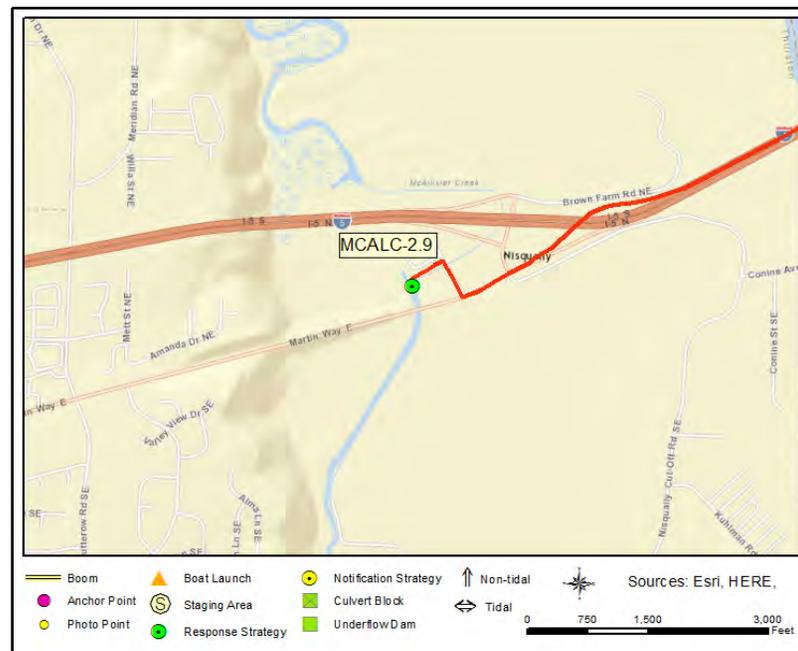
2	Laborer
1	Supervisor

**McAllister Creek**

**MCALC-2.9**



MCALC-2.9 Photo: Looking south from creek left on McAllister Creek



**Site Contact**

**Nisqually Plaza RV Park**  
 Land/Property Owner : Owner/Operator  
 10220 Martin Way E.  
 Olympia, WA 98516  
 360-491-3831

**Nearest Address**

10220 Martin Way E  
 Olympia, WA 98516

**Driving Directions**

- From I-5 South
1. Go west on I-5 toward 116
  2. At exit 114 take ramp toward Nisqually (0.42 miles)
  3. Continue on Martin Way E (0.22 miles)
  4. Turn right on road between Shell and Chevron gas stations. Cross bridge to Nisqually Plaza RV Park and turn left immediately after bridge to continue to southwest end of property.
  5. Vac truck will continue straight to north end of property before turning left and following gravel road at west side of property.

# Muck Creek MUCKC-0.5

**Position - Location:** 46° 59.842', -122° 37.295'      46° 59' 50.5", -122° 37' 17.7"      46.99737, -122.62158      Olympia

**Strategy Objective:** Collection : Collect oil moving downstream on Muck Creek using Sorbents

**Implementation:** Before deploying strategy, notify Joint Base Lewis McChord Operations Center to obtain access and site safety information (call 253-967 0015). From JBLM access roads behind rifle range, deploy 100ft hard boom across creek along with multiple lengths of sorbent boom. Secure boom to Point A and Point B using shoreside anchor systems or natural anchor points. Monitor and replace sorbents as needed. Depending on water level, waders may be necessary to reach Point B on creek right.

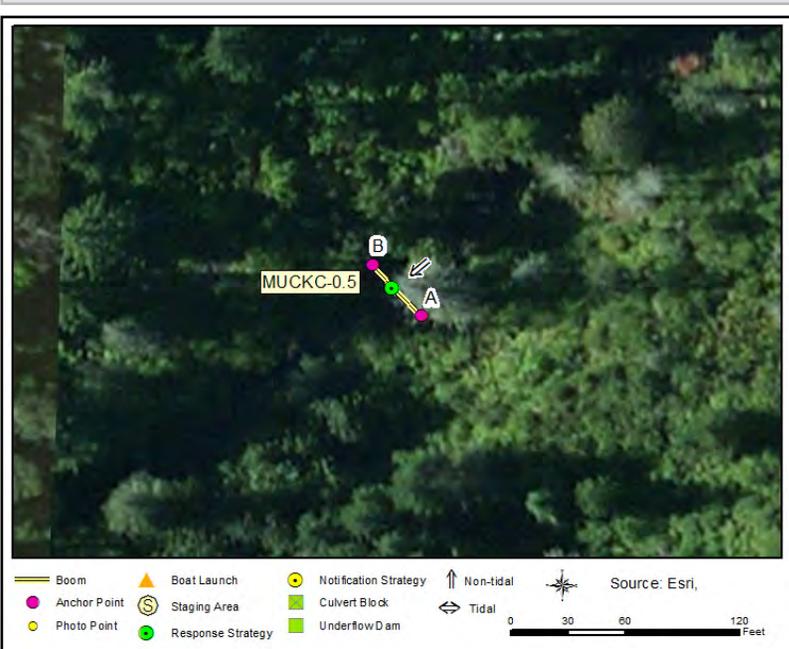
**Staging Area:** Onsite: Stage onsite on JBLM roads.

**Site Safety:** Slips, trips, and falls. Site is directly behind JBLM rifle range. CONTACT JBLM OPERATIONS CTR PRIOR TO ENTERING.

**Field Notes:** Site is reached by Joint Base Lewis McChord primitive vehicle access roads. Roads may be rough and eroded in places; 4x4 vehicle recommended.

**Watercourse:** Creek - Muck Creek

**Resources at Risk:** Downstream Resources, Fisheries , Salmon Habitat, Sensitive Resources



### Recommended Equipment

2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
100	Feet	Boom - Sorbent

### Recommended Personnel

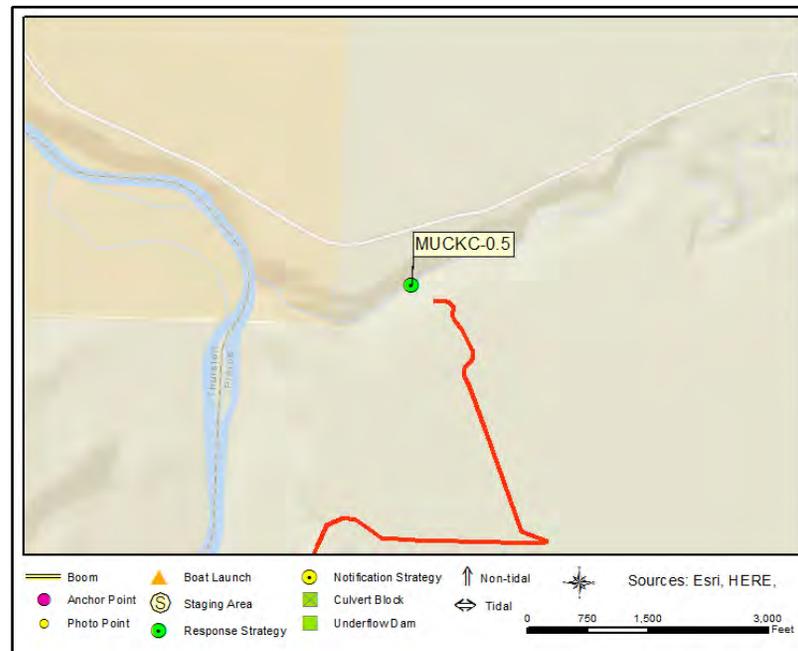
2	Laborer
1	Supervisor

**Muck Creek**

**MUCKC-0.5**



MUCKC-0.5 Photo: Aerial imagery from Bing looking N towards Muck Creek



**Site Contact**

**US Army-Joint Base Lewis McChord**  
 Emergency Contact : Joint Base Operations Center  
  
 Joint Base Lewis-McChord, WA 98433  
 253-967-0015

**Nearest Address**

5381 Old Reservation Rd SE  
 Olympia, WA 98513

**Driving Directions**

- From I-5 S, Nisqually, WA
1. At exit 114 take ramp on the right toward Nisqually (0.42 miles)
  2. Continue on Martin Way E (1.12 miles)
  3. Make sharp left on Dutterow Rd SE (0.67 miles)
  4. Bear left on Deerbrush Dr SE (0.97 miles)
  5. Turn right on Goldenrod Dr SE (0.15 miles)
  6. Turn right on Rockcross Dr SE (0.13 miles)
  7. Make sharp left on WA-510 (Pacific Hwy SE) (5.5 miles)
  8. Turn left at dirt road marked "Military Vehicle Crossing" and follow across tank bridge (1.5 miles). Bridge is gated and locked- access must be obtained from JBLM Operations Center.
  9. At tank bridge, continue straight on dirt road for 0.5 miles.
  10. Turn left at dirt road leading to back of rifle range. Follow for 0.5 miles and turn left. Turn left again in 600ft. and follow road until it makes a Y.
  11. Use access path off of south fork of the Y to access creek (300ft.).

# Muck Creek MUCKC-5.5

**Position - Location:** 47° .328', -122° 32.597'      47° 0' 19.7", -122° 32' 35.8"      47.00547, -122.54329      Roy

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

**Implementation:** Deploy 100ft hard boom across Muck Creek using Warren Street Bridge to access both creek right and creek left. Secure boom at/near Point A and Point B using shoreside anchoring systems (rocky banks present at base of bridge). Place sorbent boom on upstream and downstream sides of boom. Use vac-truck or skimmer/storage if product collecting product beyond the capacity of sorbents.

**Staging Area:** Onsite: Stage at City Park. Site is officially closed at dusk, but is ungated. Bring lighting if arriving after dark.

**Site Safety:** Slips, trips, and falls. Potential vehicle traffic on bridge. Staging area is not lit after dusk.

**Field Notes:** Creek access at Warren Street bridge and City Park.

**Watercourse:** Creek - Muck Creek

**Resources at Risk:** Habitat Restoration Site/Project, Public Recreation Site/Area, Salmon Habitat



### Recommended Equipment

2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
100	Feet	Boom - Sorbent
100	Feet	Line - 3/8" poly line
1	Each	Vac Truck or Skimmer and Storage

### Recommended Personnel

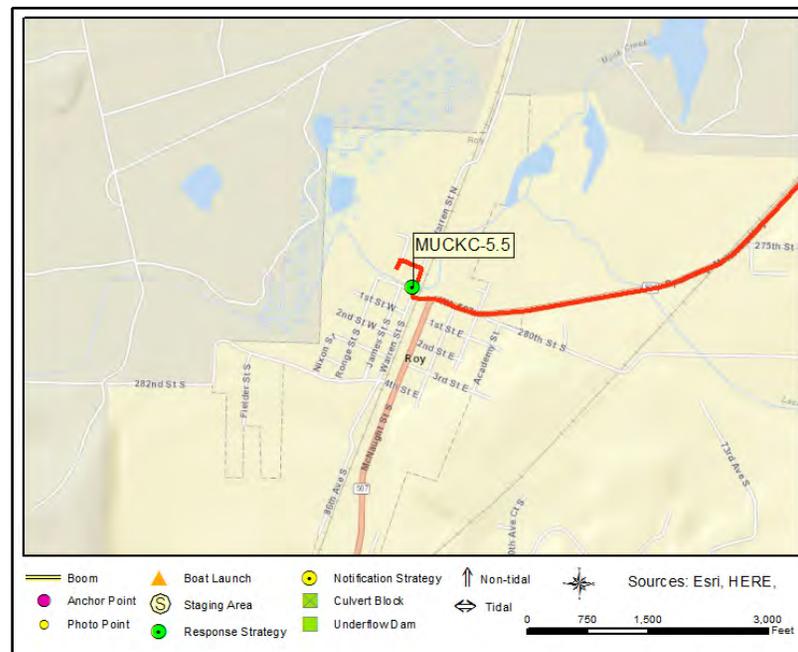
2	Laborer
1	Supervisor

**Muck Creek**

**MUCKC-5.5**



MUCKC-5.5 Photo: Warren Street bridge over Muck Creek on creek left



**Site Contact**

**No Information**  
Not Determined :

**Nearest Address**

121 Warren Street  
Roy, WA 98580

**Driving Directions**

- From I-5 S
1. Go southwest on I-5 toward 127 (0.42 miles)
  2. At exit 127 bear right onto ramp to WA-512 E toward Puyallup/S Tacoma Way (0.23 miles)
  3. At fork keep left on WA-512 E toward Puyallup (0.17 miles)
  4. Bear left on WA-512 (1.99 miles)
  5. Take ramp on the right to WA-7/Pacific Ave. toward Parkland/Spanaway/Paradise (0.29 miles)
  6. Turn right on WA-7 (Pacific Ave S) (5.11 miles)
  7. Continue (0.07 miles)
  8. Continue on WA-507 (Spanaway Mckenna Hwy) (7.8 miles)
  9. Continue on Water St W (0.05 miles)
  10. Turn right on Warren St N (0.01 miles)
  11. Turn left on Cedar Street. Parking for park is on the left.

# Judson Slough - River Mile 0.6 NR-0.6

**Position - Location:** 47° 5.576', -122° 41.785'      47° 5' 34.6", -122° 41' 47.1"      47.09294, -122.69642      DuPont

**Strategy Objective:** Exclusion : Keep oil out of slough connecting Nisqually River to Red Salmon Creek.

**Implementation:** Transport two 200ft lengths of hard boom to strategy location using workboat. Secure end of one 200ft length of boom to bank of slough at/near Point A (47.0932, -122.69613). Then extend SSW across the slough, securing it to bank at/near Point B (47.09282, -122.69638). Deploy second 200ft length of boom between Points C & D in same manner, with ~50ft separation from boom deployed between Points A & B. Use shoreside anchoring systems to secure boom to banks, high enough on banks to remain effective during tidal changes. Use anchoring systems (as needed) to keep boom secure in water.

**Staging Area:** Remote: Stage at SA-SPS-2. May use SA-MCALC-0.0, but boat launch is HIGH TIDE ONLY.

**Site Safety:** Slips, trips, and falls. Use caution on intertidal mud.

**Field Notes:** Best implemented at high tide; shallow water. Underwater obstructions may be present. Shallow estuary with Nisqually River. Two major creek drainages and many intermittent tidal streams.

**Watercourse:** Slough - Judson Slough

**Resources at Risk:** Estuary Resources



### Recommended Equipment

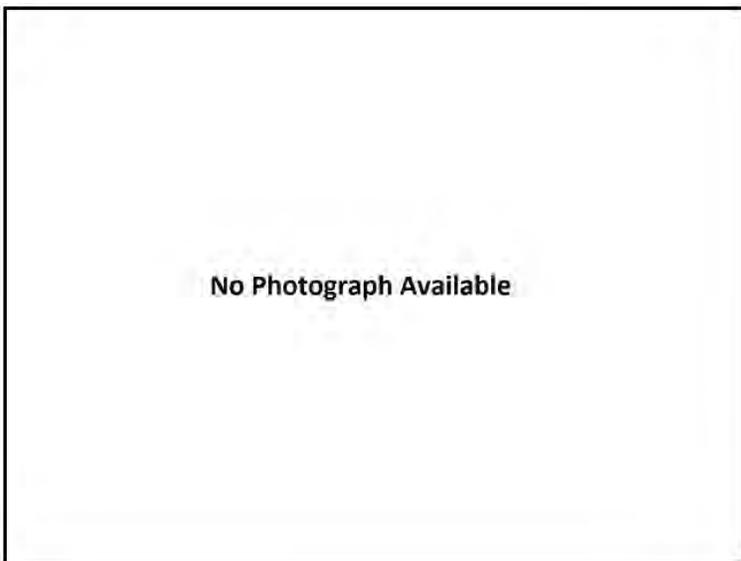
2	Each	Anchor - Danforth (or other appropriate type)
4	Each	Anchoring System(s)- Shoreside
400	Feet	Boom - B2 (Contractor Boom) or equivalent
1	Each	Workboat(s) - (jet drive)

### Recommended Personnel

1	Boat Operator
4	Laborer
1	Supervisor

# Judson Slough - River Mile 0.6

NR-0.6



NR-0.6 Photo: Photo Not Available



### Site Contact

**USFWS Nisqually Wildlife Refuge**  
 Land/Property Contact : Project Leader  
 100 Brown Farm Rd.  
 Olympia, WA 98516  
 360-742-9153

### Nearest Address

Solo Point Road  
 DuPont, WA 98327

### Driving Directions

Directions to Staging Area SA-SPS-2:  
 From I-5 S  
 1. Head southwest on I-5 S  
 2. Take exit 119 toward Steilacoom- Dupont Rd (0.3 mi)  
 3. Turn right onto Dupont-Steilacoom Rd (signs for Steilacoom/ Dupont Rd) 444 ft)  
 4. Take the 1st right to stay on Dupont-Steilacoom Rd (2.1 mi)  
 5. Turn left onto Solo Point Rd (2.0 mi)  
 6. Turn right just before facility gate to stay on Solo Point Rd.  
 7. Continue for 0.75 miles to staging area.

# Frank's Landing NR-3.15

**Position - Location:** 47° 3.994', -122° 42.139'      47° 3' 59.6", -122° 42' 8.3"      47.06656, -122.70231      Olympia

**Strategy Objective:** Collection : Collect and recover oil

**Implementation:** Using workboat, secure end of 400ft length of hard boom to bank on river right at or near Point B (47.06613, -122.70251). Float boom downstream and across to river left, securing it to bank on river left at/near boat ramp at Point A. As needed, based on flow conditions, use anchors or line and shoreside anchoring systems to keep boom secure in river. Use vac-truck or skimmer/storage at boat ramp to recover oil.

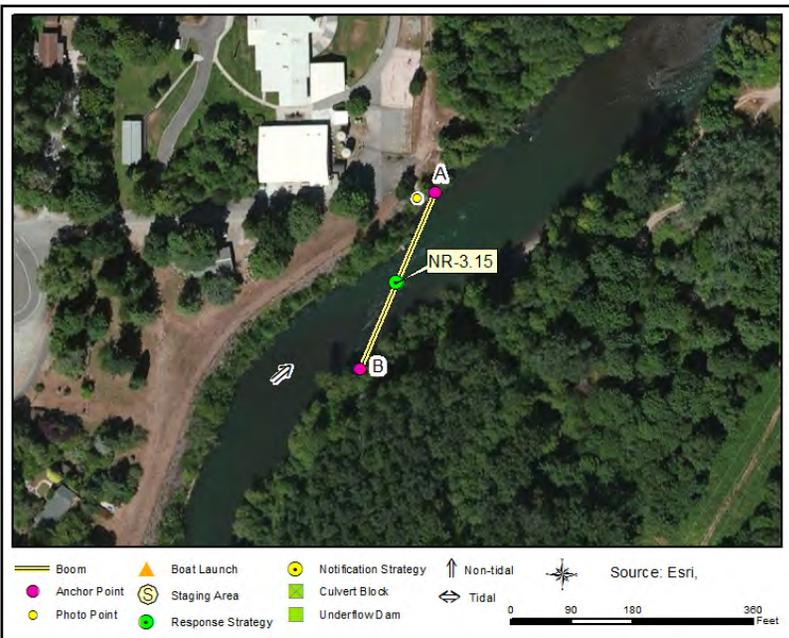
**Staging Area:** Onsite: Stage in parking area at boat ramp onsite

**Site Safety:** Slips, trips, and falls. Site is at a school, and may be inappropriate for collection during school hours.

**Field Notes:** Access is restricted outside of school hours. Contact Wa He Lut Facilities Manager for access.

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

**Resources at Risk:** Downstream Resources, Estuary Resources, Federally Protected Area/Lands, Fisheries , Tribal Lands/Resources



### Recommended Equipment

2	Each	Anchor - Danforth (or other appropriate type)
2	Each	Anchoring System(s)- Shoreside
400	Feet	Boom - B3 (River Boom) or equivalent
500	Feet	Line - 3/8" poly line
1	Each	Vac Truck or Skimmer and Storage
1	Each	Winch - Power Winch
1	Each	Workboat(s) - (jet drive)

### Recommended Personnel

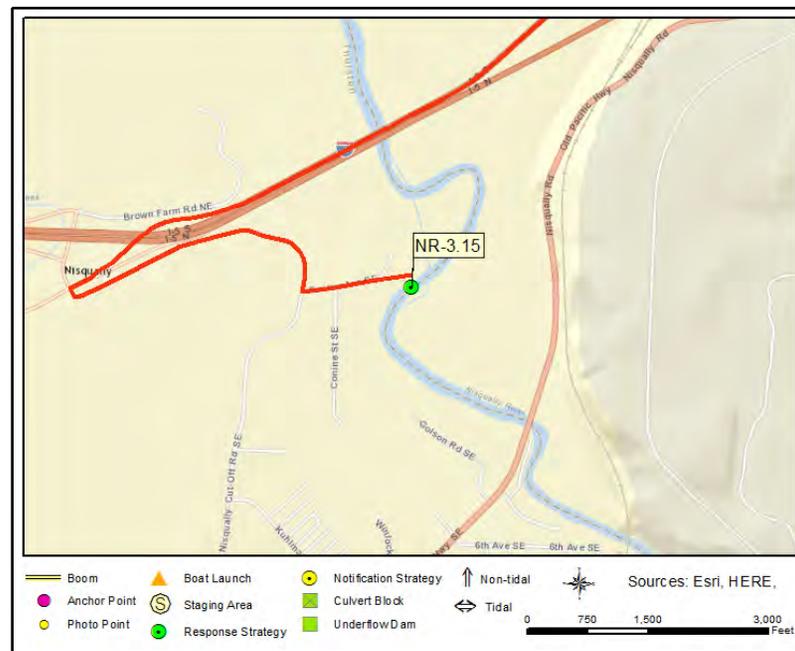
1	Boat Operator
1	Laborer
1	Supervisor

**Frank's Landing**

**NR-3.15**



NR-3.15 Photo: On river left looking upriver from boat ramp



**Site Contact**

**Wa He Lut Indian School**  
 Land/Property Contact : Facilities Manager  
 11110 Conine Ave SE  
 Olympia, WA 98513  
 360-951-8171

**Nearest Address**

11110 Conine Ave. SE  
 Olympia, WA 98513

**Driving Directions**

- From I-5-S
1. Go west on I-5 toward 119
  2. At exit 114 take ramp toward Nisqually (0.42 miles)
  3. Continue on Martin Way E (0.06 miles)
  4. Make sharp left on Nisqually Cut-Off Rd SE (0.7 miles)
  5. Turn left on Conine Ave SE (0.18 miles)
  6. Continue through school gate and grounds. If gate is locked, call Wa He Lut Indian School Facilities Manager

# Mounts Road Bridge Fishing Access Site NR-3.7

**Position - Location:** 47° 3.730', -122° 41.831'      47° 3' 43.8", -122° 41' 49.8"      47.06217, -122.69718      Olympia

**Strategy Objective:** Collection : Collect and recover oil on River Right

**Implementation:** Secure end of 600ft boom to bank at/near Point A (47.0625, -122.69773). Secure 600ft line to remaining boom end. Attach lateral shoreside anchor lines to boom at intervals of 100ft to 200ft, depending on stream flow conditions. Pass all lines destined for river left to crew on that side of the river using a line throwing device or by walking lines across bridge. Use power winch to pull boom upstream and across to river left, securing end at/near Point B (bridge pilings). Secure lateral anchor lines to banks on river right and left; adjust lines as needed to form, maintain, or modify boom shape

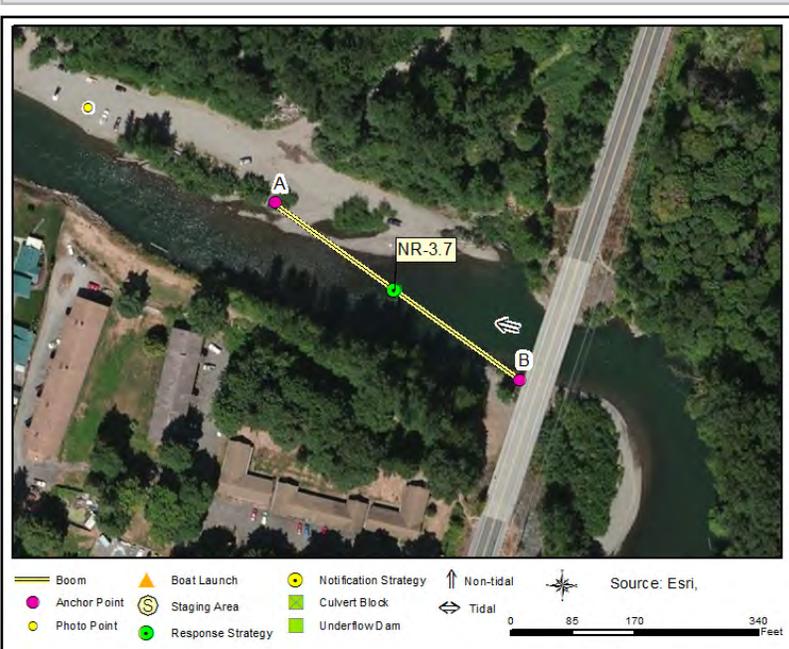
**Staging Area:** Onsite: Stage on river right just downstream of bridge through Joint Base Lewis McChord access roads (ungated)

**Site Safety:** Slips, trips, and falls. Swift current with snags and submerged debris.

**Field Notes:** Access river right via JBLM access road (may be limited during high water). Access river left through apartment complex. Gravel roads on north side of Mounts Road Bridge (river right) are owned/maintained by Joint Base Lewis-McChord.

**Watercourse:** River - With Tidal Influence - Nisqually River

**Resources at Risk:** Downstream Resources, Estuary Resources, Fisheries



### Recommended Equipment

6	Each	Anchoring System(s)- Shoreside
600	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Bridle(s) - Bridge Pier (appropriately sized for boom)
500	Feet	Line - 1/2" poly line
1500	Feet	Line - 3/8" poly line
1	Each	Line throwing gun(s) or device(s)
1	Each	Vac Truck or Skimmer and Storage
1	Each	Winch - Power Winch

### Recommended Personnel

5	Laborer
1	Supervisor

**Mounts Road Bridge Fishing Access Site**

**NR-3.7**



NR-3.7 Photo: On river right looking upstream toward Mounts Rd. Bridge



**Site Contact**

**US Army-Joint Base Lewis McChord**  
 Land/Property Contact : Joint Base Operations Center  
 253-967-0015

**Nearest Address**

509 Old Pacific Hwy SE  
 Olympia, WA 98513

**Driving Directions**

- From I-5 S
1. Go west on I-5 toward 119
  2. At exit 116 take ramp on the right toward Mounts Road/Old Nisqually (0.52 miles)
  3. Turn left on Nisqually Rd (Old Pacific Hwy) (2.19 miles)
  4. Continue on Old Pacific Hwy SE (0.18 miles)
  5. Turn right 100ft. before reaching bridge. Follow gravel roads to gravel bar.  
 Farshore crew only:
  6. Continue across bridge. Turn right at Riverside Manor Apartments and continue through private apartment roads to river access.

**WDFW Fishing Access Site** **NR-4.1**

**Position - Location:** 47° 3.497', -122° 41.519'      47° 3' 29.8", -122° 41' 31.2"      47.05828, -122.69199      Olympia

**Strategy Objective:** Collection : Collect and recover oil at WDFW fishing access.

**Implementation:** Using jet-drive workboat, secure end of 500ft boom to bank on river right at/near Point B (47.05824, -122.69139, along downstream side of RR Bridge). Float boom downstream and across to river left, securing the remaining end at/near Point A (downstream end of fishing deck). Use anchoring systems in river or lateral anchoring lines to keep boom secure in river and maintain shape of boom. Collect at/near Point A with vac-truck or skimmer/storage.

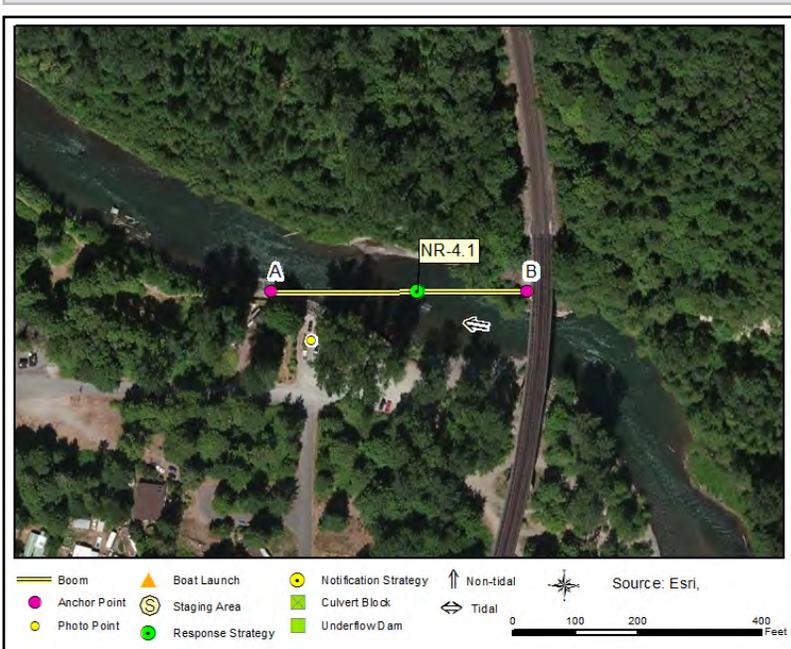
**Staging Area:** Onsite: Stage at WDFW fishing access site.

**Site Safety:** Slips, trips, and falls. Steep, eroded shoreline and riprap under bridge. Current is swift. Snags and submerged debris present.

**Field Notes:** This is a heavily used fishing access point during salmon seasons (late summer through fall).

**Watercourse:** River - With Tidal Influence - Nisqually River

**Resources at Risk:** Downstream Resources, Estuary Resources, Federally Protected Area/Lands, Fish and Wildlife Resources, Fisheries



**Recommended Equipment**

3	Each	Anchor - Danforth (or other appropriate type)
4	Each	Anchoring System(s)- Shoreside
500	Feet	Boom - B3 (River Boom) or equivalent
2	Each	Bridle(s) - Bridge Pier (appropriately sized for boom)
1	Each	Winch - Power Winch
1	Each	Workboat(s) - (jet drive)

**Recommended Personnel**

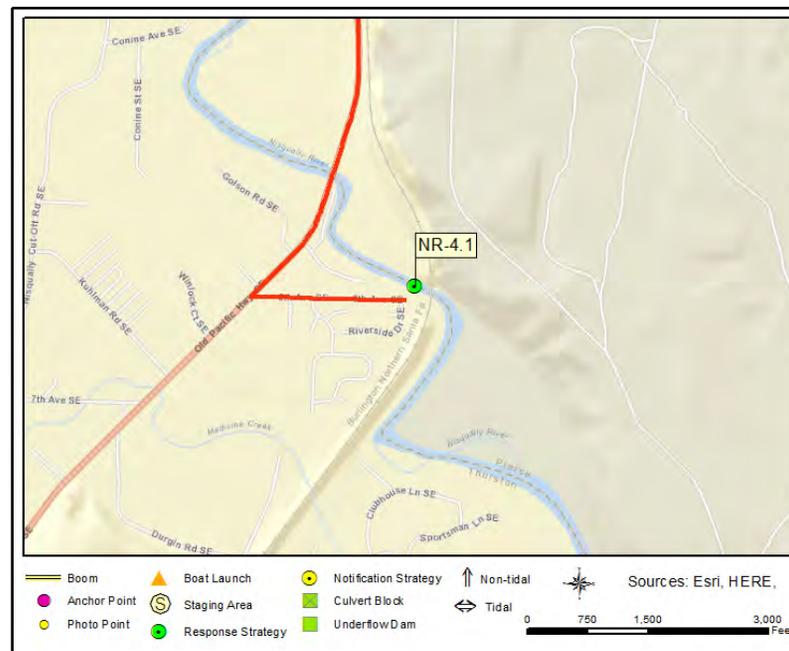
1	Boat Operator
4	Laborer
1	Supervisor

**WDFW Fishing Access Site**

**NR-4.1**



NR-4.1 Photo: On river left looking a staging area and railroad bridge



**Site Contact**

**WDFW Region 6**  
 Land/Property Contact : Property Manager  
 48 Devonshire Road, Montesano, WA 98563  
 360-249-4628

**Nearest Address**

11648 6th Ave SE  
 Olympia, WA 98513

**Driving Directions**

From I-5 S

1. Go west on I-5 toward 119
2. At exit 116 take ramp on the right toward Mounts Road/Old Nisqually (0.52 miles)
3. Turn left on Nisqually Rd (Old Pacific Hwy) (2.19 miles)
4. Continue on Old Pacific Hwy SE (0.35 miles)
5. Make sharp left on 6th Ave SE (0.37 miles)

Arrive at WDFW fishing access point on 6th Ave.

# Frank's Camp Fishing Access NR-10.5

**Position - Location:** 47° .248', -122° 38.670'      47° 0' 14.9", -122° 38' 40.2"      47.00413, -122.64450      Olympia

**Strategy Objective:** Collection : Collect and recover oil.

**Implementation:** Using shallow-water jet drive workboat (from Frank's Camp launch site) secure one end of 600ft hard boom to bank on river right at/near Point B (47.00368, -122.64341). Pull boom downstream and across to river left using line and winch/power winch. Adjust boom angle as needed, based on flow conditions. Secure boom on river left at/near Point A (near gravel ramp) using shoreside anchoring system. Install additional lines and shoreside anchoring systems as needed to keep boom secure in river. Recover oil from pocket on river left using vac-truck or skimmer/storage.

**Staging Area:** Onsite: Stage at gravel fishing access site, SA-NR-10.5

**Site Safety:** Slips, trips, and falls. Steep bank on opposite shore. Road to fishing access is rough. Use caution hauling boat trailer.

**Field Notes:** Fishing access location for Nisqually Tribe. There may be fishermen present.

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

**Resources at Risk:** Downstream Resources, Fisheries , Salmon, Tribal Lands/Resources



### Recommended Equipment

4	Each	Anchor - Danforth (or other appropriate type)
2	Each	Anchoring System(s)- Shoreside
600	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Bridle(s) - Towing (appropriately sized for boom)
1	Each	Vac Truck or Skimmer and Storage
1	Each	Winch - Power Winch
1	Each	Workboat(s) - (jet drive)

### Recommended Personnel

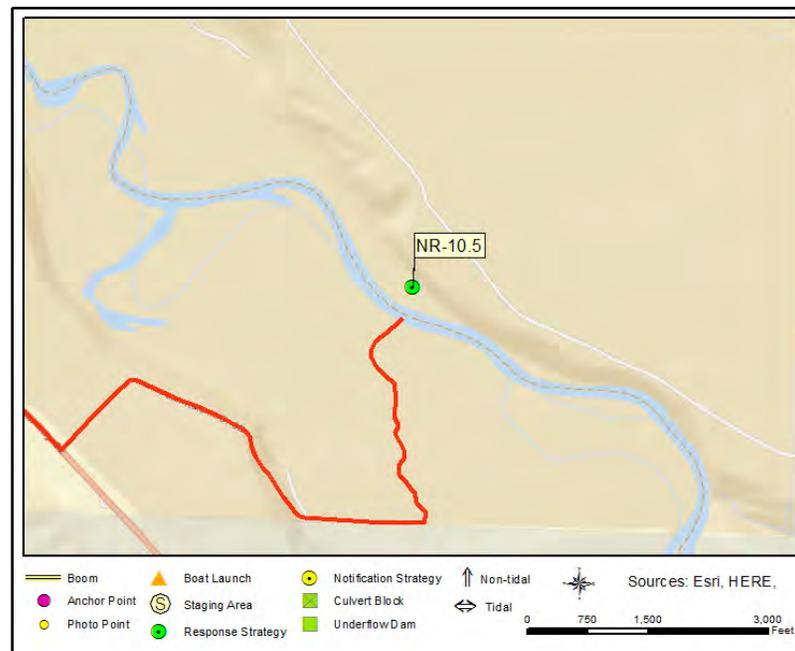
1	Boat Operator
4	Laborer
1	Supervisor

# Frank's Camp Fishing Access

NR-10.5



NR-10.5 Photo: Looking downstream from river left at strategy site



### Site Contact

**Nisqually Tribe**  
 Land/Property Contact : Emergency Management  
  
 Olympia, WA 98513  
 360-486-5440

### Nearest Address

5371 Old Reservation Rd SE  
 Olympia, WA 98513

### Driving Directions

- From I-5 S
1. At exit 114 take ramp on the right toward Nisqually (0.42 miles)
  2. Continue on Martin Way E (1.12 miles)
  3. Make sharp left on Dutterow Rd SE (0.67 miles)
  4. Bear left on Deerbrush Dr SE (0.97 miles)
  5. Turn right on Goldenrod Dr SE (0.15 miles)
  6. Turn right on Rockcross Dr SE (0.13 miles)
  7. Make sharp left on WA-510 (Pacific Hwy SE) (5.29 miles)
  8. Turn left on Church Kalama Rd SE (0.24 miles)
  9. Bear right on Peter Kalama Dr SE (0.55 miles)
  10. At sign for fish hatchery, turn left toward fish hatchery.
  11. At next intersection, rather than turning left to fish hatchery, follow road to the right and continue for 0.4 miles to fishing access site.

## Nisqually River Side Channel at Peter Kalama Road NR-11.65

**Position - Location:** 46° 59.713', -122° 37.944'      46° 59' 42.8", -122° 37' 56.6"      46.99521, -122.63240      Olympia

**Strategy Objective:** Deflection : Deflect oil from log jam and side channel

**Implementation:** Using workboat and shoreside crew, secure 400ft boom to river left at or near Point A (46.99478, -122.6328). Extend boom out into the river and downstream so that boom angle directs oil towards center of river, away from log jam/natural collection area on river left. Anchor boom as you go, securing remaining boom end in river at/near Point B (46.99568, -122.63201). Adjust anchor points and boom angle as needed for stream flow conditions. Use shoreside anchoring system or trees to secure boom to bank on river left at Point A.

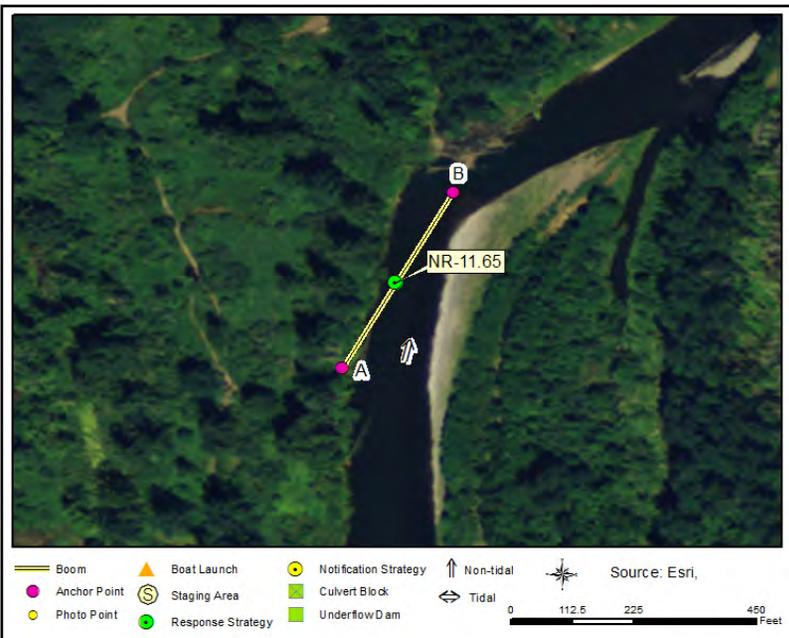
**Staging Area:** Remote: Stage at SA-NR-10.5

**Site Safety:** Slips, trips, and falls. Swift current. Use extreme caution around snags and submerged logs.

**Field Notes:** Launch boat at BL-NR-10.5. Shoreside crew drive to site via Peter Kalama Road. A network of roads on west side may provide rough shoreside access to this location from Peter Kalama Rd.

**Watercourse:** River - Below a Dam - Nisqually River (at side channel)

**Resources at Risk:** Backwater Habitat, Downstream Habitat, Salmon Habitat, Tribal Lands/Resources



### Recommended Equipment

3	Each	Anchor - Danforth (or other appropriate type)
1	Each	Anchoring System(s)- Shoreside
400	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Line throwing gun(s) or device(s)
1	Each	Winch - Power Winch
1	Each	Workboat(s) - (jet drive)

### Recommended Personnel

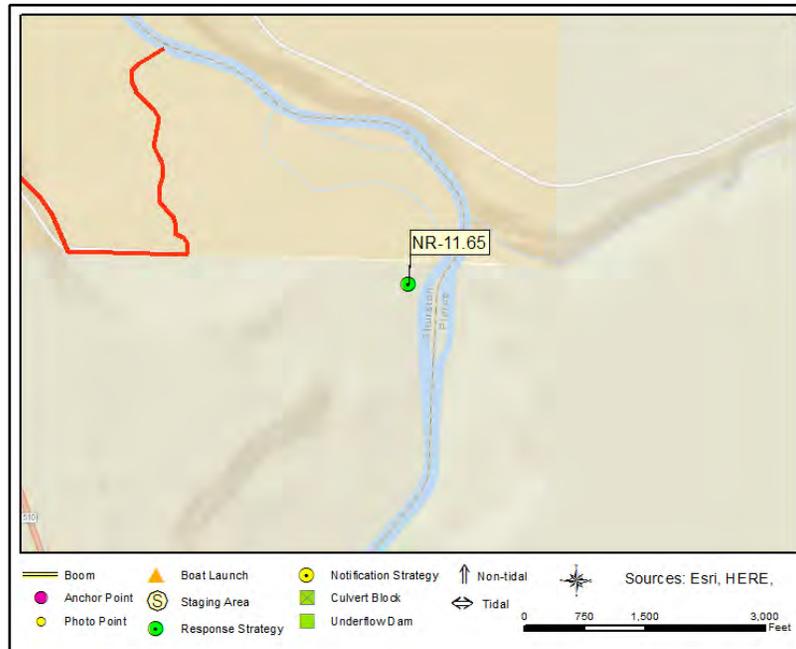
1	Boat Operator
4	Laborer
2	Supervisor

# Nisqually River Side Channel at Peter Kalama Road

NR-11.65



NR-11.65 Photo: Aerial view of strategy site



## Site Contact

**Nisqually Tribe**  
 Tribal Contact : Emergency Management  
  
 Olympia, WA 98513  
 360-486-5440

## Nearest Address

13213 Yelm Hwy SE  
 Olympia, WA 98513

## Driving Directions

Directions to SA-NR-10.5  
 From I-5 S  
 1. At exit 114 take ramp on the right toward Nisqually (0.42 miles)  
 2. Continue on Martin Way E (1.12 miles)  
 3. Make sharp left on Dutterow Rd SE (0.67 miles)  
 4. Bear left on Deerbrush Dr SE (0.97 miles)  
 5. Turn right on Goldenrod Dr SE (0.15 miles)  
 6. Turn right on Rockcross Dr SE (0.13 miles)  
 7. Make sharp left on WA-510 (Pacific Hwy SE) (5.29 miles)  
 8. Turn left on Church Kalama Rd SE (0.24 miles)  
 9. Bear right on Peter Kalama Dr SE (0.55 miles)  
 10. At sign for fish hatchery, turn left toward fish hatchery.  
 11. At next intersection, rather than turning left to fish hatchery, follow road to the right and continue for 0.4 miles to fishing access site.

**JBLM Access Point** **NR-12.0**

**Position - Location:** 46° 59.459', -122° 37.864'      46° 59' 27.5", -122° 37' 51.8"      46.99098, -122.63106      Olympia

**Strategy Objective:** Deflection : Deflect oil from log jam and side channel

**Implementation:** Using shallow-water jet drive workboat from boat launch BL-NR-10.5 and land crew via JBLM Tank Bridge, transport 600ft hard boom and equipment to site. Secure boom end to bank on river right at/near Point B (46.99059, -122.63081). Using boat, pull boom out into the river and downstream, anchoring boom at/near Point A (mid-river). Adjust boom angle as needed based on flow conditions and need to deflect oil away from log jam downstream on river right.

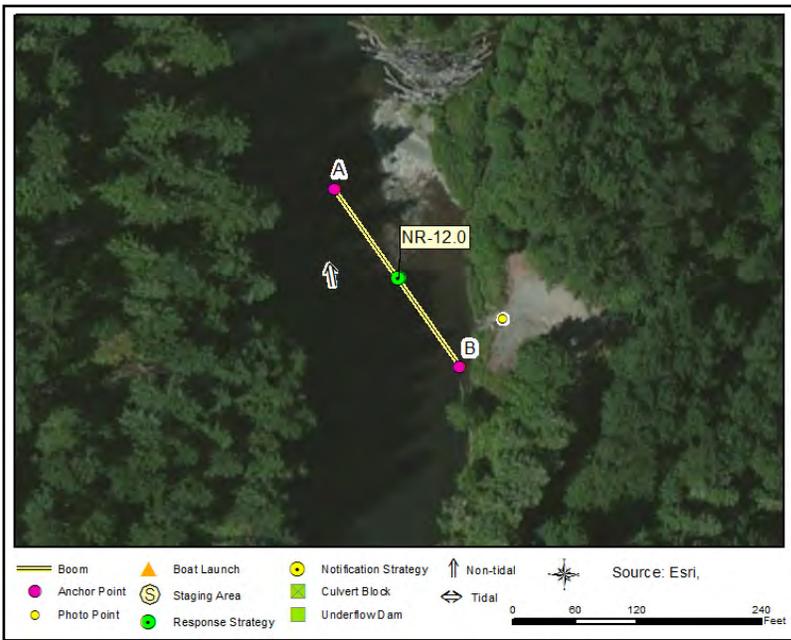
**Staging Area:** Remote: Stage on site or at SA-NR-10.5

**Site Safety:** Slips, trips, and falls. Swift current, snags, and submerged debris. Site may not be accessible by boat at low water.

**Field Notes:** Access point from Joint Base Lewis McChord military operations and training area tank bridge

**Watercourse:** River - Below a Dam - Nisqually River (at side channel)

**Resources at Risk:** Salmon Habitat, Wetland Habitat



**Recommended Equipment**

3	Each	Anchor - Danforth (or other appropriate type)
1	Each	Anchoring System(s)- Shoreside
400	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Line throwing gun(s) or device(s)
1	Each	Winch - Power Winch

**Recommended Personnel**

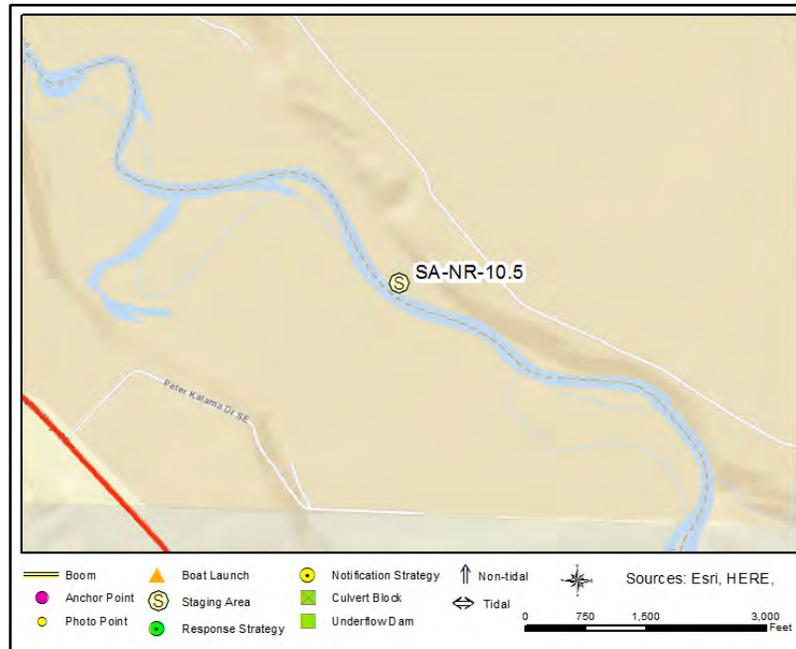
1	Boat Operator
4	Laborer
1	Supervisor

**JBLM Access Point**

**NR-12.0**



NR-12.0 Photo: Looking northwest in direction of boom



**Site Contact**

**Nisqually Tribe**

Land/Property Contact : Emergency Management  
360-486-5440

**US Army-Joint Base Lewis McChord**

Tribal Contact : Joint Base Operations Center  
253-967-0015

**Nearest Address**

13213 Yelm Hwy SE  
Olympia, WA 98513

**Driving Directions**

- From I-5 South
1. At exit 116 take ramp on the right toward Mounts Road/Old Nisqually (0.52 miles)
  2. Turn left on Nisqually Rd (Old Pacific Hwy) (2.19 miles)
  3. Continue on Old Pacific Hwy SE (3.38 miles)
  4. Make sharp left on WA-510 (St Clair Cut-Off Rd SE) (5.75 miles)
  5. Turn left at Military Vehicle Crossing sign. And follow road for 1.35 miles to tank bridge.
  6. After crossing bridge, turn left and follow road for 0.52 miles to strategy site.

# Nisqually Tank Crossing NR-12.25

**Position - Location:** 46° 59.214', -122° 37.967'      46° 59' 12.8", -122° 37' 58.0"      46.98690, -122.63279      Olympia

**Strategy Objective:** Collection : Collect and recover oil at tank bridge.

**Implementation:** From boat ramp onsite, Crew 2 launch workboat to river right with line attached to 800ft. boom on river left. Crew 1 anchor to bridge support at AP-1. Crew 2 use power winch to pull boom to AP-2 and anchor using trees or shoreside anchor posts. Anchor every 100-150ft. along boom length or as appropriate for conditions. Collect oil using vac truck staged on river left or with portable skimmer and storage.

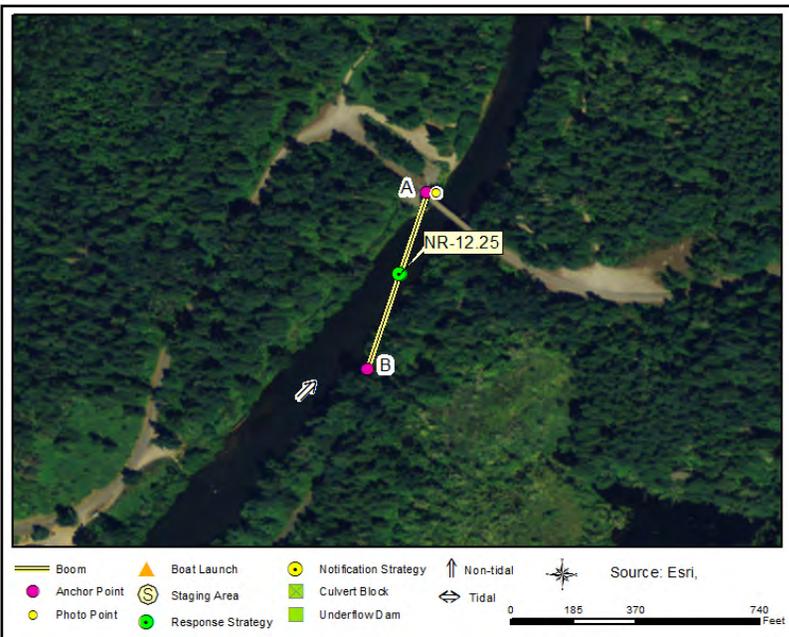
**Staging Area:** Onsite: Stage on road on west side of bridge

**Site Safety:** Slips, trips, and falls. Swift current, snags, and submerged debris.

**Field Notes:** Road access - note that cell phones do not work at this site.

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

**Resources at Risk:** Downstream Resources, Fisheries , Tribal Lands/Resources



### Recommended Equipment

3	Each	Anchor - Danforth (or other appropriate type)
4	Each	Anchoring System(s)- Shoreside
800	Feet	Boom - B3 (River Boom) or equivalent
500	Feet	Line - 3/8" poly line
1	Each	Vac Truck or Skimmer and Storage
1	Each	Winch - Power Winch
1	Each	Workboat(s) - (jet drive)

### Recommended Personnel

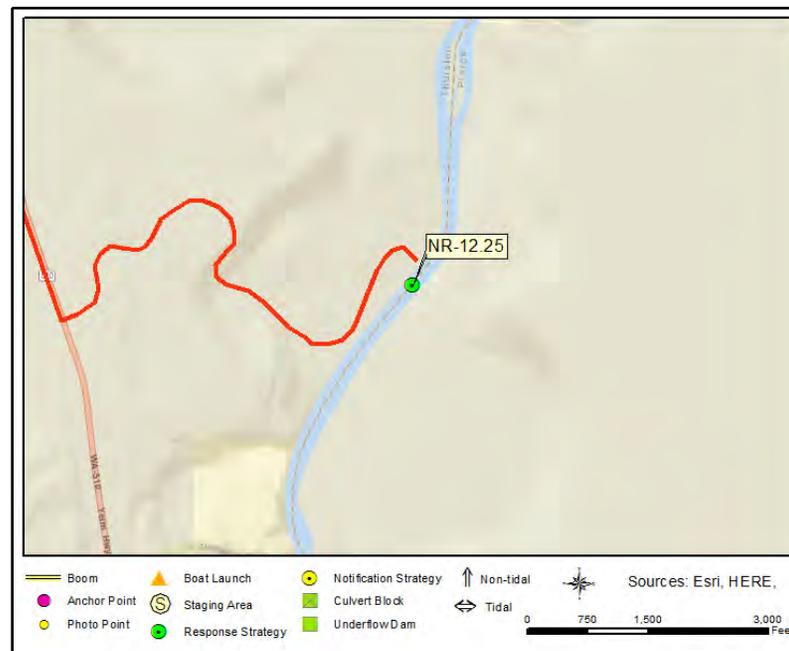
1	Boat Operator
4	Laborer
1	Supervisor

# Nisqually Tank Crossing

NR-12.25



NR-12.25 Photo: View of staging area from river left on tank bridge



### Site Contact

**US Army-Joint Base Lewis McChord**  
 Land/Property Contact : Joint Base Operations Center  
 253-967-0015

**Nisqually Tribe**  
 Tribal Contact : Emergency Management  
 360-486-5440

### Nearest Address

13213 Yelm Hwy SE  
 Olympia, WA 98513

### Driving Directions

- From I-5 S
1. Head west on I-5 S toward Exit 116
  2. Take exit 116 for Mounts Rd toward Old Nisqually (0.5 mi)
  3. Turn left onto Mounts Rd SW/ Nisqually Rd SW/ Old Pacific Hwy SE  
 Continue to follow Old Pacific Hwy SE (3.8 mi)
  4. Turn left onto Reservation Rd SE (2.7 mi)
  5. At the traffic circle, take the 2nd exit onto WA-510 E (0.3 mi)
  6. At the traffic circle, take the 2nd exit and stay on WA-510 E (2.5 mi)
  7. Turn left onto Fort Lewis Rd at Military Vehicle Crossing sign (1.1 mi)  
 Arrive at west bank of strategy site.
  8. Continue 1/3 mile on Fort Lewis Rd. to staging area under west bank of tank bridge.

# Nisqually Tribe Fish Weir NR-12.55

**Position - Location:** 46° 59.050', -122° 38.149'      46° 59' 3.0", -122° 38' 8.9"      46.98416, -122.63581      Olympia

**Strategy Objective:** Sorbent : Deploy sorbent boom across weir to capture floating oil.

**Implementation:** IMPLEMENT ONLY WHEN NISQUALLY FISH WEIR IS IN PLACE, JULY - OCTOBER. Using line throwing gun or other means, pass line across river from Point B (46.98389, -122.63546) on river right to Point A on river left. Secure end of multiple lengths of sorbent boom to line and pull across river, on upstream side of fish weir. Secure boom to banks using shoreside anchoring systems or connect to weir supports using bridles at Points A & B. Adjust and replace boom as needed. River left can be accessed using JBLM Tank Bridge, ~0.3 miles downstream.

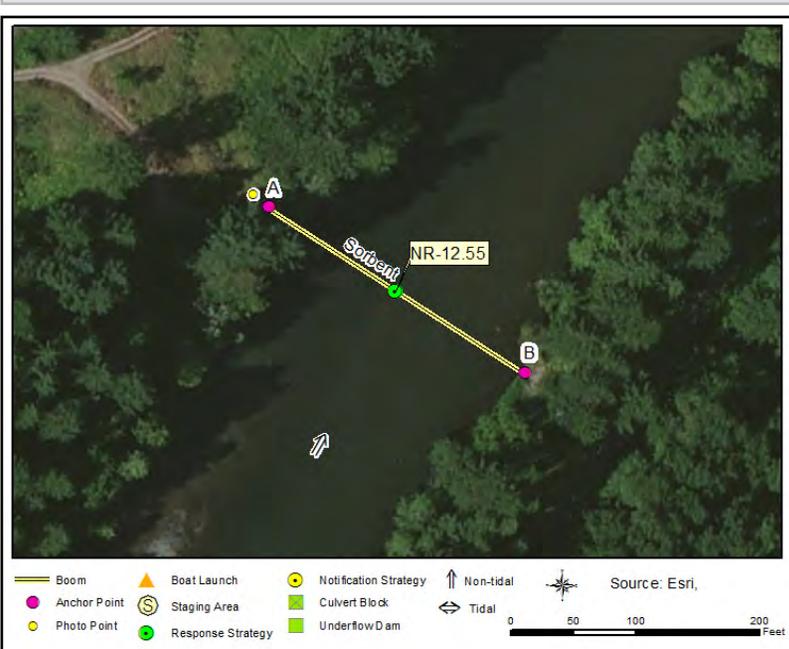
**Staging Area:** Onsite: Stage at parking area on Thurston County side, river left.

**Site Safety:** Slips, trips, and falls. Steep, slippery bank. Use caution around weir equipment.

**Field Notes:** The Nisqually Tribe Fish Weir is in place July through the end of October and creates a 50% dam. Call Nisqually Tribe to determine if weir is present. River right access is through Joint Base Lewis McChord military operations area.

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

**Resources at Risk:** Downstream Resources, Economic Resource, Tribal Lands/Resources



### Recommended Equipment

600	Feet	Boom - Sorbent
2	Each	Bridle(s) - Bridge Pier (appropriately sized for boom)
1	Each	Line throwing gun(s) or device(s)

### Recommended Personnel

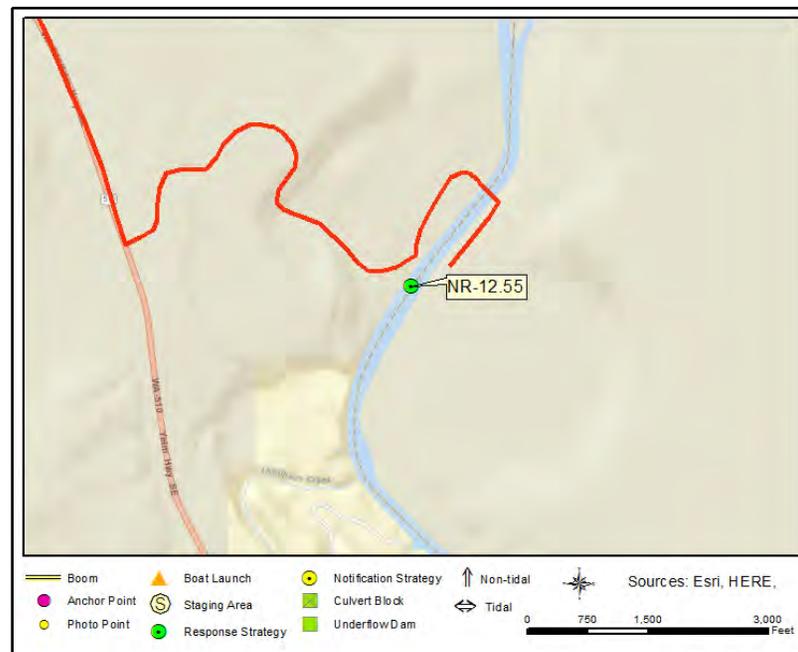
4	Laborer
1	Supervisor

Nisqually Tribe Fish Weir

NR-12.55



NR-12.55 Photo: River left looking SE at opposite bank on river right



Site Contact

**US Army-Joint Base Lewis McChord**  
 Primary Contact : Joint Base Operations Center  
 253-967-0015

Nearest Address

13213 Yelm Hwy SE  
 Olympia, WA 98513

Driving Directions

- From I-5 S
1. Head west on I-5 S toward Exit 116
  2. Take exit 116 for Mounts Rd toward Old Nisqually (0.5 mi)
  3. Turn left onto Mounts Rd SW/ Nisqually Rd SW/ Old Pacific Hwy SE  
 Continue to follow Old Pacific Hwy SE (3.8 mi)
  4. Turn left onto Reservation Rd SE (2.7 mi)
  5. At the traffic circle, take the 2nd exit onto WA-510 E (0.3 mi)
  6. At the traffic circle, take the 2nd exit and stay on WA-510 E (2.5 mi)
  7. Turn left onto Fort Lewis Rd at Military Vehicle Crossing sign (1.1 mi)  
 Arrive at west bank of strategy site.
  8. Continue 1/3 mile on Fort Lewis Rd. and cross tank bridge (Gate is locked. Contact JBLM EOC).
  9. Turn right immediately after crossing the bridge and follow road for 1/3 mile.  
 Arrive at east bank of strategy site.

# Mouth of Thompson Creek NR-13.05

**Position - Location:** 46° 58.652', -122° 38.304'      46° 58' 39.1", -122° 38' 18.2"      46.97753, -122.63840      Yelm

**Strategy Objective:** Exclusion : Prevent oil travelling downstream on Thompson Creek from entering Nisqually River

**Implementation:** From Centralia Power House, follow access trail 500ft to mouth of Thompson Creek. Deploy 100ft boom across creek mouth. Anchor at Point A on creek left and Point B on creek right using shoreside anchoring systems or natural anchor points. Place multiple lengths of sorbent boom on upstream side of hard boom to collect oil moving downstream on creek.

**Staging Area:** Remote: Stage at SA-NR-13.2, Centralia Power Plant

**Site Safety:** Slips, trips, and falls. Rough and heavily vegetated trail access.

**Field Notes:** Site access via trail from north end of west parking area at Centralia Power Plant. Contact Power House Operator for directions.

**Watercourse:** Creek - Thompson Creek at Nisqually River

**Resources at Risk:** Downstream Resources, Federal Lands, Fisheries , Salmon Habitat, Tribal Lands/Resources



### Recommended Equipment

2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
100	Feet	Line - 3/8" poly line

### Recommended Personnel

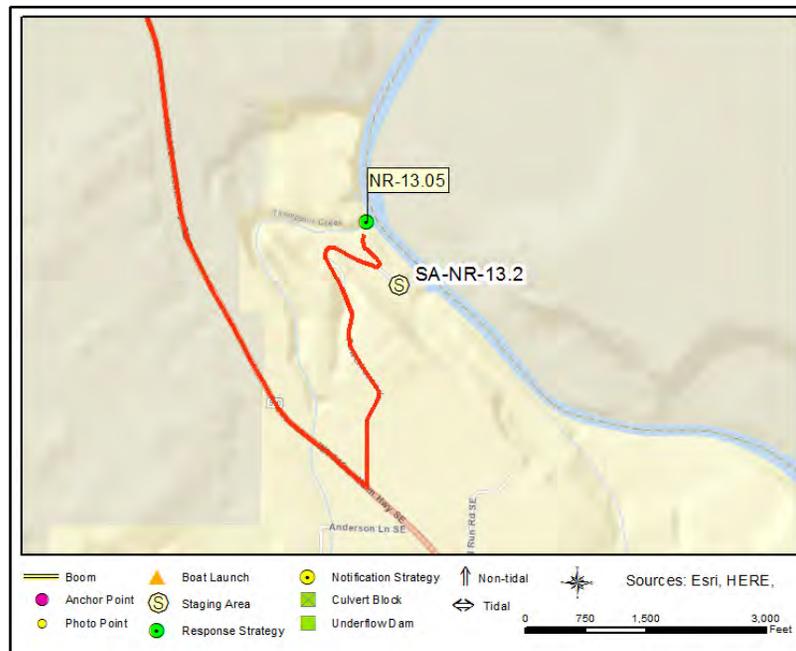
2	Laborer
1	Supervisor

Mouth of Thompson Creek

NR-13.05



NR-13.05 Photo: Aerial view of the mouth of Thompson Creek



Site Contact

Centralia City Light

Land/Property Contact : Power House Operator  
 14024 Yelm Hwy SE  
 Yelm, WA 98597  
 360-888-2617

Nearest Address

14024 Yelm Hwy SE  
 Yelm, WA 98597

Driving Directions

- From I-5 S
1. Head west on I-5 S
  2. Take exit 109 for Martin Way toward College St/ Sleater-Kinney Rd N 0.2 mi
  3. Turn left onto Martin Way SE -1.4 mi
  4. Turn right onto Kinwood St SE -0.7 mi
  5. Turn left onto Pacific Ave SE -1.3 mi
  6. At the traffic circle, continue straight onto WA-510 E -4.8 mi
  7. At the traffic circle, take the 1st exit and stay on WA-510 E -0.2 mi
  8. At the traffic circle, take the 2nd exit and stay on WA-510 E
  9. Turn left at Centralia Power Plant entrance -4.0 miles.
  10. Drive through Centralia City Light roads to Power House.
  11. From northwest corner of maintenance shop parking area, follow trail 500ft. to confluence of Thompson Creek and Nisqually River.

14024 Yelm Hwy SE  
 Yelm, WA 98597

# Mouth of Yelm Creek NR-13.7

**Position - Location:** 46° 58.243', -122° 37.656'      46° 58' 14.6", -122° 37' 39.4"      46.97072, -122.62760      Yelm

**Strategy Objective:** Exclusion : Prevent oil travelling downstream on Yelm Creek from entering Nisqually River

**Implementation:** Contact property owner before deploying strategy. From private property access trail, deploy 100ft. boom in a chevron configuration across Yelm Creek. Anchor at AP-1 and AP-2 using shoreside anchor posts. Anchor at AP-3 using Danforth anchor or other heavy duty anchor appropriate for creek flow and river conditions. Place sorbents in boom pocket to recover oil or stage vac truck on landing near bridge.

**Staging Area:** Onsite: Private property/agricultural land

**Site Safety:** Slips, trips, and falls. Access across narrow bridge with no rails. Heavily vegetated area with submerged hazards and slippery banks.

**Field Notes:** Private property with creek access via short pedestrian trail. Access to property requires crossing narrow bridge with no railings. Vac truck may be staged on west side of bridge.

**Watercourse:** Creek - Yelm Creek

**Resources at Risk:** Downstream Resources, Federal Lands, Fisheries , Power Generation, Salmon Habitat, Tribal Lands/Resources



### Recommended Equipment

2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
100	Feet	Boom - Sorbent
2	Each	Heaving Line(s)
100	Feet	Line - 3/8" poly line
1	Each	Vac Truck or Skimmer and Storage

### Recommended Personnel

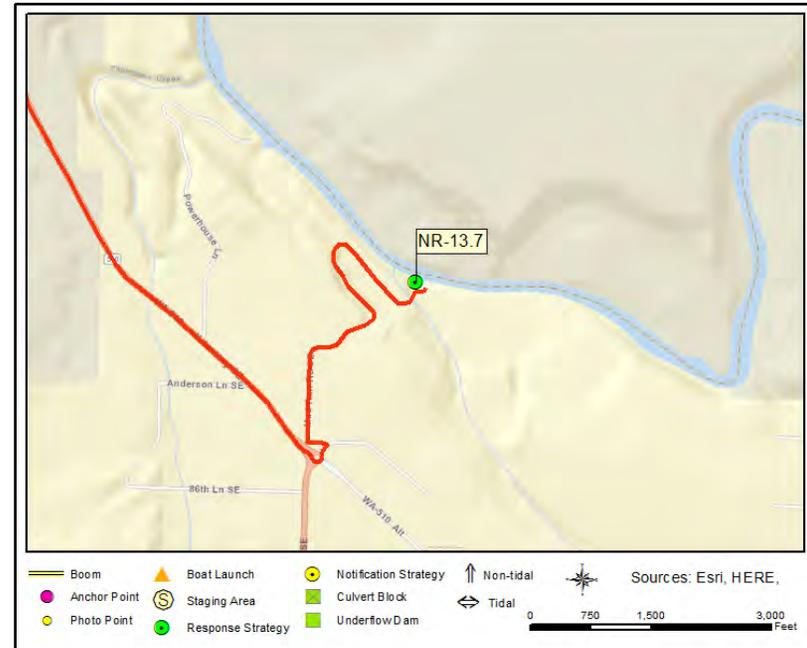
2	Laborer
1	Supervisor

Mouth of Yelm Creek

NR-13.7



NR-13.7 Photo: Creek right at Yelm Creek on river left at confluence with Nisqually River



Site Contact

**Petersen Enterprises**  
 Land/Property Owner :  
 14200 Yelm Hwy SE  
 Yelm, WA 98597  
 360-458-7750

Nearest Address

14201 Mud Run Rd SE  
 Yelm, WA 98597

Driving Directions

- From I-5 S
1. At exit 114 take ramp on the right toward Nisqually (0.42 miles)
  2. Continue on Martin Way E (1.12 miles)
  3. Make sharp left on Dutterow Rd SE (0.67 miles)
  4. Bear left on Deerbrush Dr SE (0.97 miles)
  5. Turn right on Goldenrod Dr SE (0.15 miles)
  6. Turn right on Rockcross Dr SE (0.13 miles)
  7. Make sharp left on WA-510 (Pacific Hwy SE) (8.07 miles)
  8. At roundabout, take 3rd exit to proceed northeast on Mud Run Rd SE (0.07 miles)
  9. Make sharp left to stay on Mud Run Rd SE (0.02 miles)
  10. Follow Mud Run Rd. SE for 1/2 mile, past first house and down the hill (first house belongs to property owner- house at strategy site is a rental).
  11. To walk to strategy, follow trail just north of the bridge.

# Milwaukee Railroad Bridge - McKenna NR-22.15

**Position - Location:** 46° 56.234', -122° 33.874'      46° 56' 14.1", -122° 33' 52.5"      46.93724, -122.56457      McKenna

**Strategy Objective:** Collection : Collect and recover oil on downstream side of railroad trestle

**Implementation:** Using shallow-water jet drive workboat from BL-NR-22.5, secure end of 400ft hard boom to railroad bridge piling on river left at or near Point B. Float boom downstream and across to river right, securing it to bank on river right at/near Point A (46.93775, -122.56453). As needed, based on flow conditions, use line and additional shoreside anchoring systems to keep boom secure in river. Use vac-truck or skimmer/storage on river right to recover oil.

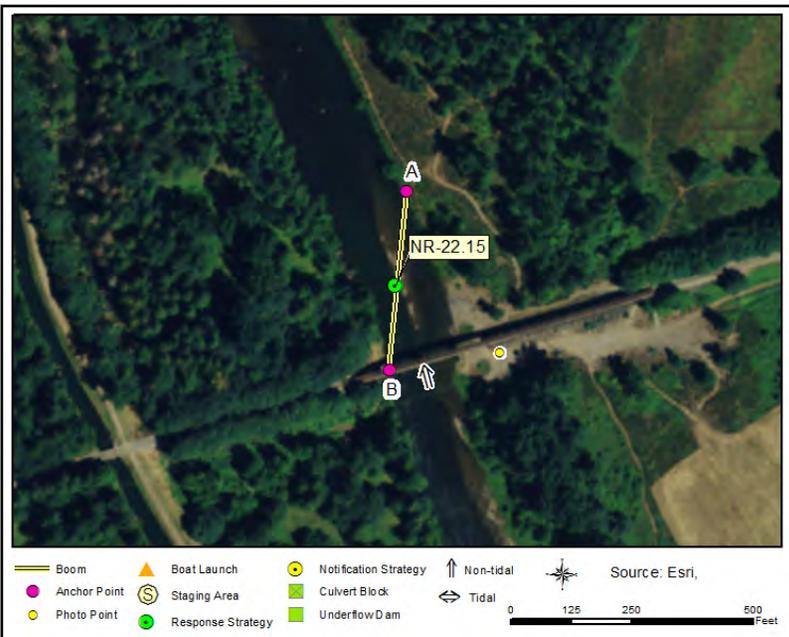
**Staging Area:** Onsite: Stage at large dirt parking area under railroad bridge

**Site Safety:** Slips, trips, and falls. Swift current.

**Field Notes:** Access is through McKenna Water District Property- through barbed wire fence. Make contact with McKenna Water District before accessing property.

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

**Resources at Risk:** Downstream Resources, Federal Lands, Fisheries , Salmon Habitat, Tribal Lands/Resources



### Recommended Equipment

1	Each	Anchoring System(s)- Shoreside
400	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Bridle(s) - Bridge Pier (appropriately sized for boom)
1	Each	Vac Truck or Skimmer and Storage
1	Each	Workboat(s) - (hand-launch)

### Recommended Personnel

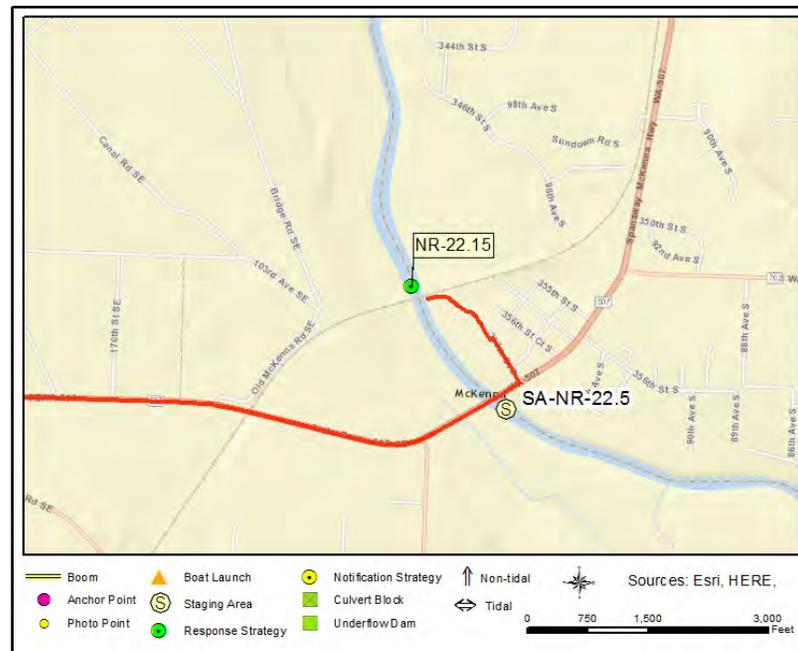
1	Boat Operator
4	Laborer
1	Supervisor

Milwaukee Railroad Bridge - McKenna

NR-22.15



NR-22.15 Photo: River right at strategy access site looking W at railroad bridge



Site Contact

**McKenna Water District**  
 Land/Property Owner :  
  
 McKenna, WA 98558  
 253-307-0644

Nearest Address

9526 357th Street S  
 McKenna, WA 98558

Driving Directions

- From I-5 S
1. At exit 116 take ramp on the right toward Mounts Road/Old Nisqually (0.52 miles)
  2. Turn left on Nisqually Rd (Old Pacific Hwy) (2.19 miles)
  3. Continue on Old Pacific Hwy SE (3.38 miles)
  4. Make sharp left on WA-510 (St Clair Cut-Off Rd SE) (9.32 miles)
  5. Continue on WA-507 (Yelm Ave E) (2.5 miles)
  6. Turn left on 357th St S (0.12 miles)
  7. Open barbed wire fence (with permission from McKenna Water District) and drive along grass roads to strategy access.

**Castle Lane SE**

**NR-30.7**

**Position - Location:** 46° 51.923', -122° 28.186'      46° 51' 55.4", -122° 28' 11.1"      46.86538, -122.46976      Yelm

**Strategy Objective:** Collection : Collect and recover oil on river left

**Implementation:** Secure end of 400ft hard boom to bank on river right at/near Point C (46.86501, -122.4703). Attach lateral shoreside anchor lines to boom at intervals of 100ft to 200ft, depending on stream flow conditions. Use jet-boat launched from site to transport remaining boom end and all lateral lines destined for river right upstream and across to river right. Secure boom end to bank at/near Point D. Secure lateral anchor lines to banks on river right and left; adjust as needed. Deploy second 400ft length hard boom in same manner between Points A & B, about 50ft downstream from first section of boom.

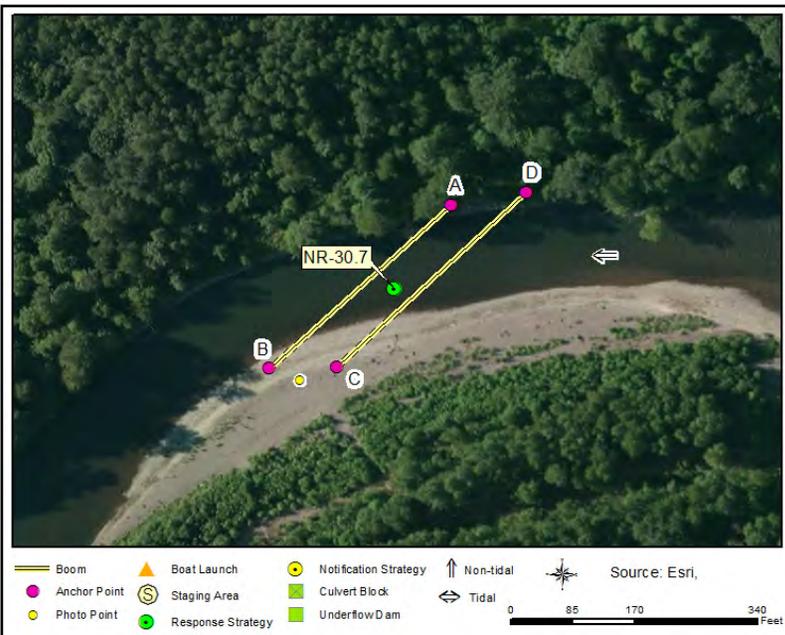
**Staging Area:** Onsite: Stage onsite at private access road. Launch workboat from site.

**Site Safety:** Slips, trips, and falls. Swift current and potential snags and submerged debris.

**Field Notes:** River access through private property on Castle Lane SE. Make contact with on-site property owners before accessing property. Vac-truck or skimmer/storage collection at Point B.

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

**Resources at Risk:** Downstream Resources



**Recommended Equipment**

10	Each	Anchoring System(s)- Shoreside
1000	Feet	Boom - B3 (River Boom) or equivalent
500	Feet	Line - 1/2" poly line
1000	Feet	Line - 3/8" poly line
1	Each	Vac Truck or Skimmer and Storage
1	Each	Winch - Power Winch
1	Each	Workboat(s) - (jet drive)

**Recommended Personnel**

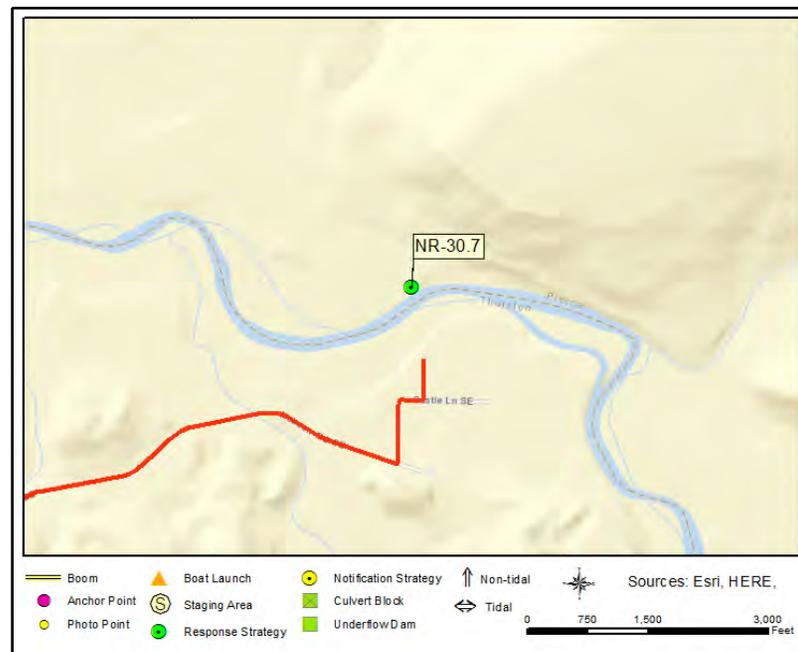
1	Boat Operator
3	Laborer
1	Supervisor

Castle Lane SE

NR-30.7



NR-30.7 Photo: River left at strategy site looking NE to opposite bank on river right



Site Contact

Private Owner :  
 15525 Castle Lane SE  
 Yelm, WA 98597  
 360-894-2159

Nearest Address

15525 Castle Lane SE  
 Yelm, WA 98597

Driving Directions

- From I-5 S
1. Head southwest on I-5 S toward Exit 119
  2. Take exit 116 for Mounts Rd toward Old Nisqually (0.5 mi)
  3. Turn left onto Mounts Rd SW/ Nisqually Rd SW/ Old Pacific Hwy SE  
Continue to follow Old Pacific Hwy SE (3.8 mi)
  4. Turn left onto Reservation Rd SE (2.7 mi)
  5. At the traffic circle, take the 2nd exit onto WA-510 E (0.3 mi)
  6. At the traffic circle, take the 2nd exit and stay on WA-510 E (4.2 mi)
  7. Keep right to continue toward WA-510 E/ W Yelm Ave (495 ft)
  8. Merge onto WA-510 E/ W Yelm Ave  
Continue to follow W Yelm Ave (3.1 mi)
  9. Turn right onto Bald Hill Rd SE (5.0 mi)
  10. Turn left to stay on Bald Hill Rd SE (3.1 mi)
  11. Turn left onto Hobson Rd SE (1.4 mi)
  12. Turn left onto Castle Ln SE  
Destination will be on the left (0.2 mi)
  13. Continue past house on rough road to river access.
- 15525 Castle Ln SE  
 Yelm WA 98597

# Mouth of Ohop Creek NR-36.7

**Position - Location:** 46° 50.757', -122° 22.224'      46° 50' 45.4", -122° 22' 13.4"      46.84595, -122.37040      Eatonville

**Strategy Objective:** Exclusion : Keep oil travelling downstream on Ohop Creek out of the Nisqually River

**Implementation:** From Washington State Parks landing area, hand-launch workboat and deploy 100ft hard boom across Ohop Creek (near mouth) securing boom to banks at Point A and Point B (creek right and creek left) using shoreside anchoring system or natural anchor points. Place multiple lengths of sorbent boom on downstream side of hard boom. If needed, use vac truck or skimmer/storage for collection on river left.

**Staging Area:** Onsite: Stage at large turn-around/landing area at end of Washington State Parks road

**Site Safety:** Slips, trips, and falls. Swift current in high flow conditions. Potential snags and submerged debris. Extremely muddy banks.

**Field Notes:** Road access through Washington State Parks property (undeveloped park land). Locked gate. Contact Washington State Parks or Sheriff's Office (after hours) for vehicle access.

**Watercourse:** Creek - Ohop Creek at Nisqually River

**Resources at Risk:** Downstream Resources, Federal Lands, Fisheries , Power Generation, Salmon Habitat, Tribal Lands/Resources



### Recommended Equipment

2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
100	Feet	Boom - Sorbent
1	Each	Vac Truck or Skimmer and Storage
1	Each	Workboat(s) - (hand-launch)

### Recommended Personnel

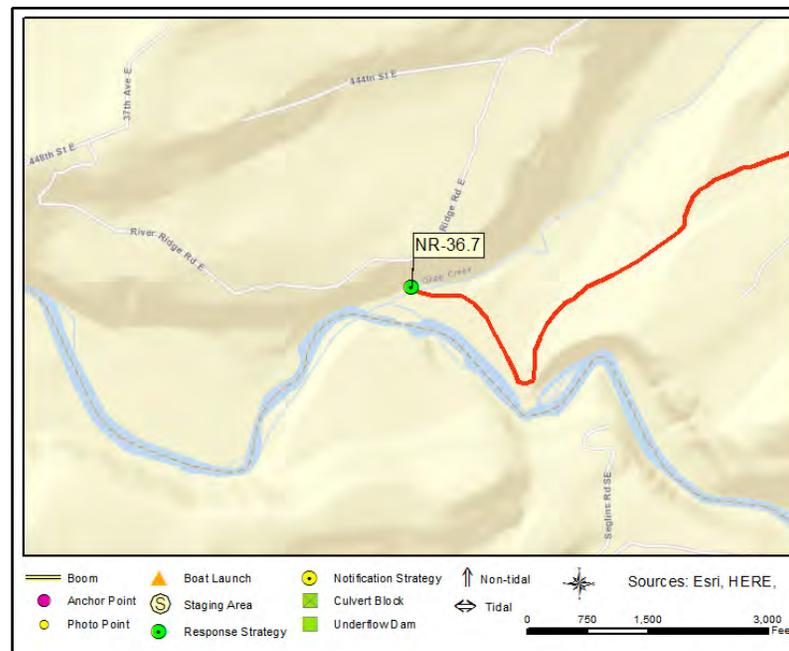
1	Boat Operator
2	Laborer
1	Supervisor

Mouth of Ohop Creek

NR-36.7



NR-36.7 Photo: Creek left at Ohop Creek at confluence with Nisqually river



Site Contact

Washington State Parks and Recreation Commission  
Land/Property Contact : General Number

360-902-8844

Nearest Address

45345 Mashel Prairie Rd  
Eatonville, WA 98328

Driving Directions

- From I-5 S
1. At exit 114 take ramp on the right toward Nisqually (0.42 miles)
  2. Continue on Martin Way E (0.06 miles)
  3. Make sharp left on Nisqually Cut-Off Rd SE (1.25 miles)
  4. Turn left on Kuhlman Rd SE (0.45 miles)
  5. Turn right on Old Pacific Hwy SE (2.74 miles)
  6. Make sharp left on WA-510 (St Clair Cut-Off Rd SE) (9.32 miles)
  7. Continue on WA-507 (Yelm Ave E) (2.89 miles)
  8. Turn right on WA-702 (State Route 702 S) (9.29 miles)
  9. Turn right on WA-7 (Mountain Hwy E) (6.67 miles)
  10. Make sharp right on Mashel Prairie Rd (Mashell Prairie Rd E) (1 mile)
  11. Turn right at gated road "Gate411". Follow road for 1.8 miles to strategy site.

**Unnamed Creek** **NRTA-0.1**

**Position - Location:** 47° 4.687', -122° 41.556'      47° 4' 41.2", -122° 41' 33.3"      47.07812, -122.69259      DuPont

**Strategy Objective:** Culvert Block : Block culvert to prevent oil from entering wetland

**Implementation:** Use visqueen-lined plywood to block culvert upstream side of creek. Secure plywood using sandbags or other shoring materials. Place sorbents upstream of culvert to collect oil pooled by culvert block.

**Staging Area:** Onsite: Stage at small pull-out area off of Mounts Rd., 200ft. north of gate.

**Site Safety:** Slips, trips, and falls. Marshy area with changing water levels with tide.

**Field Notes:** Access is through locked gate. Property is owned by the Nisqually Indian Tribe. Contact Nisqually Emergency Management for access.

**Watercourse:** Creek - Unnamed Creek

**Resources at Risk:** Downstream Resources, Salmon Habitat, Tribal Lands/Resources, Waterfowl and Shorebird Concentrations



**Recommended Equipment**

50 Feet	Boom - Sorbent
2 Each	Equipment (shovels, pickaxes, tamper bars, sledge hammers)
1 100 ft Section	Plastic Sheeting
1 Each	Plywood sheets (4ft x 4ft)
100 Each	Sandbag(s)
1 Assort	Shoring materials (posts, blocks, wedges, screen, and material)

**Recommended Personnel**

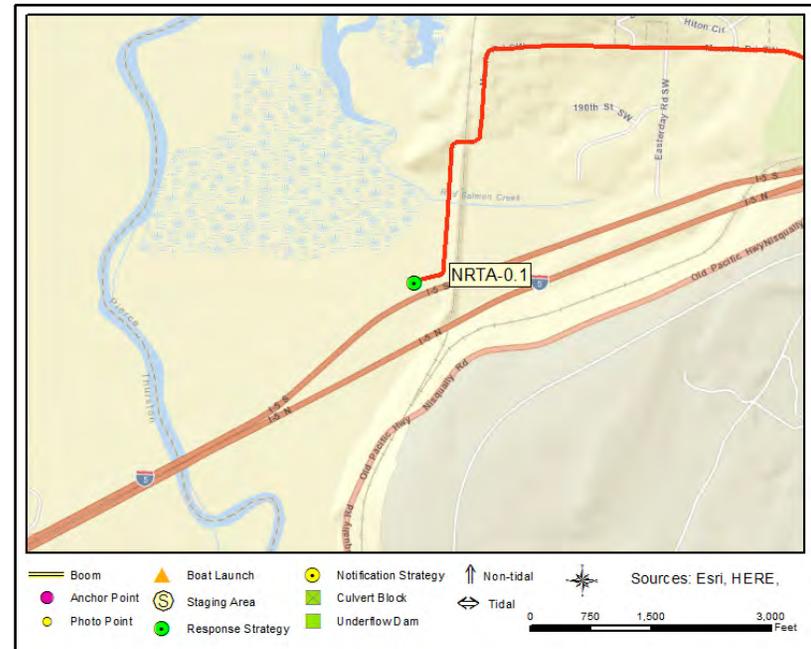
2 Laborer
1 Supervisor

Unnamed Creek

NRTA-0.1



NRTA-0.1 Photo: Looking at culvert from dirt road beyond gate



Site Contact

**Nisqually Tribe**  
 Land/Property Owner : Emergency Management  
  
 Olympia, WA 98513  
 360-486-5440

Nearest Address

18875 Mounts Rd. SW  
 DuPont, WA 98327

Driving Directions

- From I-5 S
1. Go west on I-5 toward 116
  2. At exit 116 take ramp on the right toward Mounts Road/Old Nisqually (0.52 miles)
  3. Turn right on Nisqually Rd (Old Pacific Hwy) (0.05 miles)
  4. Continue on Mounts Rd SW under railroad bridge (1.8 miles)
- Site is on the right through locked gate. Contact Nisqually Tribe for access.

**Ohop Creek** **OHPC-1.7**

**Position - Location:** 46° 51.862', -122° 20.633'      46° 51' 51.7", -122° 20' 38.0"      46.86436, -122.34389      Eatonville

**Strategy Objective:** Collection : Collect oil moving downstream on tributary to Ohop Creek

**Implementation:** Deploy 100ft hard boom along north side of Hwy 7 bridge over tributary to Ohop Creek. Anchor boom to creek banks or concrete bridge supports at/near Points A & B. Deploy multiple lengths of sorbent boom upstream and downstream of hard boom. Use vac-truck or skimmer/portable storage if collecting oil beyond capacity of sorbents.

**Staging Area:** Onsite: Stage at gravel pull-out on south side of Highway 200ft. from strategy site.

**Site Safety:** Slips, trips, and falls. Marshy, heavily vegetated area with potential for submerged hazards.

**Field Notes:** Ohop Creek at Highway 7 bridge. Little space for staging- follow WSDOT guidelines for work zone traffic control.

**Watercourse:** Creek - Ohop Creek (Restoration Site)

**Resources at Risk:** Downstream Resources, Habitat Restoration Site/Project, Salmon Habitat



**Recommended Equipment**

2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
100	Feet	Line - 3/8" poly line
1	Each	Vac Truck or Skimmer and Storage

**Recommended Personnel**

2	Laborer
1	Supervisor

# Ohop Creek

# OHPC-1.7



OHPC-1.7 Photo: Creek left on Ohop Creek at Highway 7 Crossing



### Site Contact

**Nisqually Land Trust**  
 Land/Property Owner : Associate Director  
 1420 Marvin Road NE, Suite C PMB 243  
 Lacey, WA 98516  
 360-489-3400

### Nearest Address

42950 Mountain Hwy E  
 Eatonville, WA 98328

### Driving Directions

- From I-5 S
1. At exit 122 take ramp on the right to Berkeley St (0.24 miles)
  2. Make sharp left on Berkeley St SW (Jackson Ave) (0.05 miles)
  3. Turn left onto ramp and go on I-5 N toward Tacoma/Seattle (4.44 miles)
  4. At exit 127 bear right onto ramp to WA-512 E toward So Tacoma Way/Puyallup (0.17 miles)
  5. At fork keep right on WA-512 E toward Puyallup (0.37 miles)
  6. Go on WA-512 (1.64 miles)
  7. Take ramp on the right to WA-7/Pacific Ave. toward Parkland/Spanaway/Paradise (0.29 miles)
  8. Turn right on WA-7 (Pacific Ave S) (21.94 miles)
  9. Staging area is on the right, 200ft. from strategy location.

# Ohop Creek OHPC-1.9

**Position - Location:** 46° 51.874', -122° 20.762'      46° 51' 52.4", -122° 20' 45.7"      46.86456, -122.34604      Eatonville

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

**Implementation:** Deploy 100ft hard boom along south side of Hwy 7 bridge over Ohop Creek. Anchor boom to creek banks or concrete bridge supports at/near Points A & B. Deploy multiple lengths of sorbent boom upstream and downstream of hard boom. Use vac-truck or skimmer/portable storage if collecting oil beyond capacity of sorbents.

**Staging Area:** Onsite: Stage from gravel pull-out and field 225ft. east of bridge.

**Site Safety:** Slips, trips, and falls. Marshy area with heavy vegetation. Highway crossing.

**Field Notes:** Little space for staging equipment. Follow WSDOT guidelines for work zone traffic control.

**Watercourse:** Creek - Ohop Creek (Restoration Site)

**Resources at Risk:** Downstream Resources, Habitat Restoration Site/Project



### Recommended Equipment

2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
2	Each	Bridle(s) - Bridge Pier (appropriately sized for boom)
1	Each	Vac Truck or Skimmer and Storage

### Recommended Personnel

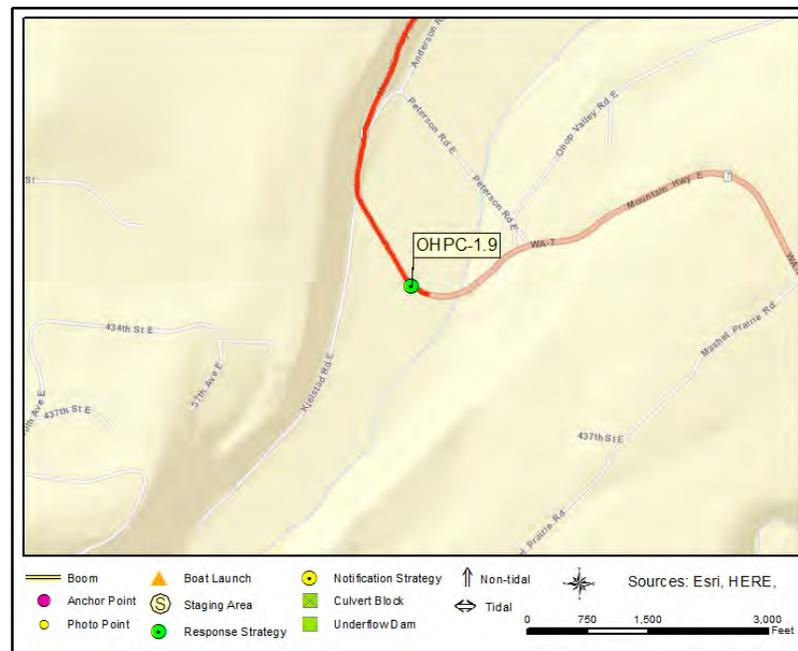
2	Laborer
1	Supervisor

# Ohop Creek

# OHPC-1.9



OHPC-1.9 Photo: Staging area



### Site Contact

**Nisqually Land Trust**  
 Land/Property Owner : Associate Director  
 1420 Marvin Road NE, Suite C PMB 243  
 Lacey, WA 98516  
 360-489-3400

### Nearest Address

42950 Mountain Hwy E  
 Eatonville, WA 98328

### Driving Directions

- From I-5 S
1. Head west on I-5 S toward Exit 111
  2. Take exit 111 for WA-510 E/ Marvin Rd toward Yelm (0.3 mi)
  3. Turn left onto WA-510 E/ Marvin Rd NE (1.7 mi)
  4. At the traffic circle, take the 3rd exit onto WA-510 E (4.8 mi)
  5. At the traffic circle, take the 1st exit and stay on WA-510 E (0.2 mi)
  6. At the traffic circle, take the 2nd exit and stay on WA-510 E (4.2 mi)
  7. Keep right to continue toward WA-510 E/ W Yelm Ave (495 ft)
  8. Merge onto WA-510 E/ W Yelm Ave  
 Continue to follow W Yelm Ave (3.1 mi)
  9. Continue onto WA-507 N (1.9 mi)
  10. Turn right onto WA-702 E (9.3 mi)
  11. Turn right onto WA-7 S  
 Destination will be on the right (5.6 mi)

## Red Salmon Creek at Mouth RDSL-0.4

**Position - Location:** 47° 5.660', -122° 41.332'      47° 5' 39.6", -122° 41' 19.9"      47.09433, -122.68886      DuPont

**Strategy Objective:** Exclusion : Prevent oil from travelling upstream on Red Salmon Creek or entering Puget Sound if moving downstream

**Implementation:** Using jet-drive workboat, secure end of 700ft boom to bank on creek left at/near Point A (47.09393, -122.68999). Then extend boom downstream NE towards Puget Sound, and anchor remaining end to creek right at/near Point B (47.09467, -122.68765). Secure boom to banks using shoreline anchoring systems, posts, or natural structures. Use anchor systems to keep boom secure in creek. Make adjustments to boom as needed based on spill location (Puget Sound or upstream). This strategy is best implemented during slack high tide and muddy/inaccessible at low tide.

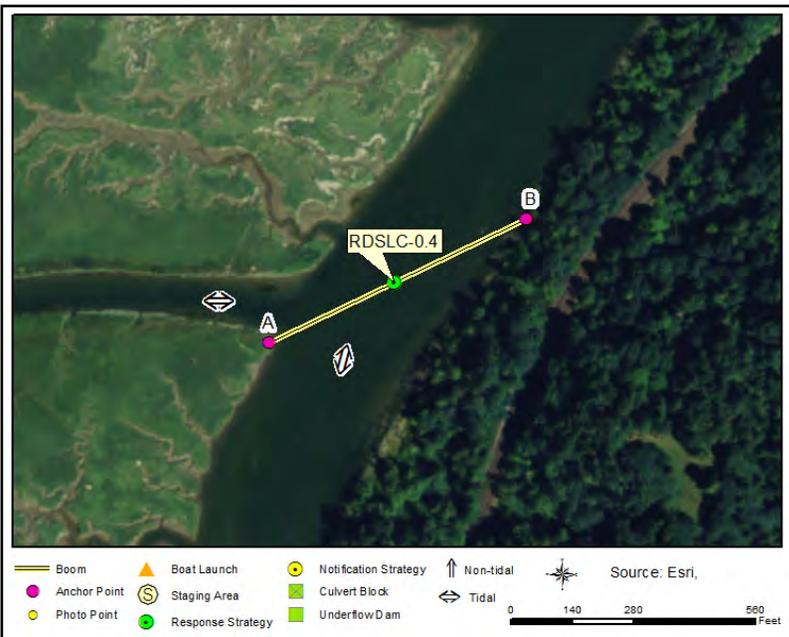
**Staging Area:** Remote: Stage and launch boat from Solo Point (BL-SPS-2)

**Site Safety:** Slips, trips, and falls. Very shallow tide lands. Avoid walking on mud flats as it is possible to become stuck and stranded as tide changes.

**Field Notes:** Red Salmon Creek is very shallow in this area and may not be accessible except for at high tide.

**Watercourse:** Estuary - Red Salmon Creek

**Resources at Risk:** Downstream Resources, Estuary Resources, Federally Protected Area/Lands



### Recommended Equipment

5	Each	Anchor - Danforth (or other appropriate type)
2	Each	Anchoring System(s)- Shoreside
700	Feet	Boom - B3 (River Boom) or equivalent
100	Feet	Line - 3/8" poly line
1	Each	Workboat(s) - (jet drive)

### Recommended Personnel

1	Boat Operator
3	Laborer
1	Supervisor

**Red Salmon Creek at Mouth**

**RDSL-0.4**



RDSL-0.4 Photo: Overhead view of Red Salmon Creek



**Site Contact**

**US Army-Joint Base Lewis McChord**  
 Land/Property Contact : Joint Base Operations Center  
 253-967-0015

**USFWS Nisqually Wildlife Refuge**  
 Land/Property Contact : Project Leader  
 360-742-9153

**Nearest Address**

Solo Point Road  
 DuPont, WA 98327

**Driving Directions**

- Directions to SA-SPS-2:  
 From I-5 S
1. Head southwest on I-5 S
  2. Take exit 119 toward Steilacoom- Dupont Rd (0.3 mi)
  3. Turn right onto Dupont-Steilacoom Rd (signs for Steilacoom/ Dupont Rd) 44 ft
  4. Take the 1st right to stay on Dupont-Steilacoom Rd (2.1 mi)
  5. Turn left onto Solo Point Rd (2.0 mi)
  6. Turn right just before facility gate to stay on Solo Point Rd.

## Red Salmon Creek Culvert RDSLCL-1.8

**Position - Location:** 47° 4.856', -122° 41.462'      47° 4' 51.4", -122° 41' 27.7"      47.08094, -122.69103      Dupont

**Strategy Objective:** Culvert Block : Block culvert to prevent oil from travelling through culvert to wetland or Red Salmon Creek.

**Implementation:** Use plywood or other means to block culvert that runs under railroad bridge. Install plywood sheets against culvert and secure using sandbags or other shoring materials. May block either direction, depending on spill location and tidal flow.

**Staging Area:** Onsite: Stage from pull-out on Mounts Rd. 700ft. from culvert. Use WSDOT guidelines for work zone traffic control.

**Site Safety:** Slips, trips, and falls. Steep rock walls surrounding culvert. Railroad dike above strategy.

**Field Notes:** Strategy is off of Mounts Rd. to the west of the golf course and below railroad tracks.

**Watercourse:** Creek - Red Salmon Creek

**Resources at Risk:** Salmon Habitat, Sensitive Wetland Area, Waterfowl and Shorebird Concentrations



### Recommended Equipment

2	Each	Equipment (shovels, pickaxes, tamper bars, sledge hammers)
1	Roll	Plastic Sheeting
1	Each	Plywood sheets (5ft x 6ft)
100	Each	Sandbag(s)
1	Assort	Shoring materials (posts, blocks, wedges, screen, and material)

### Recommended Personnel

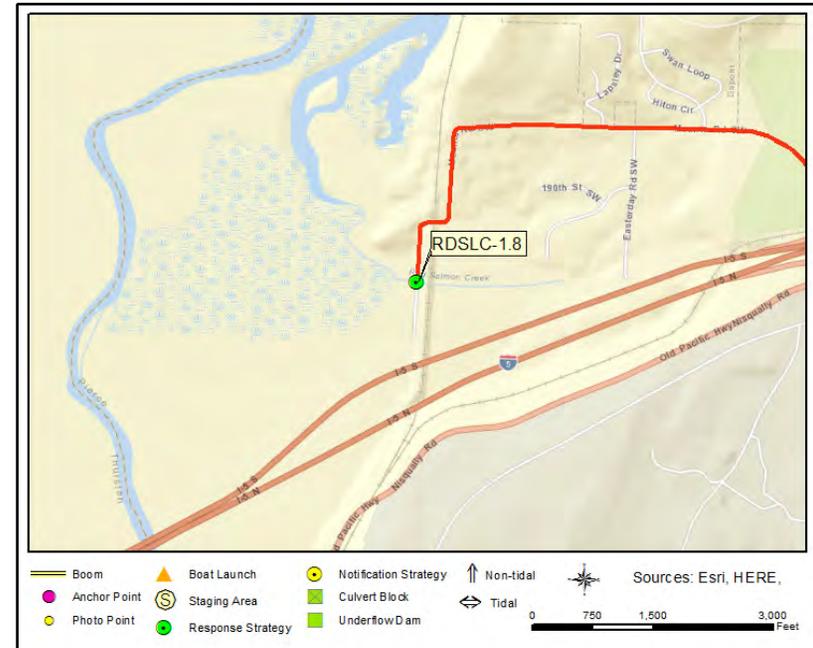
2	Laborer
1	Supervisor

# Red Salmon Creek Culvert

# RDSL-1.8



RDSL-1.8 Photo: Creek center looking at culvert under railroad berm



### Site Contact

**No Information**  
Not Determined :

### Nearest Address

19116 Mounts Rd SW  
Dupont, WA 98327

### Driving Directions

1. From I-5 S
  2. Go west on I-5 toward 116
  3. At exit 116 take ramp on the right toward Mounts Road/Old Nisqually (0.52 miles)
  4. Turn right on Nisqually Rd (Old Pacific Hwy) (0.05 miles)
  5. Continue on Mounts Rd SW (0.78 miles)
- Arrive at strategy location (on the left).

**Appendix 4B**

**Notification Strategy 2-Pagers**

## NOTIFICATION STRATEGIES – LIST

[CLRCK-0.25-N](#)

[NR-4.2-N](#)

[NR-13.2-N](#)

[NR-1.0-N](#)

[NR-12.55-N](#)

[NR-26.85-N](#)

**Clear Creek Fish Hatchery** **CLRCK-0.25-N**

**Position - Location:** 47° 1.993', -122° 40.432'      47° 1' 59.6", -122° 40' 25.9"      47.03322, -122.67387      Olympia

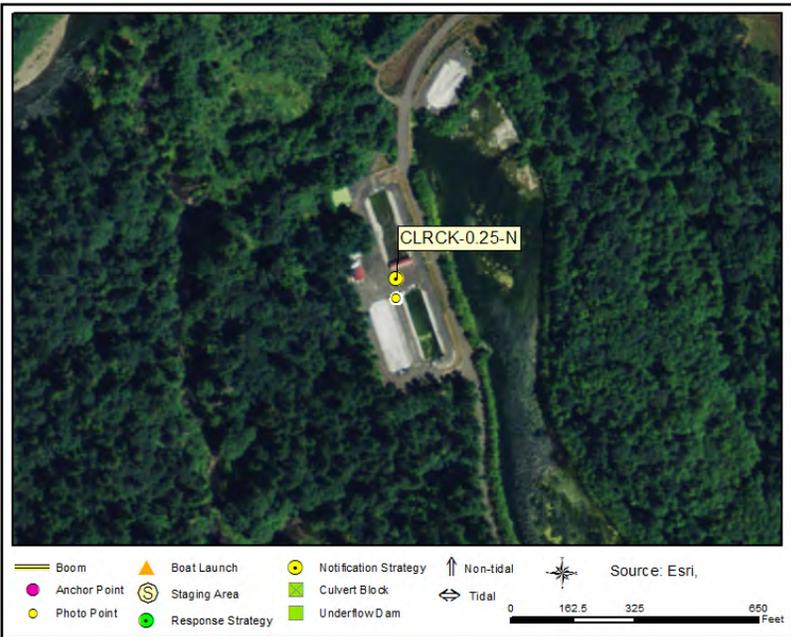
**Strategy Objective:** Notification : Notify Clear Creek Fish Hatchery of spills to the Nisqually River

**Implementation:** Notify Nisqually Natural Resources of a spill that could impact juvenile fish or hatchery resources. Hatchery personnel will close gates to keep juvenile fish from entering river if gates are open at the time of the spill.

**Field Notes:** Chinook are released as smolts in May; Coho are released as juveniles in April.

**Watercourse:** Creek - At Spring-Fed Fish Hatchery

**Resources at Risk:** Salmon - Chinook, Salmon - Coho



**Communication Process and Action:**

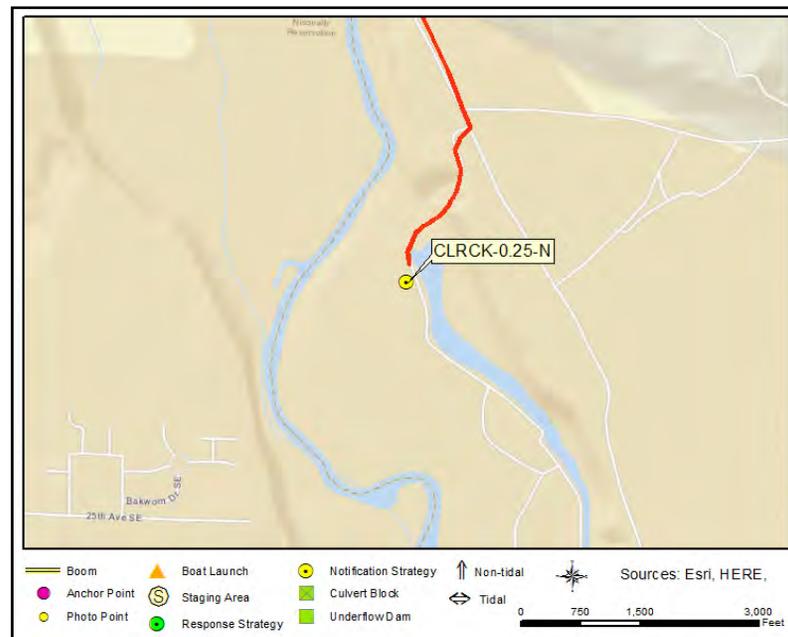
Call Nisqually Natural Resources during daytime hours and Tribal Emergency Management after hours. They will initiate internal notifications and take actions to reduce injury the resources under their control.

# Clear Creek Fish Hatchery

# CLRCK-0.25-N



CLRCK-0.25-N Photo: Salmon-rearing ponds at Nisqually Clear Creek Fish Hatchery



### Site Contact

**Nisqually Tribe**  
 Primary Contact : Natural Resources  
 360-438-8687

**Nisqually Tribe**  
 After Hours and Weekends Contact : Emergency Management  
 360-486-5440

### Nearest Address

Unknown Road  
 Olympia, WA 98513

### Driving Directions

From I-5 S

1. Head southwest on I-5 S toward Exit 119
2. Take exit 116 for Mounts Rd toward Old Nisqually (0.5 mi)
3. Turn left onto Mounts Rd SW/ Nisqually Rd SW  
Continue to follow Nisqually Rd SW (0.3 mi)
4. Turn left toward Perimeter Rd  
(Restricted usage road-Requires JBLM Access) (420 ft)
5. Turn right onto Perimeter Rd (2.9 mi)
6. Turn right (0.8 mi)

Arrive at Nisqually Clear Creek Fish Hatchery

# Nisqually Wildlife Refuge NR-1.0-N

**Position - Location:** 47° 5.280', -122° 41.971'      47° 5' 16.8", -122° 41' 58.3"      47.08800, -122.69952      Olympia

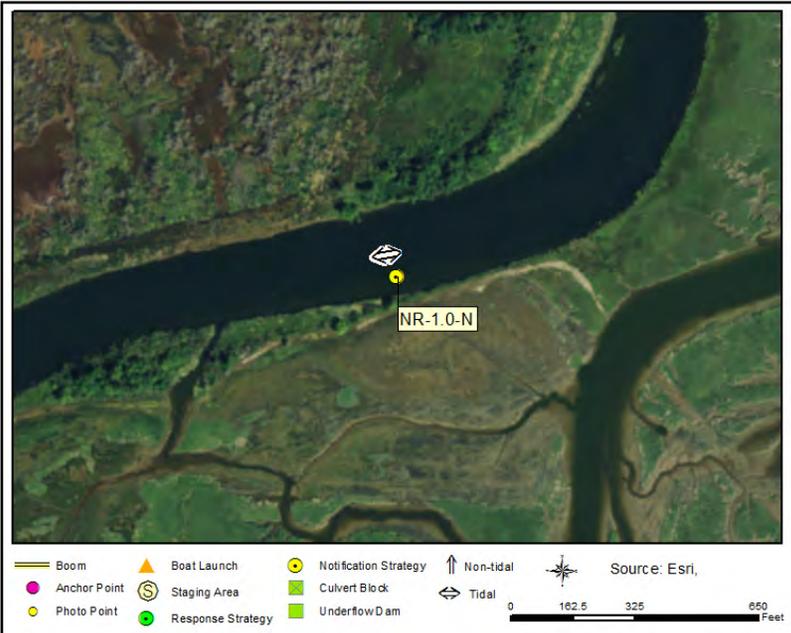
**Strategy Objective:** Notification : Notify USFWS Wildlife Refuge of spill potentially impacting the Nisqually River and Nisqually Delta.

**Implementation:** Call Refuge Project Leader, who will initiate internal notifications and take actions to reduce injury to the resources under the control of the Refuge.

**Field Notes:** Area can be extremely windy and water depth varies with changing tide.

**Watercourse:** Estuary - USFWS Nisqually National Wildlife Refuge

**Resources at Risk:** Aquatic Mammals, Bald Eagle, Canadian Goose Nesting Habitat, Cormorants, Cranes, Estuary Resources, Federally Protected



**Communication Process and Action:**

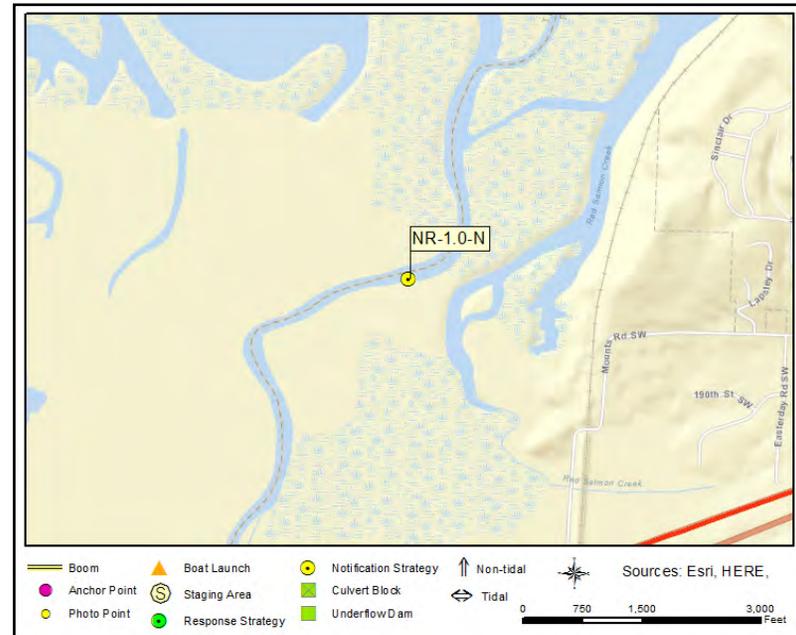
Notify Nisqually National Wildlife Refuge of a spill on the Nisqually River. They will initiate internal notifications, close tidal gates if open, and evacuate as necessary if spill presents a health and safety risk to Refuge visitors and staff.

# Nisqually Wildlife Refuge

# NR-1.0-N



NR-1.0-N Photo: Nisqually Wildlife Refuge from boardwalk on McAllister Creek (creek right) at high tide



## Site Contact

**USFWS Nisqually Wildlife Refuge**  
 Primary Contact : Project Leader  
 100 Brown Farm Rd.  
 Olympia, WA 98516  
 360-742-9153

## Nearest Address

100 Brown Farm Road  
 Olympia, WA 98516

## Driving Directions

From I-5 N  
 1. Head west on I-5 S toward Exit 116  
 2. Take exit 114 toward Nisqually (0.4 mi)  
 3. Continue onto Martin Way E (161 ft)  
 4. Turn right onto Brown Farm Rd NE (0.2 mi)  
 5. Turn right to stay on Brown Farm Rd NE  
 Destination will be on the right (0.7 mi)  
 Nisqually National Wildlife Refuge  
 100 Brown Farm Road Northeast  
 DuPont, WA 98327

**Joint Base Lewis McChord (Military Base) NR-4.2-N**

**Position - Location:** 47° 3.476', -122° 41.449'      47° 3' 28.5", -122° 41' 26.9"      47.05793, -122.69081      Dupont

**Strategy Objective:** Notification : Notify Joint Base Lewis McChord military training and operations area of a spill impacting the Nisqually River

**Implementation:** Call Joint Base Lewis McChord Emergency Operations Center. They will initiate internal notification (Military Police, JBLM Fire, Range Control), and evacuate the area as necessary if spill presents health and safety risk to military personnel and staff in the vicinity of the river.

**Field Notes:** Joint Base Lewis McChord is a military training and operations base which manages large portions of the Pierce County (river right) side of the Nisqually River

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

**Resources at Risk:** Federal Lands



**Communication Process and Action:**

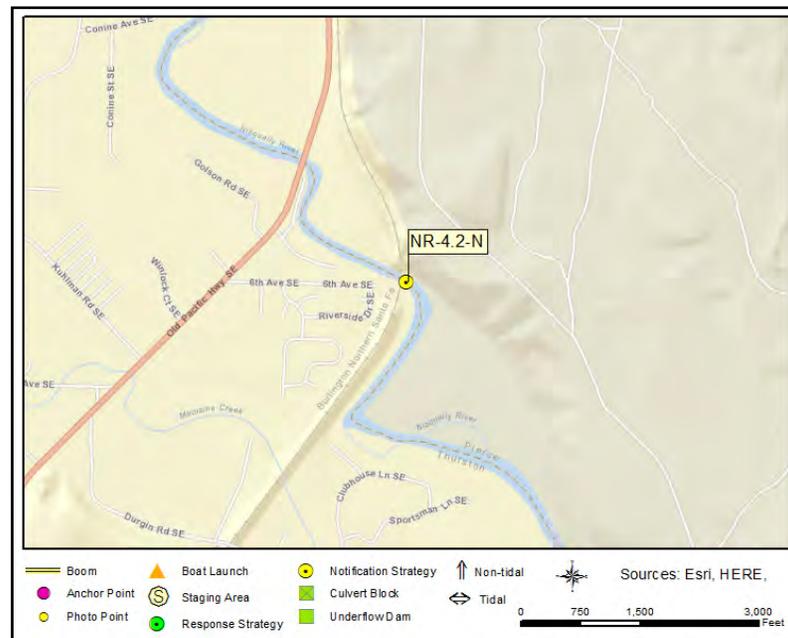
Call Joint Base Lewis McChord EOC to notify military base of a spill that could impact military operations and training areas. EOC will initiate internal notifications and take actions to reduce injury to resources under their control.

**Joint Base Lewis McChord (Military Base)**

**NR-4.2-N**



NR-4.2-N Photo: River left at Nisqually River near JBLM boundary



**Site Contact**

**US Army-Joint Base Lewis McChord**  
 Emergency Contact : Joint Base Operations Center  
  
 Joint Base Lewis-McChord, WA 98433  
 253-967-0015

**Nearest Address**

Clark Rd.  
 Dupont, WA 98327

**Driving Directions**

From I-5 S  
 1. Head southwest on I-5 S toward Exit 119  
 2. Take exit 119 toward Steilacoom- Dupont Rd (0.3 mi)  
 3. Turn left onto Dupont-Steilacoom Rd (signs for Fort Lewis) (367 ft)  
 4. Continue onto Clark Rd to JBLM gate.  
  
 Clark Rd, DuPont, WA 98327

**Nisqually Tribe Fish Weir** **NR-12.55-N**

**Position - Location:** 46° 59.037', -122° 38.156'      46° 59' 2.2", -122° 38' 9.4"      46.98394, -122.63594      Olympia

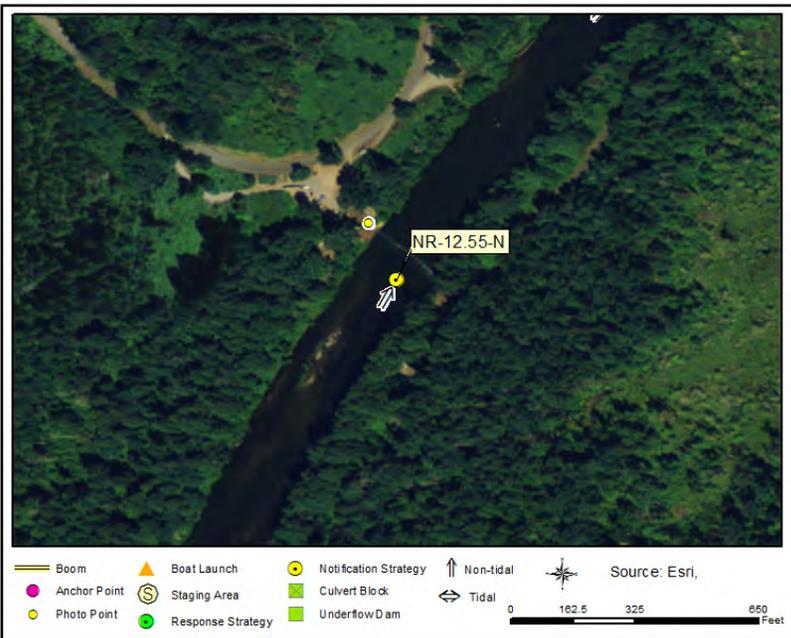
**Strategy Objective:** Notification : Notify Nisqually Tribe of a spill that could impact their fish weir. Weir is in place early July through the end

**Implementation:** Call Nisqually Natural Resources and Emergency Management. Nisqually Tribe will take actions to reduce injury to resources under their control. If weir is in place, deploy NR-12.55.

**Field Notes:** Weir is in place July through the end of October.

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

**Resources at Risk:** Economic Resource, Fisheries , Salmon, Tribal Lands/Resources



**Communication Process and Action:**

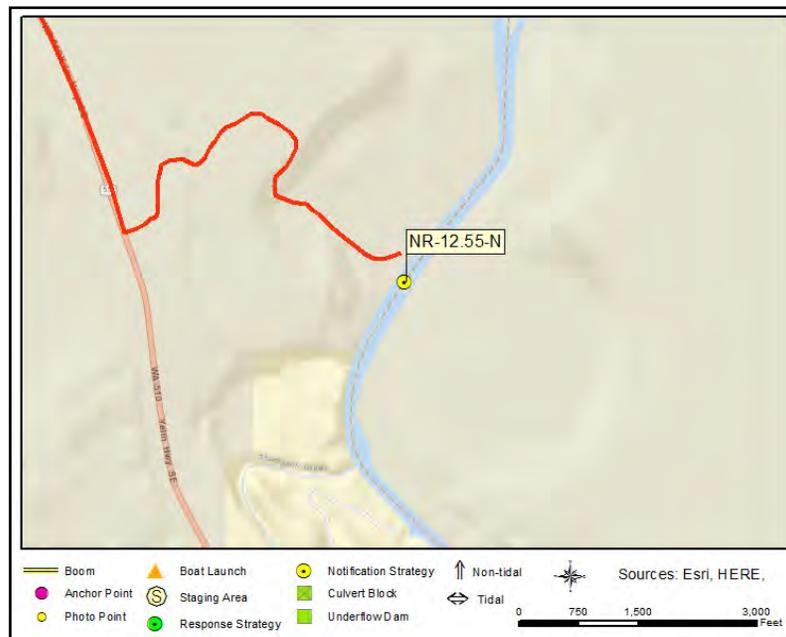
Call Nisqually Tribe Natural Resources and Emergency Management. Determine if weir is in place. Nisqually Tribe will initiate internal notifications, and evacuate weir location as necessary if spill is a health and safety hazard for staff at weir. Weir cannot be removed quickly and will be left in place.

**Nisqually Tribe Fish Weir**

**NR-12.55-N**



NR-12.55-N Photo: View from river left at Nisqually Fish Weir site



**Site Contact**

**Nisqually Tribe**  
 Primary Contact : Natural Resources  
 360-438-8687

**Nisqually Tribe**  
 After Hours and Weekends Contact : Emergency Management  
 360-486-5440

**Nearest Address**

13213 Yelm Hwy SE  
 Olympia, WA 98513

**Driving Directions**

- From I-5 S
1. Head west on I-5 S toward Exit 116
  2. Take exit 116 for Mounts Rd toward Old Nisqually (0.5 mi)
  3. Turn left onto Mounts Rd SW/ Nisqually Rd SW/ Old Pacific Hwy SE  
 Continue to follow Old Pacific Hwy SE (3.8 mi)
  4. Turn left onto Reservation Rd SE (2.7 mi)
  5. At the traffic circle, take the 2nd exit onto WA-510 E (0.3 mi)
  6. At the traffic circle, take the 2nd exit and stay on WA-510 E (2.5 mi)
  7. Turn left onto Fort Lewis Rd at Military Vehicle Crossing sign (1.1 mi)

**Centralia Power House** **NR-13.2-N**

**Position - Location:** 46° 58.498', -122° 38.137'      46° 58' 29.9", -122° 38' 8.2"      46.97496, -122.63561      Yelm

**Strategy Objective:** Notification : Notify Centralia Power House Operator of spills that may impact Centralia Canal or Centralia Power House

**Implementation:** Notify Centralia Power House Operator of a spill that could impact the Centralia Dam or the Centralia Canal. Centralia City Light personnel will take actions to reduce injury to resources under their control.

**Field Notes:** This is the site where the Centralia Canal re-enters the Nisqually River through the Centralia Power House.

**Watercourse:** River - Above a Dam - Nisqually River

**Resources at Risk:** Downstream Resources, Economic Resource, Power Generation, Salmon, Steelhead



**Communication Process and Action:**

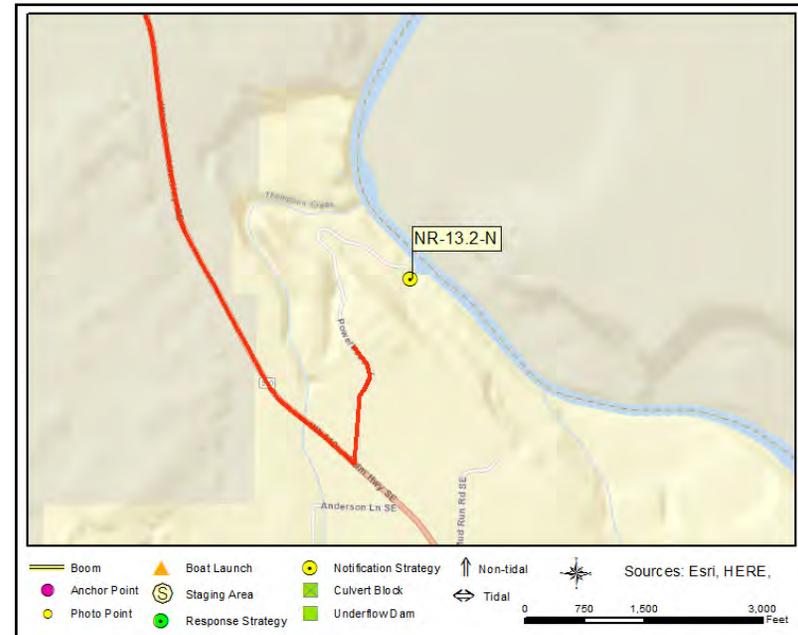
Call Power House Operator and they will initiate internal notifications. Power house intake and bypass channel may be shut down in 15-20 minutes if circumstances require. Canal intake at diversion dam may be closed as well.

**Centralia Power House**

**NR-13.2-N**



NR-13.2-N Photo: On Centralia Canal left- gate and contact information at the Centralia Power House



**Site Contact**

**Centralia City Light**  
 Emergency Contact : Power House Operator  
 14024 Yelm Hwy SE  
 Yelm, WA 98597  
 360-888-2617

**Nearest Address**

14024 Yelm Highway SE  
 Yelm, WA 98597

**Driving Directions**

From I-5 S

1. Head west on I-5 S
2. Take exit 109 for Martin Way toward College St/ Sleater-Kinney Rd N 0.2 mi
3. Turn left onto Martin Way SE -1.4 mi
4. Turn right onto Kinwood St SE -0.7 mi
5. Turn left onto Pacific Ave SE-1.3 mi
6. At the traffic circle, continue straight onto WA510 E -4.8 mi
7. At the traffic circle, take the 1st exit and stay on WA-510 E -0.2 mi
8. At the traffic circle, take the 2nd exit and stay on WA-510 E
9. Turn left at Centralia Power Plant entrance-4.0 miles.
10. Drive through Centralia City Light roads to Power House.

14024 Yelm Hwy SE  
 Yelm, WA 98597

**Centralia City Light Diversion Dam** **NR-26.85-N**

**Position - Location:** 46° 53.946', -122° 29.875'      46° 53' 56.8", -122° 29' 52.5"      46.89910, -122.49791      Yelm

**Strategy Objective:** Notification : Contact Centralia City Light of oil spill impacting the Nisqually River or Centralia Canal

**Implementation:** Call Centralia City Light Power House Operator. They will make a determination whether conditions of the spill necessitate a shut down the water intake from the dam. Intake can be completely shut down in 15-20min.

**Field Notes:** Centralia Dam is a 4ft. high overflow dam. It diverts approx. 800cfs into the Centralia Canal.

**Watercourse:** River - Above a Dam - Nisqually River at Centralia City Light Diversion Dam

**Resources at Risk:** Power Generation, Public Health and Safety, Wetlands Restoration Site



**Communication Process and Action:**

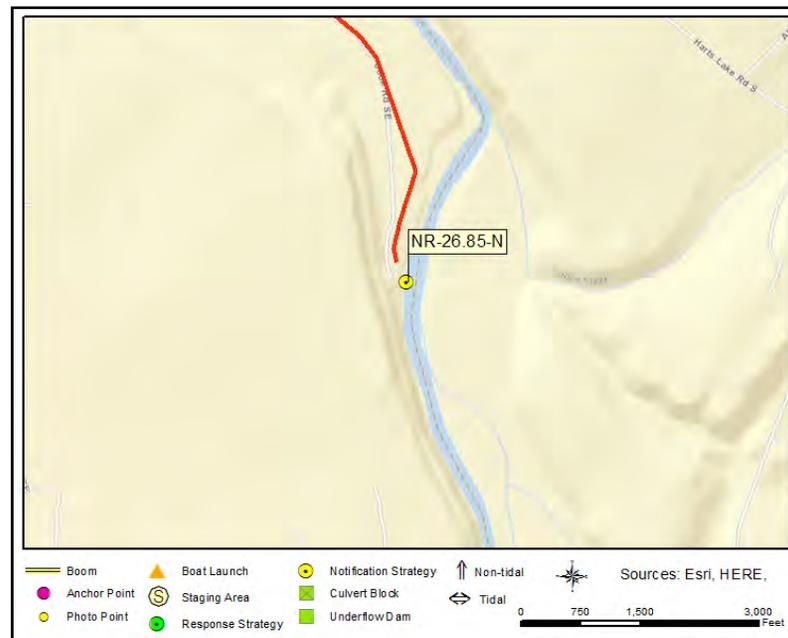
Call Power House Operator (at Power House 8 miles away). Site contact number is a 24-hour number. There is a Centralia City Light employee that lives at the dam site and is available during normal business hours.

**Centralia City Light Diversion Dam**

**NR-26.85-N**



NR-26.85-N Photo: On Nisqually River left looking SE at Centralia Dam



**Site Contact**

**Centralia City Light**  
 Emergency Contact : Power House Operator  
 14024 Yelm Hwy SE  
 Yelm, WA 98597  
 360-888-2617

**Nearest Address**

20000 Cook Rd SE  
 Yelm, WA 98597

**Driving Directions**

- From I-5 S
1. Head southwest on I-5 S toward Exit 119
  2. Take exit 116 for Mounts Rd toward Old Nisqually (0.5 mi)
  3. Turn left onto Mounts Rd SW/ Nisqually Rd SW/ Old Pacific Hwy SE  
Continue to follow Old Pacific Hwy SE (3.8 mi)
  4. Turn left onto Reservation Rd SE (2.7 mi)
  5. At the traffic circle, take the 2nd exit onto WA-510 E (0.3 mi)
  6. At the traffic circle, take the 2nd exit and stay on WA-510 E (4.2 mi)
  7. Keep right to continue toward WA-510 E/ W Yelm Ave (495 ft)
  8. Merge onto WA-510 E/ W Yelm Ave  
Continue to follow W Yelm Ave (3.1 mi)
  9. Turn right onto Bald Hill Rd SE (1.4 mi)
  10. Turn left onto Vail Rd SE (0.3 mi)
  11. Take the 2nd right onto Cook Rd SE (4.1 mi).

**Appendix 4C**  
**Staging Area 2-Pagers**

## STAGING AREAS – LIST

[SA-MCALC-0.0](#)

[SA-NR-13.2](#)

[SA-SPS-1](#)

[SA-NR-10.5](#)

[SA-NR-22.5](#)

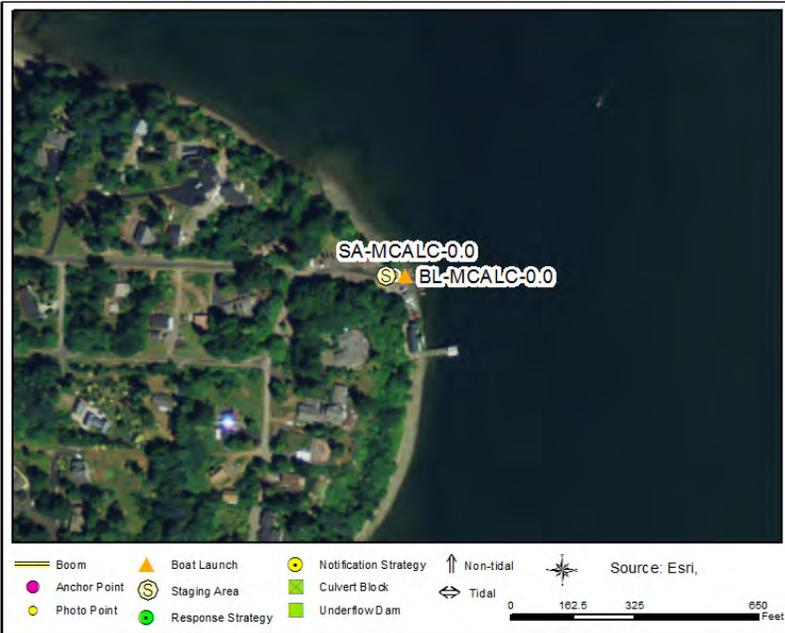
[SA-SPS-2](#)

**Luhr Beach** **SA-MCALC-0.0**

**Staging Area**

**Position - Location:** 47° 6.055', -122° 43.638'      47° 6' 3.3", -122° 43' 38.3"      47.10091, -122.72729      Olympia

**Comments:** WDFW Luhr Beach Parking and Staging



**Location Information**

<u>Asset</u>	<u>Type/Status</u>	<u>Amount/Number</u>
Boat Ramp(s)	Concrete, Solid	1 High Water Only
Estimated Lot Size		10000 Sq Ft (Total for 2 Lots)
Parking - Car	Not Marked	10 Spaces at Nisqually Reach Nature Center
Parking - Trailer	Not Marked	10 Spaces
Restroom	Restroom - Vault	1

**GRP Response Strategies Served:**

# Luhr Beach

# SA-MCALC-0.0



SA-MCALC-0.0 Photo: Creek left at ramp at Luhr Beach Boat Launch



### Site Contact

**WDFW Region 6**  
 Primary Contact : Property Manager  
 360-249-4628

**Nisqually Reach Nature Center**  
 Land/Property Contact :  
 360-459-0387

### Nearest Address

4849 D Milluhr Rd NE  
 Olympia, WA 98516

### Driving Directions

- From I-5 S
1. Head southwest on I-5 S
  2. Take exit 114 toward Nisqually (0.4 mi)
  3. Continue onto Martin Way E (1.1 mi)
  4. Turn right onto Meridian Rd NE (0.5 mi)
  5. At the traffic circle, take the 1st exit and stay on Meridian Rd NE (2.1 mi)
  6. Turn right onto 46th Ave NE (0.2 mi)
  7. Turn left onto D'Milluhr Rd. NE (0.5 mi)

Luhr Beach  
 D'Milluhr Rd NE  
 Olympia, WA 98516

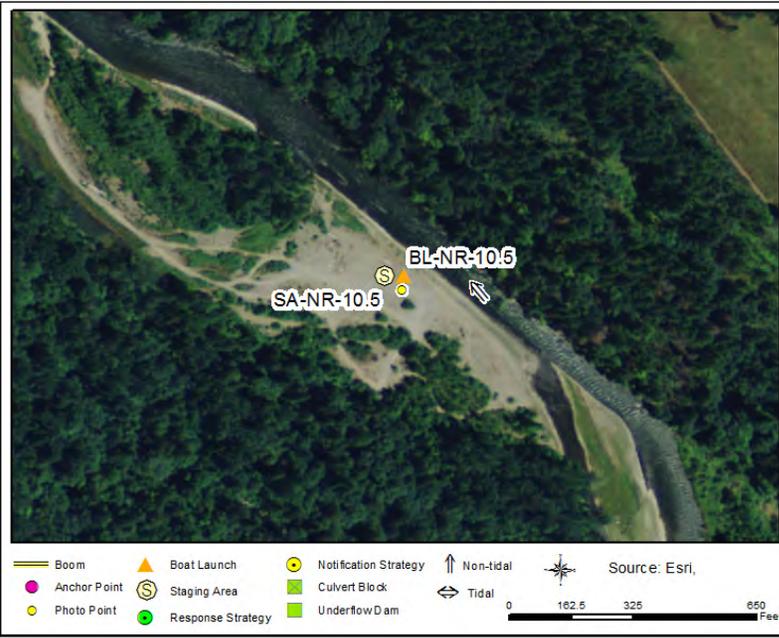
## Frank's Camp Fishing Access Site

SA-NR-10.5

### Staging Area

**Position - Location:** 47° .235', -122° 38.691'      47° 0' 14.1", -122° 38' 41.4"      47.00391, -122.64485      Olympia

**Comments:** Frank's Camp Fishing Access Parking and Staging



### Location Information

Asset	Type/Status	Amount/Number
Boat Ramp(s)	Natural (Grass/Dirt)	1
Parking - Car	Gravel	10 spaces
Parking - Trailer	Gravel	5 spaces

### GRP Response Strategies Served:

NR-12.0, MUCKC-0.5

**Frank's Camp Fishing Access Site**

**SA-NR-10.5**



SA-NR-10.5 Photo: Gravel boat ramp on river left at Frank's Camp



**Site Contact**

**Nisqually Tribe**

Land/Property Contact : Emergency Management

Olympia, WA 98513  
360-486-5440

**Nearest Address**

5381 Old Reservation Rd SE  
Olympia, WA 98513

**Driving Directions**

From I-5 S

1. At exit 114 take ramp on the right toward Nisqually (0.42 miles)
2. Continue on Martin Way E (1.12 miles)
3. Make sharp left on Dutterow Rd SE (0.67 miles)
4. Bear left on Deerbrush Dr SE (0.97 miles)
5. Turn right on Goldenrod Dr SE (0.15 miles)
6. Turn right on Rockcross Dr SE (0.13 miles)
7. Make sharp left on WA-510 (Pacific Hwy SE) (5.29 miles)
8. Turn left on Church Kalama Rd SE (0.24 miles)
9. Bear right on Peter Kalama Dr SE (0.55 miles)
10. At sign for fish hatchery, turn left toward fish hatchery.
11. At next intersection, rather than turning left to fish hatchery, follow road to the right and continue for 0.4 miles to fishing access site.

# Centralia Power House

SA-NR-13.2

## Staging Area

**Position - Location:** 46° 58.523', -122° 38.169'      46° 58' 31.4", -122° 38' 10.1"      46.97539, -122.63614      Yelm

**Comments:** Centralia Power House Parking and Staging



## Location Information

Asset	Type/Status	Amount/Number
Boat Ramp(s)	Asphalt	1 Narrow, Paved
Estimated Lot Size		15000 SqFt - Grass Lot Near Boat Launch
Estimated Lot Size		10890 SqFt - Paved Lot at Maintenance Shop
Parking - Car	Not Marked	25 Maintenance Shop & Upper Lot
Parking - Trailer	Other	5 Grass Lot Near Boat Ramp

## GRP Response Strategies Served:

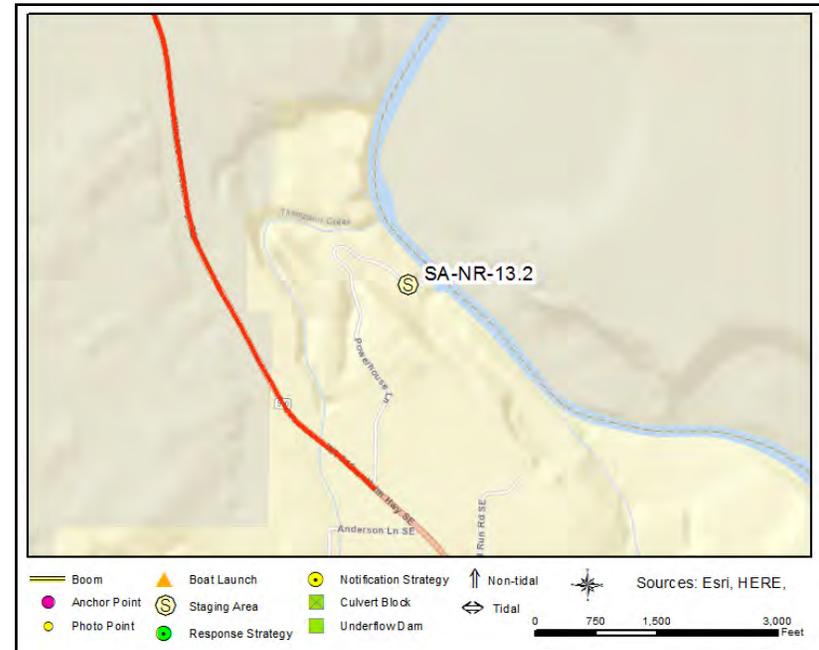
NR-13.05

**Centralia Power House**

**SA-NR-13.2**



SA-NR-13.2 Photo: River left at the Centralia City Light Power House facility looking SE toward staging area



**Site Contact**

**Centralia City Light**  
 Emergency Contact : Power House Operator  
 14024 Yelm Hwy SE  
 Yelm, WA 98597  
 360-888-2617

**Nearest Address**

14024 Yelm Hwy SE  
 Yelm, WA 98597

**Driving Directions**

- From I-5 S
1. Head west on I-5 S
  2. Take exit 109 for Martin Way toward College St/ Sleater-Kinney Rd N (0.2 mi)
  3. Turn left onto Martin Way SE (1.4 mi)
  4. Turn right onto Kinwood St SE (0.7 mi)
  5. Turn left onto Pacific Ave SE (1.3 mi)
  6. At the traffic circle, exit to WA-510 E (4.8 mi)
  7. At the traffic circles, follow signs for WA-510 E
  8. Turn left at Centralia Power Plant entrance (4.0 mi)
  9. Drive through Centralia City Light roads to boat launch and staging area.

14024 Yelm Hwy SE  
 Yelm, WA 98597

\*Gate is locked outside of business hours. For access, call Power House Operator at (360)-888-2617.

# McKenna Park

SA-NR-22.5

## Staging Area

**Position - Location:** 46° 55.987', -122° 33.553'      46° 55' 59.2", -122° 33' 33.2"      46.93312, -122.55921      Yelm

**Comments:** McKenna Park Staging Area



## Location Information

Asset	Type/Status	Amount/Number
Boat Ramp(s)	Asphalt	1 -paved, with eroded mud at base
Parking - Car	Marked	20 spaces
Parking - Trailer	Not Marked	4
Restroom	Restroom - Flush	2
Waste Disposal	Trash Receptacle	2
Water (potable)	Yes	2 potable water hookups

## GRP Response Strategies Served:

NR-22.15



# Zittel's Marina Boat Launch SA-SPS-1

## Staging Area

**Position - Location:** 47° 9.877', -122° 48.602'      47° 9' 52.6", -122° 48' 36.1"      47.16462, -122.81004      Olympia

**Comments:** Zittel's Marina Parking and Staging Area



## Location Information

Asset	Type/Status	Amount/Number
Boat Ramp(s)	Concrete, Solid	1 -concrete
Cell Phone Coverage	No	Poor cell phone coverage
Estimated Lot Size		33000 sq ft paved lot with striping
Parking - Car	Marked	30 spaces
Parking - Trailer	Not Marked	5 designated trailer spaces
Restroom	Restroom - Flush	2
User Fee	Yes	\$15.00 (includes launch vehicle parking)

## GRP Response Strategies Served:

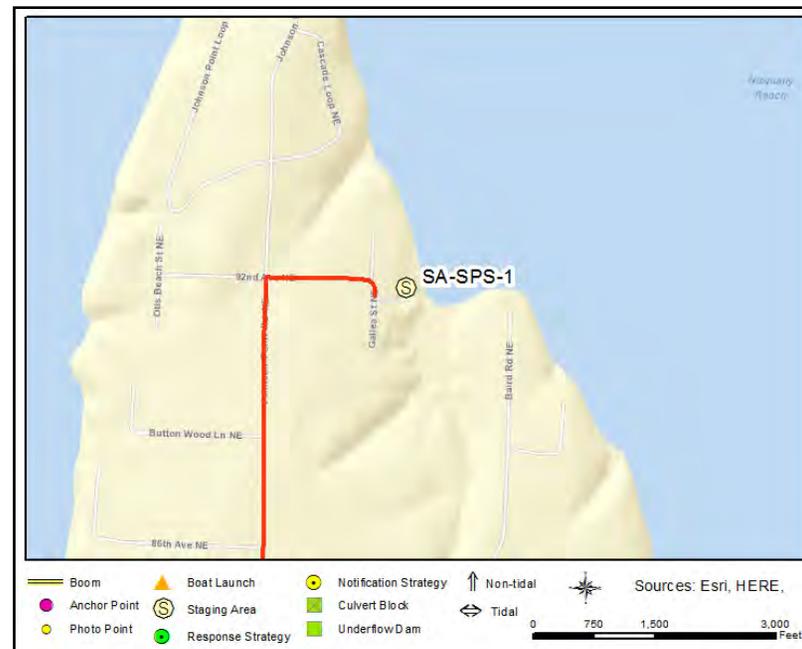
MCALC-0.6

# Zittel's Marina Boat Launch

# SA-SPS-1



SA-SPS-1 Photo: Ramp at Zittel's Marina



### Site Contact

**Zittel's Marina**  
 Primary Contact : Owner  
 9144 Gallea Street NE  
 Olympia, WA 98516  
 360-459-1950

### Nearest Address

9144 Gallea Street Northeast  
 Olympia, WA 98516

### Driving Directions

- From I-5 S
1. At exit 111 take ramp on the right to WA-510 E/Marvin Rd toward Yelm (0.23 miles)
  2. At fork keep left on Marvin Rd North (0.49 miles)
  3. Turn left on WA-510 (Marvin Rd NE) (0.15 miles)
  4. Bear right on Marvin Rd NE (0.21 miles)
  5. At roundabout, take 1st exit to proceed northwest on Marvin Rd NE (0.19 miles)
  6. At roundabout, take 2nd exit to proceed northwest on Marvin Rd NE (1.11 miles)
  7. At roundabout, take 2nd exit to proceed north on Marvin Rd NE (2.01 miles)
  8. Turn left on 56th Ave NE (0.49 miles)
  9. Continue on Puget Beach Rd NE (0.73 miles)
  10. Turn left on 63rd Ave NE (1.25 miles)
  11. Turn right on Johnson Point Rd NE (2.89 miles)
  12. Turn right on 92nd Ave NE (0.24 miles)
  13. Bear right on Gallea St NE (0.04 miles)
  14. Finish at 9144 Gallea Street Northeast, 98516, on the left

**Solo Point Boat Launch** **SA-SPS-2**

**Staging Area**

**Position - Location:** 47° 8.309', -122° 37.926'      47° 8' 18.5", -122° 37' 55.6"      47.13848, -122.63211      DuPont

**Comments:** Solo Point Parking and Staging



**Location Information**

<u>Asset</u>	<u>Type/Status</u>	<u>Amount/Number</u>
Boat Ramp(s)	Gravel	1 -gravel
Estimated Lot Size		40000 sq ft gravel/sand
Parking - Car	Gravel	30 spaces
Parking - Trailer	Gravel	30 spaces

**GRP Response Strategies Served:**

NR-0.6, RDSL-0.4

# Solo Point Boat Launch

# SA-SPS-2



SA-SPS-2 Photo: Ramp and parking at Solo Point Boat Launch



### Site Contact

**US Army-Joint Base Lewis McChord**  
 Emergency Contact : Joint Base Operations Center

Joint Base Lewis-McChord, WA 98433  
 253-967-0015

### Nearest Address

Solo Point Road  
 DuPont, WA 98327

### Driving Directions

- From I-5 S
1. Head southwest on I-5 S
  2. Take exit 119 toward Steilacoom- Dupont Rd (0.3 mi)
  3. Turn right onto Dupont-Steilacoom Rd (signs for Steilacoom/ Dupont Rd) 0.44 mi
  4. Take the 1st right to stay on Dupont-Steilacoom Rd (2.1 mi)
  5. Turn left onto Solo Point Rd (2.0 mi)
  6. Turn right just before facility gate to stay on Solo Point Rd.

**Appendix 4D**

**Boat Launch 2-Pagers**

## BOAT LAUNCHES – LIST

[BL-MCALC-0.0](#)

[BL-NR-22.5](#)

[BL-NR-10.5](#)

[BL-SPS-2](#)

**Luhr Beach** **BL-MCALC-0.0**

**Boat Launch Location**

**Position - Location:** 47° 6.055', -122° 43.638'      47° 6' 3.3", -122° 43' 38.3"      47.10091, -122.72729      Olympia

**Comments:** Paved WDFW boat launch. Use at high water only!



**Location Information**

<u>Asset</u>	<u>Type/Status</u>	<u>Amount/Number</u>
Boat Ramp(s)	Concrete, Solid	1 High Water Only
Estimated Lot Size		10000 Sq Ft (Total for 2 Lots)
Parking - Car	Not Marked	10 Spaces at Nisqually Reach Nature Center
Parking - Trailer	Not Marked	10 Spaces
Restroom	Restroom - Vault	1

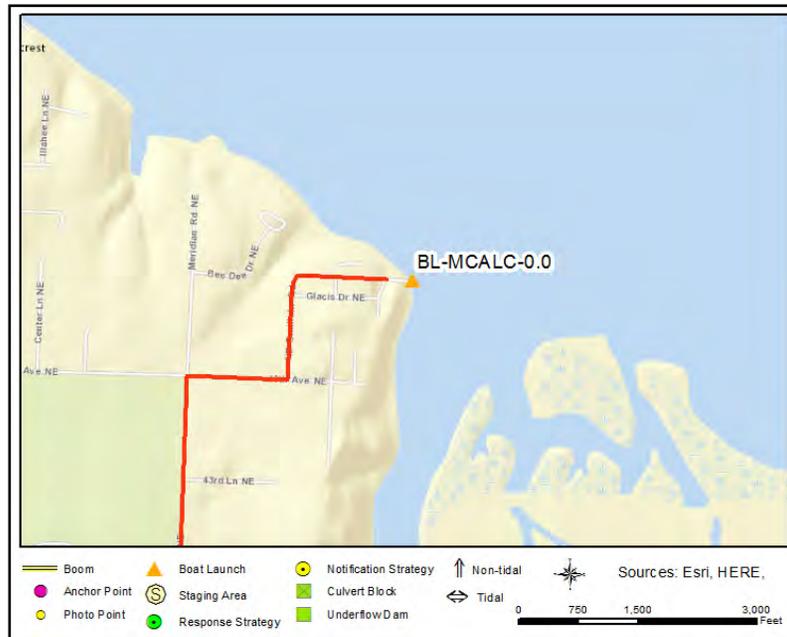
**GRP Response Strategies Served:**

**Luhr Beach**

**BL-MCALC-0.0**



SA-MCALC-0.0 Photo: Creek left at ramp at Luhr Beach Boat Launch



**Site Contact**

**WDFW Region 6**  
 Primary Contact : Property Manager  
 360-249-4628

**Nisqually Reach Nature Center**  
 Land/Property Contact :  
 360-459-0387

**Nearest Address**

4849 D Milluhr Rd NE  
 Olympia, WA 98516

**Driving Directions**

From I-5 S

1. Head southwest on I-5 S
2. Take exit 114 toward Nisqually (0.4 mi)
3. Continue onto Martin Way E (1.1 mi)
4. Turn right onto Meridian Rd NE (0.5 mi)
5. At the traffic circle, take the 1st exit and stay on Meridian Rd NE (2.1 mi)
6. Turn right onto 46th Ave NE (0.2 mi)
7. Turn left onto D'Milluhr Rd. NE (0.5 mi)

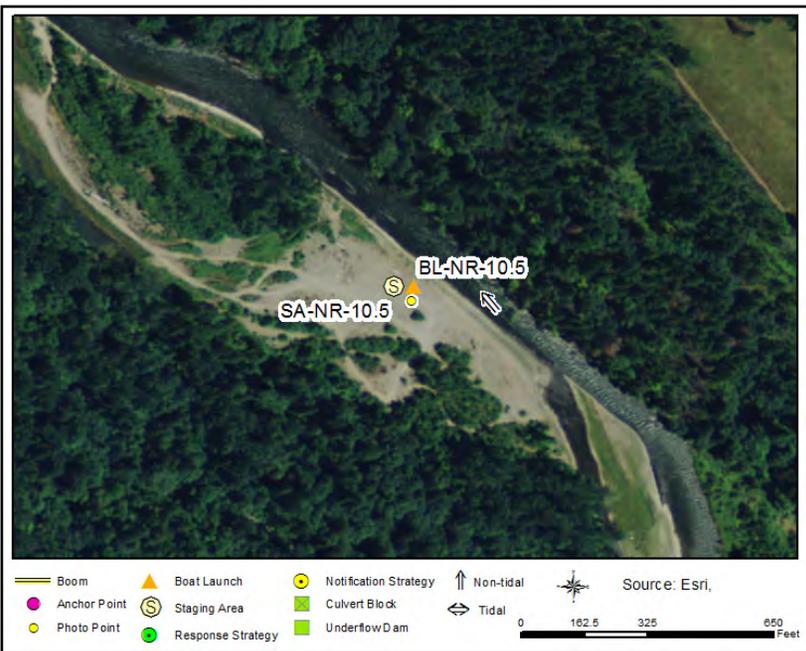
Luhr Beach  
 D'Milluhr Rd NE  
 Olympia, WA 98516

**Frank's Camp Fishing Access Site** **BL-NR-10.5**

**Boat Launch Location**

**Position - Location:** 47° .235', -122° 38.691'      47° 0' 14.1", -122° 38' 41.4"      47.00391, -122.64485      Olympia

**Comments:** Frank's Camp Fishing Access Gravel Boat Ramp



**Location Information**

<u>Asset</u>	<u>Type/Status</u>	<u>Amount/Number</u>
Boat Ramp(s)	Natural (Grass/Dirt)	1
Parking - Car	Gravel	10 spaces
Parking - Trailer	Gravel	5 spaces

**GRP Response Strategies Served:**

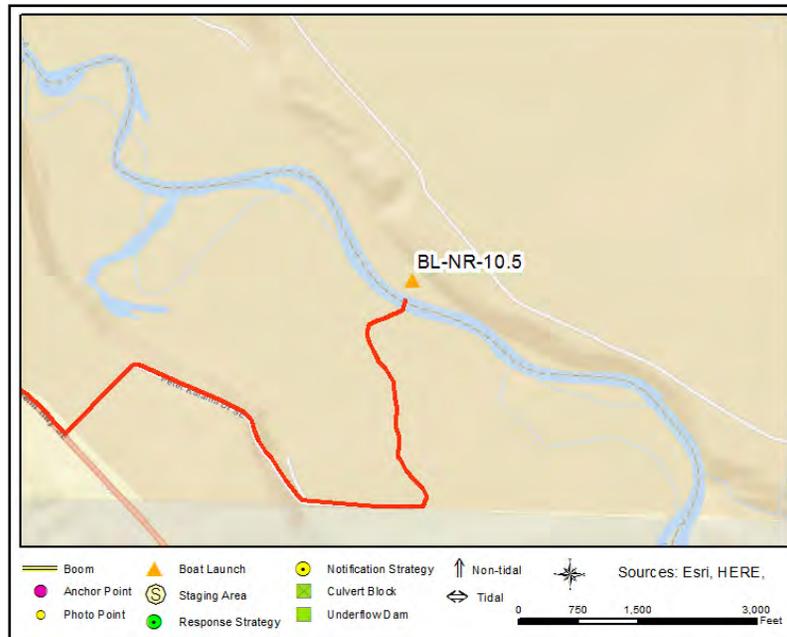
NR-12.0

**Frank's Camp Fishing Access Site**

**BL-NR-10.5**



SA-NR-10.5 Photo: Gravel boat ramp on river left at Frank's Camp



**Site Contact**

**Nisqually Tribe**  
 Land/Property Contact : Emergency Management  
  
 Olympia, WA 98513  
 360-486-5440

**Nearest Address**

5381 Old Reservation Rd SE  
 Olympia, WA 98513

**Driving Directions**

- From I-5 S
1. At exit 114 take ramp on the right toward Nisqually (0.42 miles)
  2. Continue on Martin Way E (1.12 miles)
  3. Make sharp left on Dutterow Rd SE (0.67 miles)
  4. Bear left on Deerbrush Dr SE (0.97 miles)
  5. Turn right on Goldenrod Dr SE (0.15 miles)
  6. Turn right on Rockcross Dr SE (0.13 miles)
  7. Make sharp left on WA-510 (Pacific Hwy SE) (5.29 miles)
  8. Turn left on Church Kalama Rd SE (0.24 miles)
  9. Bear right on Peter Kalama Dr SE (0.55 miles)
  10. At sign for fish hatchery, turn left toward fish hatchery.
  11. At next intersection, rather than turning left to fish hatchery, follow road to the right and continue for 0.4 miles to fishing access site.

# McKenna Park

BL-NR-22.5

## Boat Launch Location

**Position - Location:** 46° 55.987', -122° 33.553'      46° 55' 59.2", -122° 33' 33.2"      46.93312, -122.55921      Yelm

**Comments:** McKenna Park Boat Launch



## Location Information

Asset	Type/Status	Amount/Number
Boat Ramp(s)	Asphalt	1 -paved, with eroded mud at base
Parking - Car	Marked	20 spaces
Parking - Trailer	Not Marked	4
Restroom	Restroom - Flush	2
Waste Disposal	Trash Receptacle	2
Water (potable)	Yes	2 potable water hookups

## GRP Response Strategies Served:

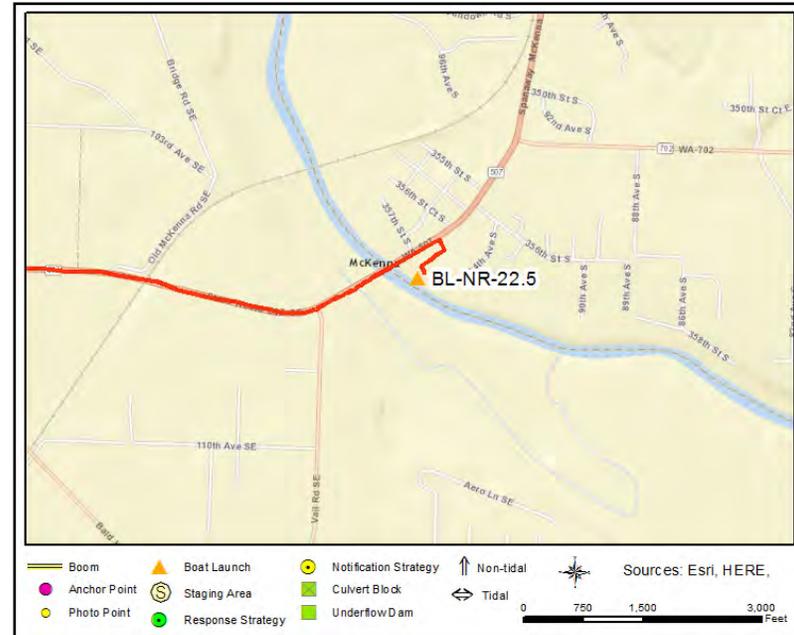
NR-22.15

**McKenna Park**

**BL-NR-22.5**



SA-NR-22.5 Photo: River right at ramp at McKenna Park Boat Launch



**Site Contact**

**Centralia City Light**  
 Emergency Contact : Power House Operator  
 14024 Yelm Hwy SE  
 Yelm, WA 98597  
 360-888-2617

**Nearest Address**

35711 Spanaway McKenna Hwy  
 Yelm, WA 98597

**Driving Directions**

From I-5 S

1. Head west on I-5 S
2. Take exit 109 for Martin Way toward College St/ Sleater-Kinney Rd N (0.2 mi)
3. Turn left onto Martin Way SE (1.4 mi)
4. Turn right onto Kinwood St SE (0.7 mi)
5. Turn left onto Pacific Ave SE (1.3 mi)
6. At the traffic circle, continue straight onto WA-510 E (4.8 mi)
7. At the traffic circle, take the 1st exit and stay on WA-510 E (0.2 mi)
8. At the traffic circle, take the 2nd exit and stay on WA-510 E (4.2 mi)
9. Keep right to continue toward WA-510 E/ W Yelm Ave (495 ft)
10. Merge onto WA-510 E/ W Yelm Ave-Continue to follow W Yelm Ave (3.1 mi)
11. Continue onto WA-507 N

Destination will be on the right (1.5 mi)  
 35711 Spanaway McKenna Hwy  
 Yelm, WA 98597

**Solo Point Boat Launch** **BL-SPS-2**

**Boat Launch Location**

**Position - Location:** 47° 8.309', -122° 37.926'      47° 8' 18.5", -122° 37' 55.6"      47.13848, -122.63211      DuPont

**Comments:** Solo Point Gravel Boat Launch



**Location Information**

<u>Asset</u>	<u>Type/Status</u>	<u>Amount/Number</u>
Boat Ramp(s)	Gravel	1 -gravel
Estimated Lot Size		40000 sq ft gravel/sand
Parking - Car	Gravel	30 spaces
Parking - Trailer	Gravel	30 spaces

**GRP Response Strategies Served:**

NR-0.6, RDSL-0.4

# Solo Point Boat Launch

# BL-SPS-2



SA-SPS-2 Photo: Ramp and parking at Solo Point Boat Launch



### Site Contact

**US Army-Joint Base Lewis McChord**  
 Emergency Contact : Joint Base Operations Center  
  
 Joint Base Lewis-McChord, WA 98433  
 253-967-0015

### Nearest Address

Solo Point Road  
 DuPont, WA 98327

### Driving Directions

From I-5 S

1. Head southwest on I-5 S
2. Take exit 119 toward Steilacoom- Dupont Rd (0.3 mi)
3. Turn right onto Dupont-Steilacoom Rd (signs for Steilacoom/ Dupont Rd) 844 ft
4. Take the 1st right to stay on Dupont-Steilacoom Rd (2.1 mi)
5. Turn left onto Solo Point Rd (2.0 mi)
6. Turn right just before facility gate to stay on Solo Point Rd.

## **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 Nisqually River 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 procedures for the discovery of cultural artifacts and human skeletal remains. General information about flight restrictions, hazing, and oiled wildlife can be found near the end of this chapter. A list of socio-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 provided in this chapter are listed because they could not be addressed in Chapter 4 (Response Strategies and Priorities). Additional information from private organizations or federal, state, tribal, and local government agencies should also be sought and considered during spills.

The information provided in this chapter can be used in:

- Assisting the Environmental Unit (EU) and Operations 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, eelgrass and marsh grasses in estuaries, and kelp beds in the ocean; microscopic plants and animals; and larger animals, such as fish, amphibians and reptiles, birds, mammals, and a wide variety of invertebrates, are all at potentially at risk from smothering, acute toxicity, and/or the chronic long-term effects that may result from being exposed to spilled oil.

The Nisqually River sub-basin affords a wide variety of aquatic, riparian, and upland habitats. These varied habitats support a complex diversity of wildlife species, including large and small mammals; passerine birds, raptors, upland birds, and waterfowl; reptiles; and amphibians. Some species are resident throughout the year; others are migratory either within the sub-basin or, in

many cases, seasonally migrate outside the sub-basin. Many wildlife species found in the sub-basin are classified as threatened, endangered, sensitive, or of special concern under the federal Endangered Species Act or under 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)
- Federal Candidate (FC)
- Federal Species of Concern (FCo)
- State Endangered (SE)
- State Threatened (ST)
- State Candidate (SC)
- State Monitored (SM)
- State Sensitive (SS)

**Sensitive species that may occur within this area, at some time of year, include the following federal and state listed species.**

***Birds:***

- Bald eagle [FCo/SS]
- Common loon [SS]
- Common murre [SC]
- Marbled murrelet [FT/ST]
- Northern spotted owl [FT/SE]
- Oregon vesper sparrow [SC]
- Peregrine falcon [FCo/SS]
- Pileated woodpecker [SC]
- Purple martin [SC]
- Streaked horned lark [FT/SE]
- Western grebe [SC]
- Yellow-billed cuckoo [FC/SC]

***Mammals:***

- Mazama (Western) pocket gopher [ST]
- Olympia pocket gopher [FT/ST]
- Roy Prairie pocket gopher [FT/ST]
- Southern resident killer whale [FE/SE]
- Tenino pocket gopher [FT/ST]
- Townsend's big-eared bat [SC]
- Western gray squirrel [FCo/ST]

**Fish:**

- Bull trout [FT/SC]
- Coastal cutthroat trout [FCo]
- Puget Sound Chinook salmon [FT/SC]
- Puget Sound Coho salmon [FC]
- Puget Sound steelhead [FT]

**Amphibian/Reptile:**

- Oregon spotted frog [FT/SE]
- Western (Pacific) pond turtle [FCo/SE]
- Western toad [SC]

**Insects:**

- Taylor's checkerspot [FE/SE]
- Mardon skipper [FCo/SE]

**Plants:**

- Golden paintbrush [FT]
- Kincaid's lupine [FT]
- Marsh sandwort [FE]
- Nelson's checker-mallow [FT]
- Water howellia [FT]
- Whitebark pine [FC]

**6.2.1 General Resource Concerns****6.2.1a - Habitats:**

- **Eelgrass** is the predominant submerged aquatic vegetation in South Puget Sound, appearing primarily as fringing beds along the shorelines. It is most abundant from Nisqually Reach northward into Carr Inlet. Eelgrass and similar kelp habitats provide critical nursery areas for fish and shellfish as well as important spawning habitat for herring and feeding areas for waterfowl.
- **Shallow intertidal and subtidal habitats** are critically important as rearing areas for juvenile salmon, Dungeness crab, hardshell clams and other fish and shellfish. These habitats are also often important feeding areas for marine birds, shorebirds and herons.
- **Sheltered bays and coves** are important to a wide variety of fish and wildlife species including crabs, clams, forage fish, marine birds, eagles, herons and shorebirds.
- The **mixed sand/gravel beaches** found along the marine shorelines of this region provide spawning habitat for forage fish such as sandlance and surf smelt.

- The **salt marsh** located in sheltered areas of the Nisqually River delta supports a diverse array of fish and wildlife species.
- The **rivers and streams** of this region provide abundant habitat for spawning salmonids.
- The **sloughs and river deltas** associated with the larger drainages provide a variety of key habitats for fish, shellfish, waterfowl, herons, and other species.
- The **riparian areas** adjacent to the Nisqually River, and its tributaries, contain elements of both aquatic and terrestrial ecosystems and provide rich and vital resources to a wide variety of fish and wildlife. Approximately 85 percent of Washington's terrestrial vertebrate wildlife species depend on riparian habitats for all or critical portions of their life histories.
- Numerous **habitat restoration sites** exist along the Nisqually River, its estuary, and its tributaries. Often, significant resources have been invested in these locations to improve stream conditions specific to salmon recovery.

#### 6.2.1b - Fish and Shellfish:

- **Hardshell clams** are found intertidally along marine shorelines throughout the Nisqually Delta. Extensive geoduck beds also occur intertidally and subtidally throughout much of the region.
- **Dungeness crabs** are commonly found within the Nisqually Reach.
- **Forage fish** spawning occurs in the estuarine waters in the Nisqually Delta. Smelt and sandlance spawning habitat present along marine shorelines of the Nisqually Delta.
- **Salmonid** spawning occurs in the Nisqually River and in many streams throughout the region, with all of Washington's salmonid species being present. Juvenile salmonids use nearshore areas and protected bays extensively for feeding, rearing and migration. Some Puget Sound chinook stocks are present year-round.
- In addition to salmonids, several dozen species of **freshwater fish** exist in Washington streams and rivers - including those within the Nisqually River basin. These species all provide important contributions to stream ecology.

#### 6.2.1c - Wildlife:

- **Seabird concentrations** routinely occur year-round in areas adjacent to the Nisqually Reach. The largest concentrations occur in these areas during the fall through spring seasons. There are no significant seabird nesting colonies in this region.
- **Bald eagles and Great blue herons** nest throughout the region and forage in intertidal and nearshore waters year-round.
- **Waterfowl concentrations** may be found seasonally throughout the region, notably in areas such as the Nisqually River delta.
- The **Nisqually River delta** is a significant shorebird concentration area within this region. Smaller shorebird concentrations are common at scattered sites.

- **Harbor seal haulouts** are present in the area; the Nisqually River delta is a regionally important site. In addition, California sea lions are often observed using navigational buoys adjacent areas as haulouts.

### 6.2.2 Specific Geographic Areas of Concern

The number that precedes the area name in the list (below) directly relates to the numbered area on the map.

1. Nisqually Reach (open waters off the mouth of the Nisqually River delta; Tatsolo Point west to Tolmie State Park): Extensive eelgrass beds and shallow intertidal habitats. Dungeness crab and forage fish spawning habitats along with juvenile salmonid rearing habitat. Large concentrations of waterfowl and seabirds primarily occur during fall through spring. Marbled Murrelets are present year-round.
2. Nisqually River delta: The extensive network of slough, salt marsh and riparian habitats at this site support a wide array of fish and wildlife throughout the year and large numbers of waterfowl, marine birds, shorebirds and bald eagles during the winter months. The Nisqually River is the largest salmonid spawning area in south Puget Sound. Tribal and U.S. Fish and Wildlife Service wildlife refuge lands are also present in this area.
3. Nisqually Tribal Lands: Nisqually Tribal lands are present within this area (graphic indicates approximate boundary of the Nisqually Reservation). Riparian habitat on the reservation supports various fish and wildlife species.



**Figure 6-1: Specific Geographic Areas of Concern for Natural Resources**

### 6.3 CULTURAL RESOURCES AT RISK - SUMMARY

Lakewood

Culturally sensitive sites are present within the Nisqually River area. Due to the sensitive nature of this information, details regarding the location and type of cultural resources present are not included in this document. However, in order to ensure that tactical response strategies do not inadvertently harm historical and culturally sensitive sites, Washington Department of Archeology and Historic Preservation (WDAHP) should be consulted before disturbing any soil or sediment during a response action. WDAHP may assign a person to monitor cleanup operations, or provide a list of professional archeologists that can be contracted to monitor response activities.

Information on the location of culturally sensitive sites is maintained by WDAHP and made available to Washington Department of Ecology for oil spill preparedness and response planning. The Nisqually Indian Tribe may also be able to provide information on cultural resources at risk in this GRP area and should be consulted. After the Unified Command is established, information related to specific archeological concerns will be coordinated through the Environmental Unit.

<b>WDAHP:</b>	(360) 586-3065	Rob.Whitlam@dahp.wa.gov
<b>NISQUALLY TRIBE:</b>	(360) 456.5221 Ext. 1106	bullchild.annette@nisqually-nsn.gov

#### 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:

All work must be stopped immediately and the Incident Commander and Cultural Resource Specialist notified if any person monitoring work activities or involved in spill response believes that they have encountered cultural resources. 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 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 and traps
- 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

#### 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 GRP area.

Commercial and Recreational Shellfish Harvesting is present near the Nisqually River Delta. Washington State Department of Health (WDOH) Shellfish Programs manage commercial and recreational shellfish harvesting areas in the state and should be notified immediately if an oil spill impacts or threatens shellfish harvest areas. WDOH will make decisions related to the closure of shellfish harvesting areas, as needed to ensure public safety and avoid the recall of product. WDOH can be contacted by calling (360) 236-3330 during normal hours, (360) 789-8962 after hours, or email [sf.growingarea@doh.wa.gov](mailto:sf.growingarea@doh.wa.gov). WDOH maintains an interactive map that shows the location of commercially and recreationally classified shellfish beaches. This information can be viewed online at: <https://fortress.wa.gov/doh/eh/maps/OSWPViewer/index.html>. Guidance for responders on managing impacts to shellfish growing areas is detailed in Section 9409 of the Northwest Area Contingency Plan (NWACP), available online at <http://www.rtt10nwac.com/NWACP/Default.aspx>.

## 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 minimizing disturbance that could result in injury to wildlife during an oil spill. By keeping a safe distance or altitude from identified sensitive areas, pilots can minimize the risk of aircraft/ bird collisions, prevent the accidental hazing of wildlife into oiled areas, and avoid causing abandonment of nests or marine mammal pupping areas. 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, within a 1,500-foot radius and below 1,000 ft 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 Hazing

After a Unified Command is formed, the Wildlife Branch (Operations Section) in consultation with the appropriate trustee agencies and the Environmental Unit will evaluate hazing options for the purpose of keeping un-oiled birds and marine mammals away from oil during a spill. Hazing 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 the animal. 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 \(NWACP Section 9310\)](#).

## APPENDIX 6A – LIST OF ECONOMIC RESOURCES

Resource	Category	Location	Latitude	Longitude	Contact	Phone	Email
Centralia City Light Diversion Dam	A2 - Energy/Power Generation Water Intakes	Nisqually River, Centralia Canal	46.89910	-122.49791	Centralia City Light - Power House	360-888-2617	
Centralia Power House	A2 - Energy/Power Generation Water	Nisqually River, Centralia Canal	46.97496	-122.63561	Centralia City Light - Power House	360-888-2617	
Commercial Shellfish Growing Areas	B5 - Commercial Fishing and Shellfish Harvest	North and West of Nisqually Head	47.10175	-122.72787	WDOH - Shellfish	360-236-3330	sf.growingarea@doh.wa.gov
Clear Creek Fish Hatchery	B6 - Fish Hatcheries	Clear Creek, Nisqually River	47.03322	-122.67387	Nisqually Indian Tribe, Natural Resources Dept.	360-438-8687	troutt.david@nisqually-nsn.gov
Nisqually Tribe Fish Weir	B6 - Fish Hatcheries	Nisqually River	46.98394	-122.63594	Nisqually Indian Tribe, Natural Resources Dept.	360-438-8687	troutt.david@nisqually-nsn.gov
Nisqually National Wildlife Refuge	C2 - Public Recreation Areas	Nisqually River, South Puget Sound	47.08800	-122.69952	USFWS Nisqually NWR	360-742-9153	
WDFW Water Access Site "Luhr's Landing"	C2 - Public Recreation Areas	McAllister Creek, Nisqually Head, South Puget Sound	47.100487	-122.72667	WDFW Region 6	360-249-4628	TeamMontesano@dfw.wa.gov
WDFW Water Access Site "Nisqually Hndcp"	C2 - Public Recreation Areas	Nisqually River	47.057882	-122.6915	WDFW Region 6	360-249-4628	TeamMontesano@dfw.wa.gov
Sport Fishing throughout area - Excluding Nisqually NWR	C3 - Sport Fishing Areas	Nisqually River	Area	Area	WDFW - Fish Program	360-902-2700	fishpgm@dfw.wa.gov
Joint Base Lewis McChord	O1 - Other	Nisqually River	47.05793	-122.69081	JBLM Operations Center	253-967-0015	