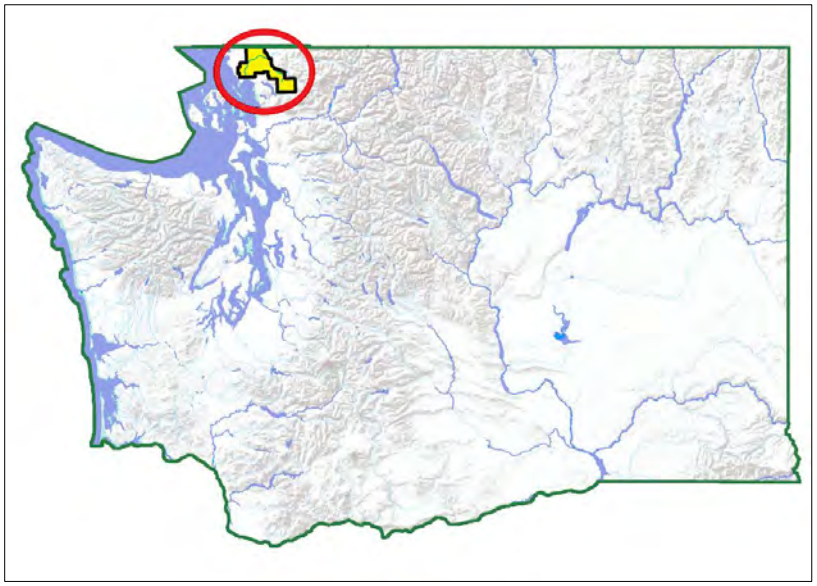
NOOKSACK RIVER

Geographic Response Plan

(NOOR-GRP)



NOOKSACK RIVER

Geographic Response Plan

(NOOR-GRP)

June 2017

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Spill Response Contact Sheet

Required Notifications for Oil Spills & Hazardous Substance Releases	
Federal Notification - National Response Center	**(800) 424-8802***
State Notification - Washington Emergency Management Division	**(800) 258-5990***

- Other Contact Numbers -

U.S. Coast Guard	
Sector Puget Sound	(206) 217-6200
- Emergency / Watchstander	**(206) 217-6001***
- Command Center	**(206) 217-6002***
- Incident Management	(206) 217-6214
Station Bellingham	(360) 734-1692
13th Coast Guard District	(800) 982-8813
National Strike Force	(252) 331-6000
- Pacific Strike Team	(415) 883-3311

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

National Oceanic Atmospheric Administration	
Scientific Support Coordinator	(206) 526-6829
Weather (NWS Seattle)	(206) 526-6087

Other Federal Agencies	
U.S. Fish & Wildlife Service	**(360) 534-9313***
U.S. Department of Interior	(503) 326-2490

Response Contractors (OSRO & PRC)	
Global Diving and Salvage	**(206) 623-0621***
Marine Spill Response Corporation	**(425) 252-1300***
NRC Environmental Services	**(800) 337-7455***

*** Contact Numbers staffed 24-hour/day**

Washington State	
Dept Archaeology & Historic Preservation	(360) 586-3065
Dept of Ecology	
- Headquarters (Lacey)	(360) 407-6000
- Northwest Regional Office (Bellevue)	(425) 649-7000
- Bellingham Field Office	(360) 715-5200
Dept of Fish and Wildlife	(360) 902-2200
- Emergency HPA Assistance	**(360) 902-2537***
- Oil Spill Team	**(360) 534-8233***
Dept of Health	(800) 525-0127
- Drinking Water	(800) 521-0323
- Shellfish Growing Areas	(360) 789-8962
Dept of Natural Resources	(360) 902-1064
- After normal business hours	(360) 556-3921
Dept of Transportation	(360) 705-7000
State Parks & Recreation Commission	**(360) 902-8613**
State Patrol - District 7	**(360) 654-1204***

Tribal Contacts	
Lummi Nation	(360) 312-2000
Nooksack Indian Tribe	(360) 592-5176

Industry Contacts	
BNSF (Service Interruption Desk)	**(817) 352-2832***
BP Olympic Pipeline	**(888) 271-8880***
Kinder Morgan Trans Mountain Pipeline	**(888) 876-6711***

Local Government	
City of Bellingham	(360) 778-8000
City of Everson	(360) 966-3411
City of Ferndale	(360) 384-4302
City of Lynden	(360) 354-1170
Whatcom County Emergency Management	(360) 676-6681

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Before you print this document

Chapter 4 with appendices (pages 29-180) and Appendix 6A (pages 195-196) of this document are provided in "landscape" page orientation; all other chapters and appendices are oriented in "portrait." The appendices in Chapter 4 (pages 75-180) have been designed for duplex printing (front and back side of paper), "open to top" configuration.

Purpose and Use of this Plan

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

Record of Changes

Date	Change Number	Summary of Changes	Name of Person Making Change

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CHAPTER 1

Introduction

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

The Nooksack River GRP planning area covers 11 miles of the South Fork Nooksack River, down to where the main stem forks at river mile 37. It then follows the river downstream to within two miles of Bellingham Bay, where the plan borders the San Juan Islands/North Puget Sound GRP planning area. The Nooksack River GRP can be characterized by two types of areas: (1) the South Fork and main stem Nooksack River and (2) the smaller tributary creeks south of Lynden and east of Ferndale, including Bertrand, Deer, Fishtrap, Fourmile, Silver, and Tenmile Creeks. The planning area fully resides within Water Resource Inventory Area Nooksack (WRIA 01). The communities of Acme, Deming, Everson, Lynden, and Ferndale are included in this area, as well as the Nooksack Indian Reservation and a portion of the Lummi Indian Reservation.

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

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

If in the responder's best judgment, control and containment at or near the source of a spill isn't feasible, or if the source is controlled and contained but oil has spread out beyond initial containment, then the priorities laid out in Section 4.3 of this plan should take precedence until a Unified Command is formed. Oil spill response priorities, beyond those described in this plan, should rely on aerial observations and spill trajectory modeling. A booming strategy listed as a high

priority in Section 4.3 would not necessarily be implemented if a spill trajectory did not warrant action in that area; however, the priority tables should be followed until oil spill trajectory information becomes available. During an incident, modifications to the deployment priorities provided in Section 4.3 of this plan may be made if approved by the Incident Commander, Unified Command, or are identified as necessary by the Environmental Unit.

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

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

1.1 GRP CHAPTERS AND APPENDICES

Chapter 1	Introduction
Appendix 1A	Comments, Corrections, or Suggestions
Chapter 2	Site Descriptions
Chapter 3	Response Options and Considerations
Chapter 4	Response Strategies and Priorities
Appendix 4A	Response Strategies
Appendix 4B	Notification Strategies
Appendix 4C	Staging Areas
Appendix 4D	Boat Launch Locations
Chapter 5	Reserved
Chapter 6	Resources at Risk
Appendix 6A	List of Economic Resources in Area

1.2 GEOGRAPHIC RESPONSE PLAN DEVELOPMENT PROCESS

GRPs are part of the Northwest Area Contingency Plan, just developed and revised separately. The plans are prepared through the efforts of, and in cooperation with, Washington Department of Ecology, Oregon Department of Environmental Quality, Idaho Bureau of Homeland Security, U.S. Coast Guard, U.S. Environmental Protection Agency, as well as other state and federal agencies, tribes, local governments, natural resource trustees, response organizations, emergency

responders, and communities. GRPs are developed through workshops, fieldwork, and meetings. Participants identify resources that may be at risk of injury from spills and work to develop oil spill response or notification strategies to reduce the chance of injury to those resources.

After compiling information on sensitive resources in the area, site visits are conducted to gather data and determine if spill response strategies near those resources should be added, modified, or deleted. In this, the anticipated effectiveness of existing strategies are reviewed, modifications made as determined necessary, potentially unsafe or ineffective strategies removed, and new strategies added to the plan. Unfortunately, the dynamics of marine and inland water environments, and the present limitations of response technology, make the development of strategies for all sensitive resource locations impracticable. A draft plan is produced after site visits are completed, and made available for public review and comment before a final version of the GRP is produced and published. A responsiveness summary is also published that addresses public comments received during the GRP update and development process.

1.3 STANDARDIZED RESPONSE LANGUAGE

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

1.4 TERMINOLOGY AND DEFINITIONS

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

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APPENDIX 1A

Comments, Corrections, or Suggestions

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

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

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

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

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

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

GRP Comment Form

Mail Completed Form to:

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

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

Today's Date: _____

Your Name: _____

Title: _____

Company/Agency: _____

Address: _____

City: _____

State/Province: _____ Zip: _____

Email: _____ Ph: _____

GRP Page Number: _____ Section or Paragraph: _____

Comment(s): _____

CHAPTER 2

Site Description

2.1 CHAPTER INTRODUCTION

This chapter provides a description of the physical features, hydrology, climate, and winds found within the Nooksack River area and includes an overview of oil spill risks in, or near, the planning area.

The Nooksack River GRP begins upstream partway up the South Fork of the Nooksack River, north of the border of Whatcom and Skagit Counties, near the town of Acme. It continues north along Highway 9 to where the main stem meets with the North, Middle and South Forks. The plan follows the river along Highway 9 to Deming and further northwest to Everson. Heading west of Everson, it includes a section of Lynden on the north side of the river, plus the flat land and tributary creeks to its south. West of Lynden, the river curves south through the City of Ferndale. The planning area includes a portion of the Lummi Indian Reservation, and then ends about 3 miles upstream of Bellingham Bay. Here it adjoins the existing San Juan Islands/North Puget Sound GRP, which covers the rest of the Lummi Indian Reservation and the Nooksack River delta.

The planning area is located entirely within Washington's Water Resource Inventory Area Nooksack (WRIA 1), and contained within Whatcom County. The southern border of the plan abuts the Samish River GRP, and the Sumas River GRP is located to the plan's northeast.

2.2 PHYSICAL FEATURES

There are three sources of the Nooksack River, all in the North Cascades mountain range. The North Fork begins 80 miles upstream from Bellingham Bay, draining a semicircle of glaciers called the Nooksack Cirque between Icy Peak and the eastern slope of Mount Shuksan. As this fork travels westward, it passes north of Mount Baker, past the ski area, and parallels Highway 542 (Mount Baker Highway) to river mile 40. Here, it meets the Middle Fork, which drains the southeast slope of Mount Baker. The South Fork Nooksack joins three miles later at River Mile (RM) 37 to create the main stem Nooksack River.

The South Fork Nooksack River sources on the eastern slope of Twin Sisters Mountain, south of Baker. As it enters the planning area, it crosses Highway 9 in Acme, then flows north parallel to the highway for its final nine miles until the confluence with the main stem. The upstream sections of all three forks are characterized by steep, forested hills draining into creeks and streams that meet the rivers in narrow valleys. As the forks approach their confluence, the valley floors begin to widen and fill with farmland, with the South Fork valley particularly wide and gently sloped.

After the forks converge, the main stem Nooksack continues draining north along Highway 9, passing Deming and the Nooksack Indian Tribe Reservation. At RM 31, the Mount Baker Highway (SR 542) splits from Highway 9 and heads southwest towards Bellingham. From here west to Puget Sound and north to Canada, the valley is wide-open and essentially flat. The wetlands, groundwater, lakes and stormwater from this valley are the source of several large tributary creeks. Fourmile Creek and Deer Creek both empty into Tenmile Creek, which enters the Nooksack River just above Ferndale. Silver Creek empties into Bellingham Bay as part of the Nooksack delta.

The Nooksack River valley is home to many of Whatcom County's 1,400 farms, and popular crops include corn and hay to feed dairy cows, although it is most famous for its berry farms. Sixty-five percent of the red raspberries grown in the US are from this county. It is also a center for milk production, producing 246 million dollars of milk annually from 44,000 cows.[1]

The Nooksack River creates the eastern border of this flat valley along Highway 9 up to Everson. Here, the highway continues north and separates the river from the adjoining Sumas River watershed. Although turn of the century flooding combined the rivers, Highway 9 and the railroad track have since separated surface drainage between the two systems. The Sumas River flows north to Canada, where it empties to the Fraser River flowing west to Vancouver, British Columbia. Many of the towns in this area, including Everson, Nooksack, and Lynden, originally began as Nooksack Indian Tribe settlements, which were then either relocated or destroyed as settlers capitalized on the area's location as a through-route to Canada[2].

In Everson, the Nooksack River makes a westward turn towards Lynden, a city along the north bank that became a popular relocation point for Dutch immigrants in the early 1900s[3]. Fishtrap Creek and Bertrand Creek, relatively large tributaries draining south from Canada, discharge the Nooksack River downstream of Lynden.

As the river continues south into Ferndale, it passes under bridges for Interstate 5, BNSF railroad, and finally Main Street, which connects the two halves of the city. Just downstream of the bridge is Hovander Homestead Park, a National Historic Site with a barn and farmhouse built over a century ago. The park adjoins Tennant Lake Park, a wildlife area and interpretive center co-managed by the Whatcom County Parks Department and the Washington Department of Fish and Wildlife.

The last 3.5 miles of the river and delta, including Silver Creek, create the eastern border of the Lummi Nation's reservation lands before it empties into Bellingham Bay. Most of this estuary area is undeveloped and difficult to access.

[1] AWB 2015 http://www.agwaterboard.com/#!storymap/c1jc6
[2] Moles 2014 http://www.historylink.org/index.cfm?DisplayPage=output.cfm&file_id=10775
[3] Dougherty 2008 http://www.historylink.org/index.cfm?displaypage=output.cfm&file_id=8393

2.3 HYDROLOGY

The upper reaches of the Nooksack River drain the foothills of the Cascade Range and so receive more precipitation than the coastal areas. Bellingham averages 35" or more rain annually, and may receive a few inches of snow once or twice a year. The North Cascades in the central and eastern part of the county experience more extreme weather, averaging 90" of precipitation, several feet of which arrive as snow and sleet.[4]

As with most of Western Washington, the rainy season is considered to begin in October and end in May or June. The non-glacially fed areas, such as the creeks in the lower valley, experience low summer flows during the dry season. Because of the agricultural nature of the lower Nooksack watershed, water levels are further drawn down by drainage activity and irrigation in the summer. The melting of glaciers and snow that are the source of the upper forks of the Nooksack River add extra runoff during the spring thaw, typically during the months of May and June.

There are two USGS stations along the mainstem Nooksack River tracking velocity and river height. One is located at the Mount Baker Highway (542) bridge near Deming, at river mile 31. This gage shows that the highest flows are in November and May, averaging over 5,500 and 5,100 cubic feet per second (cfs), respectively. The quietest months of August and September average 2,000 cfs and below.[5] At the downstream gage in Ferndale, near RM 6, rainfall on the tributary creeks adds additional flow during the early spring.[6]

The low, quiet summer flows are popular times for recreational floating on the river, using inflatable rafts or inner tubes. During this season, logjams and sandbars emerge that may prevent boats with propellers from accessing all stretches of the river uninterrupted.

The southern border of the plan abuts the Samish River GRP, with which it also shares a wetland complex. Part of the complex is the source of a small tributary draining to the South Fork Nooksack River, and another part of the complex forms the headwaters of the Samish River itself. Studies to determine whether there is actually a connection or transfer between the two watersheds are so far inconclusive.[7] In the event of a heavy flood, the Nooksack River may overtop and combine with the Sumas River watershed.

The planning area fully resides within the boundaries of Water Resource Inventory Area Nooksack (WRIA 1).

[4] NOAA 2014 http://www.ncdc.noaa.gov/cdo-web/datasets/ANNUAL/locations/FIPS:53073/detail
[5] USGS 2016 http://waterdata.usgs.gov/wa/nwis/uv/?site_no=12210700
[6] USGS 2016 http://waterdata.usgs.gov/nwis/uv?site_no=12213100
[7] Gendaszek 2014 (p14) http://pubs.usgs.gov/sir/2014/5221/pdf/sir2014-5221.pdf

Nooksack (WRIA 1): The Nooksack watershed comprises the western portion of Whatcom County, as well as small portions of Skagit County and British Columbia, Canada. It is bounded by Bellingham Bay and the Strait of Georgia on the west and its east side includes portions of the Cascade Mountain range, including Mt. Baker. This watershed has a mix of urban, agricultural, rural land uses. The watershed consists of the Nooksack River, which originates in the Cascade Mountains, and its numerous tributaries. It also includes the Sumas River (tributary to the Fraser River), and coastal drainages including the Lummi River, and Dakota, California, Terrell, Squalicum, Whatcom, Padden, and Chuckanut Creeks. The Nooksack River is a source of drinking water for the city of Bellingham, and several other cities in Whatcom County.[8]

2.4 CLIMATE AND WINDS

The temperatures in western Whatcom County remain mild year round. Near the coast, Bellingham averages 4.3" of snowfall annually, out of 35" total precipitation, and highs from 73 degrees to lows of 35 degrees.[9] Winds at Bellingham airport tend northerly most of the year, averaging about 8 mph.[10]

Further inland near the Cascade foothills, the temperatures are slightly more variable and precipitation increases. Clearbrook, a few miles north of Everson, averages 16" of snowfall out of 46" of total precipitation, and highs of 75 to lows of 30.[11]

Upstream of the planning area, the Cascade Mountains experience extreme weather. The Glacier Ranger Station averages 45" of annual snowfall out of 61" of total precipitation, and highs of 75 to lows of 25.[12] Just east of that station, the Mount Baker Ski Area holds the US record for annual snowfall, with an accumulation of 1,140 inches (95 feet) of snow during the1998-1999 ski season.[13]

Winter often means the chance of severe storms. In the past, blizzards, ice storms, and windstorms have caused major damage and flooding throughout western Whatcom County. These storms are most likely to occur from November to February, although they may hit as early as October and as late as March. Historic storms included wind gusts up to 104 mph, wind-chills of 70 below zero, and lowland snowdrifts 25 feet high.[14]

[8] WA Dept. of ECY 2012 https://fortress.wa.gov/ecy/publications/documents/1111006.pdf
[9] WRCC 2016 http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?wa0587
[10] WRCC 2006 http://www.wrcc.dri.edu/climatedata/climtables/westwind
[11] WRCC 2016 http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?wa1484
[12] WRCC 2000 http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?wa3160
[13] NOAA 1999 http://www.publicaffairs.noaa.gov/releases99/aug99/noaa99056.html
[14] Whatcom 2015 http://www.whatcomready.org/wp-content/uploads/2011/11/whatcomHMPupdate2015.pdf

2.5 TIDES AND CURRENTS

The tidal influence on the Nooksack is visible at the tide gage on RM 5.8. At that distance from the bay, the tidal influence is mild, mostly affecting the river by slowing the speed of flow during an incoming tide, with the river height changing only by a few inches. High tides during low summer flows will have exaggerated effects, and will stretch further inland than usual.

When the Nooksack River runs above 9600cfs, a portion of the water diverts through an elevated culvert into the Lummi River, vastly increasing its usual flow. Below that water level, the Lummi River has very low discharge and water speed, but can also experience tidally influenced flows when tides are above 8 feet.

In the 1970s, the USGS developed relations between travel time and dye clouds for various discharges in the Nooksack River at the USGS gaging station in Ferndale. The relations were developed for the section of the River between Everson and the Lummi Indian Reservation over the river discharge range between 1,150 cfs and 20,000 cfs at the USGS gaging station in Ferndale.[15]

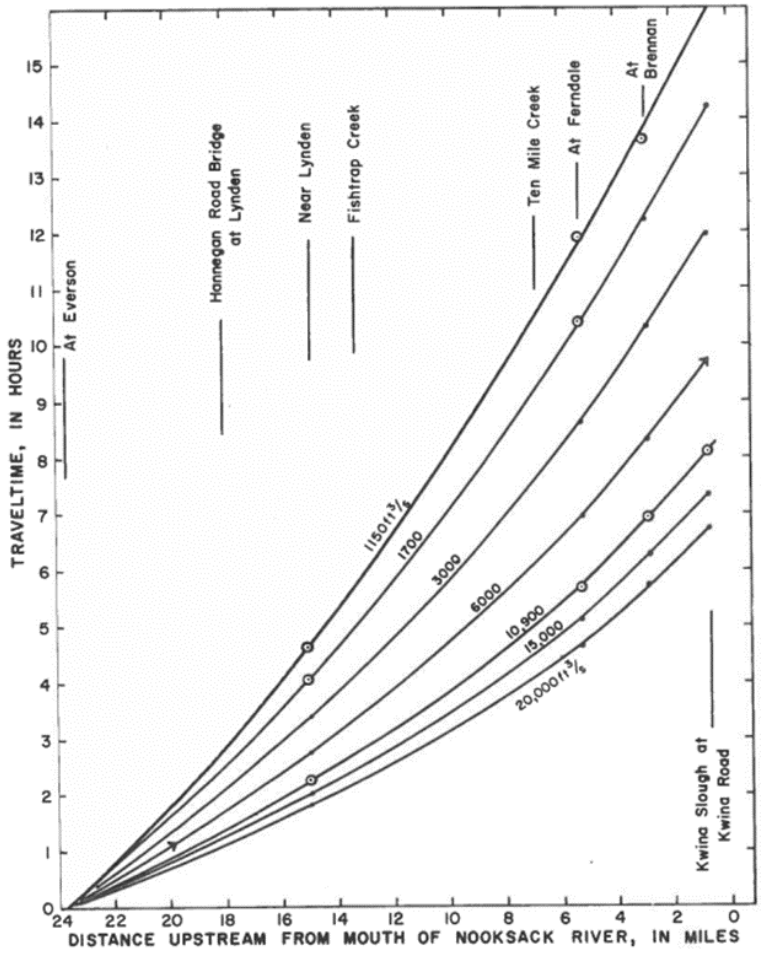

Figure 2-1: Time of Travel from Everson at Various Discharge Levels

[15] (Parker 1974)

2.6 RISK ASSESSMENT

The Nooksack 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, oil pipelines, rail transportation and facilities, recreational boating, road transportation, aircraft, and other oil spill risks. This section briefly discusses these risks and how they could impact the GRP planning area.

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

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

Crude oil from the Bakken fields in North Dakota has properties similar to gasoline or diesel, and poses a higher risk of fire because much of it will evaporate quickly into flammable vapors. Unlike gasoline, the heavier hydrocarbons in the crude will persist in the environment after the light ends evaporate or burn. Bitumen from the oil sands in Alberta, Canada, is heavy, almost asphalt-like, until it is mixed with lighter oil products known as diluents to create diluted bitumen. Once mixed, the diluted bitumen will initially float on water after being spilled. Environmental conditions, such as the density of the receiving waters and sediment load of the receiving waters, will affect how long diluted bitumen floats. As the light diluents evaporate, the remaining heavy constituents may sink into the water column.[16] There are specific response actions recommended for non-floating oils, detailed in the *Non-Floating Oil Spill Response Tool* in the Northwest Area Contingency Plan (NWACP), Section 9412.

Pipelines: There are two pipelines carrying petroleum products through the Nooksack River area: the Kinder Morgan Trans Mountain pipeline, importing crude oil from Canada, and the BP Olympic Pipeline, distributing gasoline, diesel and jet fuel from the refineries at Cherry Point and Ferndale.

The Trans Mountain Puget Sound pipeline system is operated by Kinder Morgan Canada. It carries crude oil products via the Trans Mountain pipeline from Abbotsford, British Columbia, for delivery to four refineries in Whatcom and Skagit counties in Washington State. The system capacity is approximately 180,000 barrels (7.5 million gallons) per day.

The BP Olympic Pipeline travels 400 miles from the Cherry Point refinery northwest of Bellingham to Portland, Oregon, with additional input lines from the refineries at Phillips 66 Ferndale, Tesoro Anacortes, and Shell Anacortes. It delivers product to terminals at Harbor

[16] NASEM 2016: http://www.nap.edu/21834

Island in Seattle, SeaTac airport, and Tacoma before exporting 1.3 billion gallons per year across the Columbia River to Oregon.

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

Unit trains carrying crude currently operate on specific routes. Unit trains carrying crude from the Bakken Formation in North Dakota enter Washington State near Spokane, continue along the Columbia River to Vancouver, and then head north along I-5. These trains enter Whatcom County from the southwest on tracks along Puget Sound, cross the Nooksack River in Ferndale between I-5 and the Main Street Bridge, then continue north to Canada. Unit trains of diluted bitumen also may be transported from Canada into the US using the same tracks. North of the planning area, the Custer spur splits west from the main line to deliver Bakken crude to the refineries at BP Cherry Point and Phillips 66 Ferndale.

The other tracks in the Nooksack River area are known as the Sumas subdivision, which parallel Highway 9 north to Canada. Another spur connects downtown Lynden to Sumas, Washington on the Canadian border. Unit trains do not currently operate on these tracks. BNSF owns the commercial rail track in this planning area, although other rail companies may operate trains on BNSF tracks.[17]

Recreational Boating: Because this GRP is inland, and the Nooksack River is too shallow for most commercial traffic, boating associated with the tribal commercial, ceremonial, and subsistence fishery and recreational boating are the only notable risks of oil spills from vessels. Because these boats are typically powered by gasoline engines, these boats are unlikely to carry a significant volume of oil. There are two public boat launches on the Nooksack River, at RM 5.8 in Ferndale, and at RM 31 between Everson and Deming.

Road Systems: Vehicle traffic on roadways pose an oil spill risk in areas where they run adjacent to the shorelines, or cross over lakes, rivers, creeks, and ditches that drain into the Nooksack River. Interstate 5 carries West Coast traffic between Canada and Mexico and poses the most significant risk of highway spills, due to the frequency of large tanker trucks carrying a number of fuel types. State Highway 9 does not have the traffic capacity of I-5

[17] WA Dept. of ECY 2015 https://fortress.wa.gov/ecy/publications/publications/1508010.pdf

but is more convenient to move fuel between smaller upland communities. Highway 9 travels from the southeastern corner of the plan area along the South Fork, then north through central Whatcom County to become Canadian Highway 11 after crossing the border. There is potentially high use by logging trucks and local fuel trucks serving the inland communities in these areas.

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

Aircraft: A corner of Bellingham International Airport (BLI) overlaps the planning area along I-5 near Silver Creek, on the outskirts of Bellingham. Run by the Port of Bellingham, it handled over 62,000 flights in 2016. Some commercial carriers use BLI for flights along the West Coast, but the majority of flights are local tourism and other small craft.[18] Since this airport is within three miles of the river, the potential exists for aircraft failures during inbound or outbound flights that could result in a spill by releasing aviation fuel to the Nooksack River or its tributaries.

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

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CHAPTER 3

Spill Response Options and Considerations

		Location				
		Acme	Deming	Everson	Lynden	Ferndale
Waterbody	Rivers	●	●	●	●	●
	Creeks	●	●	●	●	●
	Lakes				●	●
	Pool Area formed by Dam					
	Tidally Influenced Areas					●
	Wetland Area(s)	●	●	●	●	●
	Intermittent Streams (Seasonal Flow)	●	●	●	●	●
Potential Response Options	Source Control and Containment Activities	●	●	●	●	●
	Aerial/Vessel Surveillance Activities	●	●	●	●	●
	Wildlife Rescue and Rehabilitation Activities	●	●	●	●	●
	Collection for Skimming Operations *(Note: 1)*	●	●	●	●	●
	Vessel Based Skimming Operations *(Note: 2)*					
	Shore Based Skimming Operations *(Note: 3)*	●	●	●	●	●
	Shoreside Protection Booming *(Note: 4)*	●	●	●	●	●
	Shoreside Cleanup Activities *(Note: 5)*	●	●	●	●	●
	In-Situ Burning ***Areas not pre-approved (Note: 8)***					
	Dispersant Use ***Areas not pre-approved(Note: 9)***					
Considerations	Shoreside Access can be Limited by Geography	●	●	●	●	●
	Shoreside Access can be Limited by Private Property	●	●	●	●	●
	State or National Wildlife Refuge/Recreation Area					●
	Threatened/Endangered Terrestrial Species *(Note: 6)*	●	●	●	●	●
	Public or Commercial Marina(s) in Area					
	Commercial Vessel Movement/Port Area					
	Recreational Boats and/or Inflatables	●	●	●	●	●
	Tribal Lands or U and A Interests *(Note: 7)*	●	●	●	●	●
	Historic/Cultural District(s) in Area					●
	Dam(s) in Area					
	Interstate Highway Corridor					●
	Oil Movement by Rail in Area	●	●	●	●	●
	Oil Pipeline(s) in Area			●	●	●

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 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: More information available in Chapter 6. Response and cleanup in these areas may require coordination with Federal or State Fish and Wildlife staff to reduce disturbances to upland species.

Note 7: This sheet does not 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.

Note 8: These areas are not pre-approved for the use of in-situ burning. Refer to the Northwest Area Contingency Plan for the dispersant Policy.

Note 9: These areas are not pre-approved for the use of dispersants. Refer to the Northwest Area Contingency Plan for the dispersant Policy.

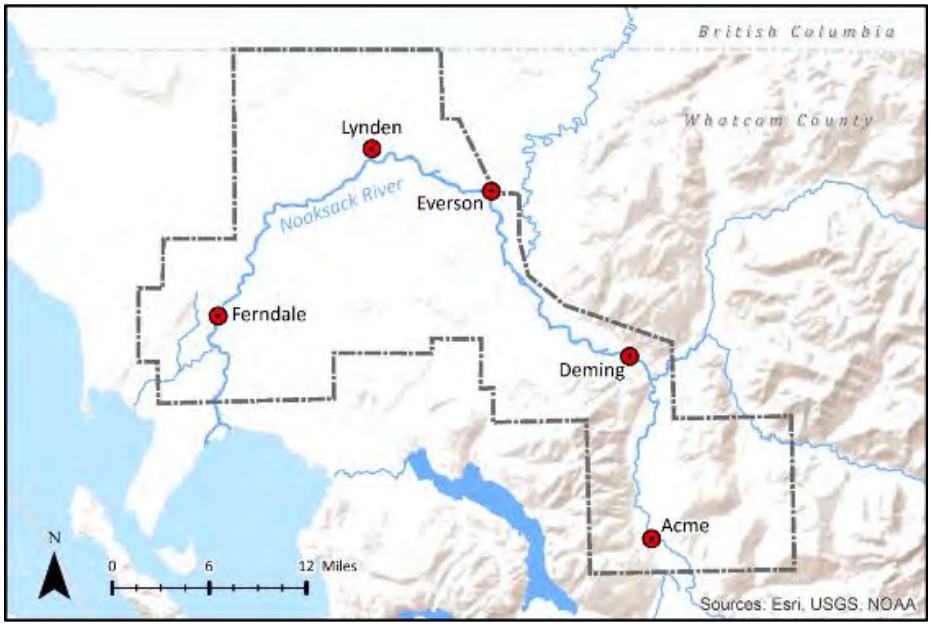

Figure 3-1: Response Options and Considerations Area

NOOKSACK RIVER

Geographic Response Plan

(NOOR-GRP)

CHAPTER 4

Response Strategies and Priorities

June 2017

Before you print this document

This chapter and its appendices, as well as the appendix at the end of Chapter 6, are provided in "landscape" page orientation. The detailed 2-page information sheets for response strategies, notification strategies, staging areas, and boat launch locations in appendices 4A though 4D (pages 75 - 180) have been designed for duplex printing (front and back side of paper), "open to top" configuration.

4.1 CHAPTER INTRODUCTION

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

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

4.1.1 On-site Considerations

Before Deploying a GRP Strategy (Questions to Ask)

- Are conditions safe? Response managers and responders must first determine if efforts to implement a response strategy would pose an undue risk to worker safety or the public, based on conditions present during the time of the emergency. No strategy should be implemented if doing so would threaten public safety or present an unreasonable risk to the safety of responders.
- Has initial control and containment been sufficiently achieved? Control and containment of the spill at or near the source are always higher priorities than the deployment of GRP response strategies, especially when concurrent response activities are not possible.
- How far downstream or out into the river, lake, or marine environment is the spilled oil likely to travel before response personnel will be ready and able to deploy GRP response strategies?

- Are permits required? Consult the Northwest Area Contingency Plan Permit Summary Table (NWACP Section 9401) for information specific to your location and circumstance.
- Will equipment or vehicles need to be staged on or near a roadway? If so, traffic control may be required. Contact the Washington State Patrol, or local, county, municipality, or tribal police for assistance. At minimum, Washington Department of Transportation (WSDOT) guidelines for work zone traffic control should be followed when working on or near a roadway.
    - City of Everson Police Department (360) 966-4212
    - City of Ferndale Police Department (360) 384-3390
    - City of Lynden Police Department (360) 354-2828
    - Lummi Nation Police Department (360) 312-2274
    - Nooksack Tribal Police Department (360) 592-9065
    - Washington State Patrol District #7 (360) 654-1204
    - Whatcom County Sheriff's Office (360) 778-6600

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 may modify the strategies provided in this chapter as needed to meet the challenges experienced during an actual response.
- Certain strategies may call for access points or staging areas that are not easily reached at all times of the year or in all conditions.
- The GRP response strategies provided in this chapter were designed for use with persistent heavy oils that float on water and may not be suitable for other petroleum products or hazardous substances. For information about non-floating oil spill response, refer to the Non-Floating Oil Spill Response Tool in the NWACP, Section 9412.

After Strategy Implementation (Things to Understand)

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

Water Speed and Boom Deflection Angle

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

Table 4.1: Water Speed Drift Measurement Table

Time to Drift 100 Feet (seconds)	Velocity (ft/sec)	Velocity (m/sec)	Velocity (knots)	Max Boom Deflection Angle (degrees)	Boom required for 100-foot Profile to Current (feet)	Anchors needed if Placed Every 50 feet (number)
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

4.1.2 Historical River Flow Ranges

Streamflow data from U.S. Geological Survey (USGS) was used to determine the mean monthly discharge for rivers and streams in the planning area. Stream discharge is recorded in cubic feet per second (cfs); velocities in miles per hour (mph) or nautical miles per hour (knots) are not available. Table 4.1 provides information that can be used to calculate local river velocities on-site, based on the time it takes a floating object to drift 100 feet downstream from any given point in a river or creek. Additional information NWACP for USGS gage stations in the planning area are provided below, 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 4.2: Historical Streamflow for the Nooksack River

Monthly Average Flow in Cubic Feet per Second (cfs)		
	Nooksack River at Ferndale **USGS 12213100** (data from 1966 to 2016)	**Nooksack River at North Cedarville** **USGS 12210700** (data from 2004 to 2016)
Jan	5,070	5,050
Feb	4,100	2,940
Mar	3,890	3,610
Apr	3,800	3,500
May	4,680	5,190
Jun	4,830	5,060
Jul	3,470	3,580
Aug	2,060	2,020
Sep	1,830	1,830
Oct	2,760	2,910
Nov	5,160	5,580
Dec	5,020	4,230

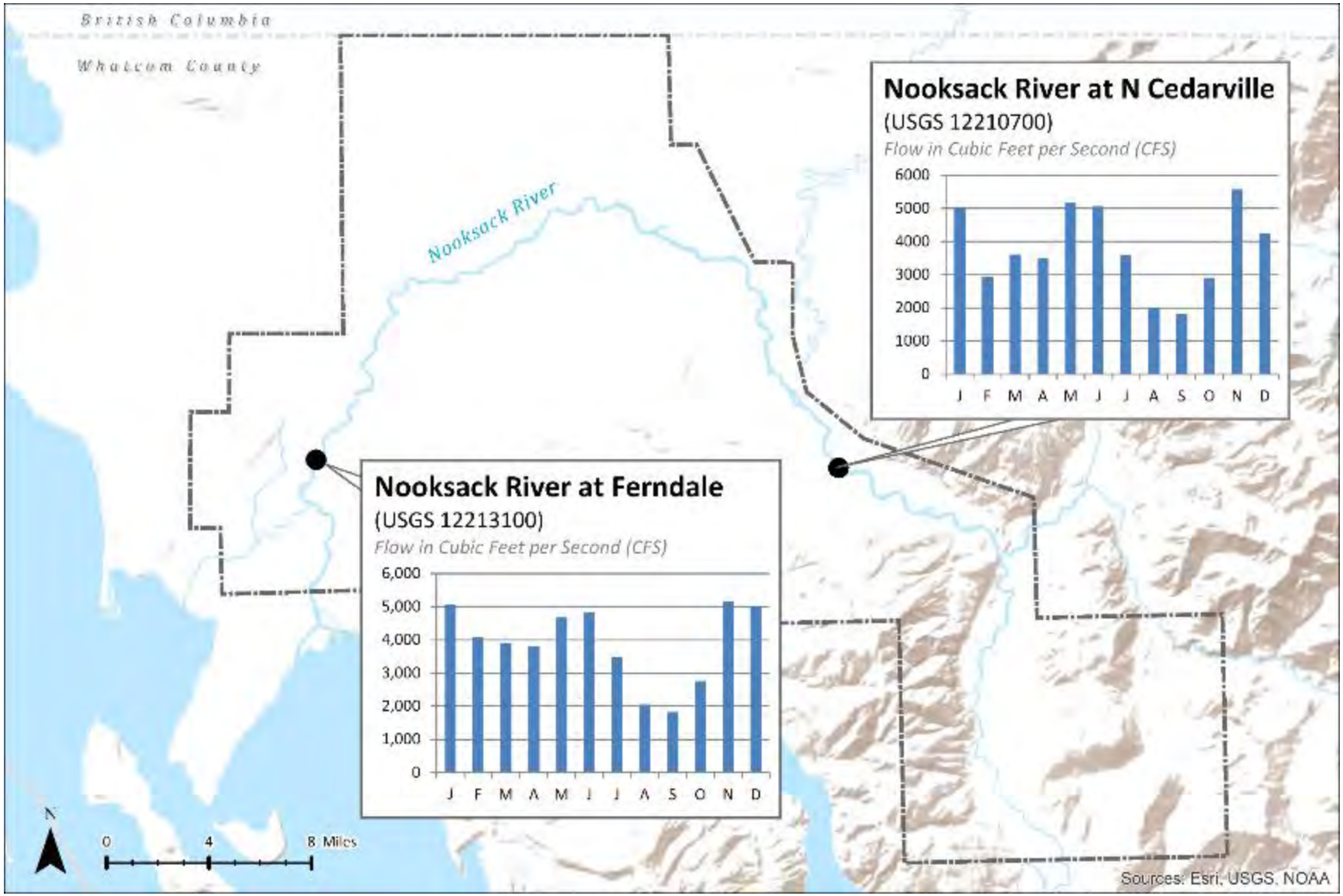

Figure 4-1: Mean Monthly Discharge Measurements for Nooksack River

4.2 AREA OVERVIEW MAPS

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

The following area maps are provided for reference:

- Response Strategy Locations
- Notification Strategy Locations
- Staging Area Locations
- Boat Launch Locations
- Potential Oil Spill Origin Point Locations

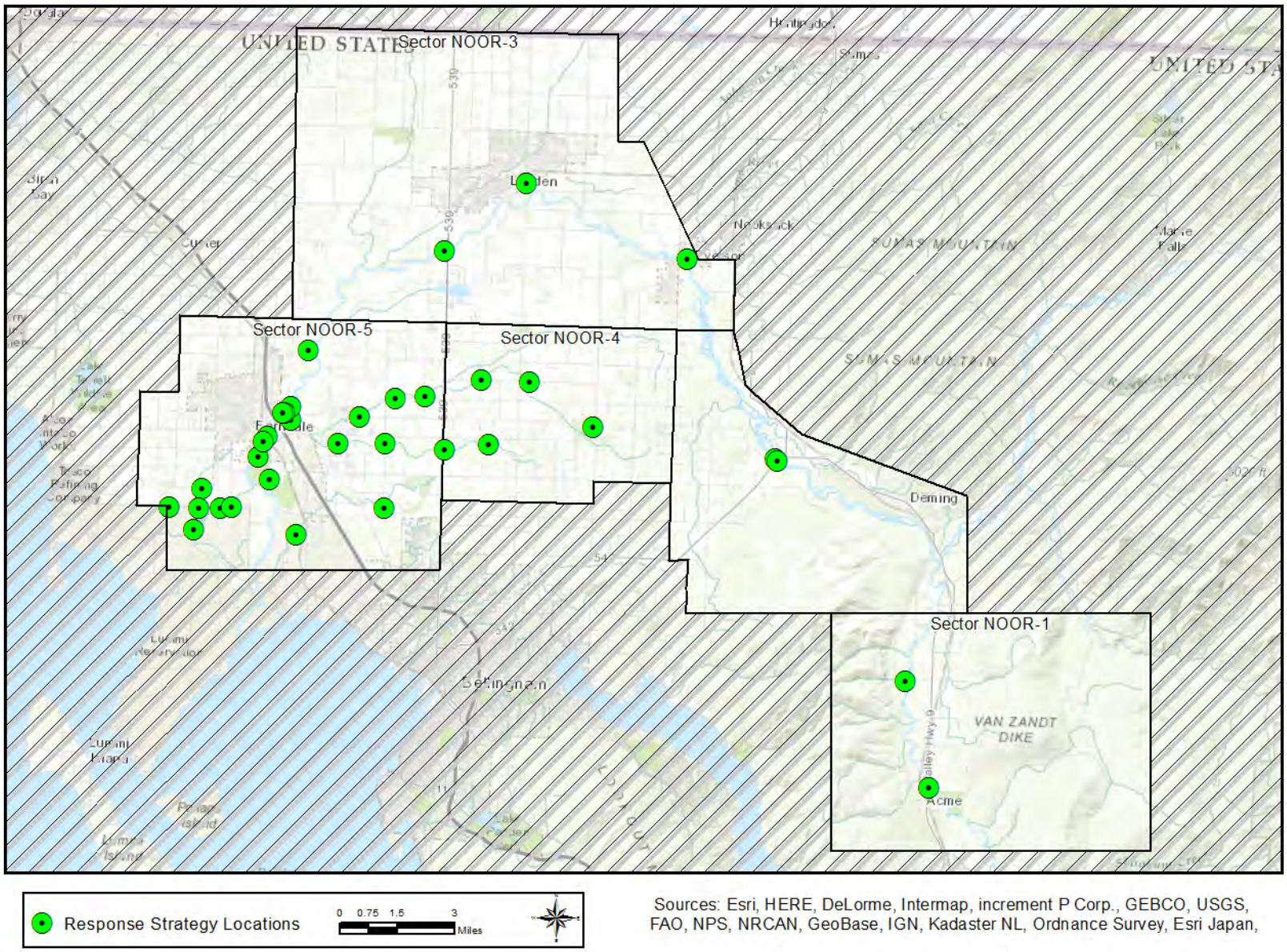

Figure 4-2: Response Strategy Locations

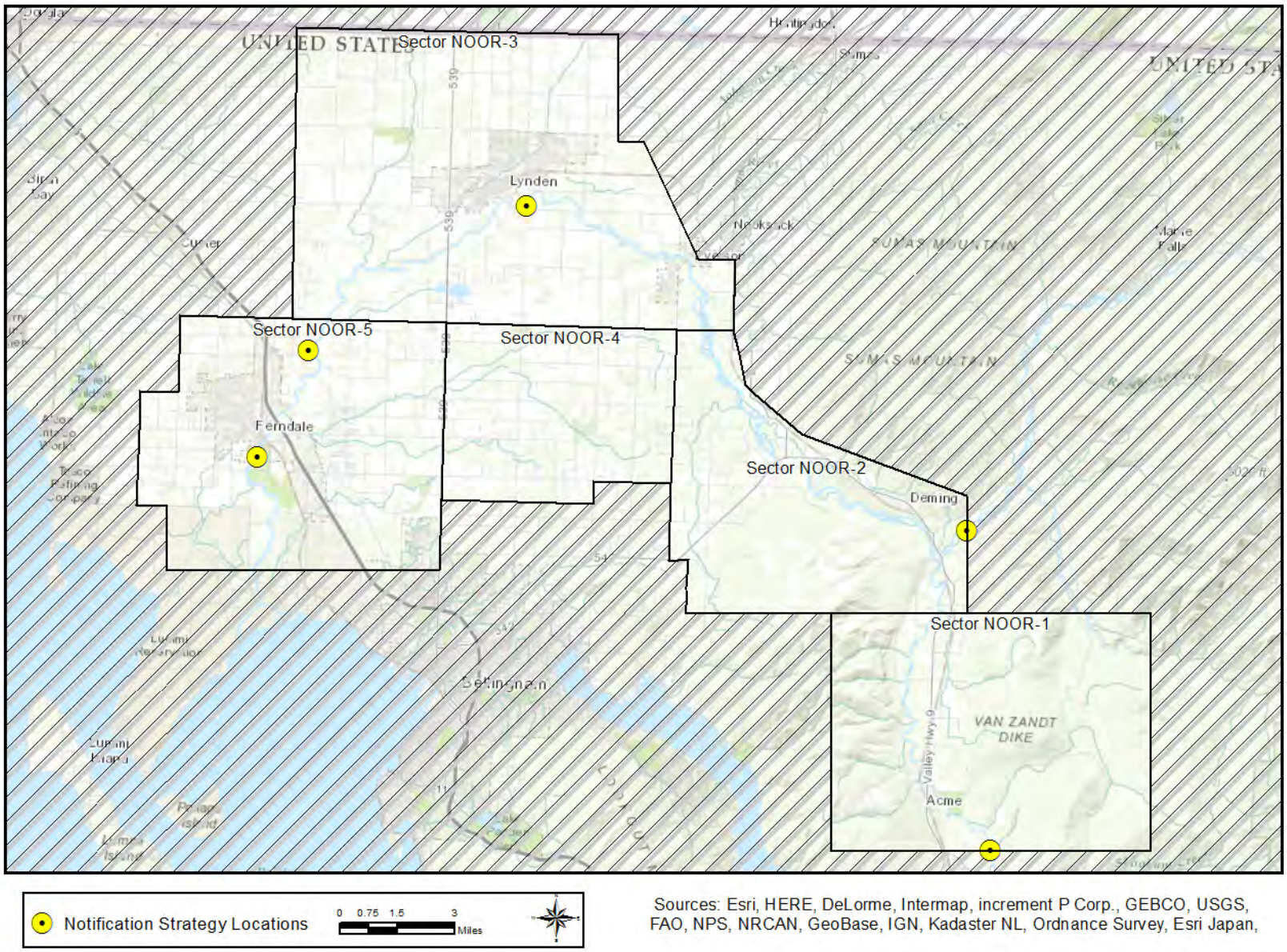

Figure 4-3: Notification Strategy Locations

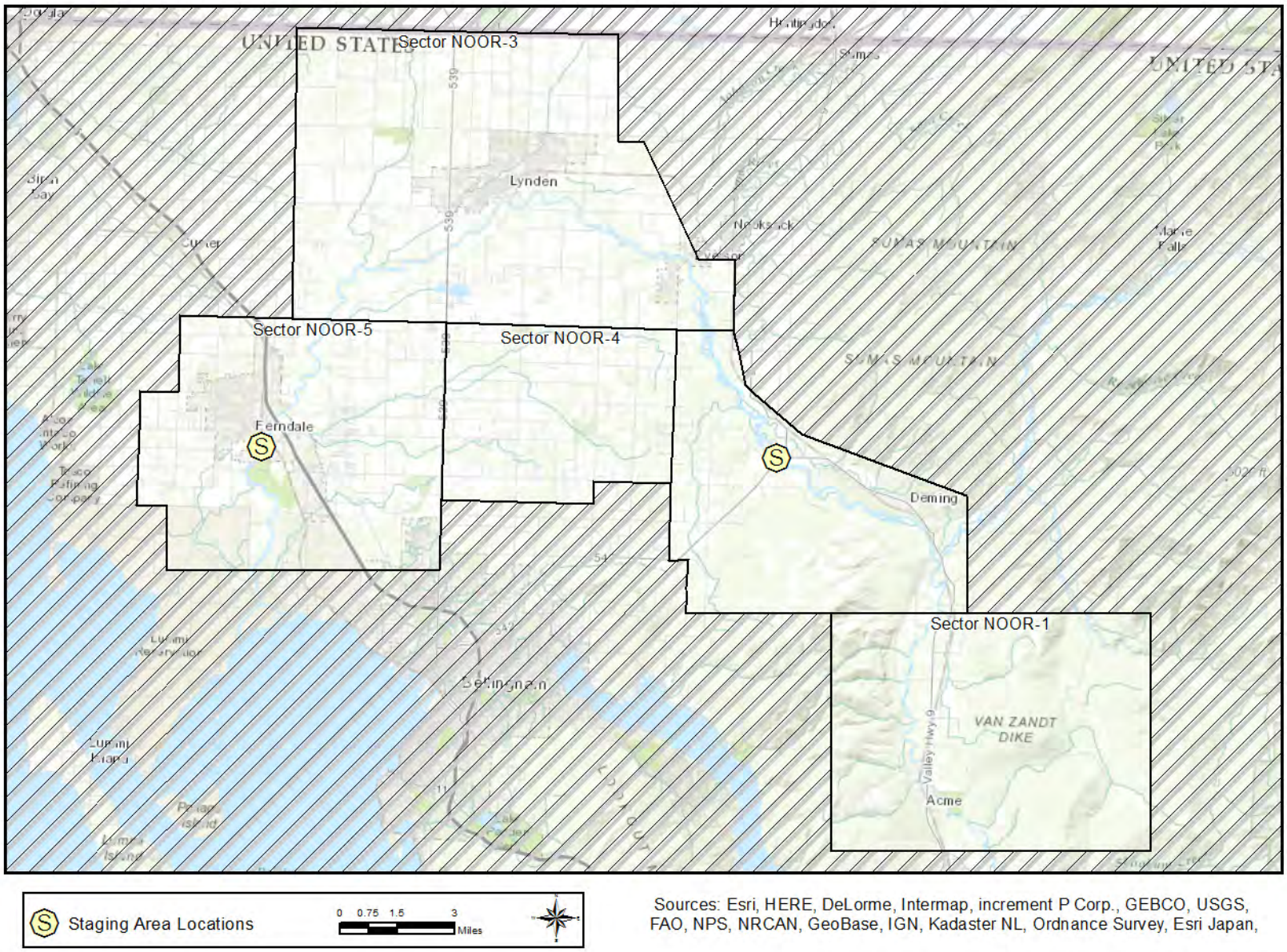

Figure 4-4: Staging Area Locations

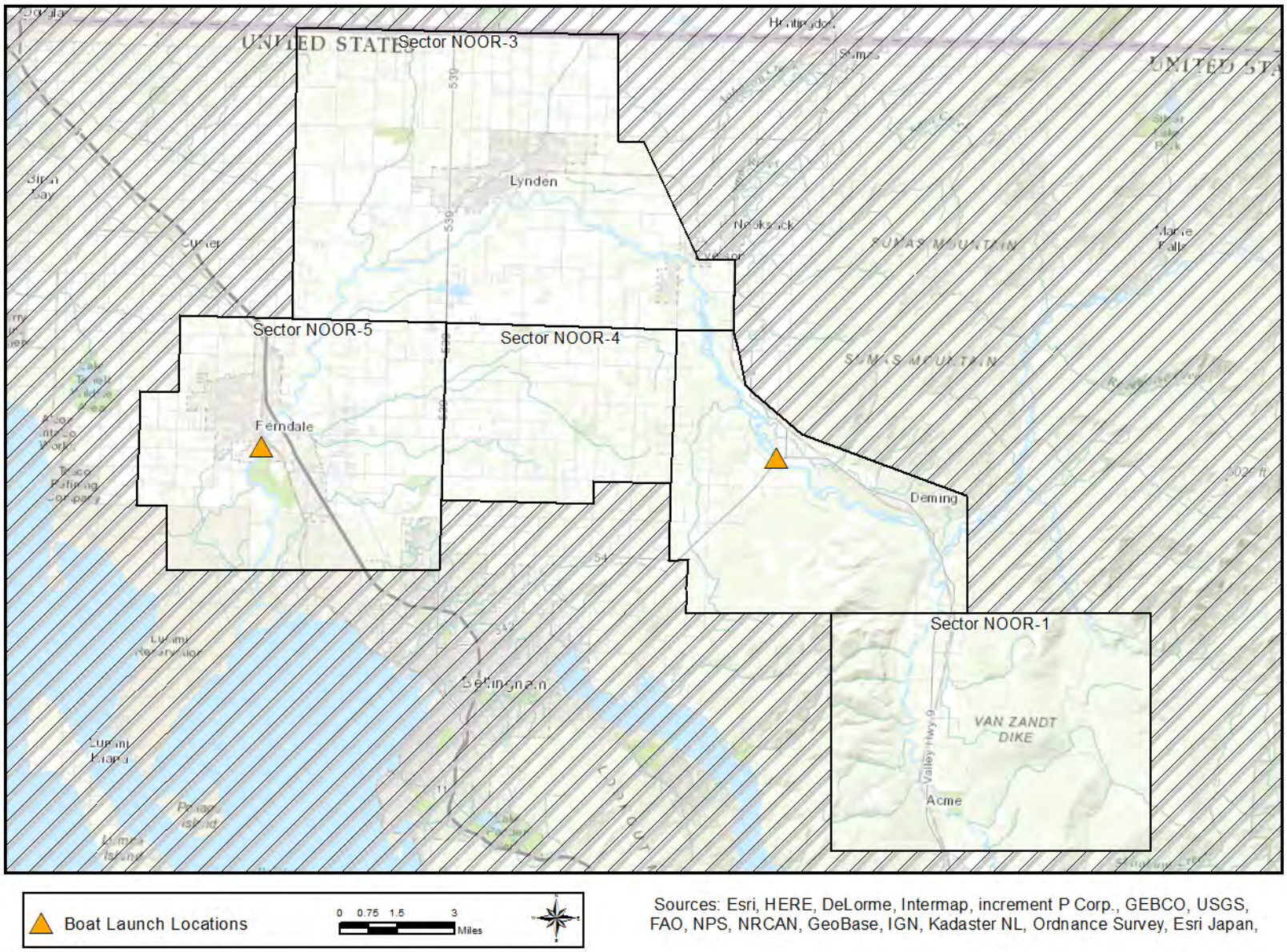

Figure 4-5: Boat Launch Locations

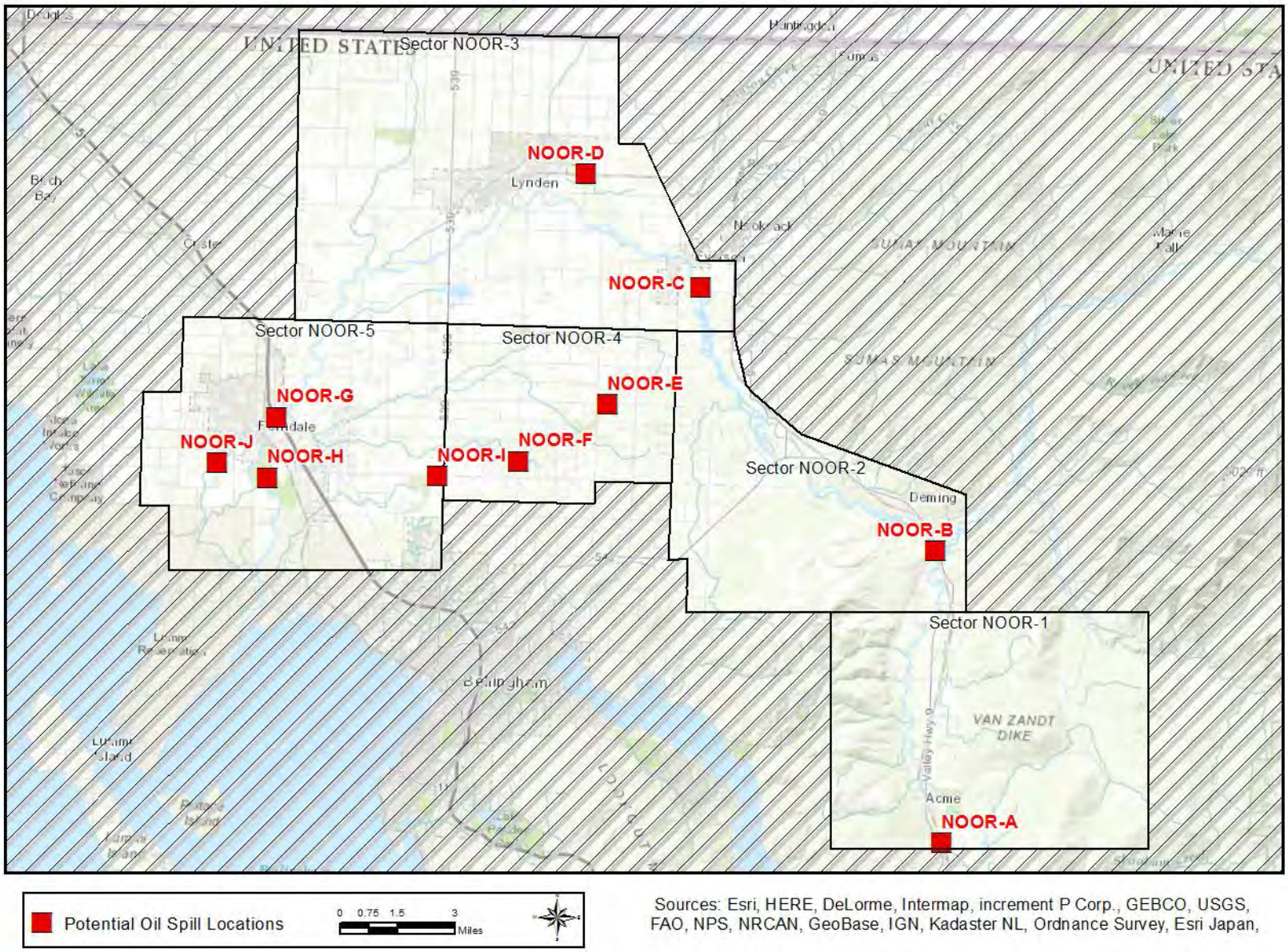

Figure 4-6: Potential Oil Spill Origin Point Locations

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 occurs in the planning area.

- Safety is always the number one priority. Do not implement GRP strategies or take actions that will unduly jeopardize public, worker, or personal safety.
- Notify local public health and safety personnel.
- Control and contain the source of the spill; mobilize resources to the spill location. Source control and containment are always a higher priority than the implementation of GRP strategies.
- Determine the priority or order GRP strategies should be implemented based on the location of the spill or affected area. Priorities based on POSOPs are included in this chapter and should be used unless the situation or circumstances dictate otherwise (see Section 4.3.2).
- As response resources become available, implement the GRP Strategies in order of priority or as necessary based on the scenario, trajectory, or conditions of the day.
- Permits may be required. Consult the Northwest Area Contingency Plan Permit Summary Table (NWACP Section 9401) for information.

4.3.2 Strategy Priorities based on Potential Oil Spill Origin Points

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

These points are displayed on area overview and sector maps as red boxes. In establishing priorities during a response, or selecting an appropriate POSOP, the downstream and/or tidal movement of spilled oil and the time it takes to mobilize and deploy response resources must be considered. Generally, on streams, creeks, and rivers, GRP strategies should first be implemented downstream, well beyond the furthest extent of the spill, with deployments continuing upstream towards the spill source and in some cases slightly beyond. POSOPs are alphabetically designated.

The following tables provide the strategy implementation order for Potential Oil Spill Origin Points in the Nooksack River GRP, including points NOOR-A through NOOR-J. The priority tables provided in this section were developed using a combination of variables, including: notification time, travel time for responders and equipment, average and seasonal flow rates, average winds, deployment time, proximity to the spill source, trustee input, the relative priority of the resources at risk, and other considerations.

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

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Table 4-3: NOOR-A (Unnamed Tributary of South Fork at BNSF ~SFNOOR-9.0)

NOOR-A (Unnamed Tributary of South Fork at BNSF ~SFNOOR-9.0)					
Implementation Priority	**Strategy Number**	**Sector Map**	**Strategy Matrix**	**Strategy Details**	**Comments**
1	**NOOR-30.8**	58	66	115	
2	**NOOR-30.9**	58	66	117	
3	**SFNOOR-4.2**	59	67	131	
4	**SFNOOR-8.6**	59	67	133	

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Table 4-4: NOOR-B (Nooksack at BNSF ~NOOR-37.4)

NOOR-B (Nooksack at BNSF ~NOOR-37.4)					
Implementation Priority	**Strategy Number**	**Sector Map**	**Strategy Matrix**	**Strategy Details**	**Comments**
1	**NOOR-30.8**	56	66	115	
2	**NOOR-30.9**	56	66	117	
3	**NOOR-23.8**	57	66	113	
5	**NOOR-15.1**	57	66	111	

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Table 4-5: NOOR-C (Nooksack Pipeline Crossing above Everson ~NOOR-24.7)

NOOR-C (Nooksack Pipeline Crossing above Everson ~NOOR-24.7)					
Implementation Priority	**Strategy Number**	**Sector Map**	**Strategy Matrix**	**Strategy Details**	**Comments**
1	**NOOR-15.1**	57	66	111	
2	**NOOR-23.8**	58	66	113	
3	**NOOR-9.2**	59	65	109	

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Table 4-6: NOOR-D (Stickney Slough at Northwood Road ~NOOR-18.1)

NOOR-D (Stickney Slough at Northwood Road ~NOOR-18.1)					
Implementation Priority	**Strategy Number**	**Sector Map**	**Strategy Matrix**	**Strategy Details**	**Comments**
1	**NOOR-15.1**	57	66	111	
2	**MORM-0.8**	57	64	95	
3	**NOOR-9.2**	59	65	109	
4	**NOOR-7.2**	60	65	107	
5	**NOOR-6.9**	60	65	105	
6	**NOOR-6.8**	60	65	103	
7	**NOOR-6.0**	60	64	101	

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Table 4-7: NOOR-E (Unnamed Tributary of Tenmile Creek at E Hemmi Rd (~TNMIC-12.0)

NOOR- E (Unnamed Tributary of Tenmile Creek at E Hemmi Rd ~TNMIC-12.0)					
Implementation Priority	**Strategy Number**	**Sector Map**	**Strategy Matrix**	**Strategy Details**	**Comments**
1	**TNMIC-8.2**	55	69	147	
2	**TNMIC-9.2**	55	70	149	
3	**TNMICU-11.6**	55	70	151	
4	**TNMIC-6.0**	59	69	145	
5	**TNMIC-4.5**	59	69	143	
6	**TNMIC-2.7**	59	68	141	

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Table 4-8: NOOR-F (Deer Creek at Hannegan Rd (~DEERC-7.0)

NOOR- F (Deer Creek at Hannegan Rd (~DEERC-7.0)					
Implementation Priority	**Strategy Number**	**Sector Map**	**Strategy Matrix**	**Strategy Details**	**Comments**
1	**DEERC-2.4**	59	62	79	
2	**DEERC-4.2**	55	62	81	
3	**DEERC-6.6**	55	62	83	
4	**DEERC-0.9**	59	62	77	
5	**TNMIC-0.2**	60	68	139	
6	**NOOR-6.9**	60	65	105	
7	**NOOR-6.8**	60	65	103	
8	**NOOR-6.0**	60	64	101	

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Table 4-9: NOOR-G (Nooksack River at I-5 (~NOOR-6.6)

NOOR-G (Nooksack River at I-5 (~NOOR-6.6)					
Implementation Priority	**Strategy Number**	**Sector Map**	**Strategy Matrix**	**Strategy Details**	**Comments**
1	**LUMR-3.9**	59	63	91	Deploy only if Nooksack is 9600+ cfs
2	**LUMR-3.5**	59	63	89	Deploy only if Nooksack is 9600+ cfs
3	**LUMR-2.3**	59	63	87	Deploy only if Nooksack is 9600+ cfs
4	**LUMR-1.2**	N/A	N/A	85	Deploy only if Nooksack is 9600+ cfs
5	**NPS-20**	N/A	N/A	125	
6	**NPS-18**	N/A	N/A	123	Deploy before incoming tide
7	**NOOR-5.4**	60	64	97	
8	**NOOR-5.9**	60	64	99	
9	**NOOR-6.0**	60	64	101	

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Table 4-10: NOOR-H (Tennant Creek at Pipeline Crossing ~TNTC-0.2)

NOOR-H (Tennant Creek at Pipeline Crossing ~TNTC-0.2)					
Implementation Priority	**Strategy Number**	**Sector Map**	**Strategy Matrix**	**Strategy Details**	**Comments**
1	**TNTC-0.1**	60	70	153	

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Table 4-11: NOOR-I (Silver Creek at E Smith Rd ~SILVC-6.8)

NOOR-I (Silver Creek at E Smith Rd ~SILVC-6.8)					
Implementation Priority	**Strategy Number**	**Sector Map**	**Strategy Matrix**	**Strategy Details**	**Comments**
1	**SILVC-1.8**	59	68	135	
2	**SILVC-4.8**	59	68	137	
3	**NPS-20**	N/A	N/A	125	
4	**NPS-18**	N/A	N/A	123	Deploy before incoming tide

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Table 4-12: NOOR-J (Schell Creek at S Church Rd ~SCHC-1.8)

NOOR-J (Schell Creek at S Church Rd ~SCHC-1.8)					
Implementation Priority	**Strategy Number**	**Sector Map**	**Strategy Matrix**	**Strategy Details**	**Comments**
1	**NPS-8**	N/A	N/A	119	Deploy before incoming tide
2	**NPS-9**	N/A	N/A	121	
3	**LUMR-1.2**	N/A	N/A	85	
4	**LUMR-2.3**	59	63	87	
5	**SCHC-0.5**	59	67	127	
6	**SCHC-0.9**	59	67	129	

4.4 SECTOR MAPS (STRATEGY LOCATIONS)

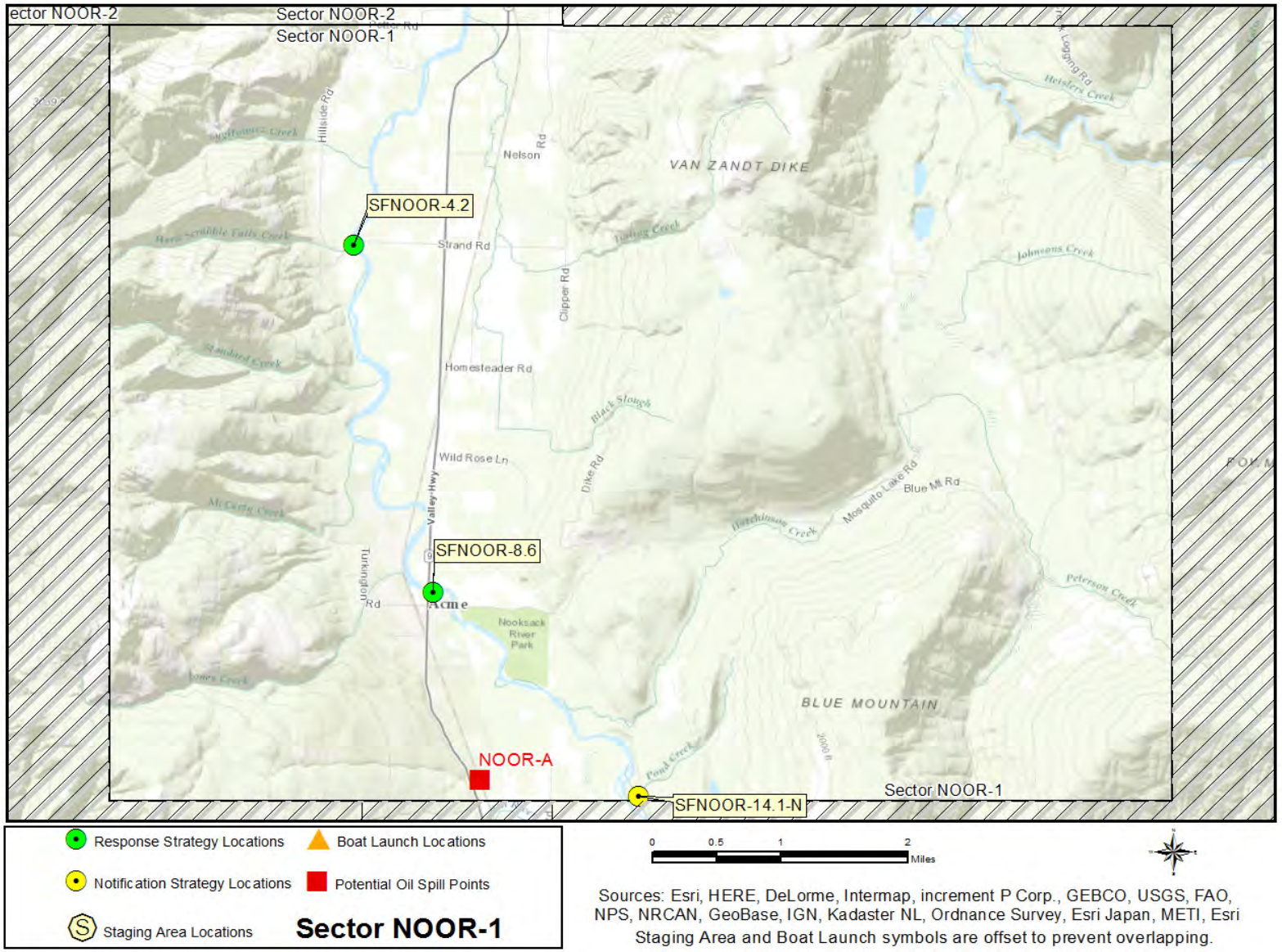


Figure 4-7: Sector Map NOOR-1

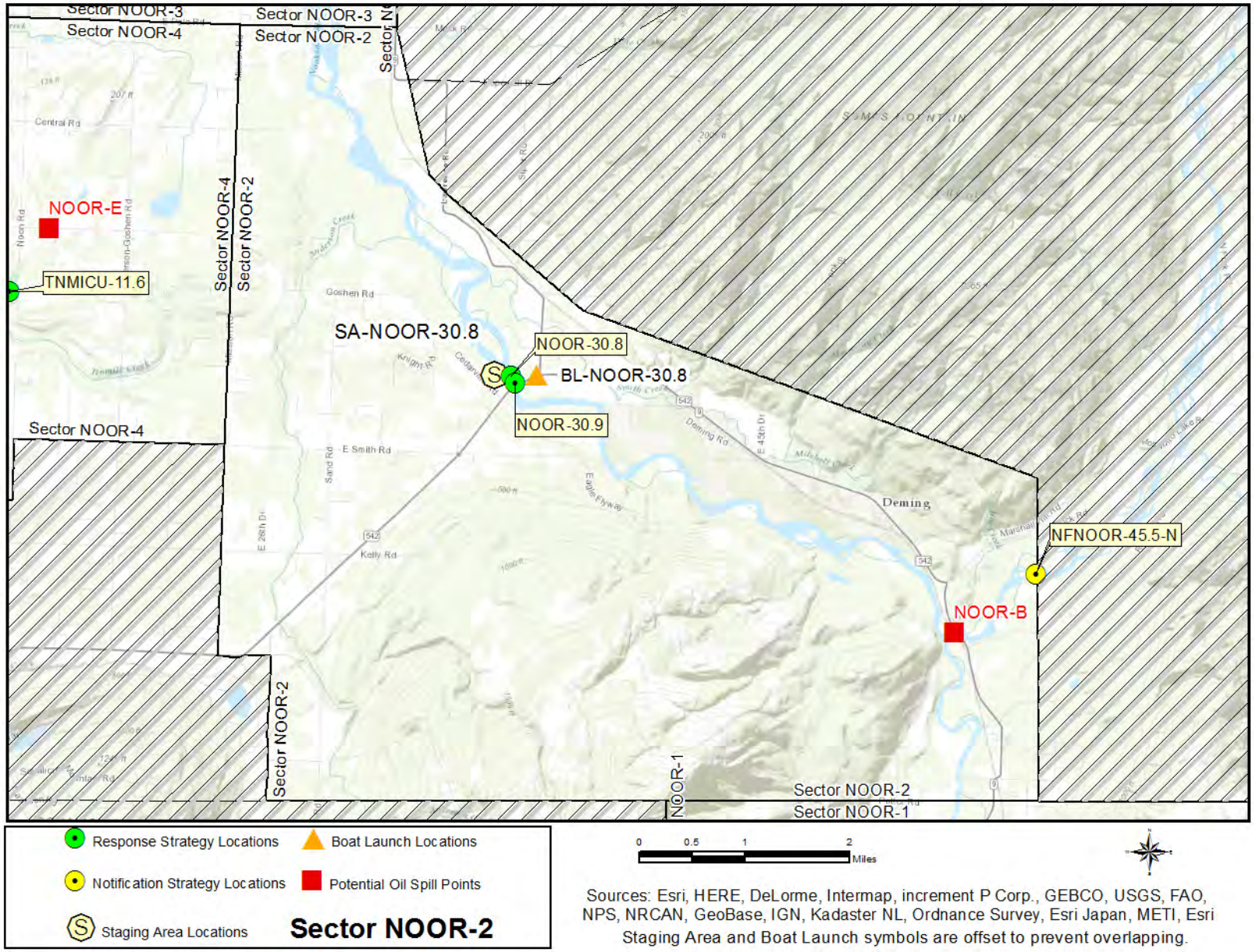


Figure 4-8: Sector Map NOOR-2

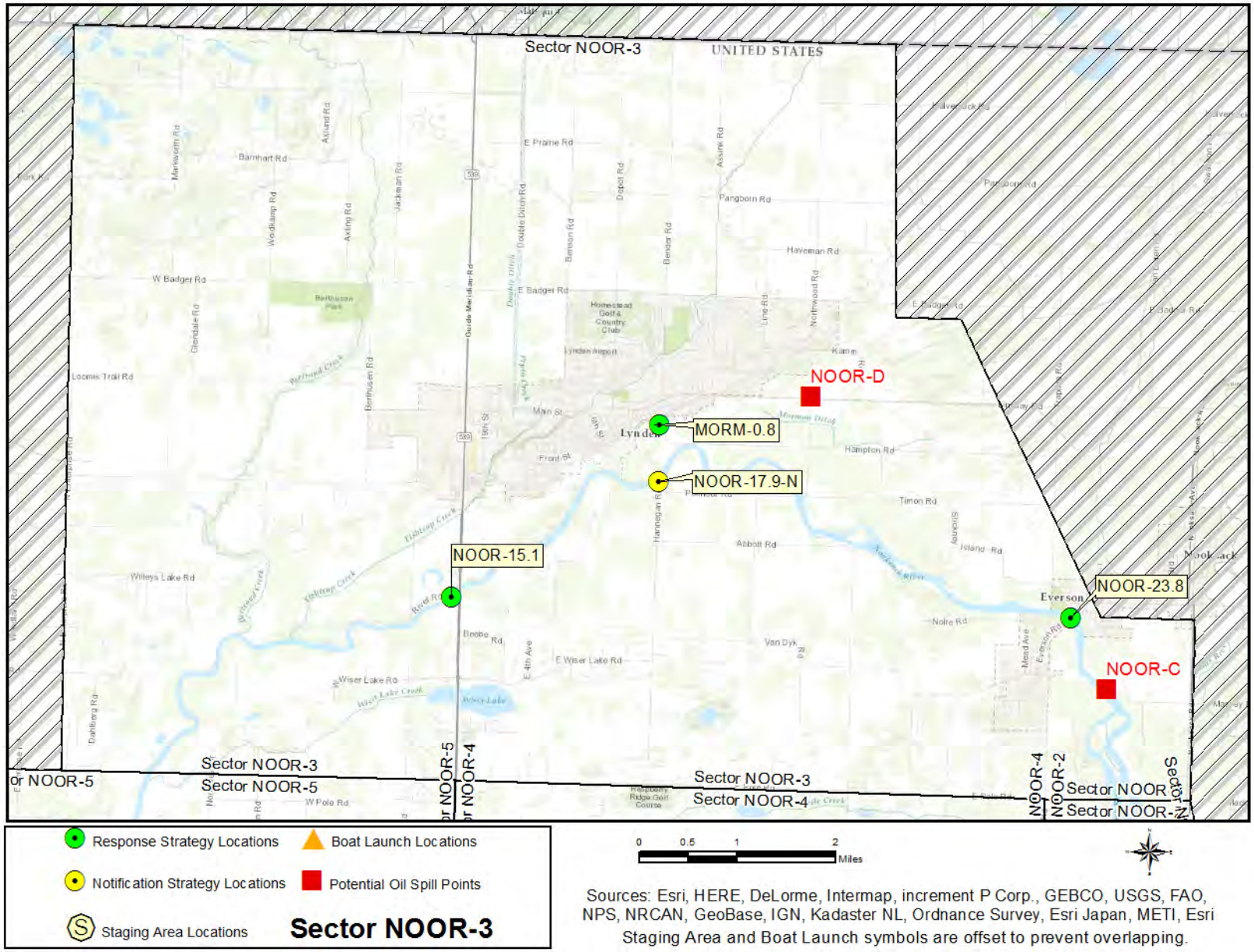


Figure 4-9: Sector Map NOOR-3

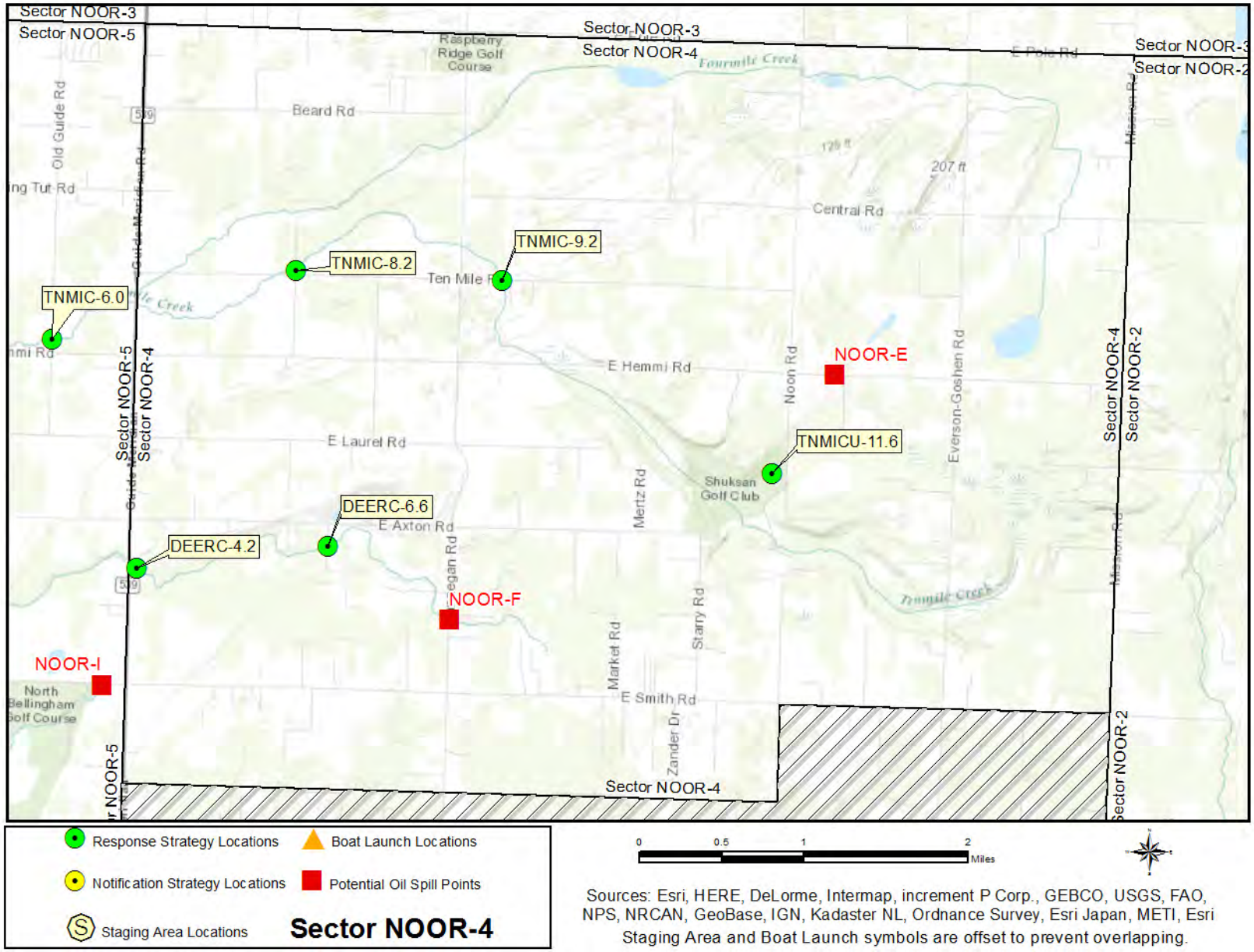


Figure 4-10: Sector Map NOOR-4

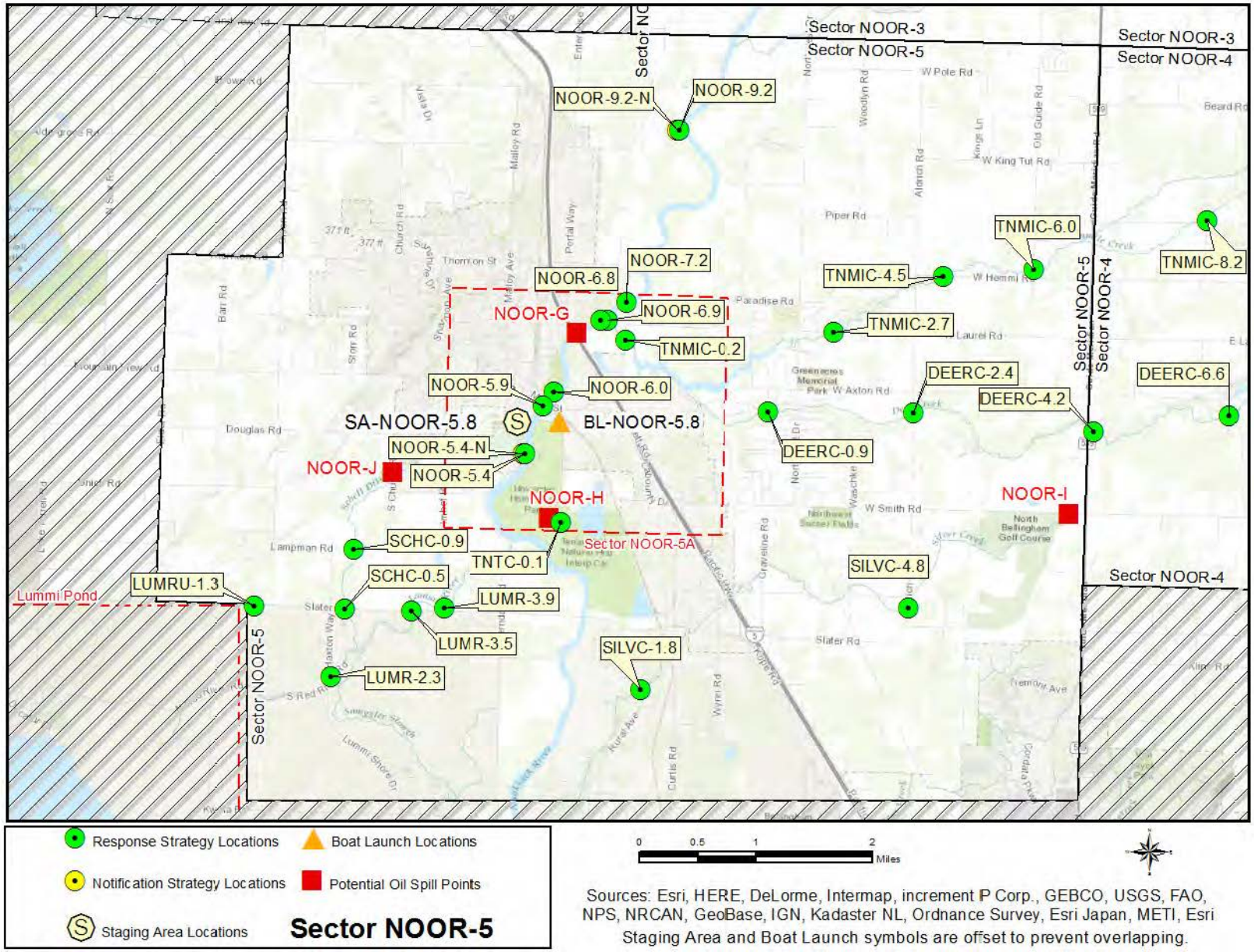


Figure 4-11: Sector Map NOOR-5

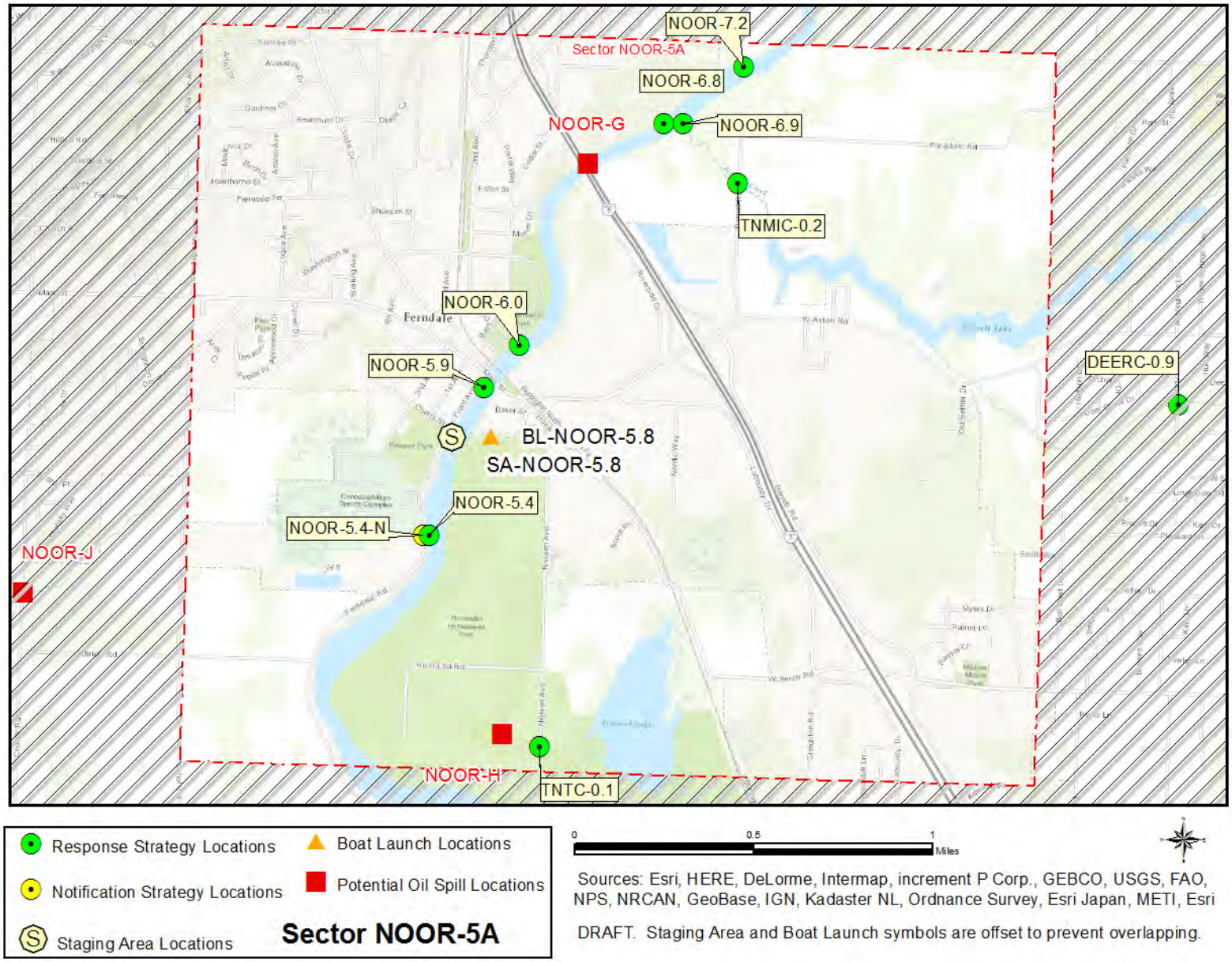
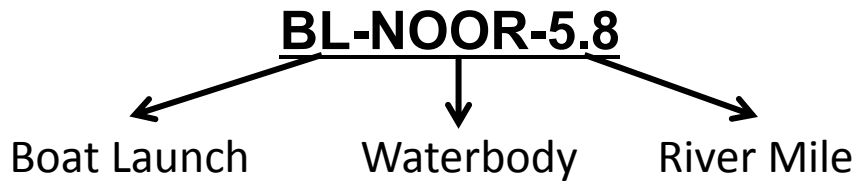


Figure 4-12: Sector Map NOOR-5A

4.5 MATRICES

4.5.1 Naming Conventions (Short Names)

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



Associated waterbody short name designations used within the Nooksack River GRP include:

DEERC = Deer Creek

LUMR = Lummi River

LUMRU = Unnamed Tributary of Lummi River

MORM = Mormon Ditch

NFNOOR = North Fork Nooksack River

NOOR = Nooksack River

NPS = North Puget Sound

SCHC = Schell Creek

SFNOOR = South Fork Nooksack River

SILVC = Silver Creek

TNMIC = Tenmile Creek

TNMICU = Unnamed Tributary of Tenmile Creek

TNTC = Tennant Creek

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#)
DEERC-0.9	Deer Creek at Judy Way (KM DE-0.9) 48.84507 -122.54635	Collection	Boom 100ft, Sorbent 100ft	No	Onsite Stage onsite, at private road north of creek. Do not cross bridge with vac truck.	Salmon Bearing Stream, Shorebirds, T/E Species, Waterfowl, Wetlands	DO NOT DRIVE VAC TRUCK OVER WOODEN BRIDGE. Not weight rated. Site is next to small private driveway and new wood bridge over creek crossing. Downstream of bridge has small waterfall and concrete anti-erosion chute.	59	77
DEERC-2.4	Deer Creek at Aldrich Rd (KM DE-2.4) 48.84545 -122.51902	Collection	Boom 100ft, Sorbent 200ft	No	Onsite Stage onsite, on driveway adjacent to site. Lane closure may be required.	Salmon Bearing Stream, Shorebirds, T/E Species, Waterfowl, Wetlands	Follow WSDOT work zone traffic control guidelines when working on or near roadway. No shoulder at road but private driveway along NW of creek. 4 ft. culvert.	59	79
DEERC-4.2	Deer Creek above Guide Meridian (KM DE-4.2) 48.84370 -122.48492	Collection	Boom 100ft, Sorbent 100ft	No	Onsite Stage onsite, in driveway (Green Carpet Cleaners); downhill path leads to site.	Salmon (Coho, Chinook and Chum), Shorebirds, T/E Species, Waterfowl, Wetlands	Enter driveway at carpet cleaners and leave vehicles up top. Walk down dirt path on N side of driveway to access creek at bottom of ravine. Use wood pedestrian bridge to walk 100 ft section of boom across Deer Creek.	58	81
DEERC-6.6	Deer Creek at East Road (KM DE-6.6) 48.84602 -122.45948	Collection	Boom 200ft, Sorbent 200ft	No	Onsite Stage onsite, on roadway. Lane closure required.	Salmon Bearing Stream, Shorebirds, T/E Species, Waterfowl, Wetlands	Follow WSDOT work zone traffic control guidelines when working on or near roadway. 6 ft metal culvert. Private lawn on SE side of creek/road has easiest access.	58	83

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Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources At Risk	Comments	Sector Map (Page #)	Strategy Details (Page#)
LUMR-2.3	Lummi River at Haxton Way 48.81069 -122.62744	Collection	Boom 200ft, Sorbent 200ft	No	Onsite Stage onsite, on trails along river; may need to cut bollard locks.	Estuary Resources, Fish Hatchery, Marine Mammals, Raptors, Salmon Bearing Stream, T/E Species, Tribal Lands/Resources	CONTACT LUMMI POLICE BEFORE DEPLOYMENT. Access river left (SE bank) using pedestrian bridge. Paved bike/ped path alongside road. Water level and speed increases in tides 8+ ft or 9600+ CFS on Nooksack. Downstream of Schell Creek.	59	87
LUMR-3.5	Lummi River at Slater Rd 48.81910 -122.61245	Collection	Boom 100ft, Sorbent 100ft	No	Onsite Stage onsite, on shoulder off S Red River Rd.	Fish Hatchery, Salmon (Coho, Chinook and Chum), T/E Species, Tribal Lands/Resources	CONTACT LUMMI POLICE BEFORE DEPLOYMENT. Follow WSDOT work zone traffic control guidelines when working on or near roadway. Dirt track under east side of bridge is wide enough to drive.	59	89
LUMR-3.9	Lummi River at Imhoff Rd (KM LU-3.9) 48.81961 -122.60628	Collection	Boom 100ft, Sorbent 100ft	No	Onsite Stage onsite, on small roadway shoulder near site.	Fish Hatchery, Raptors, Salmon (Coho, Chinook and Chum), T/E Species, Tribal Lands/Resources	Recently regraded hillside covered in rocks/rip-rap on downstream side. Upstream is solid blackberry. Narrow shoulder onsite, busy roadway.	59	91
LUMRU-1.3	Lummi River Tributary at Slater Rd (KM LU(T)-1.3) 48.81928 -122.64213	Collection	Boom 100ft, Sorbent 200ft	No	Onsite Stage onsite on dirt farm road.	Fish Hatchery, Salmonids, T/E Species, Tribal Lands/Resources	CONTACT LUMMI POLICE BEFORE DEPLOYMENT. Ungated dirt pull-off onto dirt farm road from Slater Rd. Culvert may be hidden by vegetation. Follow WSDOT work zone traffic control guidelines when working on or near roadway.	59	93

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Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources At Risk	Comments	Sector Map (Page #)	Strategy Details (Page#)
MORM-0.8	Mormon Ditch at Hampton Rd 48.94507 -122.44174	Collection	Sorbent 200ft	No	Onsite Stage onsite, at paved pull-off near SW corner of bridge.	Habitat Mitigation Site/Project, Salmon (Coho, Chinook and Chum), Shorebirds, T/E Species, Water Intakes, Waterfowl (Wintering)	Recent restoration site with fairly clear area SW of bridge; steep rocky slope leads to gentle dirt slope under bridge both sides.	57	95
NOOR-5.4	Whatcom PUD Water Intake #1 Downstream (KM NO-5.4) 48.83903 -122.59196	Exclusion	Boom 200ft, Sorbent 200ft	Yes	Remote Stage at Hovander Park (**SA-NOOR-5.8**), 0.4 mi upstream.	Economic Resource, Water Intakes	Very steep bank with boulders, blackberry and steep angled concrete. May have to anchor high on shore.	60	97
NOOR-5.9	Nooksack River below Main St Bridge (KM NO-5.9) 48.84505 -122.58881	Collection	Boom 300ft	Yes	Remote Stage at Hovander Park (**SA-NOOR-5.8**), across the river.	Crabs, Marine Mammals, Sensitive Resources, Shorebirds, T/E Species, Water Intakes, Waterfowl	Access riverwalk and gage via Alder St - cut bollards to drive onto paved walkway. Ladder to water from USGS gage won't hold much weight: one person only. Keep safety backup on top of ladder on land. May need pump for height.	60	99
NOOR-6.0	VanderYacht Park (KM NO-6.0) 48.84680 -122.58671	Collection	Boom 600ft	Yes	Remote Stage at Hovander Park (**SA-NOOR-5.8**), 0.2 mi downstream.	Crabs, Marine Mammals, Public Recreation Site/Area, Shorebirds, T/E Species, Water Intakes, Waterfowl	Paved public road with rip-rap/shrubs, steep angled slope to water. At edge of VanderYacht public park, has alternate beach access.	60	101

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Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources At Risk	Comments	Sector Map (Page #)	Strategy Details (Page#)
NOOR-6.8	Nooksack River Deflection Downstream 48.85588 -122.57827	Deflection	Boom 200ft	Yes	Remote Stage at Hovander Park (SA-NOOR-5.8), 1 mi downstream.	Sensitive Resources Nearby	Shallow channel, large logs/debris, muddy water. Vegetation along steep banks, potential erosion of tree roots.	60	103
NOOR-6.9	Tenmile Creek Mouth 48.85592 -122.57708	Exclusion	Boom 200ft	Yes	Remote Stage at Hovander Park (SA-NOOR-5.8), 1.1 mi downstream.	Salmonid Concentrations and Habitat, T/E Species, Waterfowl	May be debris or logpile at the mouth. Side outlet on upstream end between 2 large trees. Steep slope banks with vegetation.	60	105
NOOR-7.2	Nooksack River Deflection Upstream 48.85826 -122.57348	Deflection	Boom 200ft	Yes	Remote Stage at Hovander Park (SA-NOOR-5.8), 1.4 mi downstream.	Sensitive Resources Nearby	Thick cluster of large trees on river right is just downstream of anchor point. Large split-trunk oak or maple is visible back in field, 50 ft N of shoreside anchor point.	60	107
NOOR-9.2	Whatcom PUD Intake #2 Trigg Rd (KM NO-8.8) 48.87986 -122.56444	Exclusion	Boom 200ft, Sorbent 200ft	Yes	Remote Stage at Hovander Park (SA-NOOR-5.8), 3.4 mi downstream.	Economic Resource, Water Intakes	Logs and debris, shallow, muddy water. Steep bank covered in brush. Dirt road through field at end of Trigg Rd to intake building.	59	109

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Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources At Risk	Comments	Sector Map (Page #)	Strategy Details (Page#)
NOOR-15.1	Nooksack River at RediMix Plant (KM NO-15.1) 48.91878 -122.48755	Collection	Boom 400ft	Yes	Onsite Stage onsite in gravel parking lot across from concrete plant.	Raptors, Salmon, Shorebird Concentrations, T/E Species, Waterfowl (Wintering)	Launch boat from sandbar or access road just SW of Point B. Road can accumulate mud and fallen trees. Sandbar will disappear in high water. May need extra hose/pump to clear levee height. Use plywood to expand narrow slippery trails thru blackberry.	57	111
NOOR-23.8	Nooksack River Above Everson Bridge (KM NO-23.6) 48.91787 -122.34827	Collection	Boom 200ft	Yes	Onsite Stage onsite on lawn. Hand-launch from site.	Public Recreation Site/Area, Salmon (Coho, Chinook and Chum), T/E Species	Upstream of bridge, gentle sloping lawn to site from warehouse parking lot. Short rip-rap bank with large rocks near water's edge. Can hand-launch at site, or from park just downstream.	57	113
NOOR-30.8	Nugents Corner Downstream 48.84381 -122.29494	Collection	Boom 700ft	Yes	Remote Stage at Nugents Corner SA-NOOR-30.8 adjacent to site.	Habitat Restoration Site/Project, Salmon (Coho, Chinook and Chum), T/E Species, Tribal Lands/Resources	Sandy beach may be obscured in high water; eddy at this location with braiding and riffles just downstream.	56	115
NOOR-30.9	Nugent's Corner Upstream near 547 Bridge 48.84232 -122.29399	Collection	Boom 600ft	Yes	Remote Stage at Nugents Corner SA-NOOR-30.8 adjacent to site.	Habitat Restoration Site/Project, Salmon (Coho, Chinook and Chum), T/E Species, Tribal Lands/Resources	Low banks on either side of the river may be covered in high water flows.	56	117

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Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources At Risk	Comments	Sector Map (Page #)	Strategy Details (Page#)
SCHC-0.5	Schell Creek at Slater Rd (KM LU(T)-0.5) 48.81921 -122.62509	Collection	Boom 100ft, Sorbent 100ft	No	Onsite Stage on small roadway shoulder near site. Lane closure may be required.	Cutthroat Trout, Habitat Restoration Site/Project. Salmon, Tribal Lands/Resources	CONTACT LUMMI POLICE BEFORE DEPLOYMENT. Follow WSDOT work zone traffic control guidelines when working on or near roadway. Lummi Reservation lands south of Slater Rd.	59	127
SCHC-0.9	Schell Creek at Lampman Rd (KM LU(T)-0.9) 48.82659 -122.62368	Collection	Boom 100ft, Sorbent 200ft	No	Onsite Stage on driveways and yards north of creek.	Cutthroat Trout, Habitat Restoration Site/Project. Salmon, Tribal Lands/Resources	Follow WSDOT work zone traffic control guidelines when working on or near roadway. No shoulder, narrow road with some traffic.	59	129
SFNOOR-4.2	South Fork Nooksack at Strand Rd 48.76008 -122.21765	Collection	Boom 800ft	Yes	Onsite Stage onsite, on sandy beach on river right and paved dead-end of Strand Rd. Logs block vehicle access from road.	Marbled Murrelets, Reptiles and Amphibians, Salmon (Coho, Chinook and Chum), T/E Species	Put-in/take out point for rafters, floaters and kayakers. May have summer crowds. Shallow water. River right has sand/gravel beach and eddies. River left has old pilings and rip-rap.	55	131
SFNOOR-8.6	South Fork Nooksack at Highway 9 Acme 48.71991 -122.20257	Collection	Boom 500ft	Yes	Onsite Stage onsite, on south shoulder of Mosquito Lake Rd, and sandbar river right. Lane closure required for vac truck.	Habitat Restoration Site/Project, Marbled Murrelets, Reptiles and Amphibians, Salmon (Coho, Chinook and Chum), T/E Species	Use bridge to drop equipment/vac hose. River left owned by Whatcom Land Trust with small parking area, narrow ped path with fallen logs to site. Mosquito Lake Rd busy and no shoulder but small pull-off for one car leads to large sandbar.	55	133

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Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources At Risk	Comments	Sector Map (Page #)	Strategy Details (Page#)
SILVC-1.8	Silver Creek at Shady Lane Rd (KM SC-1.8) 48.81009 -122.56900	Collection	Boom 200ft, Sorbent 100ft	No	Onsite Stage onsite, on roadway south of bridge. Lane closure required.	Raptors, Salmon (Coho, Chinook and Chum), Shorebirds, T/E Species, Waterfowl, Wetlands Restoration Site	Bridge may not support heavy equipment. Follow WSDOT work zone traffic control guidelines when working on or near roadway. Quiet road, wetland-type area near creek.	59	135
SILVC-4.8	Silver Creek at Aldrich Rd (KM SC-4.8) 48.82109 -122.51899	Collection	Boom 100ft, Sorbent 200ft	No	Onsite Stage onsite, on roadway. Lane closure required.	Salmon (Coho, Chinook and Chum), Shorebird Concentrations, T/E Species, Wetlands Restoration Site	Follow WSDOT work zone traffic control guidelines when working on or near roadway. 3 ft concrete culverts, grassy vegetation at roadside. New wetland restoration project immediately SW of site.	59	137
TNMIC-0.2	Tenmile Creek at Barrett Rd (KM TC-0.2) 48.85355 -122.57365	Collection	Boom 200ft, Sorbent 200ft	No	Onsite Stage onsite, on roadway. Lane closure required.	Endangered Plant Species, Public Recreation Site/Area, Salmon, Sensitive Resources Nearby, Shorebirds, T/E Species, Waterfowl, Wetlands	Follow WSDOT work zone traffic control guidelines when working on or near roadway. Small pull-off areas at shoulder. Barrett Road popular for large trucks. Restoration plantings at site.	60	139
TNMIC-2.7	Tenmile Creek at W Laurel Rd (KM TC-2.7) 48.85521 -122.53437	Collection	Boom 200ft, Sorbent 200ft	No	Onsite Stage onsite, on roadway. Lane closure required.	Endangered Plant Species, Raptors, Salmon (Coho, Chinook and Chum), T/E Species, Waterfowl, Wetland Habitat	Natural gas pipeline on bridge. Follow WSDOT work zone traffic control guidelines when working on or near roadway. No shoulder on road.	59	141

Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources At Risk	Comments	Sector Map (Page #)	Strategy Details (Page#)
TNMIC-4.5	Tenmile Creek at W Hemmi Rd (KM TC-4.5) 48.86245 -122.51412	Collection	Boom 100ft, Sorbent 100ft	No	Onsite Stage onsite, on driveway adjacent to site. Lane closure may be required.	Emergent Wetlands, Salmon (Coho, Chinook and Chum), T/E Species, Waterfowl	Follow WSDOT work zone traffic control guidelines when working on or near roadway. Upstream side has veg cleared next to bridge and wide bank in low water; driveway to west is paved. Downstream is thicket.	59	143
TNMIC-6.0	Tenmile Creek at Old Guide Rd (KM TC-6.0) 48.86369 -122.49705	Collection	Boom 200ft, Sorbent 200ft	Yes	Onsite Stage onsite, on roadway. Lane closure required.	Emergent Wetlands, Riparian Habitat, Salmon (Coho, Chinook and Chum), T/E Species, Waterfowl	Follow WSDOT work zone traffic control guidelines when working on or near roadway. Natural gas pipeline on bridge. Livestock fencing in area, may need to cut to access banks. No road shoulder. Slow and wide stream in winter that floods wetland area upstream.	59	145
TNMIC-8.2	Tenmile Creek at Chasteen Rd (KM TC-7.5) 48.87029 -122.46463	Collection	Boom 100ft, Sorbent 200ft	No	Onsite Stage onsite, on roadway. Lane closure required.	Riparian Habitat, Salmon (Coho, Chinook and Chum), T/E Species, Waterfowl, Wetlands	Follow WSDOT work zone traffic control guidelines when working on or near roadway. Narrow to no shoulder on road but small pull-off into field just north of collection site.	58	147

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Strategy Name	Location	Strategy Type	Boom Length	Boat Req?	Staging Area	Resources At Risk	Comments	Sector Map (Page #)	Strategy Details (Page#)
TNMIC-9.2	Tenmile Creek at Ten Mile and McClue (KM TC-9.2) 48.86985 -122.43706	Collection	Sorbent 200ft	No	Onsite Stage onsite, on roadway. Lane closure required.	Downstream Resources, Riparian Habitat, Salmon (Coho, Chinook and Chum), Steelhead, T/E Species	Follow WSDOT work zone traffic control guidelines when working on or near roadway. East side of creek is very close to homes with farm animals & equipment. Downside of bridge has more open space, less vegetation.	58	149
TNMICU-11.6	Shuksan Golf Course Tenmile Creek Tributary 48.85340 -122.40023	Collection	Boom 100ft, Sorbent 100ft	No	Onsite Stage onsite, on golf cart path near Hole 13, south of bridge. Keep heavy equipment off bridge.	Riparian Habitat, Salmon (Coho, Chinook and Chum), T/E Species, Wetlands	Best access to site is from gates on Noon Rd or High Noon Rd and drive across rough/golf cart paths. Site is on large pond by 13th Hole. Transmountain Pipeline ROW nearby.	58	151
TNTC-0.1	Tennant Creek at Tennant Lake (KM TL-0.1) 48.83061 -122.58485	Collection	Boom 100ft, Sorbent 300ft	No	Onsite Stage onsite, on private roadway.	Critical Wetland Area, Public Recreation Site/Area, Salmon - Coho, T/E Species, Waterfowl Concentrations, Wildlife Refuge	High water may flood road. Gravel hand-launch 50 ft south of site, or use waders. Just upstream of critical habitat: Tennant Lake is shallow with dense vegetation.	60	153

4.5.3 Notification Strategy Matrices

Strategy Name	Location	Strategy Type	Resources at Risk	Implementation	Comments	Sector Map (Page #)	Strategy Details (Page#)
NFNOOR-45.5-N	WDFW Kendall Creek Hatchery 48.81750 -122.18401	Notification	Economic Resource, Fish Hatchery	Notify Kendall Creek Hatchery at (360) 599-2841 and inform them of any significant oil spill or potential spill that impacts or threatens to impact the North Fork or main stem Nooksack River, so they can take action to protect the resources under their control, including adjusting planned fish releases.	Notify WDFW's Kendall Creek hatchery so they can take action to protect their fish	56	157
NOOR-5.4-N	Whatcom PUD #1 Downstream Intake (KM NO-5.4) 48.83905 -122.59230	Notification	Economic Resource, Water Intakes	Call Whatcom PUD #1 at 360-384-4288 and inform them of any significant oil spill or potential spill that impacts or threatens to impact the industrial water intake on the Nooksack River, so they can take action to protect the resources under their control, including the protection of their water intake near this location.	Notify Whatcom PUD #1 so they can take action to protect their water intakes	60	159
NOOR-9.2-N	Whatcom PUD #1 Upstream Water Intake (KM NO-8.8) 48.87978 -122.56475	Notification	Economic Resource, Water Intakes	Call Whatcom PUD #1 at 360-384-4288 and inform them of any significant oil spill or potential spill that impacts or threatens to impact the industrial water intake on the Nooksack River, so they can take action to protect the resources under their control, including the protection of their water intake near this location.	Notify Whatcom PUD #1 so they can take action to protect their water intakes	59	161
NOOR-17.9-N	City of Lynden Water Intake (KM NO-17.9) 48.93660 -122.44161	Notification	Economic Resource, Public Health and Safety, Water Intakes	Call City of Lynden Public Works at 360-354-0633 and inform them of any significant oil spill or potential spill that impacts or threatens to impact the drinking water intake on the Nooksack River, so they can take action to protect the resources under their control, including the protection of their drinking water intakes near this location.	Notify City of Lynden so they can take action to protect their water intakes	57	163

Strategy Name	Location	Strategy Type	Resources at Risk	Implementation	Comments	Sector Map (Page #)	Strategy Details (Page#)
SFNOOR-14.1-N	Lummi Nation Hatchery on Skookum Creek 10.99109 11.11827	Notification	Fish Hatchery, Tribal Lands/Resources, Water Intakes	Notify Lummi Nation Natural Resources Director at 360-410-1706 and inform them of any significant oil spill or potential spill that impacts or threatens to impact the hatchery water intake on Skookum Creek, or the South Fork or mainstem Nooksack River, so they can take action to protect the resources under their control, including adjusting planned fish releases.	Notify Lummi Nation's Skookum Creek hatchery so they can take action to protect their fish and water intakes	55	167

4.5.4 Staging Area Matrices

Strategy Name	Location	Position	Nearest Address	Contact	Strategies Served	Comments	Sector Map (Page #)	Strategy Details (Page#)
SA-NOOR-5.8	Ferndale Boat Launch - Hovander	48.84305 -122.58939	5528 Baker St Ferndale, WA 98248	Washington Department of Fish and Wildlife Region 4 16018 Mill Creek Boulevard Mill Creek, WA 98012-1296 425-775-1311	NOOR-5.4, NOOR-5.9, NOOR-6.0, NOOR-6.8, NOOR-6.9, NOOR-7.2, NOOR-9.2	Coordinate use staging area with Washington Department of Fish and Wildlife Region 4; call 425-775-1311.	60	171
SA-NOOR-30.8	Nugent's Corner	48.84348 -122.29375	Nugents Corner River Access Rd Everson, WA 98247	Washington Department of Fish and Wildlife Region 4 16018 Mill Creek Boulevard Mill Creek, WA 98012-1296 425-775-1311	NOOR-30.8, NOOR-30.9	Coordinate use of boat launch with Washington Department of Fish and Wildlife Region 4; call 425-775-1311.	56	173

4.5.5 Boat Launch Matrices

Strategy Name	Location	Position	Nearest Address	Contact	Strategies Served	Comments	Sector Map (Page #)	Strategy Details (Page#)
BL-NOOR-5.8	Ferndale Boat Launch - Hovander	48.84305 -122.58939	5528 Baker St Ferndale, WA 98248	Washington Department of Fish and Wildlife Region 4 16018 Mill Creek Boulevard Mill Creek, WA 98012-1296 425-775-1311	NOOR-5.4, NOOR-5.9, NOOR-6.0, NOOR-6.8, NOOR-6.9, NOOR-7.2, NOOR-9.2	Coordinate use of boat launch with Washington Department of Fish and Wildlife Region 4; call 425-775-1311.	60	177
BL-NOOR-30.8	Nugent's Corner	48.84348 -122.29375	Nugents Corner River Access Rd Everson, WA 98247	Washington Department of Fish and Wildlife Region 4 16018 Mill Creek Boulevard Mill Creek, WA 98012-1296 425-775-1311	NOOR-30.8, NOOR-30.9	Coordinate use of boat launch with Washington Department of Fish and Wildlife Region 4; call 425-775-1311.	56	179

APPENDIX 4A

Response Strategy 2-Pagers

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RESPONSE STRATEGIES - LIST

DEERC-0.9	DEERC-2.4	DEERC-4.2	DEERC-6.6
LUMR-1.2**	LUMR-2.3	LUMR-3.5	LUMR-3.9
LUMRU-1.3	MORM-0.8	NOOR-5.4	NOOR-5.9
NOOR-6.0	NOOR-6.8	NOOR-6.9	NOOR-7.2
NOOR-9.2	NOOR-15.1	NOOR-23.8	NOOR-30.8
NOOR-30.9	NPS-8**	NPS-9**	NPS-18**
NPS-20**	SCHC-0.5	SCHC-0.9	SFNOOR-4.2
SFNOOR-8.6	SILVC-1.8	SILVC-4.8	TNMIC-0.2
TNMIC-2.7	TNMIC-4.5	TNMIC-6.0	TNMIC-8.2
TNMIC-9.2	TNMICU-11.6	TNTC-0.1	

** Strategies from the **North Puget Sound GRP** that are included in this appendix for ease of reference

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Deer Creek at Judy Way (KM DE-0.9) DEERC-0.9

Position - Location:	48° 50.704', -122° 32.781'	48° 50' 42.3", -122° 32' 46.9"	48.84507, -122.54635	Bellingham

Strategy Objective:	Collection : Collect oil moving downstream on Deer Creek
Implementation:	Deploy one length of hard boom across creek on upstream/east side of wood bridge on Judy Way. Deploy multiple lengths of sorbent boom on upstream side of hard boom and on downstream/west side of bridge. Use shoreside anchoring systems or existing features tc secure boom to creek banks. Replace saturated sorbents as needed. If product collecting beyond capacity sorbents can handle, use vac-truck or skimmer/storage for collection. Keep vac truck on north side of bridge.
Staging Area:	Onsite : Stage onsite, at private road north of creek. Do not cross bridge with vac truck.
Site Safety:	DO NOT DRIVE VAC TRUCK OVER BRIDGE (NOT WEIGHT-RATED); Water Hazard (PFD Required); Slips, Trips, Falls; Heavy Vegetation.
Field Notes:	DO NOT DRIVE VAC TRUCK OVER WOODEN BRIDGE. Not weight rated. Site is next to small private driveway and new wood bridge over creek crossing. Downstream of bridge has small waterfall and concrete anti-erosion chute.
Watercourse:	Creek - Deer Creek
Resources at Risk:	Salmon Bearing Stream, Shorebirds, T/E Species, Waterfowl, Wetlands

Recommended Equipment

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

Recommended Personnel

2	Laborer
1	Supervisor

Deer Creek at Judy Way (KM DE-0.9) DEERC-0.9

DEERC-0.9 Photo: From creek right, looking S upstream towards strategy location. Taken at average winter water.

Site Contact

No Information
Not Determined :

Nearest Address

5610 Judy Way
Bellingham, WA 98226

Driving Directions

1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 262 take ramp on the right to Main St toward City Center (0.3 miles)
3. Turn left on W Axton Rd (Main St) (1.37 miles)
4. Turn right on Judy Way (0.22 miles)
5. Continue straight to private drive, near 5610 Judy Way, 98226

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Deer Creek at Aldrich Rd (KM DE-2.4) DEERC-2.4

Position - Location:	48° 50.727', -122° 31.141'	48° 50' 43.6", -122° 31' 8.5"	48.84545, -122.51902	Bellingham

Strategy Objective:	Collection : Collect oil moving downstream on Deer Creek
Implementation:	Deploy one length of hard boom across creek, downstream of Aldrich Road culvert. Deploy multiple lengths of sorbent across creek, upstream of hard boom. Deploy additional sorbent upstream of roadway. If time allows, use plywood and plastic to create culvert block or underflow dam on downstream side of culvert, as needed based on streamflow. Replace saturated sorbents as needed. If product collects beyond capacity sorbents can handle, use vac-truck or skimmer/storage for collection from roadway.
Staging Area:	Onsite : Stage onsite, on driveway adjacent to site. Lane closure may be required.
Site Safety:	Water Hazard (PFD Required); Traffic Hazard; Heavy Vegetation; Slips, Trips, Falls.
Field Notes:	Follow WSDOT work zone traffic control guidelines when working on or near roadway. No shoulder at road but private driveway along NW of creek. 4 ft. culvert.
Watercourse:	Creek - Deer Creek
Resources at Risk:	Salmon Bearing Stream, Shorebirds, T/E Species, Waterfowl, Wetlands

Recommended Equipment

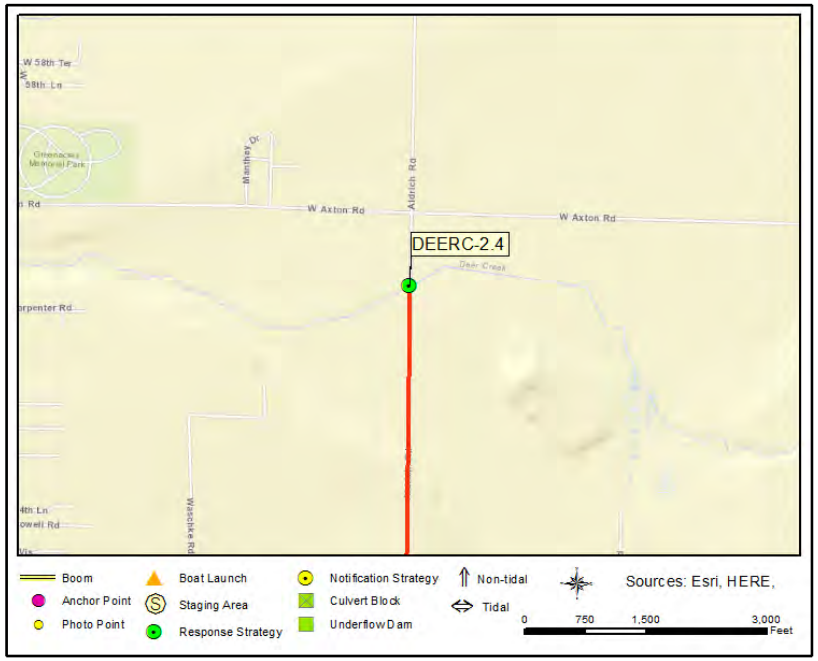
4	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
10	Each	Fill material (sand, earth, gravel, sandbags)
1	Each	Machete(s) - (or other vegetation cutting tool)
20	Feet	Plastic Sheeting
2	Each	Plywood sheets (4ft x 8ft)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

3	Laborer
1	Supervisor

Deer Creek at Aldrich Rd (KM DE-2.4) DEERC-2.4

DEERC-2.4 Photo: From creek right, looking W downstream towards strategy location. Taken at average winter water.



Site Contact

No Information
Not Determined :

Nearest Address

5643 Aldrich Rd
Bellingham, WA 98226

Driving Directions

1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 257 take ramp on the right to Northwest Ave (0.22 miles)
3. Bear right on Northwest Dr (0.06 miles)
4. At roundabout, take the first exit to proceed on Northwest Dr (2.63 miles)
5. Bear right on Waschke Rd (0.23 miles)
6. Turn right on Lange Rd (0.5 miles)
7. Turn left on Aldrich Rd (1.63 miles)
8. Finish at 5643 Aldrich Rd, 98226, on the left

<< Go Back

Deer Creek above Guide Meridian (KM DE-4.2) DEERC-4.2

Position - Location:	48° 50.622', -122° 29.095'	48° 50' 37.3", -122° 29' 5.7"	48.84370, -122.48492	Bellingham

Strategy Objective:	Collection : Collect oil moving downstream on Deer Creek
Implementation:	Deploy one length of hard boom across creek at pedestrian bridge. Deploy multiple lengths of sorbent across creek, upstream of hard boom. Deploy additional sorbent across creek downstream of bridge. Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angles as needed based on streamflow. Replace saturated sorbents as needed. If product collecting beyond capacity sorbents can handle, use vac-truck or skimmer/storage for collection. Vac-truck parked in driveway will require booster pump and 200ft length hose to reach site.
Staging Area:	Onsite : Stage onsite, in driveway (Green Carpet Cleaners); downhill path leads to site.
Site Safety:	KEEP VEHICLES OFF DIRT TRAIL; Water Hazard (PFD Required); Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Enter driveway at carpet cleaners and leave vehicles up top. Walk down dirt path on N side of driveway to access creek at bottom of ravine. Use wood pedestrian bridge to walk 100 ft section of boom across Deer Creek.
Watercourse:	Creek - Deer Creek
Resources at Risk:	Salmon (Coho, Chinook and Chum), Shorebirds, T/E Species, Waterfowl, Wetlands

Recommended Equipment

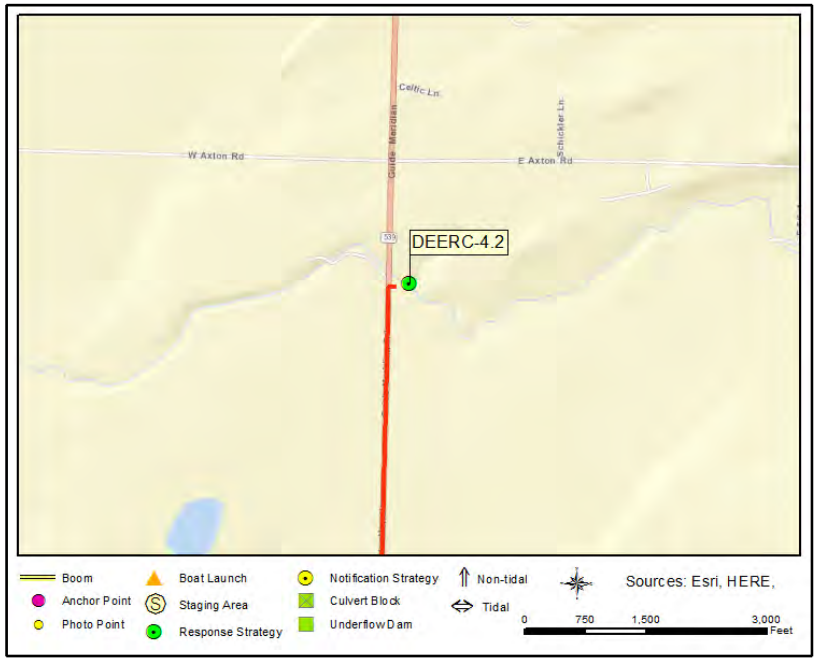
2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
100	Feet	Boom - Sorbent
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Pump(s)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

2	Laborer
1	Supervisor

Deer Creek above Guide Meridian (KM DE-4.2) DEERC-4.2

DEERC-4.2 Photo: From creek left, looking E at strategy location and creek right. Taken at average winter water.



Site Contact

No Information
Not Determined :

Nearest Address

5572 Guide Meridian
Bellingham, WA 98226

Driving Directions

1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 257 take ramp on the right to Northwest Ave (0.22 miles)
3. Bear right on Northwest Dr (0.06 miles)
4. At roundabout, take the first exit to proceed on Northwest Dr (2.63 miles)
5. Bear right on Waschke Rd (0.23 miles)
6. Turn right on Lange Rd (0.5 miles)
7. Turn left on Aldrich Rd (1.63 miles)
8. Finish at 5643 Aldrich Rd, 98226, on the left

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Deer Creek at East Road (KM DE-6.6) DEERC-6.6

Position - Location:	48° 50.761', -122° 27.569'	48° 50' 45.7", -122° 27' 34.1"	48.84602, -122.45948	Bellingham

Strategy Objective:	Collection : Collect oil moving downstream on Deer Creek
Implementation:	Secure 100ft section of hard boom to creek right at/near Point A (as far upstream/east as possible). Extend boom downstream and secure to SE corner of bridge on creek left at/near Point B. Similarly, deploy additional length 100ft hard boom between Points C and D. Collect oil at Points B and D, as needed, using vac-truck or skimmer storage. May need to close roadway lane if vac-truck using shoulder. In low flow conditions, consider installation of culvert block rather than boom deployment.
Staging Area:	Onsite : Stage onsite, on roadway. Lane closure required.
Site Safety:	Nearby Homes; Slips, Trips, Falls; Water Hazard (PFD Required); Traffic Hazard; Steep Banks; Heavy Vegetation
Field Notes:	Follow WSDOT work zone traffic control guidelines when working on or near roadway. 6 ft metal culvert. Private lawn on SE side of creek/road has easiest access.
Watercourse:	Creek - Deer Creek
Resources at Risk:	Salmon Bearing Stream, Shorebirds, T/E Species, Waterfowl, Wetlands

Recommended Equipment

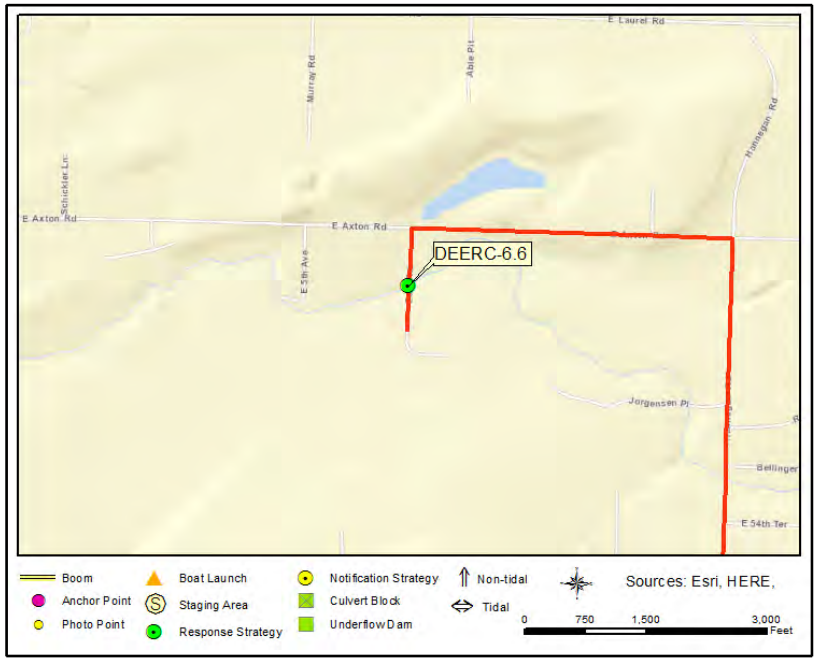
4	Each	Anchoring System(s)- Shoreside
200	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
1	Assort	Fill material (sand, earth, gravel, sandbags)
1	Each	Machete(s) - (or other vegetation cutting tool)
20	Feet	Plastic Sheeting
2	Each	Plywood sheets (4ft x 8ft)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

3	Laborer
1	Supervisor

Deer Creek at East Road (KM DE-6.6) DEERC-6.6

DEERC-6.6 Photo: From roadway, looking W downstream at strategy location. Taken at average winter water.



Site Contact

No Information
Not Determined :

Nearest Address

5629 East Rd
Bellingham, WA 98226

Driving Directions

1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 255 take ramp on the right to WA-542 E / Sunset Dr toward Mt Baker (0.2 miles)
3. Turn right on E Sunset Dr (WA-542) (0.88 miles)
4. Turn left on Hannegan Rd (4.98 miles)
5. Turn left on E Axton Rd (0.75 miles)
6. Turn left on East Rd (0.21 miles)
7. Finish at 5629 East Rd, 98226, on the right

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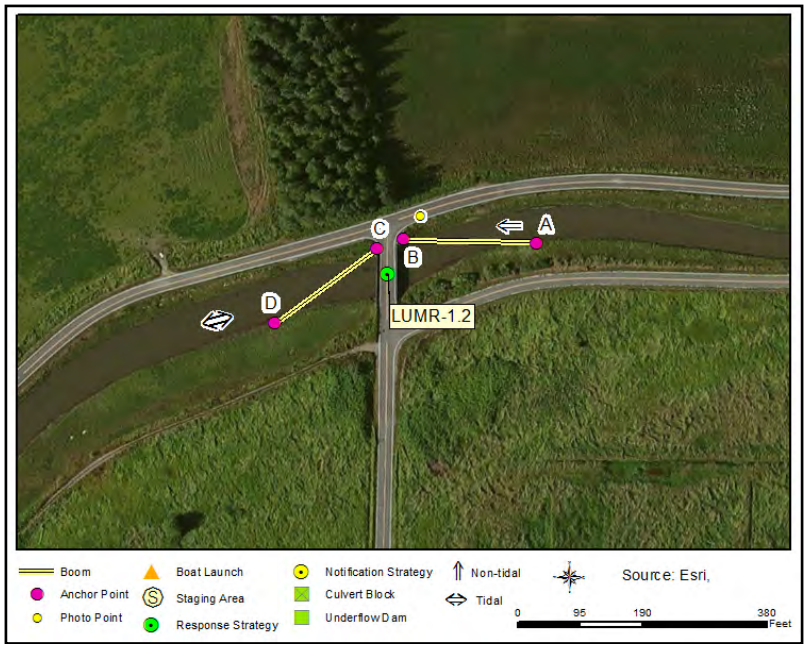
Lummi River at Hillaire Rd LUMR-1.2

Position - Location:	48° 48.501', -122° 38.999'	48° 48' 30.1", -122° 38' 60.0"	48.80835, -122.64999	Ferndale

Strategy Objective:	Collection : Collect oil moving downstream or upstream on the Lummi River
Implementation:	Secure 200ft section of boom to shore on river left, near Point A (48.8085, -122.6491; ~160ft upstream of Hillaire Rd bridge). Use line and bridge to extend boom downstream and across river, and secure to shore on river right near Point B (upstream edge of bridge). Deploy second 200ft section of boom on downstream side of bridge between Points C and D. Use existing features or shoreside anchoring systems to secure boom to shore. Collect using vac truck or skimmer/storage parked on N Red River Rd.
Staging Area:	Onsite : Stage onsite, using road surface and shoulder. Lane closure may be required.
Site Safety:	Road Hazard; Slips, Trips, Falls; Water Hazard
Field Notes:	CONTACT LUMMI POLICE FOR ESCORT BEFORE ARRIVAL. Quiet roads with some shoulder. Use WSDOT traffic control guidelines when working on or near a roadway.
Watercourse:	River - With Tidal Influence - Lummi River - high flow only if tides 8+ft or Nooksack River is 9600+ cfs
Resources at Risk:	Fish Hatchery, Raptors, Salmon (Coho, Chinook and Chum), Tribal Lands/Resources



Recommended Equipment

4	Each	Anchoring System(s)- Shoreside
400	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Heaving Line(s)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

2	Laborer
1	Supervisor

Lummi River at Hillaire Rd LUMR-1.2

LUMR-1.2 Photo: From river right, upstream of bridge, looking SW towards strategy location. Taken 1/6/16, near high tide.

Site Contact

Lummi Nation Police Department
Pre-Notification Required : Non-emergency number
360-312-2274

Lummi Nation Oil Spill Response Team
Emergency Contact : Natural Resources Department
360-410-1706

Nearest Address

3401 N Red River Rd
Ferndale, WA 98248

Driving Directions

1. From Seattle, head north on I-5 past downtown Bellingham
2. At exit 260 take ramp on the right to Slater Rd toward Lummi Is. (0.25 miles)
3. Turn left on Slater Rd (3.74 miles)
4. Turn left on Haxton Way (0.61 miles)
5. Bear right on N Red River Rd (1.13 miles)
6. Site is on the Hillaire Rd bridge at intersection of N Red River Rd

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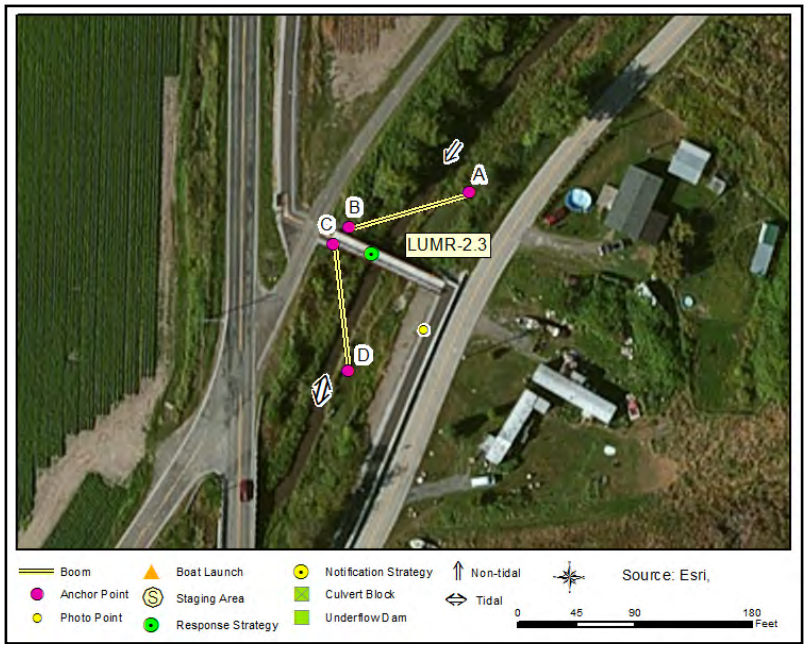
Lummi River at Haxton Way LUMR-2.3

Position - Location:	48° 48.641', -122° 37.646'	48° 48' 38.5", -122° 37' 38.8"	48.81069, -122.62744	Ferndale

Strategy Objective:	Collection : Collect oil moving upstream or downstream on the Lummi River
Implementation:	Secure 100ft hard boom to river left, upstream of the pedestrian bridge, at/near Point A. Extend boom downstream and across river, securing it to the NW corner of the bridge on river right at/near Point B. Secure second 100ft section of hard boom to bridge at/near Point C, and extend it downstream and across river securing it to bank on river left at/near Point D. Collection at Points B, using vac-truck or skimmer/storage from paved pedestrian trail on river right. Additional collection either at Point C or Point D, based on flow and tides.
Staging Area:	Onsite : Stage onsite, on trails along river; may need to cut bollard locks.
Site Safety:	Slips, Trips, Falls; Water Hazard (PFD Required); Traffic Hazard; Steep Banks; Heavy Vegetation
Field Notes:	CONTACT LUMMI POLICE BEFORE DEPLOYMENT. Access river left (SE bank) using pedestrian bridge. Paved bike/ped path alongside road Water level and speed increases in tides 8+ ft or 9600+ CFS on Nooksack. Downstream of Schell Creek.
Watercourse:	Slough - Lummi River (Flow may be stagnant unless Nooksack level is 9600+ CFS or tides are 8+ feet)
Resources at Risk:	Estuary Resources, Fish Hatchery, Marine Mammals, Raptors, Salmon Bearing Stream, T/E Species, Tribal Lands/Resources



Recommended Equipment

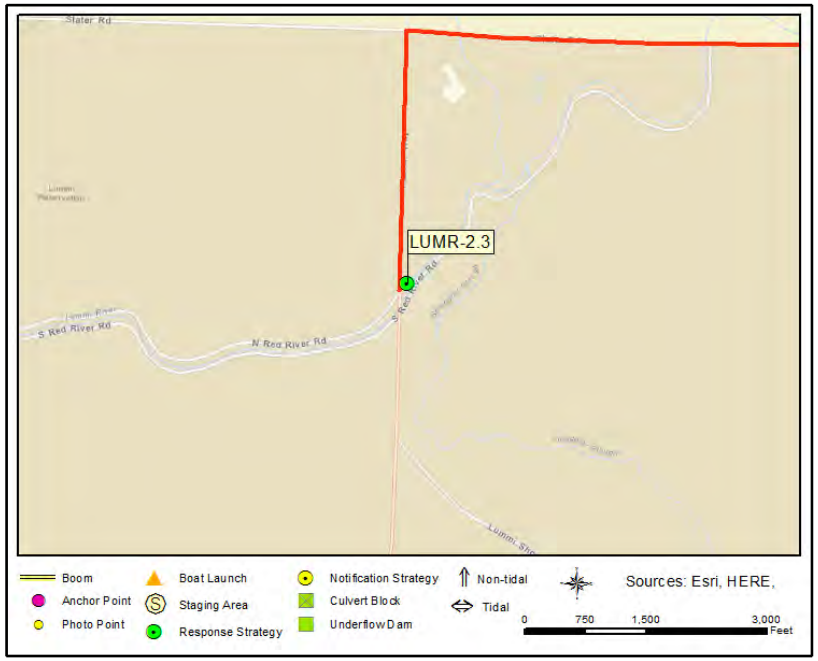
4	Each	Anchoring System(s)- Shoreside
1	Each	Bolt Cutters
200	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

2	Laborer
1	Supervisor

Lummi River at Haxton Way LUMR-2.3

LUMR-2.3 Photo: From river left, looking N upstream at strategy location and river right. Taken at low winter water.



Site Contact

Lummi Nation Police Department
Pre-Notification Required : Non-emergency number
360-312-2274

Lummi Nation Oil Spill Response Team
Primary Contact : Natural Resources Department
360-410-1706

Nearest Address

4692 Haxton Way
Ferndale, WA 98248

Driving Directions

1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 260 take ramp on the right to Slater Rd toward Lummi Is. (0.25 miles)
3. Turn left on Slater Rd (3.74 miles)
4. Turn left on Haxton Way (0.62 miles)
5. Near 4692 Haxton Way, 98248, turn left onto paved recreation trail north of river, cut bollards as needed.

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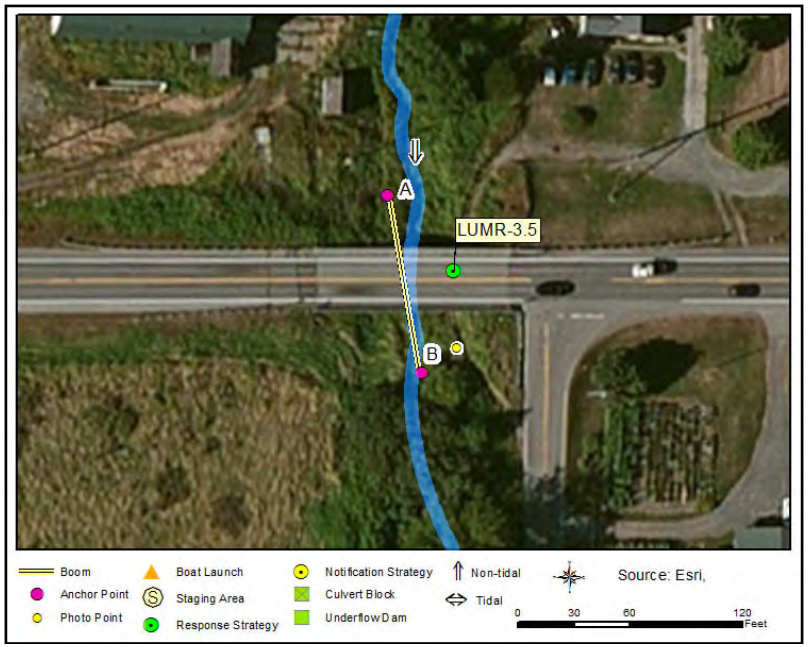
Lummi River at Slater Rd LUMR-3.5

Position - Location:	48° 49.146', -122° 36.747'	48° 49' 8.8", -122° 36' 44.8"	48.81910, -122.61245	Ferndale

Strategy Objective:	Collection : Collect oil moving downstream on the Lummi River
Implementation:	Secure 100 ft section of boom to shore on river right, at/near Point A (~20 ft upstream of Slater Rd). Use bridge to extend boom across river, and secure to shore downstream on river right, at/near Point B (~30 ft downstream of bridge). Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angles as needed based on streamflow. Vac-truck or skimmer/storage collection at Point B. In low flow conditions, consider deploying sorbent in place of hard boom deployment.
Staging Area:	Onsite : Stage onsite, on shoulder off S Red River Rd.
Site Safety:	High Speed Traffic Hazard; Water Hazard (PFD Required); Slips, Trips, Falls; Heavy Vegetation
Field Notes:	CONTACT LUMMI POLICE BEFORE DEPLOYMENT. Follow WSDOT work zone traffic control guidelines when working on or near roadway. Dirt track under east side of bridge is wide enough to drive.
Watercourse:	Slough - Lummi River (Flow may be stagnant unless Nooksack level is 9600+ CFS)
Resources at Risk:	Fish Hatchery, Salmon (Coho, Chinook and Chum), T/E Species, Tribal Lands/Resources



Recommended Equipment

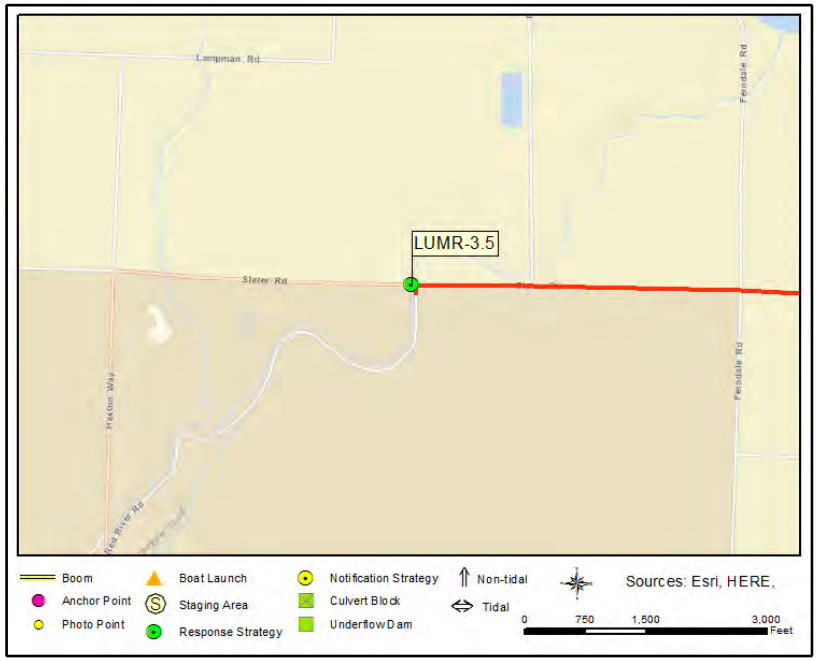
1	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
100	Feet	Boom - Sorbent
200	Feet	Line - 3/8” poly line
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

2	Laborer
1	Supervisor

Lummi River at Slater Rd LUMR-3.5

LUMR-3.5 Photo: From river left, looking NW upstream at strategy location. Taken at low winter water.



Site Contact

Lummi Nation Police Department
Pre-Notification Required : Non-emergency number
360-312-2274

Lummi Nation Oil Spill Response Team
Secondary Contact : Natural Resources Department
360-410-1706

Nearest Address

2406 S Red River Rd
Ferndale, WA 98248

Driving Directions

1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 260 take ramp on the right to Slater Rd toward Lummi Is. (0.25 miles)
3. Turn left on Slater Rd (3.03 miles)
4. Turn left on S Red River Rd (0.02 miles)
5. Finish at 2406 S Red River Rd, 98248, on the right

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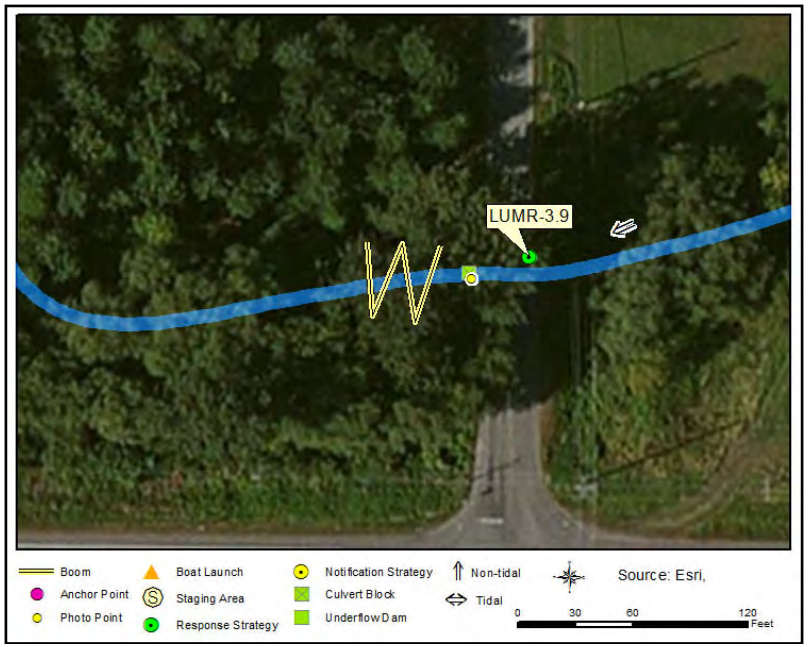
Lummi River at Imhoff Rd (KM LU-3.9) LUMR-3.9

Position - Location:	48° 49.177', -122° 36.377'	48° 49' 10.6", -122° 36' 22.6"	48.81961, -122.60628	Ferndale

Strategy Objective:	Collection : Collect oil moving downstream on the Lummi River
Implementation:	Deploy one length of hard boom across creek, downstream of Imhoff Road culvert. Deploy multiple lengths of sorbent across creek, upstream of hard boom. If time allows, use plywood and plastic to create culvert block or underflow dam on downstream side of culvert, as needed based on streamflow. Replace saturated sorbents as needed. If product collects beyond capacity sorbents can handle, use vac-truck or skimmer/storage for collection from roadway.
Staging Area:	Onsite : Stage onsite, on small roadway shoulder near site.
Site Safety:	Traffic Hazard; Steep Banks; Water Hazard (PFD Required); Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Recently regraded hillside covered in rocks/rip-rap on downstream side. Upstream is solid blackberry. Narrow shoulder onsite, busy roadway.
Watercourse:	Slough - Lummi River (Flow may be stagnant unless Nooksack River flow is 9600+ CFS)
Resources at Risk:	Fish Hatchery, Raptors, Salmon (Coho, Chinook and Chum), T/E Species, Tribal Lands/Resources



Recommended Equipment

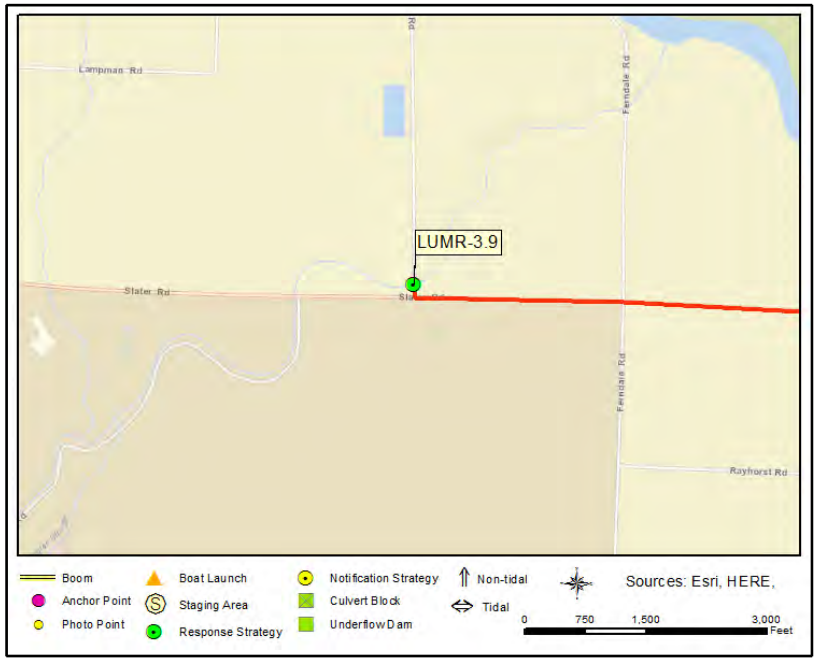
4	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
100	Feet	Boom - Sorbent
1	Assort	Fill material (sand, earth, gravel, sandbags)
1	Each	Machete(s) - (or other vegetation cutting tool)
20	Feet	Plastic Sheeting
2	Each	Plywood sheets (4ft x 8ft)
1	Each	Pump(s)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

3	Laborer
1	Supervisor

Lummi River at Imhoff Rd (KM LU-3.9) LUMR-3.9

LUMR-3.9 Photo: From creek right, looking W downstream towards strategy location. Taken at average winter water.



Site Contact

No Information
Not Determined :

Nearest Address

4927 Imhoff Rd
Ferndale, WA 98248

Driving Directions

1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 260 take ramp on the right to Slater Rd toward Lummi Is. (0.25 miles)
3. Turn left on Slater Rd (2.76 miles)
4. Turn right on Imhof Rd (Imhoff Rd) (0.03 miles)
5. Culvert is just north of Slater Rd (4927 Imhoff Rd, 98248).

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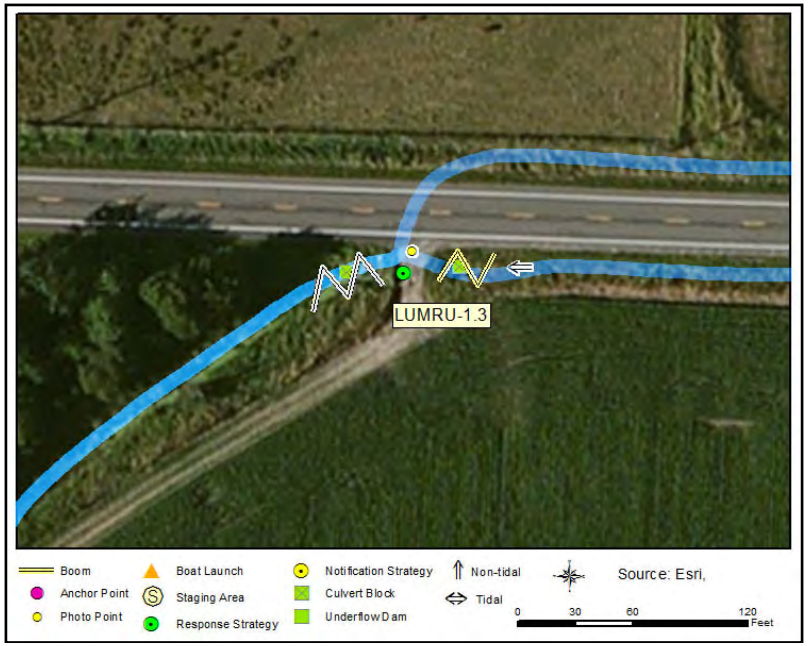
Lummi River Tributary at Slater Rd (KM LU(T)-1.3) LUMRU-1.3

Position - Location:	48° 49.157', -122° 38.528'	48° 49' 9.4", -122° 38' 31.7"	48.81928, -122.64213	Ferndale

Strategy Objective:	Collection : Collect oil moving downstream on unnamed ditch leading to Lummi River
Implementation:	Deploy one length of hard boom across creek, upstream of farm road culvert. Deploy multiple lengths of sorbent across creek, upstream of hard boom, and downstream of culvert. If time allows, use plywood and plastic to create culvert block or underflow dam on upstream side of culvert, as needed based on stream flow conditions. Replace saturated sorbents as needed. If product collecting beyond capacity sorbents can handle, use vac-truck or skimmer/storage for collection.
Staging Area:	Onsite : Stage onsite on dirt farm road.
Site Safety:	Traffic Hazard; Slips, Trips, Falls; Water Hazard (PFD Required); Heavy Vegetation
Field Notes:	CONTACT LUMMI POLICE BEFORE DEPLOYMENT. Ungated dirt pull-off onto dirt farm road from Slater Rd. Culvert may be hidden by vegetation. Follow WSDOT work zone traffic control guidelines when working on or near roadway.
Watercourse:	Ditch - Unnamed tributary of Lummi River
Resources at Risk:	Fish Hatchery, Salmonids, T/E Species, Tribal Lands/Resources



Recommended Equipment

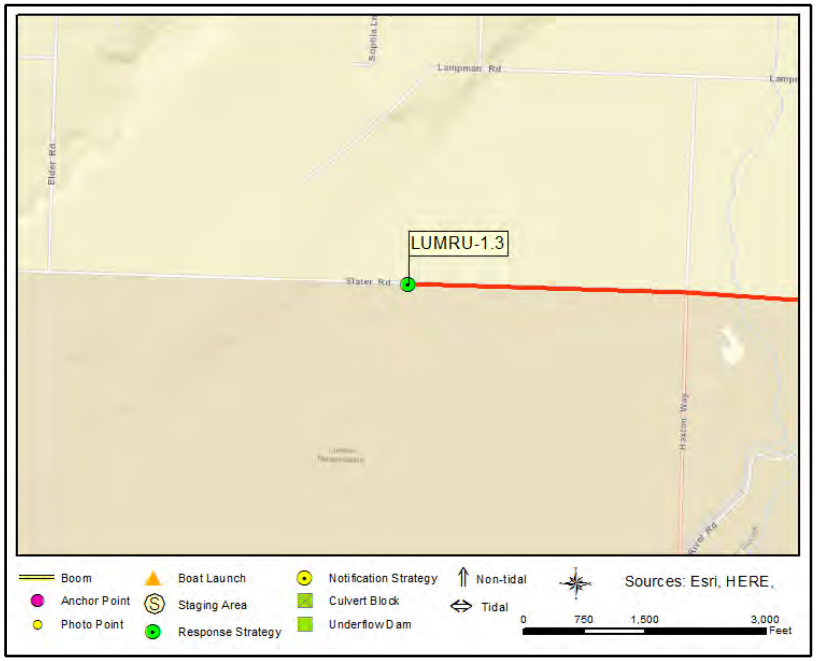
4	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
1	Assort	Fill material (sand, earth, gravel, sandbags)
1	Each	Machete(s) - (or other vegetation cutting tool)
20	Feet	Plastic Sheeting
4	Each	Plywood sheets (4ft x 4ft)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

3	Laborer
1	Supervisor

Lummi River Tributary at Slater Rd (KM LU(T)-1.3) LUMRU-1.3

LUMRU-1.3 Photo: From dirt roadway, looking E upstream at strategy location. Taken at average winter water.



Site Contact

Lummi Nation Police Department
Pre-Notification Required : Non-emergency number
360-312-2274

Lummi Nation Oil Spill Response Team
Secondary Contact : Natural Resources Department
360-410-1706

Nearest Address

3069 Slater Rd
Ferndale, WA 98248

Driving Directions

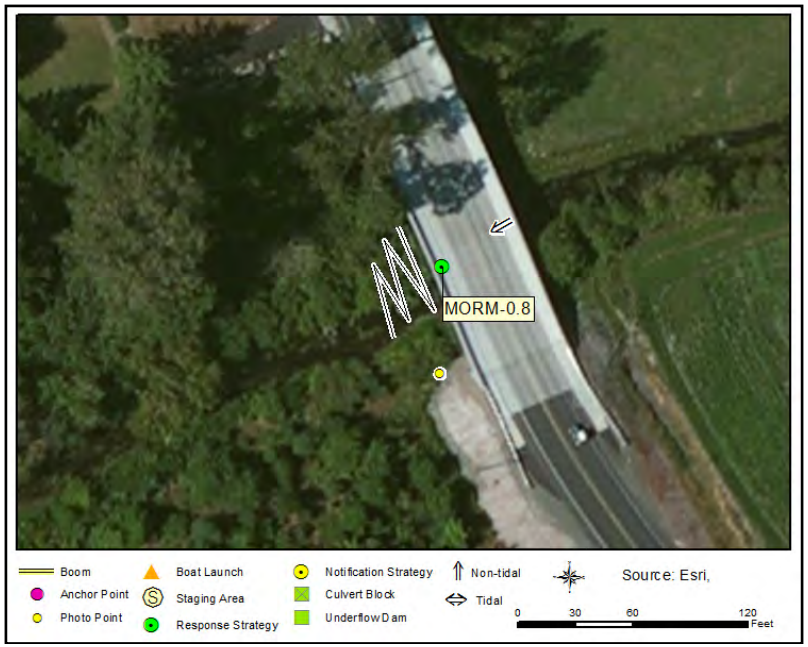
1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 260 take ramp on the right to Slater Rd toward Lummi Is. (0.25 miles)
3. Turn left on Slater Rd (4.4 miles)
4. Finish at 3069 Slater Rd, 98248, on the left - just before the treeline past the casino

<< Go Back

Mormon Ditch at Hampton Rd MORM-0.8

Position - Location:	48° 56.704', -122° 26.504'	48° 56' 42.3", -122° 26' 30.3"	48.94507, -122.44174	Lynden

Strategy Objective:	Collection : Collect oil moving downstream on Mormon Ditch
Implementation:	Deploy multiple lengths of sorbent boom off downstream side (west side) of Hampton Road bridge across Mormon Ditch. Use stakes, shoreside anchoring systems, trees, or existing structures to secure ends of sorbent boom to banks of tributary. Replace saturated sorbents as needed. Bank is steep on north side of bridge, may need extra line or sorbent to reach water from roadway.
Staging Area:	Onsite : Stage onsite, at paved pull-off near SW corner of bridge.
Site Safety:	Traffic Hazard; Steep Slope; Heavy Vegetation; Slips, Trips, Falls; Water Hazard (PFD Required)
Field Notes:	Recent restoration site with fairly clear area SW of bridge; steep rocky slope leads to gentle dirt slope under bridge both sides.
Watercourse:	Ditch - Mormon Ditch
Resources at Risk:	Habitat Mitigation Site/Project, Salmon (Coho, Chinook and Chum), Shorebirds, T/E Species, Water Intakes, Waterfowl (Wintering)



Recommended Equipment

2	Each	Anchoring System(s)- Shoreside
200	Feet	Boom - Sorbent
200	Feet	Line - 3/8" poly line
1	Each	Machete(s) - (or other vegetation cutting tool)

Recommended Personnel

2	Laborer
1	Supervisor

Mormon Ditch at Hampton Rd MORM-0.8

MORM-0.8 Photo: From creek left, looking E upstream at strategy location and creek right. Taken at low winter water.

Site Contact

No Information
Not Determined :

Nearest Address

823 Hampton Rd
Lynden, WA 98264

Driving Directions

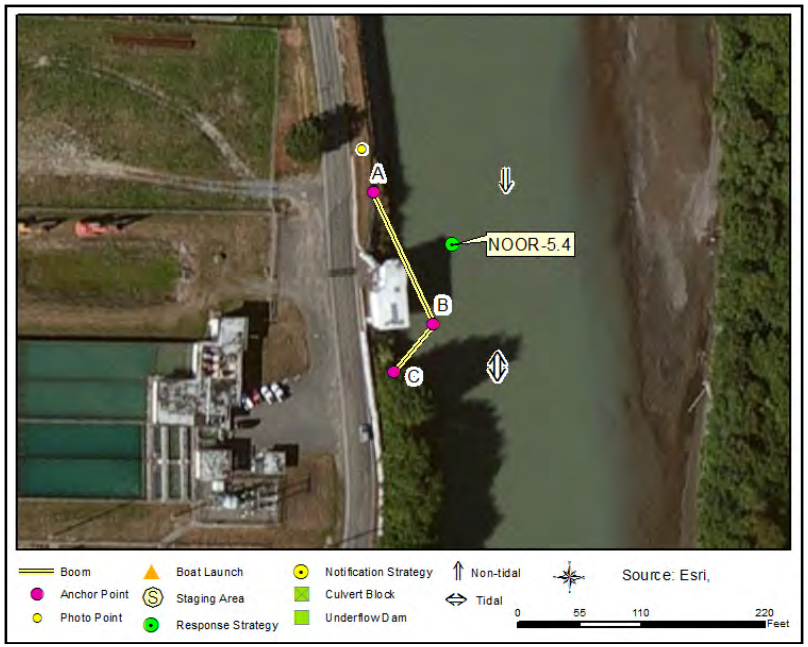
1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 256A-B take ramp on the right to Bellis Fair-Mall Pkwy / WA-539 N / Meridian St (0.16 miles)
3. At exit 256A keep right on WA-539 N / Meridian St. toward Lynden (0.14 miles)
4. Turn right on Guide Meridian Rd (WA-539) (7.46 miles)
5. At second roundabout, take the first exit to turn right on WA-544 E (E Pole Rd) (1.95 miles)
6. Turn left on Hannegan Rd (3.59 miles)
7. Continue on S 1st St (0.12 miles)
8. Turn right on E Front St (0.3 miles)
9. Turn right on Nooksack Ave (0.03 miles)
10. Continue on Hampton Rd (0.05 miles)
11. Finish at 823 Hampton Rd, 98264, on the right

<< Go Back

Whatcom PUD Water Intake #1 Downstream (KM NO-5.4) NOOR-5.4

Position - Location:	48° 50.342', -122° 35.518'	48° 50' 20.5", -122° 35' 31.1"	48.83903, -122.59196	Ferndale

Strategy Objective:	Exclusion : Keep oil out of water intake
Implementation:	Using workboat, secure 200 ft section of boom to shore on river right at/near Point A (48.8392, -122.59227), upstream of intake. Extend boom downstream and anchor in river at/near Point B (48.83886, -122.592). Secure remainder of boom to shore on river right, at/near Point C (downstream of intake). Pack inside of boom chevron with sorbent. Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angles as needed based on streamflow. Use anchoring systems as needed to keep boom secure in river.
Staging Area:	Remote : Stage at Hovander Park (SA-NOOR-5.8), 0.4 mi upstream.
Site Safety:	Water Hazard (PFD Required); Logs and Hidden Snags; Rip-Rap; Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Very steep bank with boulders, blackberry and steep angled concrete. May have to anchor high on shore.
Watercourse:	River - With Tidal Influence - Nooksack River
Resources at Risk:	Economic Resource, Water Intakes



Recommended Equipment

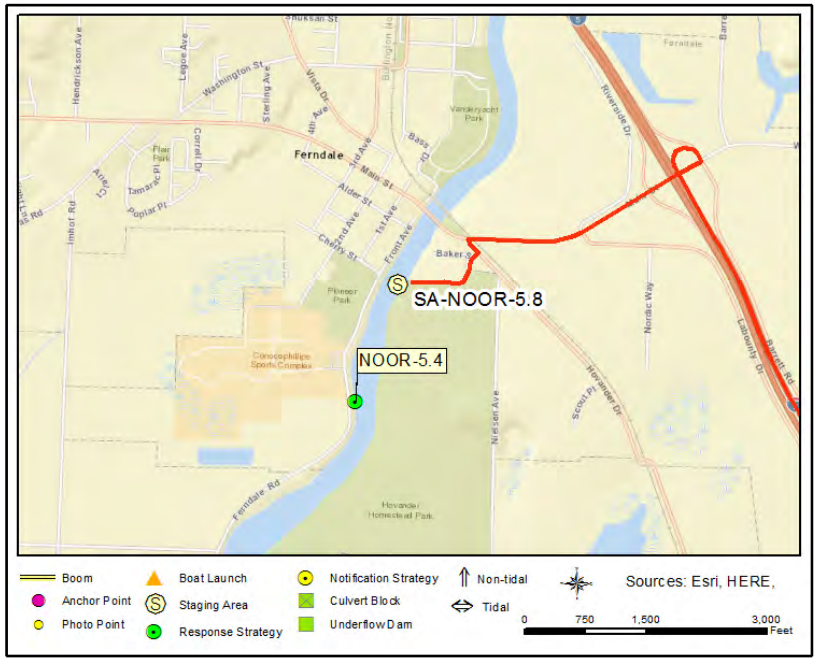
3	Each	Anchoring System(s) - (anchor, lines, floats)
2	Each	Anchoring System(s)- Shoreside
200	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Workboat(s) - shallow-water

Recommended Personnel

1	Boat Operator
2	Laborer
1	Supervisor

Whatcom PUD Water Intake #1 Downstream (KM NO-5.4) NOOR-5.4

NOOR-5.4 Photo: From river right, looking SE downstream towards strategy location. Taken at average spring water.



Site Contact

Whatcom County PUD #1
Emergency Contact : Water intake operator

Ferndale, WA 98248
360-384-4288

Nearest Address

5528 Baker St
Ferndale, WA 98248

Driving Directions

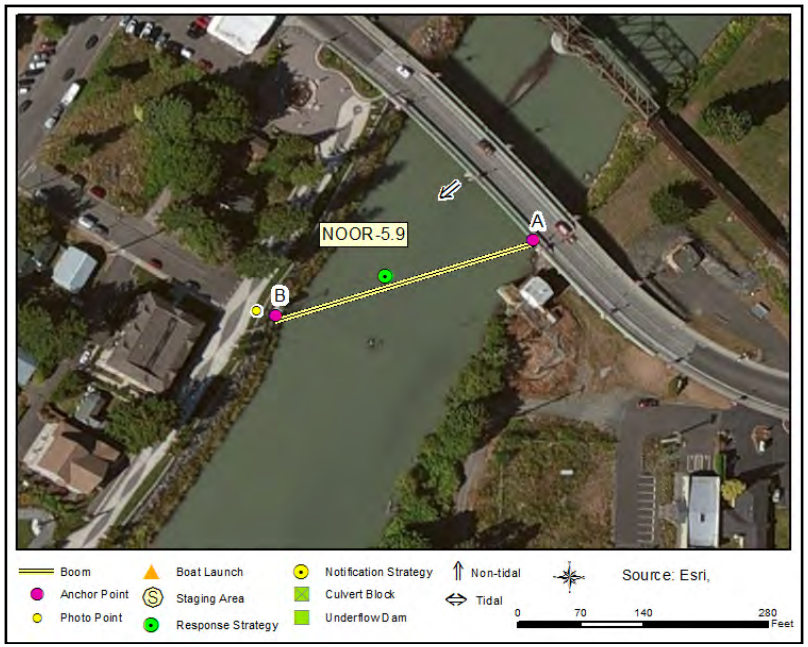
DIRECTIONS TO STAGING AREA SA-NOOR-5.8:
1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 262 take ramp on the right to Main St toward City Center (0.3 miles)
3. Turn right on Main St (W Axton Rd) (0.6 miles)
4. Make sharp left on Hovander Dr (0.04 miles)
5. Take a right at the sign for public boat launch/park (0.2 mi)
6. Continue past parking area to boat launch.

<< Go Back

Nooksack River below Main St Bridge (KM NO-5.9) NOOR-5.9

Position - Location:	48° 50.703', -122° 35.329'	48° 50' 42.2", -122° 35' 19.7"	48.84505, -122.58881	Ferndale

Strategy Objective:	Collection : Collect oil moving downstream on Nooksack River
Implementation:	Using workboat, secure 300 ft section of boom to shore on river left at/near Point A (48.84517, -122.58813; downstream side of bridge). Extend boom downstream and across river, and secure to shore on river left, at/near Point B (48.8449, -122.58932; at USGS gage ladder). Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angles as needed based on streamflow. Use anchoring systems as needed to keep boom secure in river. Vac truck/skimmer and storage collection from riverwalk a Point B.
Staging Area:	Remote : Stage at Hovander Park (SA-NOOR-5.8), across the river.
Site Safety:	Water Hazard (PFD Required); Pilings Mid-channel; Overhead Lines; Steep Banks; Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Access riverwalk and gage via Alder St - cut bollards to drive onto paved walkway. Ladder to water from USGS gage won't hold much weight: one person only. Keep safety backup on top of ladder on land. May need pump for height.
Watercourse:	River - With Tidal Influence - Nooksack River
Resources at Risk:	Crabs, Marine Mammals, Sensitive Resources, Shorebirds, T/E Species, Water Intakes, Waterfowl



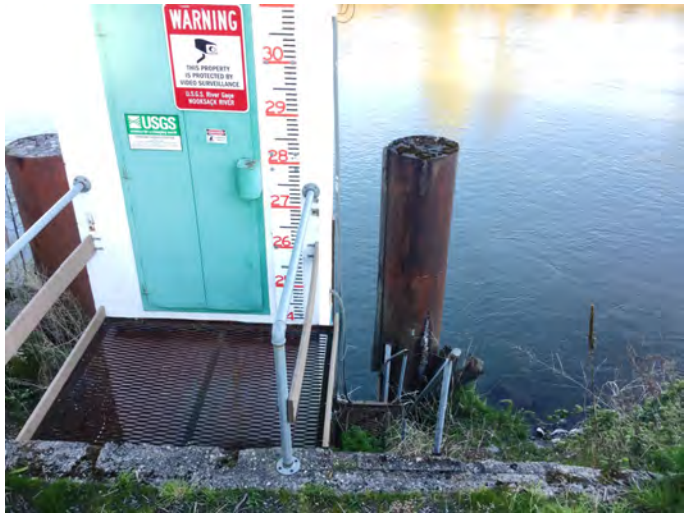
Recommended Equipment

3	Each	Anchoring System(s) - (anchor, lines, floats)
2	Each	Anchoring System(s)- Shoreside
300	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Vac Truck or Skimmer and Storage
1	Each	Workboat(s) - shallow-water

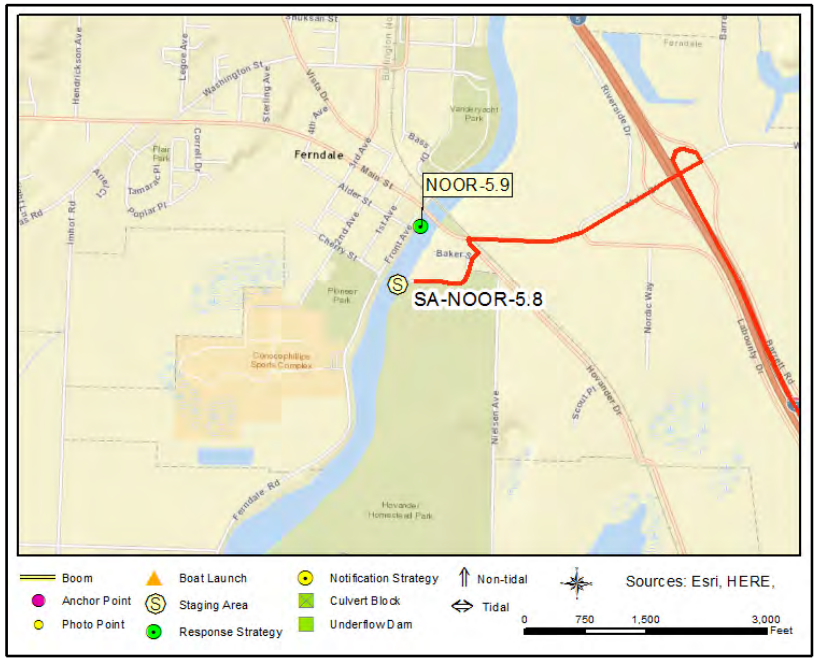
Recommended Personnel

1	Boat Operator
2	Laborer
1	Supervisor

Nooksack River below Main St Bridge (KM NO-5.9) NOOR-5.9



NOOR-5.9 Photo: From river right at strategy anchor point (Point B), looking E towards strategy location. Taken at average spring water.



Site Contact

City of Ferndale Public Works
Land/Property Contact : Parks & Rec
2095 Main St
Ferndale, WA 98248
360-685-2379

Nearest Address

5528 Baker St
Ferndale, WA 98248

Driving Directions

DIRECTIONS TO STAGING AREA HOVANDER PARK SA-NOOR-5.8:
1. From Seattle, take I-5 N past Bellingham.
2. At exit 262 take ramp on the right to Main St toward City Center (0.3 miles)
3. Turn right on Main St (W Axton Rd) (0.6 miles)
4. Make sharp left on Hovander Dr (0.04 miles)
5. Take a right at the sign for public boat launch/park (0.2 mi)
6. Continue past parking area to boat launch.

DIRECTIONS TO SITE FOR VAC TRUCK:
1. From Seattle, take I-5 N past Bellingham.
2. At exit 262 take ramp on the right to Main St toward City Center (0.3 miles)
3. Turn right on Main St (W Axton Rd) (0.78 miles)
4. Turn left on 1st Ave (0.06 miles)
5. Make sharp left on Alder St (0.04 miles)
6. At end of street, cut locks on bollards to drive onto paved riverwalk.

<< Go Back

VanderYacht Park (KM NO-6.0) NOOR-6.0

Position - Location:	48° 50.808', -122° 35.203'	48° 50' 48.5", -122° 35' 12.2"	48.84680, -122.58671	Ferndale

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

Implementation: Using workboat, secure 600 ft length of boom to shore on river left at/near Point A (48.8469, -122.586; ~450 ft upstream of rail bridge). Extend boom downstream and across to river right, securing boom on shore at/near Point B (~100 ft upstream of rail bridge). Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angles as needed based on streamflow. Use anchoring systems as needed to keep boom secure in river. Vac truck/skimmer and storage collection from road shoulder or parking area at Point B.

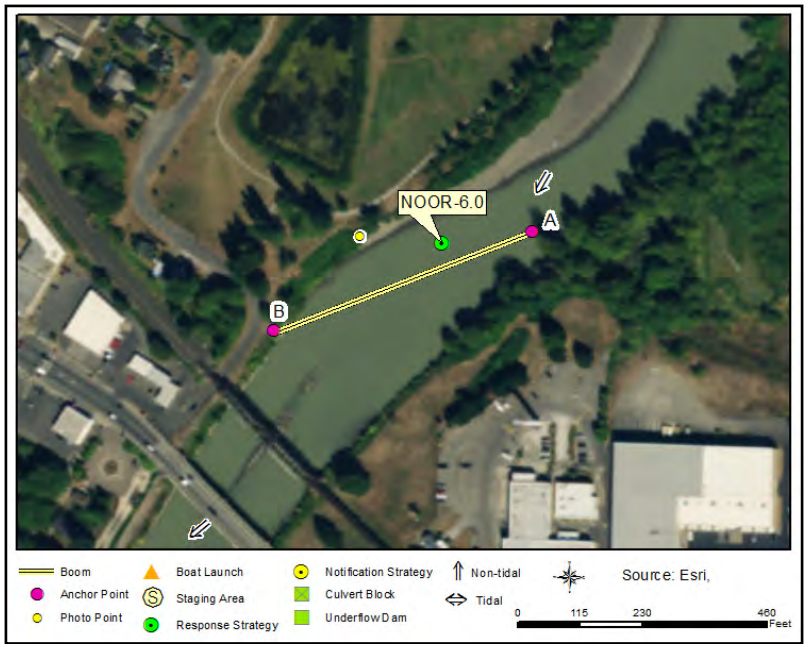
Staging Area: Remote : Stage at Hovander Park (SA-NOOR-5.8), 0.2 mi downstream.

Site Safety: Water Hazard (PFD Required); Steep Banks; Active Railroad Nearby; Public Park; Slips, Trips, Falls; Heavy Vegetation

Field Notes: Paved public road with rip-rap/shrubs, steep angled slope to water. At edge of VanderYacht public park, has alternate beach access.

Watercourse: River - With Tidal Influence - Nooksack River

Resources at Risk: Crabs, Marine Mammals, Public Recreation Site/Area, Shorebirds, T/E Species, Water Intakes, Waterfowl



Recommended Equipment

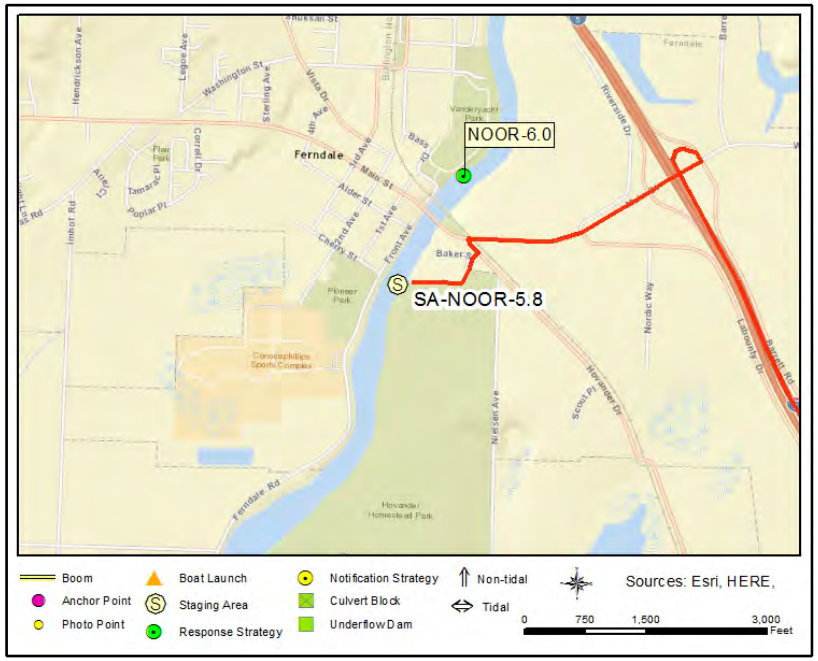
8	Each	Anchoring System(s) - (anchor, lines, floats)
1	Each	Anchoring System(s)- Shoreside
600	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Vac Truck or Skimmer and Storage
1	Each	Workboat(s) - shallow-water

Recommended Personnel

1	Boat Operator
2	Laborer
1	Supervisor

VanderYacht Park (KM NO-6.0) NOOR-6.0

NOOR-6.0 Photo: From river right, looking SW downstream towards strategy anchor point (Point B). Taken at average spring water.



Site Contact

City of Ferndale Public Works
Land/Property Contact : Parks & Rec
2095 Main St
Ferndale, WA 98248
360-685-2379

Nearest Address

5528 Baker St
Ferndale, WA 98248

Driving Directions

DIRECTIONS TO STAGING AREA SA-NOOR-5.8:
1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 262 take ramp on the right to Main St toward City Center (0.3 miles)
3. Turn right on Main St (W Axton Rd) (0.6 miles)
4. Make sharp left on Hovander Dr (0.04 miles)
5. Take a right at the sign for public boat launch/park (0.2 mi)
6. Continue past parking area to boat launch.

DIRECTIONS TO SITE FOR VAC-TRUCK:
1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 263 take ramp on the right to Portal Way (0.24 miles)
3. Turn left on Portal Way (0.15 miles)
4. At roundabout, take the third exit to proceed on 2nd Ave (0.48 miles)
5. Turn left on 2nd Ave and immediately turn right on 2nd Ave (0.16 miles)
6. Turn left on Bass Dr (0.18 miles)
7. Finish at 5605 Bass Dr, 98248, on the right

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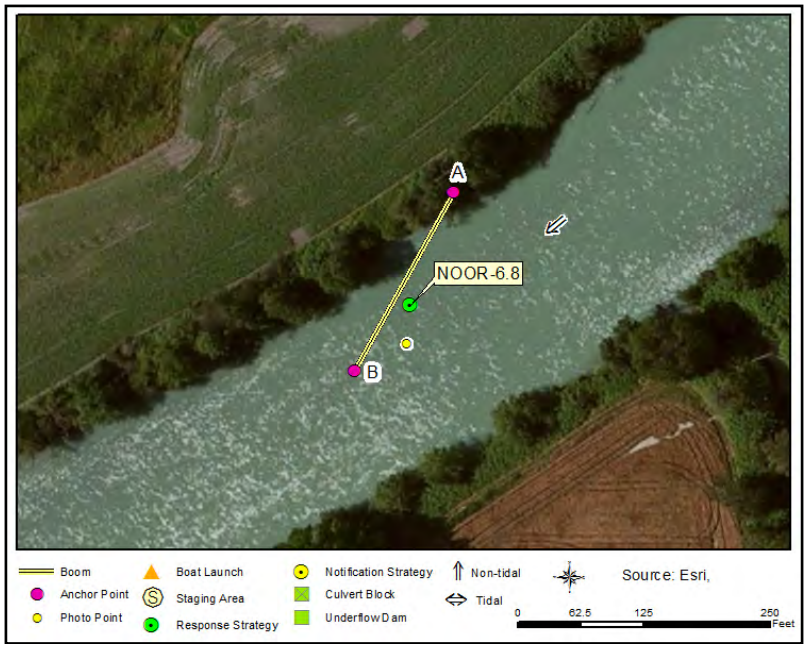
Nooksack River Deflection Downstream NOOR-6.8

Position - Location:	48° 51.353', -122° 34.696'	48° 51' 21.2", -122° 34' 41.8"	48.85588, -122.57827	Ferndale

Strategy Objective:	Deflection : Divert oil away from shore along river righ, downstream of strategy location
Implementation:	Using workboat, secure 200 ft section of boom to trees or boulders on river right, at Point A (48.856093, -122.578108; across from Tenmile Creek mouth). Do not adjust this anchor point. Extend boom SW downstream and anchor in river near B (48.8557, -122.5785). Adjust mid-channel anchor only as needed for conditions. Use anchoring systems as needed to keep boom secure in river. DO NOT ADJUST LOCATION OF SHORESIDE ANCHOR POINT (at Point A).
Staging Area:	Remote : Stage at Hovander Park (SA-NOOR-5.8), 1 mi downstream.
Site Safety:	Water Hazard (PFD Required); Logs and Hidden Snags; Eroding Banks; Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Shallow channel, large logs/debris, muddy water. Vegetation along steep banks, potential erosion of tree roots.
Watercourse:	River - Nooksack River
Resources at Risk:	Sensitive Resources Nearby



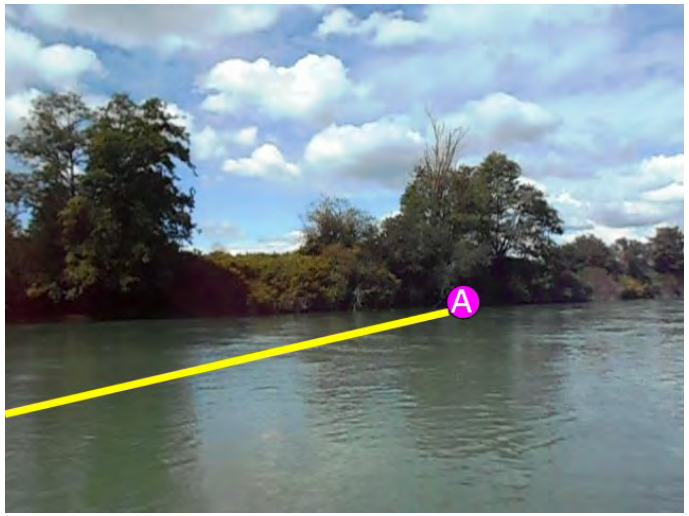
Recommended Equipment

3	Each	Anchoring System(s) - (anchor, lines, floats)
1	Each	Anchoring System(s)- Shoreside
200	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Line - 1/2" poly line
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Workboat(s) - shallow-water

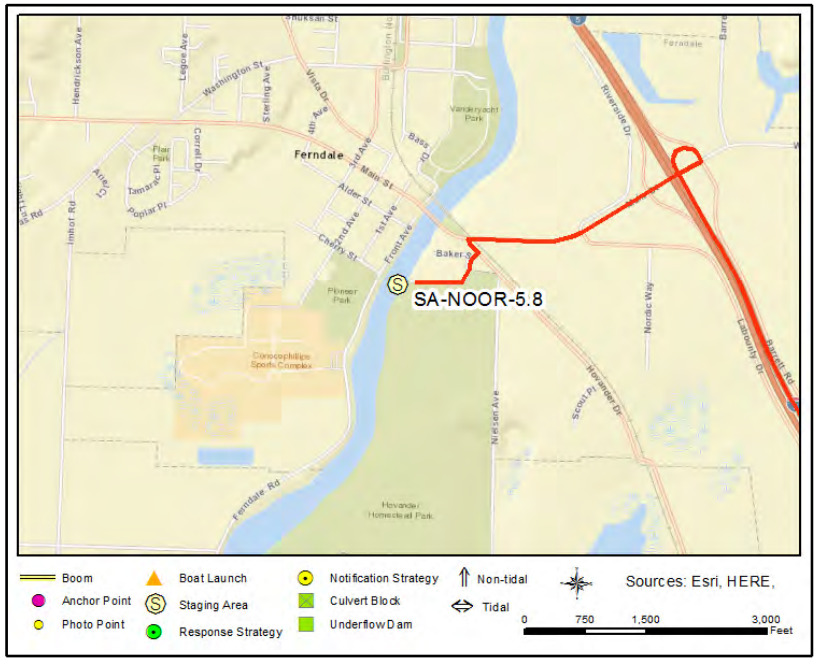
Recommended Personnel

1	Boat Operator
2	Laborer
1	Supervisor

Nooksack River Deflection Downstream NOOR-6.8



NOOR-6.8 Photo: From raft on Nooksack River, looking NE upstream towards river right, at strategy anchor point (Point A). Taken at low summer water.



Site Contact

No Information
Not Determined :

City of Ferndale Public Works
Secondary Contact : Parks & Rec
360-685-2379

Nearest Address

5528 Baker St
Ferndale, WA 98248

Driving Directions

DIRECTIONS TO STAGING AREA SA-NOOR-5.8:
1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 262 take ramp on the right to Main St toward City Center (0.3 miles)
3. Turn right on Main St (W Axton Rd) (0.6 miles)
4. Make sharp left on Hovander Dr (0.04 miles)
5. Take a right at the sign for public boat launch/park (0.2 mi)
6. Continue past parking area to boat launch.

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Tenmile Creek Mouth NOOR-6.9

Position - Location:	48° 51.355', -122° 34.625'	48° 51' 21.3", -122° 34' 37.5"	48.85592, -122.57708	Ferndale

Strategy Objective: Exclusion : Keep oil out of Tenmile Creek

Implementation: Using workboat, anchor 200 ft length of boom to shore on river left, at/near Point A (48.85615, -122.5767; upstream of Tenmile Creek) Extend boom downstream and anchor in-channel near Point B (48.856, -122.5772; ~20 ft offshore). Secure remaining boom to shore on river left, downstream of Tenmile Creek mouth at/near Point C (48.85585, -122.5773). Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angle as needed based on streamflow. Use anchoring systems as needed to keep boom secure in river.

Staging Area: Remote : Stage at Hovander Park (SA-NOOR-5.8), 1.1 mi downstream.

Site Safety: Water Hazard (PFD Required); Logs and Hidden Snags; Eroding Banks; Slips, Trips, Falls; Heavy Vegetation

Field Notes: May be debris or logpile at the mouth. Side outlet on upstream end between 2 large trees. Steep slope banks with vegetation.

Watercourse: River - Nooksack River

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

Recommended Equipment

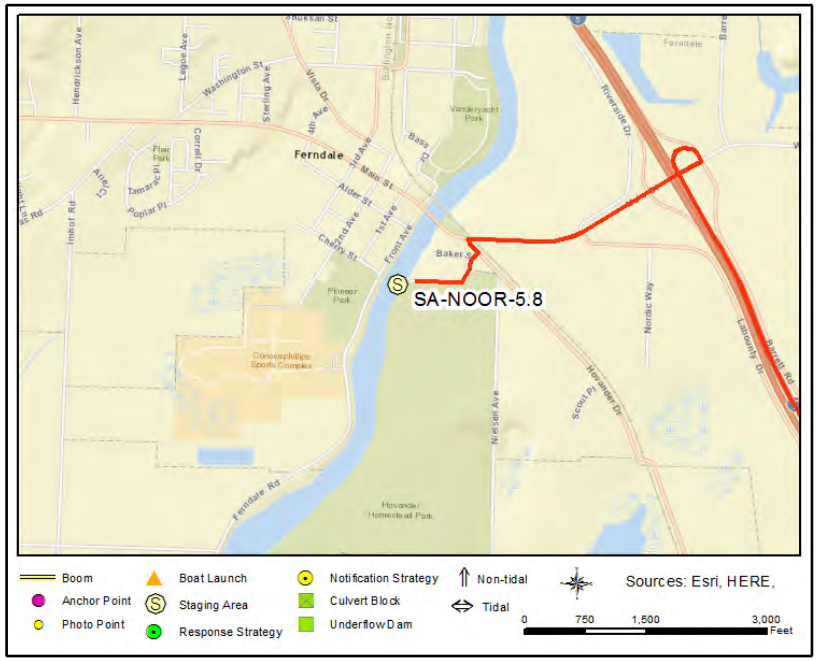
2	Each	Anchoring System(s) - (anchor, lines, floats)
2	Each	Anchoring System(s)- Shoreside
200	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Workboat(s) - shallow-water

Recommended Personnel

1	Boat Operator
2	Laborer
1	Supervisor

Tenmile Creek Mouth NOOR-6.9

NOOR-6.9 Photo: From raft on Nooksack River, looking SE towards river left at strategy location (mouth of creek). Taken at low summer water.



Site Contact

No Information
Not Determined :

City of Ferndale Public Works
Secondary Contact : Parks & Rec
360-685-2379

Nearest Address

5528 Baker St
Ferndale, WA 98248

Driving Directions

DIRECTIONS TO STAGING AREA SA-NOOR-5.8:
1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 262 take ramp on the right to Main St toward City Center (0.3 miles)
3. Turn right on Main St (W Axton Rd) (0.6 miles)
4. Make sharp left on Hovander Dr (0.04 miles)
5. Take a right at the sign for public boat launch/park (0.2 mi)
6. Continue past parking area to boat launch.

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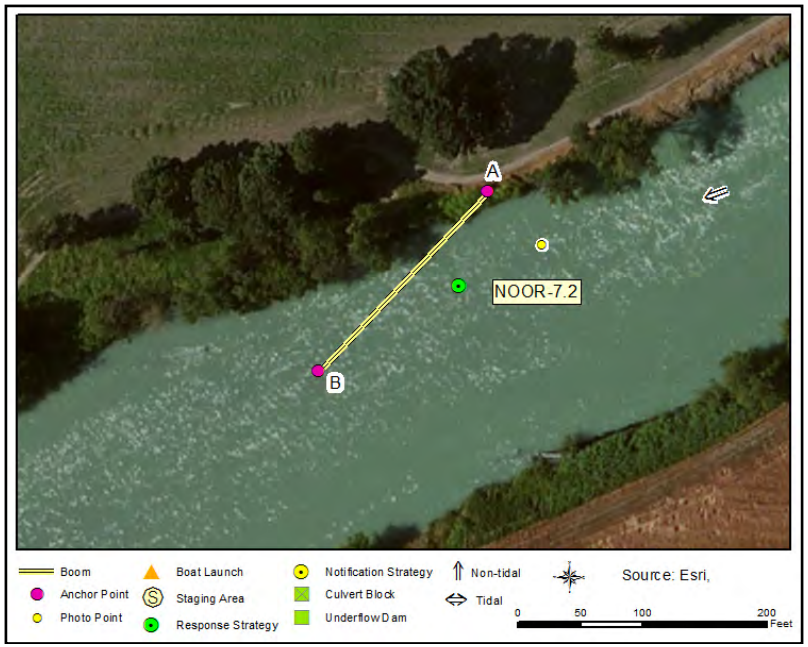
Nooksack River Deflection Upstream NOOR-7.2

Position - Location:	48° 51.496', -122° 34.409'	48° 51' 29.7", -122° 34' 24.5"	48.85826, -122.57348	Ferndale

Strategy Objective:	Deflection : Keep oil away from river right, downstream of strategy location
Implementation:	Using workboat, use trees or boulders to secure 200 ft length boom to shore on river right at Point A (48.858454, -122.573413). DO NOT SECURE BOOM TO SHORE SOUTH/DOWNSTREAM OF THIS POINT. Extend boom downstream and anchor in-channel at/near Point B (48.8581, -122.574; ~50 ft offshore). Adjust boom angle as needed based on streamflow. Use anchoring systems as needed to keep boom secure in river.
Staging Area:	Remote : Stage at Hovander Park (SA-NOOR-5.8), 1.4 mi downstream.
Site Safety:	Water Hazard (PFD Required); Logs and Hidden Snags; Eroding Banks; Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Thick cluster of large trees on river right is just downstream of anchor point. Large split-trunk oak or maple is visible back in field, 50 ft N of shoreside anchor point.
Watercourse:	River - Nooksack River
Resources at Risk:	Sensitive Resources Nearby



Recommended Equipment

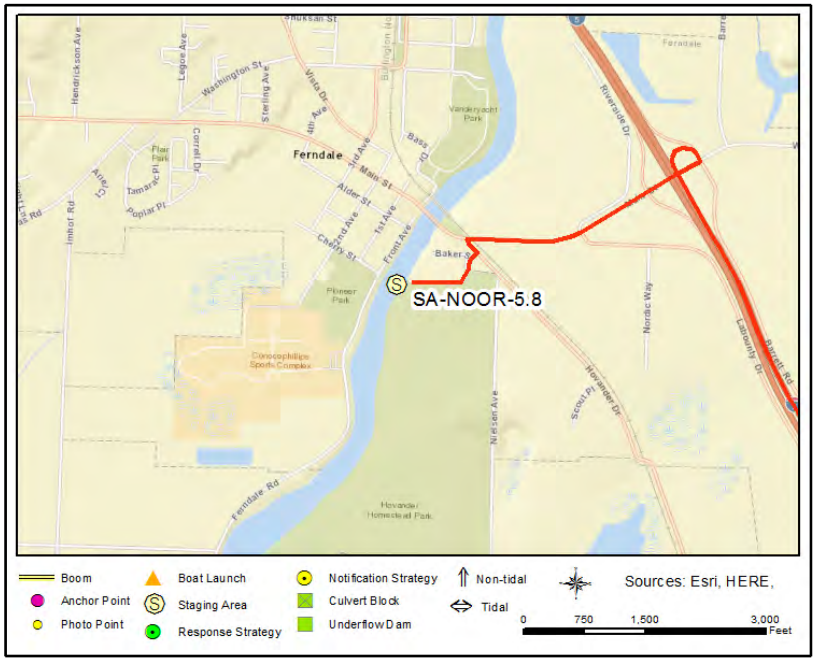
3	Each	Anchoring System(s) - (anchor, lines, floats)
1	Each	Anchoring System(s)- Shoreside
200	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Line - 1/2" poly line
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Workboat(s) - shallow-water

Recommended Personnel

1	Boat Operator
2	Laborer
1	Supervisor

Nooksack River Deflection Upstream NOOR-7.2

NOOR-7.2 Photo: From raft on Nooksack River, looking N towards river right at strategy shoreside anchor point (Point A). Taken at low summer water.



Site Contact

No Information
Not Determined :

City of Ferndale Public Works
Municipality (County/City) : Parks & Rec
360-685-2379

Nearest Address

5528 Baker St
Ferndale, WA 98248

Driving Directions

DIRECTIONS TO STAGING AREA SA-NOOR-5.8:
1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 262 take ramp on the right to Main St toward City Center (0.3 miles)
3. Turn right on Main St (W Axton Rd) (0.6 miles)
4. Make sharp left on Hovander Dr (0.04 miles)
5. Take a right at the sign for public boat launch/park (0.2 mi)
6. Continue past parking area to boat launch.

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Whatcom PUD Intake #2 Trigg Rd (KM NO-8.8) NOOR-9.2

Position - Location:	48° 52.792', -122° 33.866'	48° 52' 47.5", -122° 33' 52.0"	48.87986, -122.56444	Ferndale

Strategy Objective: Exclusion : Keep oil out of water intake

Implementation: Secure 200 ft length of boom to shore on river right, at/near Point A (upstream of water intake). Extend boom SE downstream and anchor in river, near B (48.87979, -122.56454; ~20 ft offshore). Secure remaining boom end to shore on river right, at/near Point C (downstream of intake). Back hard boom with sorbent. Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angle as needed based on streamflow. Use anchoring systems as needed to keep boom secure in river. If water is too low for boat access, deploy from land using building's walkway.

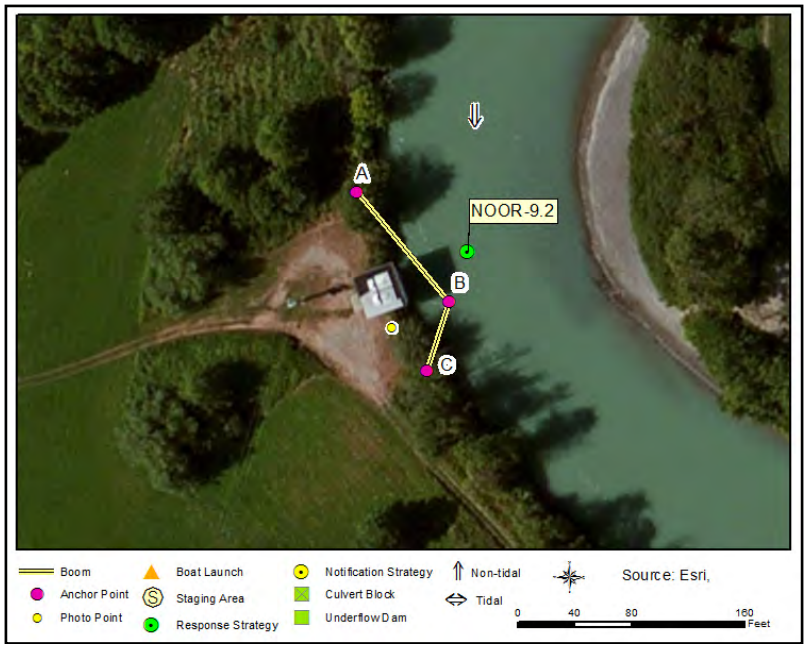
Staging Area: Remote : Stage at Hovander Park (SA-NOOR-5.8), 3.4 mi downstream.

Site Safety: Water Hazard (PFD Required); Overhead Electric Lines; Steep Banks; Slips, Trips, Falls; Heavy Vegetation

Field Notes: Logs and debris, shallow, muddy water. Steep bank covered in brush. Dirt road through field at end of Trigg Rd to intake building.

Watercourse: River - Nooksack River

Resources at Risk: Economic Resource, Water Intakes



Recommended Equipment

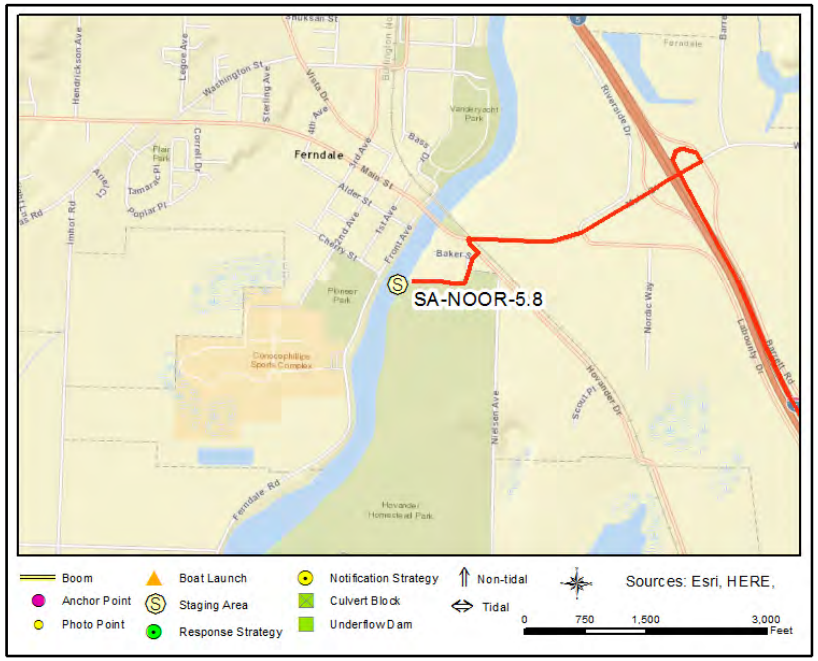
3	Each	Anchoring System(s) - (anchor, lines, floats)
2	Each	Anchoring System(s)- Shoreside
200	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
200	Feet	Line - 1/2" poly line
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Workboat(s) - shallow-water

Recommended Personnel

1	Boat Operator
2	Laborer
1	Supervisor

Whatcom PUD Intake #2 Trigg Rd (KM NO-8.8) NOOR-9.2

NOOR-9.2 Photo: From river right, looking NE upstream at strategy location. Taken at high spring water.



Site Contact

Whatcom County PUD #1
Emergency Contact : Water intake operator

Ferndale, WA 98248
360-384-4288

Nearest Address

5528 Baker St
Ferndale, WA 98248

Driving Directions

DIRECTIONS TO STAGING AREA SA-NOOR-5.8:
1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 262 take ramp on the right to Main St toward City Center (0.3 miles)
3. Turn right on Main St (W Axton Rd) (0.6 miles)
4. Make sharp left on Hovander Dr (0.04 miles)
5. Take a right at the sign for public boat launch/park (0.2 mi)
6. Continue past parking area to boat launch.

DIRECTIONS TO SITE NOOR-9.2:
1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 263 take ramp on the right to Portal Way (0.24 miles)
3. Turn right on Portal Way (1.32 miles)
4. Turn right on Trigg Rd (0.67 miles)
5. Turn left through gate to access PUD plant at 1703 Trigg Rd. (0.2 miles)
6. Just after the substation, turn right onto dirt road, and cross small bridge over stream, to intake at river's edge. (0.7 miles)

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Nooksack River at RediMix Plant (KM NO-15.1) NOOR-15.1

Position - Location:	48° 55.125', -122° 29.260'	48° 55' 7.5", -122° 29' 15.6"	48.91875, -122.48767	Lynden

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

Implementation: Using workboat, secure 400ft section of boom to shore on river left, near Point A (48.9189, -122.4868). Extend boom SW downstream and secure end to shore on river right, near Point B (48.9186, -122.4884). Use shoreside anchoring systems or existing features to secure boom to banks. Use anchoring systems as needed to keep boom secure in water. Adjust boom angle as needed for conditions. Vac-truck or skimmer/storage collection at Point B.

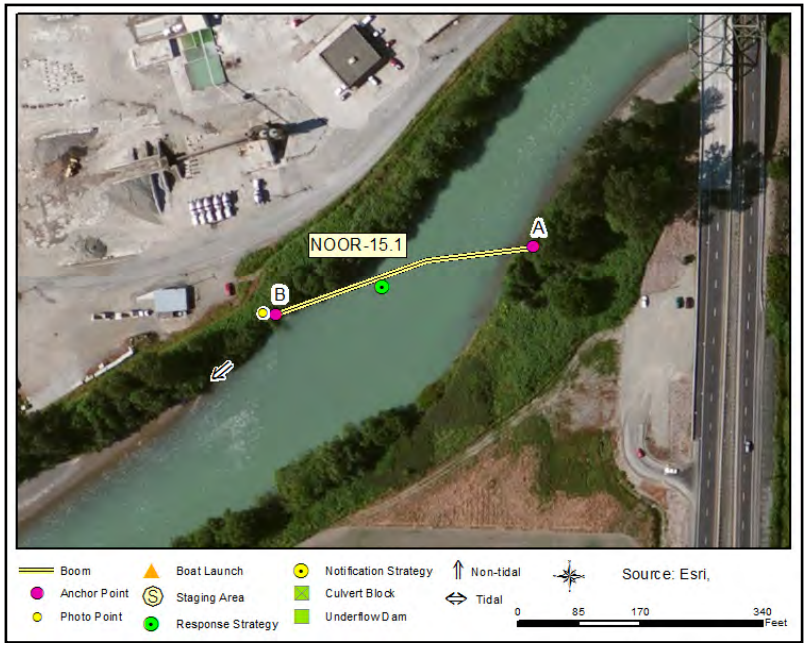
Staging Area: Onsite : Stage onsite, in gravel area across from concrete plant.

Site Safety: Water Hazard - PFD required; Heavy Equipment; Slips, Trips, Falls; Heavy Vegetation; Logs/Debris; Steep Slopes

Field Notes: Launch boat from sandbar or access road just SW of Point B. Road can accumulate mud and fallen trees. Sandbar will disappear in high water. May need extra hose/pump to clear levee height. Use plywood to expand narrow slippery trails thru blackberry.

Watercourse: River - Nooksack River

Resources at Risk: Raptors, Salmon, Shorebird Concentrations, T/E Species, Waterfowl (Wintering)



Recommended Equipment

5	Each	Anchoring System(s) - (anchor, lines, floats)
2	Each	Anchoring System(s)- Shoreside
1	Each	Bolt Cutters
400	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Machete(s) - (or other vegetation cutting tool)
5	Each	Plywood sheets (4ft x 8ft)
1	Each	Vac Truck or Skimmer and Storage
1	Each	Workboat(s) - shallow-water

Recommended Personnel

1	Boat Operator
3	Laborer
1	Supervisor

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Nooksack River at RediMix Plant (KM NO-15.1) NOOR-15.1

NOOR-15.1 Photo: From Nooksack River right, looking SE upstream at strategy location. Taken 5/30/17 (very high water).

Site Contact

Ferndale Ready Mix
Land/Property Owner : Landowner

Ferndale, WA 98264
360-354-1400

Nearest Address

201 River Rd
Lynden, WA 98264

Driving Directions

1. Head North on I-5 towards Bellingham.
2. At exit 256A-B take ramp on the right to Bellis Fair-Mall Pkwy / WA-539 N / Meridian St (0.16 miles)
3. At exit 256A keep right on WA-539 N / Meridian St. toward Lynden (0.14 miles)
4. Turn right on Guide Meridian Rd (WA-539) (5.9 miles)
5. At roundabout, take the second exit to proceed on WA-539 N (Guide Meridian Rd) (3.7 miles)
6. At roundabout, take the second exit to proceed on River Rd (0.45 miles)
7. Finish at 201 River Rd, 98264, on the left. Small gravel lot next to levee access road, across from concrete plant.

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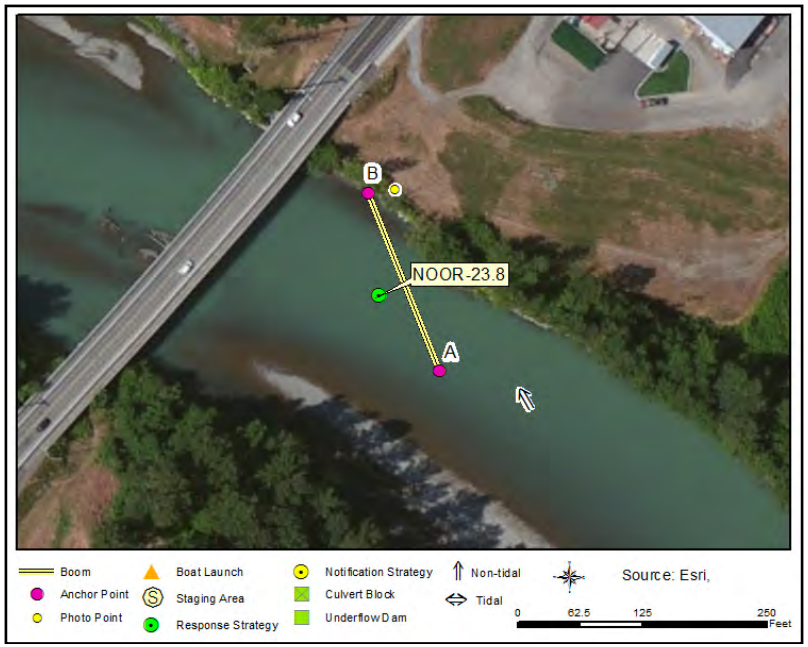
Nooksack River Above Everson Bridge (KM NO-23.6) NOOR-23.8

Position - Location:	48° 55.072', -122° 20.896'	48° 55' 4.3", -122° 20' 53.8"	48.91787, -122.34827	Everson

Strategy Objective:	Collection : Collect oil moving downstream on the Nooksack River
Implementation:	Secure 200ft length of boom to shore on river right, at/near Point B (48.9182, -122.3483; ~50 ft upstream of road bridge). Using workboat, extend boom upstream and towards river left, anchoring boom in river at/near Point A (48.9177, -122.348; ~225 ft upstream of road bridge). Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angle as needed for flow conditions. Use anchoring systems as needed to keep boom secure in river. Collection at Point B using skimmer/storage or vac-truck from warehouse parking lot.
Staging Area:	Onsite : Stage onsite on lawn. Hand-launch from site.
Site Safety:	Water Hazard (PFD Required); Steep Bank; In-channel Debris; Slips, Trips, Falls
Field Notes:	Upstream of bridge, gentle sloping lawn to site from warehouse parking lot. Short rip-rap bank with large rocks near water's edge. Can hand-launch at site, or from park just downstream.
Watercourse:	River - Nooksack River
Resources at Risk:	Public Recreation Site/Area, Salmon (Coho, Chinook and Chum), T/E Species



Recommended Equipment

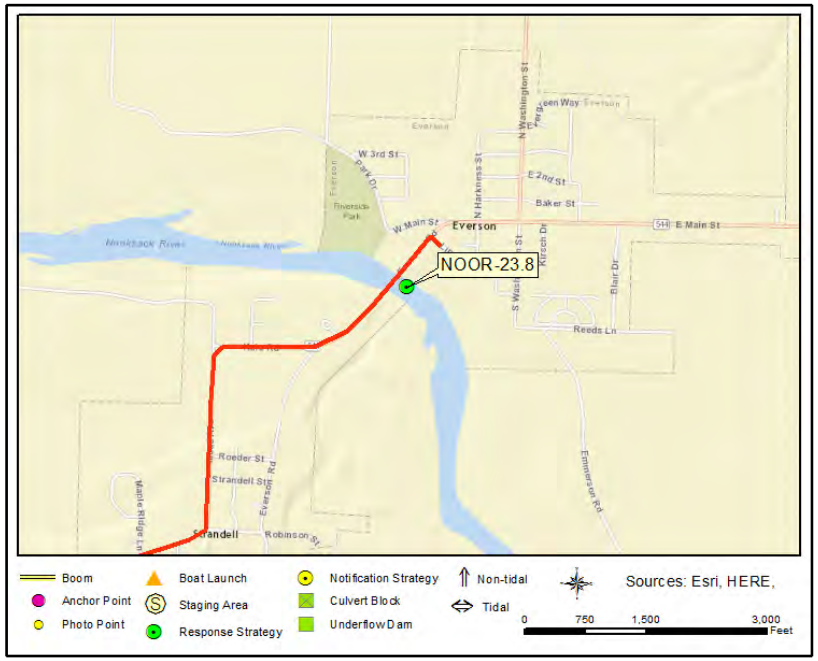
3	Each	Anchoring System(s) - (anchor, lines, floats)
1	Each	Anchoring System(s)- Shoreside
200	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Vac Truck or Skimmer and Storage
1	Each	Workboat(s) - (hand-launch)

Recommended Personnel

1	Boat Operator
2	Laborer
1	Supervisor

Nooksack River Above Everson Bridge (KM NO-23.6) NOOR-23.8

NOOR-23.8 Photo: From river right at shoreside anchor point (Point B), looking SE upstream towards strategy location. Taken at average spring water.



Site Contact

City of Everson
Municipality (County/City) : Public Works Department
Everson, WA 98247
360-966-3411 ext. 1300

Nearest Address

401 Lincoln St
Everson, WA 98247

Driving Directions

1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 255 take ramp on the right to WA-542 E / Sunset Dr toward Mt Baker (0.2 miles)
3. Turn right on WA-542 (E Sunset Dr) (4.73 miles)
4. Turn left on Everson-Goshen Rd (Everson Goshen Rd) (6.07 miles)
5. Turn right at WA-544 to stay on Everson-Goshen Rd (WA-544) (1.72 miles)
6. Bear left on Mead Ave (WA-544) (0.41 miles)
7. Bear right on Kale Rd (WA-544) (0.24 miles)
8. Continue on Everson Rd (WA-544) (0.39 miles)
9. Turn right on Lincoln St (0.03 miles)
10. Finish at 401 Lincoln St, 98247, on the right (first right after the bridge).
11. Proceed south to water's edge.

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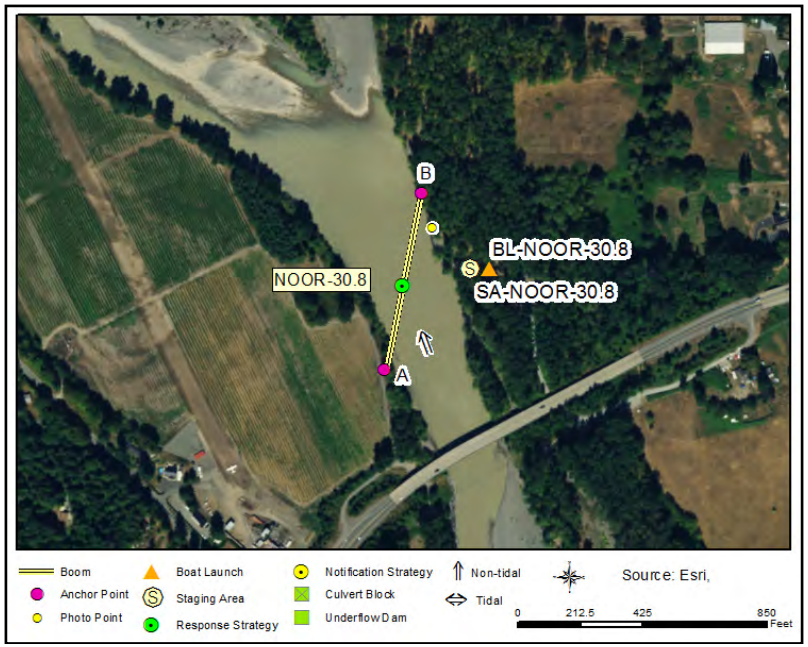
Nugents Corner Downstream NOOR-30.8

Position - Location:	48° 50.598', -122° 17.690'	48° 50' 35.9", -122° 17' 41.4"	48.84330, -122.29484	Everson

Strategy Objective:	Collection : Collect oil moving downstream on the Nooksack River
Implementation:	Using workboat, secure 700 ft length of boom to shore on river left, at/near Point A (48.8425, -122.29508; ~325 ft downstream of bridge). Extend boom NE downstream and secure to shore on river right, at/near Point B (48.8442, -122.2946; ~250ft downstream of boat ramp). Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angle as needed for flow conditions. Use anchoring systems as needed to keep boom secure in river. Collection at Point B using skimmer/storage or vac-truck at parking area. May need additional hose to reach site from parking area.
Staging Area:	Onsite : Stage at Nugents Corner SA-NOOR-30.8, adjacent to collection area.
Site Safety:	Water Hazard (PFD Required); Logs and Hidden Snags; Eroding Banks; Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Sandy beach may be obscured in high water; eddy at this location with braiding and riffles just downstream.
Watercourse:	River - Nooksack River
Resources at Risk:	Habitat Restoration Site/Project, Salmon (Coho, Chinook and Chum), T/E Species, Tribal Lands/Resources



Recommended Equipment

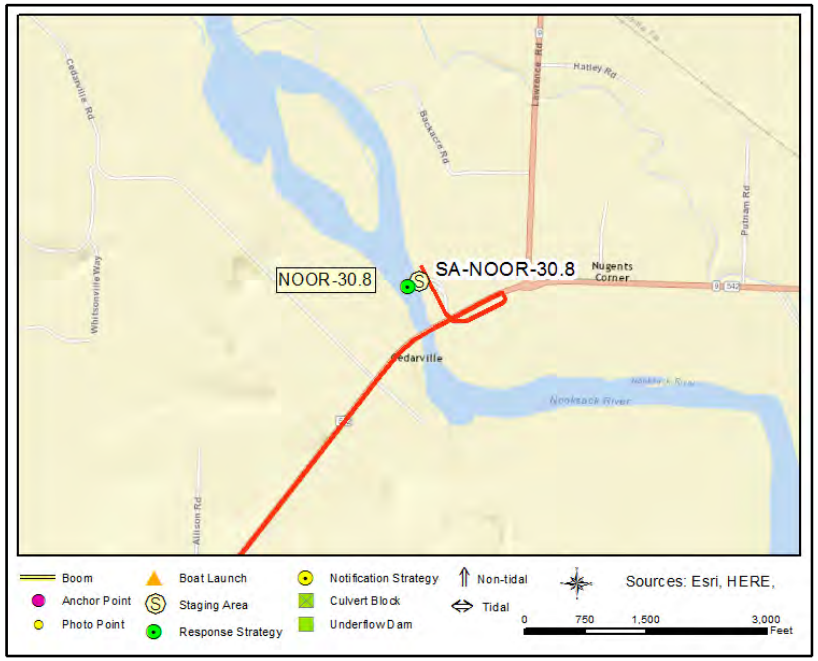
9	Each	Anchoring System(s) - (anchor, lines, floats)
2	Each	Anchoring System(s)- Shoreside
700	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Vac Truck or Skimmer and Storage
1	Each	Workboat(s) - shallow-water

Recommended Personnel

1	Boat Operator
3	Laborer
1	Supervisor

Nugents Corner Downstream NOOR-30.8

NOOR-30.8 Photo: From river right at shoreside anchor point (Point B), looking SW upstream towards strategy location. Taken at average winter water.



Site Contact

Washington Department of Fish and Wildlife
Land/Property Owner : Region 4
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
425-775-1311

Nearest Address

Nugents Corner River Access Road
Everson, WA 98247

Driving Directions

1. Head north on I-5 towards Bellingham
2. At exit 255 take ramp on the right to WA-542 E / Sunset Dr toward Mt Baker (0.2 miles)
3. Turn right on WA-542 (E Sunset Dr) (9.86 miles)
4. Turn right on Nugents Corner River Access Rd (Mt Baker Hwy) (0.5 miles)
5. Finish at Nugents Corner River Access Road, at the end of the road.

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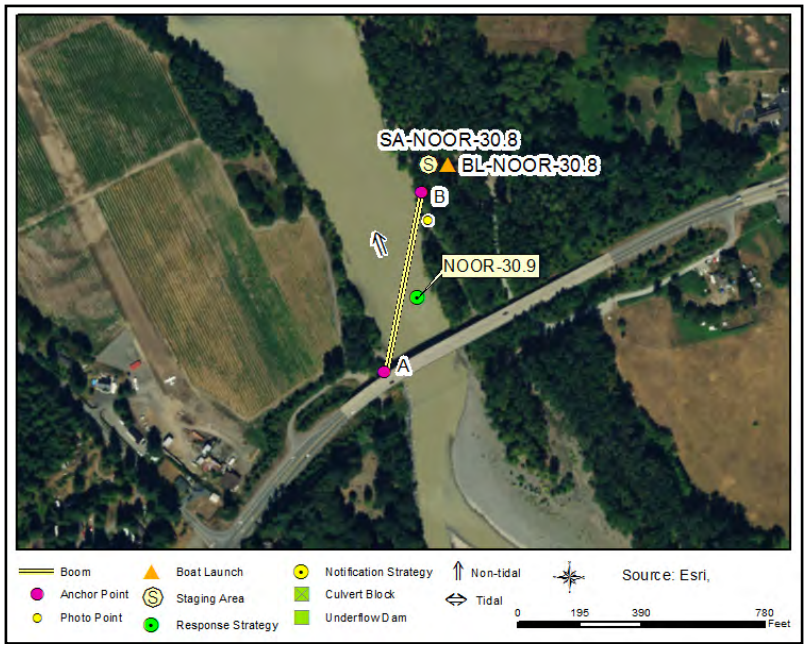
Nugent's Corner Upstream by 542 Bridge NOOR-30.9

Position - Location:	48° 50.539', -122° 17.639'	48° 50' 32.4", -122° 17' 38.4"	48.84232, -122.29399	Everson

Strategy Objective:	Collection : Collect oil moving downstream on the Nooksack River.
Implementation:	Using workboat, secure 600 ft length of boom to shore on river left, at/near Point A (48.84168, -122.2944; downstream side of bridge). Extend boom NE downstream and secure to shore on river right, at/near Point B (~20 ft upstream of boat ramp). Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angle as needed for flow conditions. Use anchoring systems as needed to keep boom secure in river. Collection at Point B using skimmer/storage or vac truck parked at boat launch.
Staging Area:	Remote : Stage at Nugents Corner SA-NOOR-30.8, adjacent to collection area.
Site Safety:	Water Hazard (PFD Required); Logs and Hidden Snags; Eroding Banks; Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Low banks on either side of the river may be covered in high water flows.
Watercourse:	River - Nooksack River
Resources at Risk:	Habitat Restoration Site/Project, Salmon (Coho, Chinook and Chum), T/E Species, Tribal Lands/Resources



Recommended Equipment

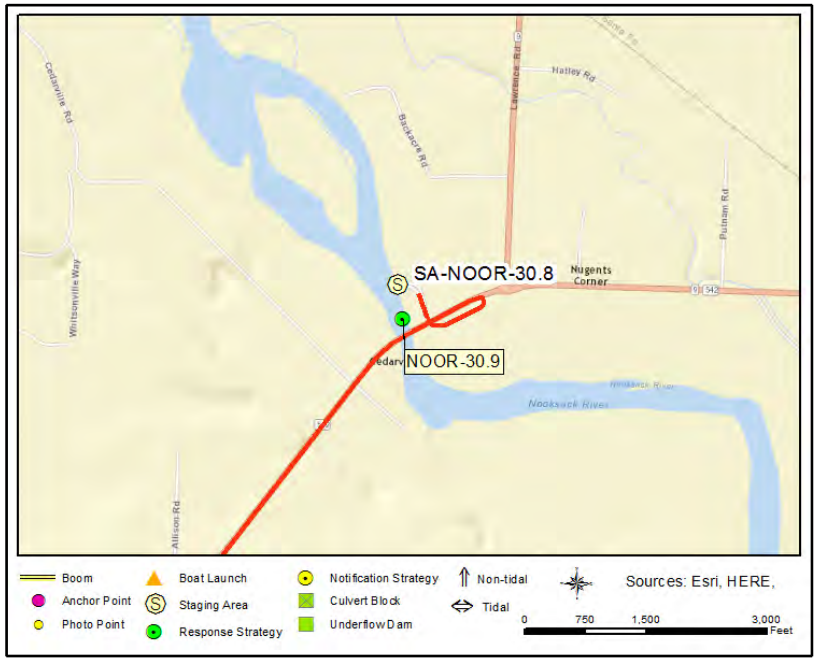
6	Each	Anchoring System(s) - (anchor, lines, floats)
2	Each	Anchoring System(s)- Shoreside
600	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Vac Truck or Skimmer and Storage
1	Each	Workboat(s) - shallow-water

Recommended Personnel

1	Boat Operator
3	Laborer
1	Supervisor

Nugent's Corner Upstream by 542 Bridge NOOR-30.9

NOOR-30.9 Photo: From river right at shoreside anchor point (Point B), looking SW upstream towards strategy location. Taken at average winter water.



Site Contact

Washington Department of Fish and Wildlife
Land/Property Owner : Region 4
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
425-775-1311

Nearest Address

Nugents Corner River Access Rd
Everson, WA 98247

Driving Directions

1. From Seattle, take I-5 N towards Bellingham
2. At exit 255 take ramp on the right to WA-542 E / Sunset Dr toward Mt Baker (0.2 miles)
3. Turn right on WA-542 (E Sunset Dr) (9.86 miles)
4. Turn right on Nugents Corner River Access Rd (Mt Baker Hwy) (0.05 miles)
5. Finish at Nugents Corner River Access Rd, 98247, on the left

Sandy Point Tide Gates NPS-08

Position - Location:	48° 48.141', -122° 40.851'	48° 48' 8.5", -122° 40' 51.1"	48.80235, -122.68085	Ferndale

Strategy Objective:	Exclusion : Keep oil out of slough
Implementation:	Use plywood to block off tide gates. If that is not possible, use workboat to secure 500ft section of boom to shore near Point A (48.8028, -122.6813; ~250ft west of jetty). Extend boom 200ft SSE and anchor near Point B (48.8024, -122.6809). Secure remaining end of boom to shore near Point C (48.8022, -122.68). Use in-water anchoring systems as needed to keep boom secure. Use existing features or shoreside anchoring systems to secure boom to shore.
Staging Area:	Onsite : Stage and launch onsite from Decatur Drive.
Site Safety:	Slips, Trips, Falls; Water Hazard; Pilings; Strong Tidal Currents; Uneven Surfaces
Field Notes:	CONTACT LUMMI POLICE FOR ESCORT BEFORE ARRIVAL. Paved road access. Stage on dead-end of Decatur Drive and handlaunch shallow skiff from levee. Could use pilings to help keep boom in place.
Watercourse:	Slough - Unnamed Slough near Lummi River
Resources at Risk:	Sensitive Habitat, Tribal Lands/Resources

Recommended Equipment

6	Each	Anchoring System(s) - (anchor, lines, floats)
4	Each	Anchoring System(s)- Shoreside
500	Feet	Boom - B2 (Contractor Boom) or equivalent
2	Each	Plywood sheets (4ft x 8ft)
1	Each	Workboat(s) - (hand-launch)

Recommended Personnel

1	Boat Operator
3	Laborer
1	Supervisor

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Sandy Point Tide Gates NPS-08

NPS-08 Photo: Southern most tide gate

Site Contact

Lummi Nation Police Department
Pre-Notification Required : Non-emergency number
360-312-2274

Lummi Nation Natural Resources
Emergency Contact : Director
360-410-1706

Nearest Address

4420 Decatur Drive
Ferndale, WA 98248

Driving Directions

1. Start at Bellingham, WA
2. Go northwest on Pacific Hwy toward Waldron Rd
3. Turn left on Slater Rd
4. At fork keep left on Slater Rd
5. Turn left on Lake Terrell Rd
6. Turn right on Waldron Dr
7. Turn left on Orcas Way
8. Turn left on Decatur Dr
9. Finish at 4420 Decatur Drive, 98248, on the left

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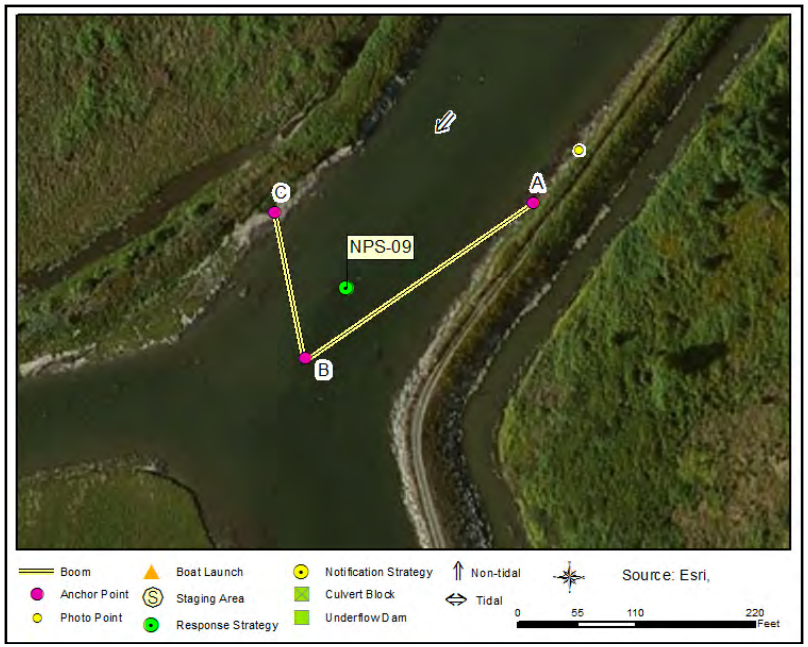
Lummi River Mouth NPS-09

Position - Location:	48° 47.627', -122° 39.836'	48° 47' 37.6", -122° 39' 50.2"	48.79378, -122.66394	Bellingham

Strategy Objective:	Exclusion : Keep oil out of Lummi River
Implementation:	Using workboat, secure 400ft section of boom to shore on river left, near Point A (48.794, -122.6632). Extend boom 200ft SW and anchor mid-channel near Point B (48.7936, -122.6641). Extend remaining end of boom North and secure to shore near Point C (48.794, -122.6642). Use in-water anchoring systems as needed to keep boom secure. Use existing features or shoreside anchoring systems to secure boom to shore. Adjust boom and anchor points as needed for conditions. If oil collects, use skimmer/storage or vac truck on levee road for collection.
Staging Area:	Onsite : Stage onsite, using gravel road atop levee.
Site Safety:	Vehicle Hazard (Narrow Dirt Road); Steep/Slippery Banks; Strong Tidal Currents; Water Hazard; Slips, Trips, Falls
Field Notes:	CONTACT LUMMI POLICE FOR ESCORT BEFORE ARRIVAL. There are two access routes: Hillaire to Kwina Rd, or Hilaire Rd just east of the Lummi River bridge. At tides below +2.5 should be able to deploy without a boat. But mud can be sticky.
Watercourse:	River - With Tidal Influence - Mouth of the Lummi River
Resources at Risk:	Salmonids (anadromous), Sensitive Habitat, Tribal Lands/Resources



Recommended Equipment

2	Each	Anchoring Post(s) - (shoreside)
5	Each	Anchoring System(s) - (anchor, lines, floats)
400	Feet	Boom - B3 (River Boom) or equivalent
1	Each	Vac Truck or Skimmer and Storage (if collection)
1	Each	Workboat(s) - (hand-launch)

Recommended Personnel

1	Boat Operator
2	Laborer
1	Supervisor

Lummi River Mouth NPS-09

NPS-09 Photo: Shot from road, pilings can be used to help anchor.

Site Contact

Lummi Nation Police Department
Pre-Notification Required : Non-emergency number
360-312-2274

Lummi Nation Natural Resources
Emergency Contact : Director
360-410-1706

Nearest Address

2865 Kwina Road
Bellingham, WA 98226

Driving Directions

1. From Bellingham, take I-5 N towards Slater Rd
2. Take exit 260 to Slater Rd.
3. Turn left to go west on Slater Rd through the next 2 roundabouts (3.77 miles)
3. Turn left on Haxton Way (1.82 miles)
4. At roundabout, take the first exit to turn right on Kwina Rd (1.0 miles)
7. Continue straight on Kwina Rd past Hillaire Rd and follow narrow road to the water.
8. Site is 1/2 mile north along levee.

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Kwina Slough (S entrance) NPS-18

Position - Location:	48° 46.423', -122° 36.083'	48° 46' 25.4", -122° 36' 5.0"	48.77372, -122.60139	Bellingham

Strategy Objective:	Exclusion : Keep oil out of slough
Implementation:	Using workboat, secure 300ft section of boom to shore on slough right, near Point A (48.7739, -122.602; upstream of ramp). Extend boom SE downstream and secure to shore on slough left, near Point B (48.7736, -122.601; at point). Use existing features or shoreside anchor posts to secure boom to shore. Adjust boom angle based on conditions. Use anchoring systems as needed to keep boom secure in water. If oil accumulates, collect using vac truck or skimmer/storage from Native Seafoods parking area on river right.
Staging Area:	Onsite : Stage onsite in parking area of Native Seafoods.
Site Safety:	Tidal Currents; Water Hazard; Slips, Trips and Falls
Field Notes:	CONTACT LUMMI POLICE FOR ESCORT BEFORE ARRIVAL. Vac truck must remain on road or hardened surface. Handlaunch small boat from gravel/mud ramp at Native Seafoods lot.
Watercourse:	Slough - Kwina Slough at Nooksack River
Resources at Risk:	Salmonids (anadromous), Sensitive Habitat

Recommended Equipment

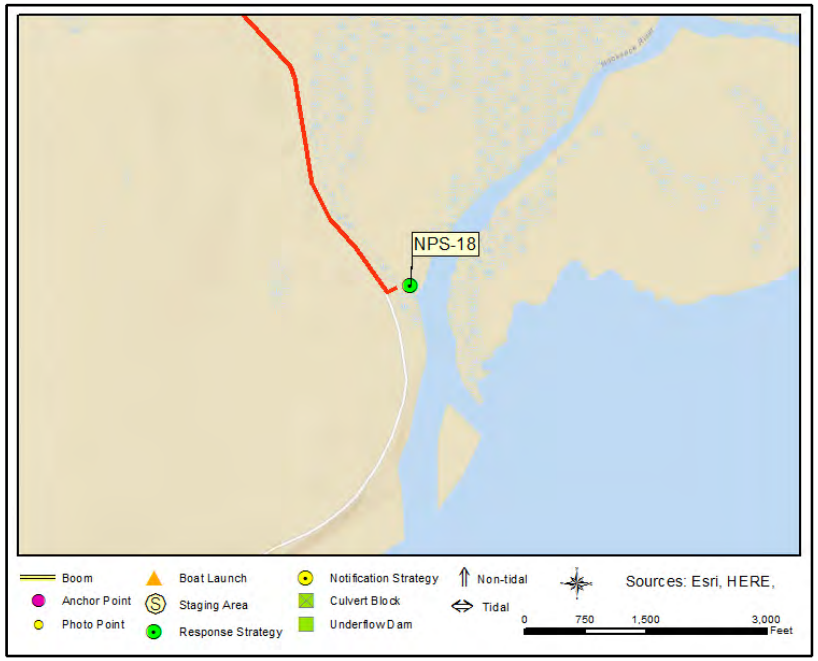
3	Each	Anchoring System(s) - (anchor, lines, floats)
2	Each	Anchoring System(s)- Shoreside
300	Feet	Boom - B2 (Contractor Boom) or equivalent
1	Each	Vac Truck or Skimmer and Storage
1	Each	Workboat(s) - (hand-launch)

Recommended Personnel

1	Boat Operator
2	Laborer
1	Supervisor

Kwina Slough (S entrance) NPS-18

NPS-18 Photo: From slough right, at Anchor Point A, looking SE downstream towards strategy location. 7/30/08 Tide 2.5ft



Site Contact

Lummi Nation Natural Resources
Pre-Notification Required : Director
360-410-1706

Lummi Nation Police Department
Police Department/Sheriff : Non-emergency number
360-312-2274

Nearest Address

3622 Lummi Shore Road
Bellingham, WA 98226

Driving Directions

1. From Seattle, take I-5 N towards Bellingham.
2. Take exit 260 towards Slater Rd/Lummi Island.
3. Go west on Slater Rd (2.3 mi)
4. Turn left on Ferndale Rd (1.9 mi)
5. Turn right on Marine Dr (0.8 mi)
6. Turn left onto Lummi Shore Rd (1.6 mi)
7. Turn left into parking area of Native Seafoods, 3622 Lummi Shore Rd

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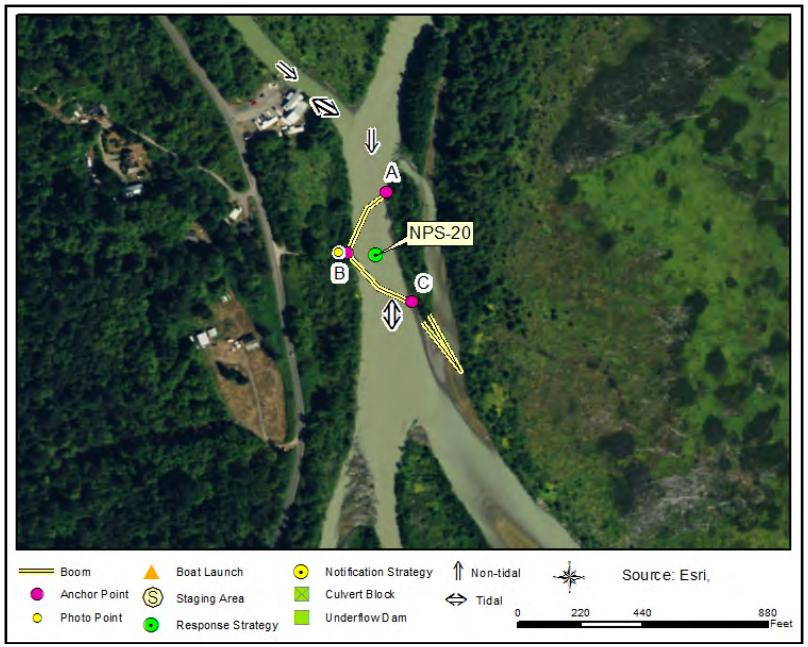
Mouth of Nooksack NPS-20

Position - Location:	48° 46.331', -122° 36.026'	48° 46' 19.8", -122° 36' 1.5"	48.77218, -122.60043	Bellingham

Strategy Objective:	Collection : Collect oil moving upstream or downstream on the Nooksack River
Implementation:	Using workboat, secure 300ft section of boom to shore on river left, near Point A (48.7728, -122.6003). Extend boom SW downstream and secure to shore on river right, near Point B (48.77218, -122.6009). Secure additional 300ft section of boom to shore on river right, near Point B and extend SE downstream. Secure boom to shore on river left, near Point C (48.7717, -122.5999). Deploy sorbent across side-channel on river left. Use anchoring systems as needed to keep boom secure in river. Use trees or shoreside anchoring systems to secure boom to shore. Collection at Point B.
Staging Area:	Onsite : Stage onsite, using dirt road.
Site Safety:	Strong Tides; Strong Runoff Currents; Water Hazard; Slips, Trips, Falls
Field Notes:	CONTACT LUMMI POLICE BEFORE ARRIVING. There is a spot where a Jon Boat could be dragged down the bank. Area has strong tidal influence. Side channel on river right created by flood tide, deploy sorbent/sweep to block off if possible.
Watercourse:	River - With Tidal Influence - Nooksack River at Kwina Slough
Resources at Risk:	Estuary Resources, Salmonids (anadromous), Sensitive Habitat, Tribal Lands/Resources



Recommended Equipment

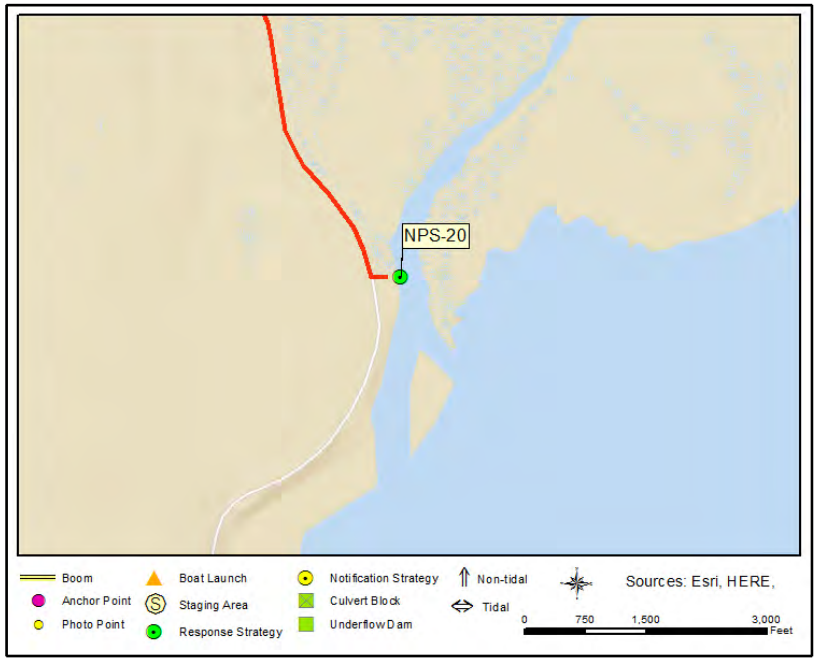
6	Each	Anchoring System(s) - (anchor, lines, floats)
6	Each	Anchoring System(s)- Shoreside
600	Feet	Boom - B2 (Contractor Boom) or equivalent
500	Feet	Boom - Sorbent
1	Each	Vac Truck or Skimmer and Storage (if collection)
1	Each	Workboat(s) - (hand-launch)

Recommended Personnel

1	Boat Operator
3	Laborer
1	Supervisor

Mouth of Nooksack NPS-20

NPS-20 Photo: Anchor point and boat launch area.



Site Contact

Lummi Nation Police Department
Pre-Notification Required : Non-emergency number
360-312-2274

Lummi Nation Natural Resources
Emergency Contact : Director
360-410-1706

Nearest Address

3647 Lummi Shore Road
Bellingham, WA 98226

Driving Directions

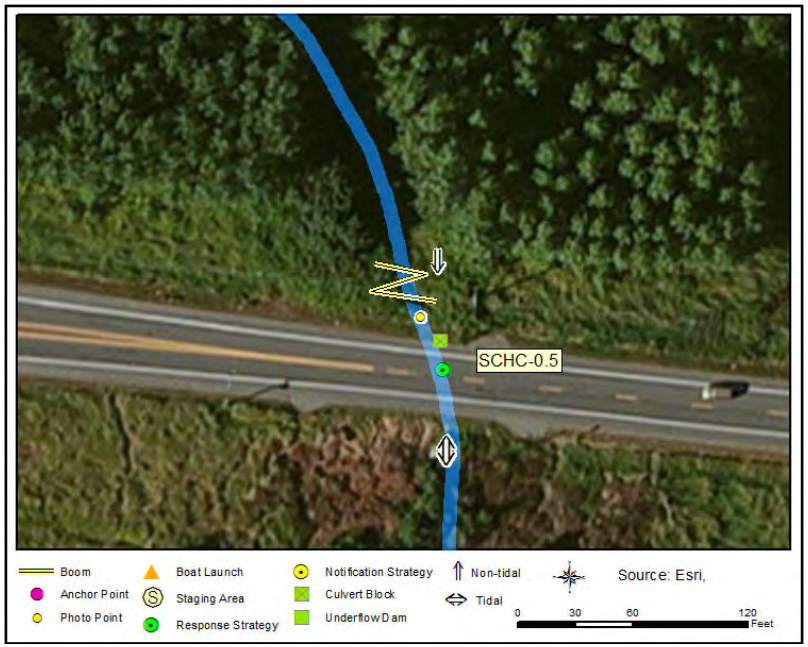
1. From Seattle, take I-5 N towards Bellingham.
2. Take exit 260 towards Slater Rd/Lummi Island.
3. Go west on Slater Rd (2.3 mi)
4. Turn left on Ferndale Rd (1.9 mi)
5. Turn right on Marine Dr (0.8 mi)
6. Turn left onto Lummi Shore Rd (1.7 mi)
7. Just after Native Seafoods, look for next gravel access road on the left.

<< Go Back

Schell Creek at Slater Rd (KM LU(T)-0.5) SCHC-0.5

Position - Location:	48° 49.153', -122° 37.505'	48° 49' 9.2", -122° 37' 30.3"	48.81921, -122.62509	Ferndale

Strategy Objective:	Collection : Collect oil moving downstream on Schell Creek
Implementation:	Deploy one length of hard boom across creek, upstream of Slater Road culvert. Deploy multiple lengths of sorbent across creek, upstream of hard boom. If time allows, use plywood and plastic to create culvert block or underflow dam on upstream side of culvert, as needed based on streamflow. Replace saturated sorbents as needed. If product collects beyond capacity sorbents can handle, use vac-truck or skimmer/storage for collection from roadway.
Staging Area:	Onsite : Stage on small roadway shoulder near site. Lane closure may be required.
Site Safety:	High Speed Traffic Hazard; Water Hazard (PFD Required); Slips, Trips, Falls; Heavy Vegetation.
Field Notes:	CONTACT LUMMI POLICE BEFORE DEPLOYMENT. Follow WSDOT work zone traffic control guidelines when working on or near roadway. Lummi Reservation lands south of Slater Rd.
Watercourse:	Creek - Schell Creek
Resources at Risk:	Cutthroat Trout, Habitat Restoration Site/Project, Salmon, Tribal Lands/Resources



Recommended Equipment

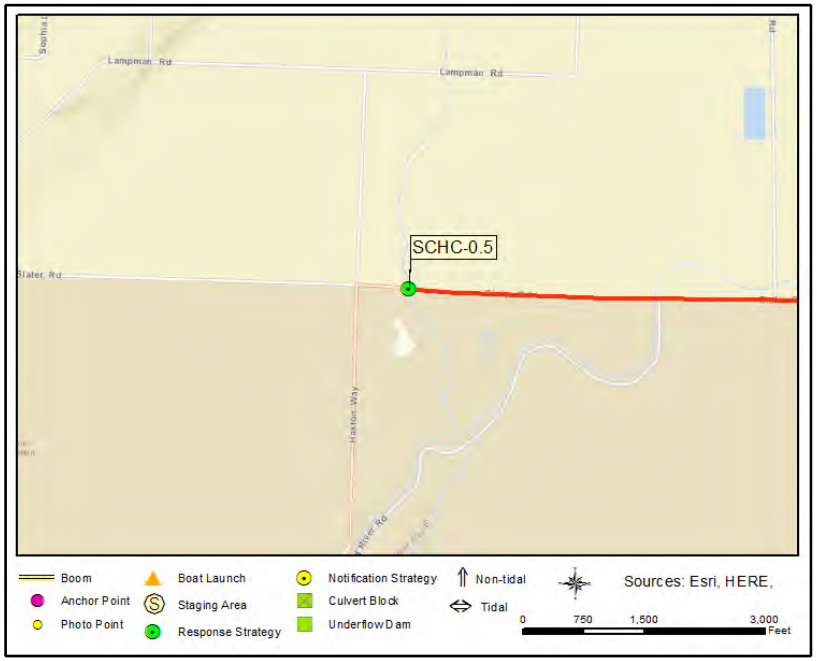
2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
100	Feet	Boom - Sorbent
1	Assort	Fill material (sand, earth, gravel, sandbags)
1	Each	Machete(s) - (or other vegetation cutting tool)
20	Feet	Plastic Sheeting
2	Each	Plywood sheets (4ft x 8ft)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

3	Laborer
1	Supervisor

Schell Creek at Slater Rd (KM LU(T)-0.5) SCHC-0.5

SCHC-0.5 Photo: From roadway, looking N upstream at strategy location. Taken at average winter water, high tide.



Site Contact

Lummi Nation Police Department
Pre-Notification Required : Non-emergency number
360-312-2274

Lummi Nation Oil Spill Response Team
Secondary Contact : Natural Resources Department
360-410-1706

Nearest Address

2808 Slater Rd
Ferndale, WA 98248

Driving Directions

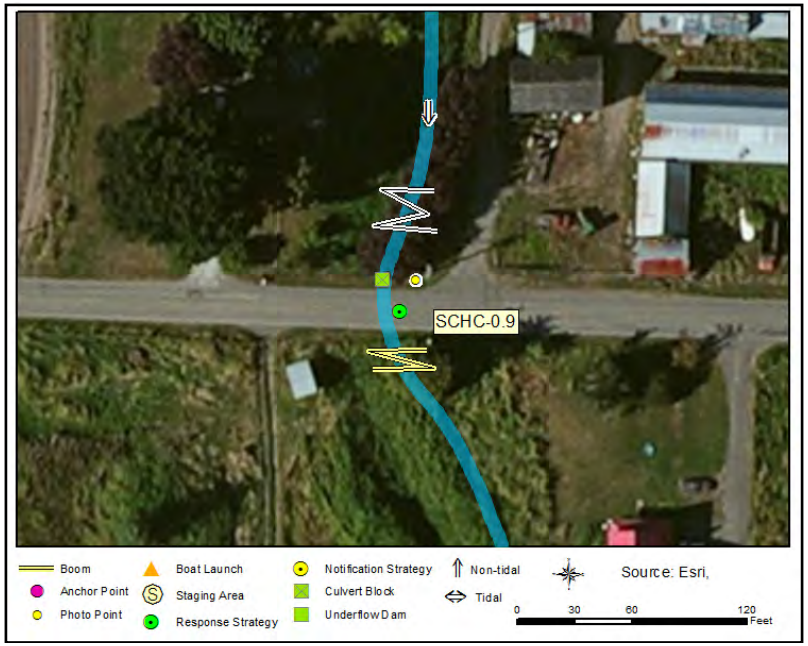
1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 260 take ramp on the right to Slater Rd toward Lummi Is. (0.25 miles)
3. Turn left on Slater Rd (3.62 miles)
4. Finish at 2808 Slater Rd, 98248, on the right - across from the casino.

<< Go Back

Schell Creek at Lampman Rd (KM LU(T)-0.9) SCHC-0.9

Position - Location:	48° 49.595', -122° 37.421'	48° 49' 35.7", -122° 37' 25.2"	48.82659, -122.62368	Ferndale

Strategy Objective:	Collection : Collect oil moving downstream on Schell Creek
Implementation:	Deploy one length of hard boom across creek, downstream of Lampman Road culvert. Deploy multiple lengths of sorbent across creek, upstream of hard boom. Deploy additional sorbent upstream of roadway. If time allows, use plywood and plastic to create culvert block or underflow dam on upstream side of culvert, as needed based on streamflow. Replace saturated sorbents as needed. If product collects beyond capacity sorbents can handle, use vac-truck or skimmer/storage for collection from roadway.
Staging Area:	Onsite : Stage on driveways and yards north of creek.
Site Safety:	Low Overhead Power Lines; Traffic Hazard; Farm Animals And Equipment; Water Hazard (PFD Required); Slips, Trips, Falls
Field Notes:	Follow WSDOT work zone traffic control guidelines when working on or near roadway. No shoulder, narrow road with some traffic.
Watercourse:	Creek - Schell Creek
Resources at Risk:	Fish Hatchery, Habitat Restoration Site/Project, Salmon (Coho, Chinook and Chum), T/E Species, Tribal Lands/Resources



Recommended Equipment

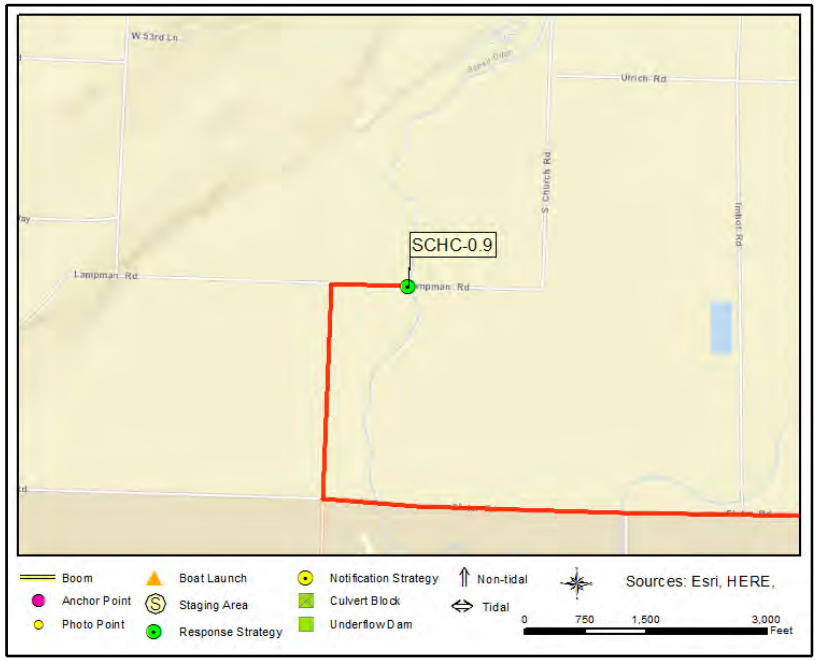
4	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
1	Each	Machete(s) - (or other vegetation cutting tool)
20	Feet	Plastic Sheeting
2	Each	Plywood sheets (4ft x 8ft)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

3	Laborer
1	Supervisor

Schell Creek at Lampman Rd (KM LU(T)-0.9) SCHC-0.9

SCHC-0.9 Photo: From Lampman Road on creek right, looking NW upstream at strategy location. Taken 1/19/16.



Site Contact

Whatcom County Public Works
Municipality (County/City) :
360-778-6200

Nearest Address

2634 Lampman Rd
Ferndale, WA 98248

Driving Directions

1. From Seattle, take I-5 N towards Bellingham.
2. At exit 260 take ramp on the right to Slater Rd toward Lummi Is. (0.25 miles)
3. At roundabout, take the third exit to proceed on Slater Rd (0.22 miles)
4. At roundabout, take the first exit to proceed on Slater Rd (3.56 miles)
5. Turn right on Haxton Way (0.51 miles)
6. Turn right on Lampman Rd (0.16 miles)
7. Finish at 2634 Lampman Rd, 98248, on the left

<< Go Back

South Fork Nooksack at Strand Rd SFNOOR-4.2

Position - Location:	48° 45.605', -122° 13.059'	48° 45' 36.3", -122° 13' 3.5"	48.76008, -122.21765	Deming

Strategy Objective:	Collection : Collect oil moving downstream on the South Fork Nooksack River
Implementation:	Using workboat, secure 400ft length of boom on river right, at/near Point A (48.7598, -122.2172). Extend boom NW downstream and secure to shore on river right, at/near Point B (downstream of old pilings). Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angle as needed for flow conditions. Use anchoring systems as needed to keep boom secure in river. In fast water (1mph+), deploy downstream strategy in same manner between Point C (48.7604, -122.2173) and Point D. Collection at Points B & D from Hillside Rd, or using skimmer/storage from boat or shore.
Staging Area:	Onsite : Stage onsite, on sandy beach on river right and paved dead-end of Strand Rd. Logs block vehicle access from road.
Site Safety:	Water Hazard (PFD Required); Rafters and Kayakers; Eroding Banks; Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Put-in/take out point for rafters, floaters and kayakers. May have summer crowds. Shallow water. River right has sand/gravel beach and eddies. River left has old pilings and rip-rap.
Watercourse:	River - South Fork Nooksack River
Resources at Risk:	Marbled Murrelets, Reptiles and Amphibians, Salmon (Coho, Chinook and Chum), T/E Species

Recommended Equipment

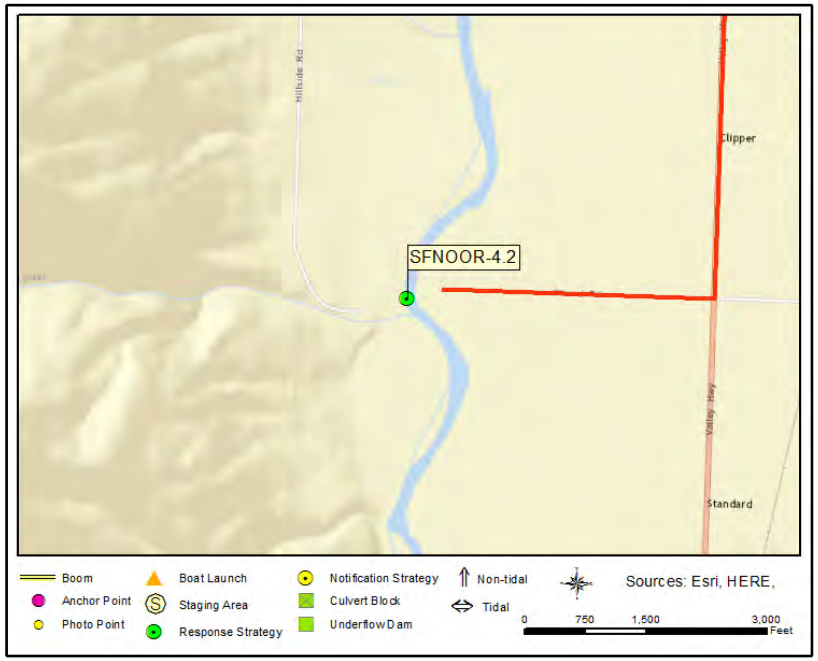
8	Each	Anchoring System(s) - (anchor, lines, floats)
4	Each	Anchoring System(s)- Shoreside
800	Feet	Boom - B3 (River Boom) or equivalent
400	Feet	Line - 1/2" poly line
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Vac Truck or Skimmer and Storage
1	Each	Workboat(s) - (hand-launch)

Recommended Personnel

1	Boat Operator
2	Laborer
1	Supervisor

South Fork Nooksack at Strand Rd SFNOOR-4.2

SFNOOR-4.2 Photo: From river right at shoreside anchor point (Point C), looking SW upstream towards strategy location. Taken at average winter water.



Site Contact

No Information
Not Determined :

Nearest Address

5000 Strand Rd
Deming, WA 98244

Driving Directions

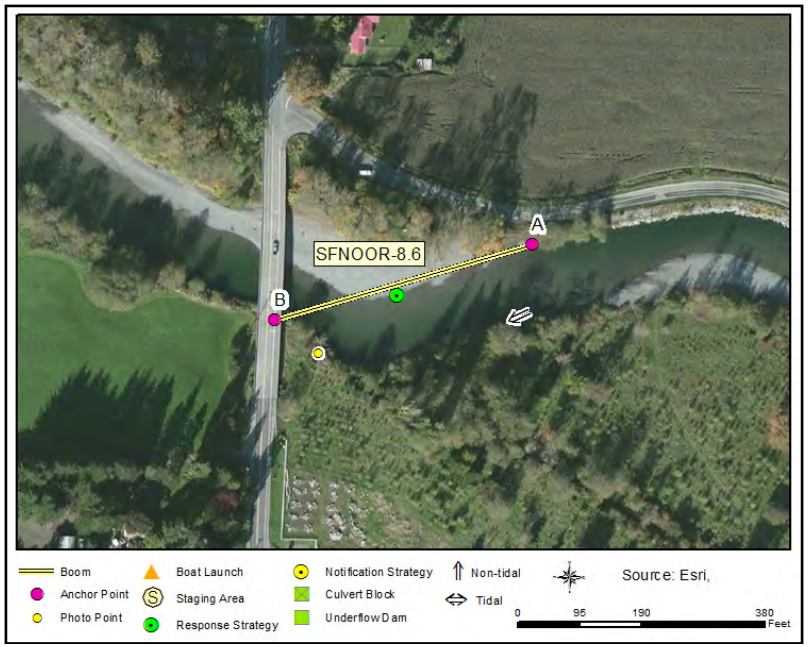
1. From Seattle, take I-5 N towards Bellingham
2. At exit 255 take ramp on the right to WA-542 E / Sunset Dr toward Mt Baker (0.2 miles)
3. Turn right on WA-542 (E Sunset Dr) (9.91 miles)
4. At roundabout, take the first exit to proceed on WA-9 (WA-542 E) (4.59 miles)
5. Turn right at WA-542 to stay on WA-9 (Valley Hwy) (4.27 miles)
6. Turn right on Strand Rd (0.64 miles)
7. Public river access is at the end of Strand Rd

<< Go Back

South Fork Nooksack at Highway 9 Acme SFNOOR-8.6

Position - Location:	48° 43.195', -122° 12.154'	48° 43' 11.7", -122° 12' 9.3"	48.71991, -122.20257	Deming

Strategy Objective:	Collection : Collect oil moving downstream on the South Fork Nooksack River
Implementation:	Using workboat, secure 500 ft length of boom to shore on river right, at/near Point A (48.7202, -122.2017; upstream edge of beach). Extend boom SW downstream and secure to shore on river left, at/near Point B (upstream of bridge). Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angle as needed for flow conditions. Use anchoring systems as needed to keep boom secure in river. Collection at Point B using skimmer/storage, or vac truck from bridge.
Staging Area:	Onsite : Stage onsite, on south shoulder of Mosquito Lake Rd, and sandbar river right. Lane closure required for vac truck.
Site Safety:	Water Hazard (PFD Required); Traffic Hazard; Cougars and Wildlife; Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Use bridge to drop equipment/vac hose. River left owned by Whatcom Land Trust with small parking area, narrow ped path with fallen logs to site. Mosquito Lake Rd busy and no shoulder but small pull-off for one car leads to large sandbar.
Watercourse:	River - South Fork Nooksack River
Resources at Risk:	Habitat Restoration Site/Project, Marbled Murrelets, Reptiles and Amphibians, Salmon (Coho, Chinook and Chum), T/E Species



Recommended Equipment

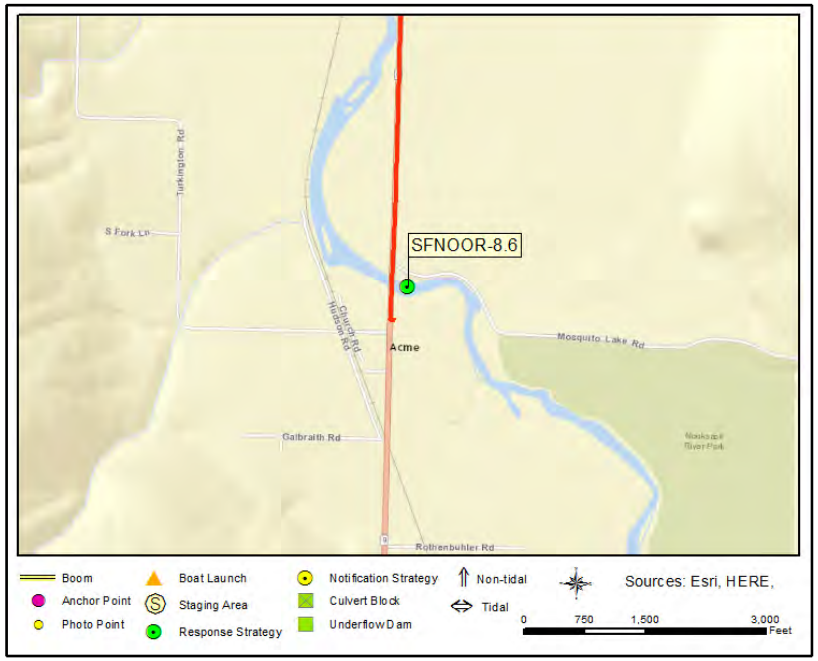
5	Each	Anchoring System(s) - (anchor, lines, floats)
2	Each	Anchoring System(s)- Shoreside
500	Feet	Boom - B3 (River Boom) or equivalent
500	Each	Line - 1/2" poly line
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Pump(s)
1	Each	Vac Truck or Skimmer and Storage (if collection)
1	Each	Workboat(s) - (hand-launch)

Recommended Personnel

1	Boat Operator
3	Laborer
1	Supervisor

South Fork Nooksack at Highway 9 Acme SFNOOR-8.6

SFNOOR-8.6 Photo: From river left, looking NE upstream at strategy location. Taken 1/5/16.



Site Contact

Whatcom Land Trust
Land/Property Owner : Property owner
412 N. Commercial St.
Bellingham, WA 98227
360.650.9470

Nearest Address

2112 Valley Highway
Deming, WA 98244

Driving Directions

1. From Seattle, take I-5 N towards Bellingham
2. At exit 255 take ramp on the right to WA-542 E / Sunset Dr toward Mt Baker (0.2 miles)
3. Turn right on WA-542 (E Sunset Dr) (9.91 miles)
4. At roundabout, take the first exit to proceed on WA-9 (WA-542 E) (4.59 miles)
5. Turn right at WA-542 to stay on WA-9 (Valley Hwy) (7.07 miles)
6. Finish at 2112 Valley Highway,98244, on the left - gravel parking area with white fencing.

<< Go Back

Silver Creek at Shady Lane Rd (KM SC-1.8) SILVC-1.8

Position - Location:	48° 48.605', -122° 34.140'	48° 48' 36.3", -122° 34' 8.4"	48.81009, -122.56900	Bellingham

Strategy Objective:	Collection : Collect oil moving downstream on Silver Creek
Implementation:	Secure 100 ft section of boom to shore on creek left, at/near Point A (~20ft upstream of Shady Lane bridge). Use bridge to extend boom NW downstream, and secure to shore on creek right, at/near Point B (roadside). Deploy additional length of hard boom downstream of roadway. Deploy multiple lengths of sorbent boom between bridge and hard boom. Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angles as needed based on streamflow. Vac truck or skimmer/storage collection from south side of Shady Lane bridge.
Staging Area:	Onsite : Stage onsite, on roadway south of bridge. Lane closure required.
Site Safety:	DO NOT DRIVE VAC TRUCK OVER BRIDGE; Water Hazard (PFD Required); Traffic Hazard; Slips, trips, falls; Heavy Vegetation
Field Notes:	Bridge may not support heavy equipment. Follow WSDOT work zone traffic control guidelines when working on or near roadway. Quiet road, wetland-type area near creek.
Watercourse:	Creek - Silver Creek (May have tidal influence)
Resources at Risk:	Raptors, Salmon (Coho, Chinook and Chum), Shorebirds, T/E Species, Waterfowl, Wetlands Restoration Site

Recommended Equipment

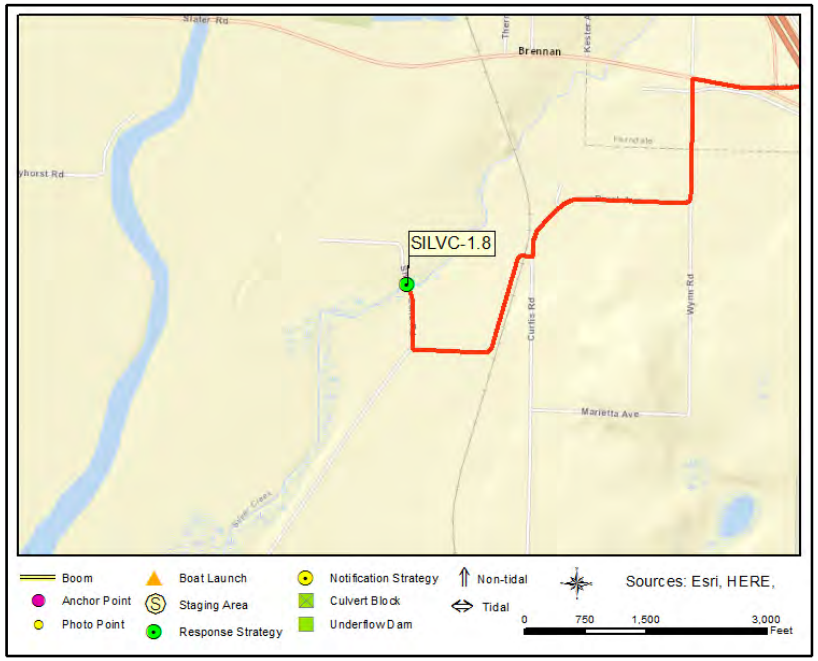
4	Each	Anchoring System(s)- Shoreside
200	Feet	Boom - B3 (River Boom) or equivalent
100	Feet	Boom - Sorbent
200	Feet	Line - 1/2" poly line
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

2	Laborer
1	Supervisor

Silver Creek at Shady Lane Rd (KM SC-1.8) SILVC-1.8

SILVC-1.8 Photo: From creek right, looking S at strategy location, downstream of roadway. Taken at average winter water.



Site Contact

No Information
Not Determined :

Nearest Address

1671 Shady Lane Rd
Bellingham, WA 98226

Driving Directions

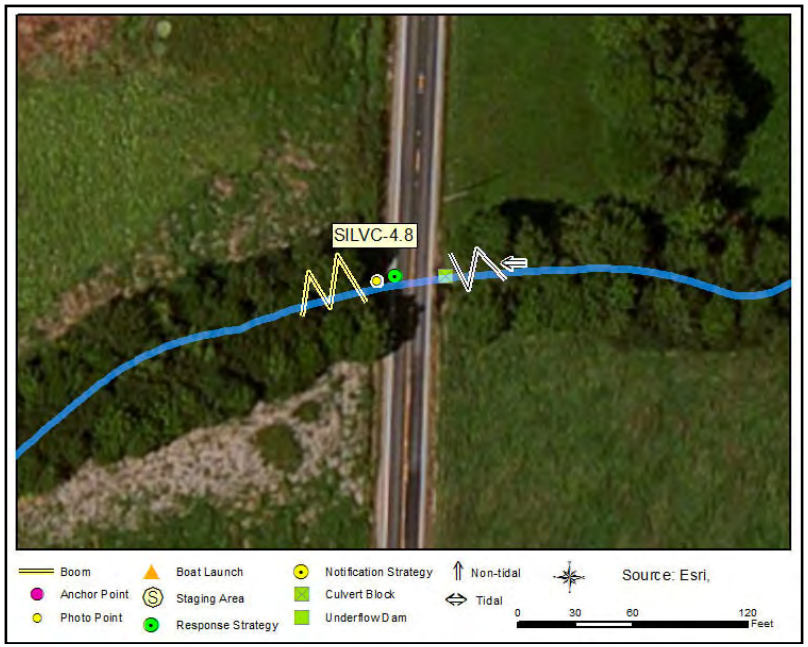
1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 260 take ramp on the right to Slater Rd toward Lummi Is. (0.25 miles)
3. Turn left on Slater Rd (0.39 miles)
4. Turn left on Rural Ave (0.74 miles)
5. Turn right at Curtis Rd to stay on Rural Ave (0.47 miles)
6. Turn right on Shady Lane Rd (Shady Ln) (0.13 miles)
7. Finish at 1671 Shady Lane Rd, 98226, on the left

<< Go Back

Silver Creek at Aldrich Rd (KM SC-4.8) SILVC-4.8

Position - Location:	48° 49.265', -122° 31.139'	48° 49' 15.9", -122° 31' 8.4"	48.82109, -122.51899	Bellingham

Strategy Objective:	Collection : Collect oil moving downstream on Silver Creek
Implementation:	Deploy one length of hard boom across creek, downstream of Aldrich Road culvert. Deploy multiple lengths of sorbent across creek, upstream of hard boom. Deploy additional sorbent upstream of roadway. If time allows, use plywood and plastic to create culvert block or underflow dam on downstream side of culvert, as needed based on streamflow. Replace saturated sorbents as needed. If product collects beyond capacity sorbents can handle, use vac-truck or skimmer/storage for collection from roadway.
Staging Area:	Onsite : Stage onsite, on roadway. Lane closure required.
Site Safety:	Traffic Hazard; Water Hazard (PFD Required); Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Follow WSDOT work zone traffic control guidelines when working on or near roadway. 3 ft concrete culverts, grassy vegetation at roadside. New wetland restoration project immediately SW of site.
Watercourse:	Creek - Silver Creek
Resources at Risk:	Salmon (Coho, Chinook and Chum), Shorebird Concentrations, T/E Species, Wetlands Restoration Site



Recommended Equipment

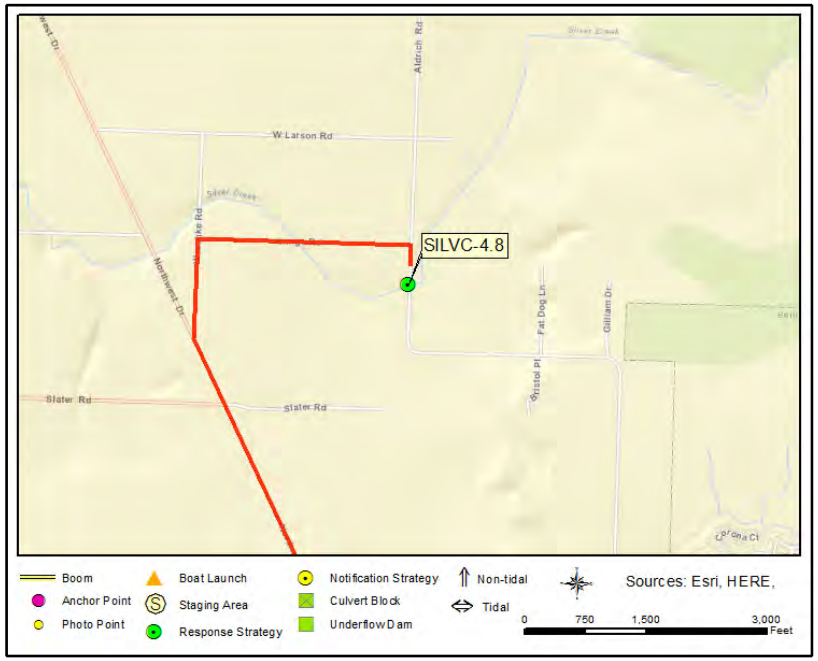
4	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
1	Assort	Fill material (sand, earth, gravel, sandbags)
1	Each	Machete(s) - (or other vegetation cutting tool)
20	Feet	Plastic Sheeting
2	Each	Plywood sheets (4ft x 8ft)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

2	Laborer
1	Supervisor

Silver Creek at Aldrich Rd (KM SC-4.8) SILVC-4.8

SILVC-4.8 Photo: From roadway, looking W downstream at strategy location. Taken at average winter water.



Site Contact

No Information
Not Determined :

Nearest Address

4988 Aldrich Rd
Bellingham, WA 98226

Driving Directions

1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 257 take ramp on the right to Northwest Ave (0.22 miles)
3. Bear right on Northwest Dr (0.06 miles)
4. At roundabout, take the first exit to proceed on Northwest Dr (2.63 miles)
5. Bear right on Waschke Rd (0.23 miles)
6. Turn right on Lange Rd (0.5 miles)
7. Turn right on Aldrich Rd (0.05 miles)
8. Finish at 4988 Aldrich Rd, 98226, on the left

<< Go Back

Tenmile Creek at Barrett Rd (KM TC-0.2) TNMIC-0.2

Position - Location:	48° 51.213', -122° 34.419'	48° 51' 12.8", -122° 34' 25.1"	48.85355, -122.57365	Ferndale

Strategy Objective:	Collection : Collect oil moving downstream on Tenmile Creek
Implementation:	Secure 100 ft section of boom to shore on creek left, at/near Point A (~20ft upstream of Barret Road bridge). Use bridge to extend boom NW downstream, and secure to shore on creek right, at/near Point B (roadside). Deploy additional length of hard boom downstream of roadway. Deploy multiple lengths of sorbent boom between bridge and hard boom. Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angles as needed based on streamflow. Vac truck or skimmer/storage collection from Barret Rd shoulder or roadway.
Staging Area:	Onsite : Stage onsite, on roadway. Lane closure required.
Site Safety:	Traffic Hazard; Overhead Power Lines; Water Hazard (PFD Required); Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Follow WSDOT work zone traffic control guidelines when working on or near roadway. Small pull-off areas at shoulder. Barrett Road popular for large trucks. Restoration plantings at site.
Watercourse:	Creek - Tenmile Creek
Resources at Risk:	Endangered Plant Species, Public Recreation Site/Area, Salmon, Sensitive Resources Nearby, Shorebirds, T/E Species, Waterfowl,

Recommended Equipment

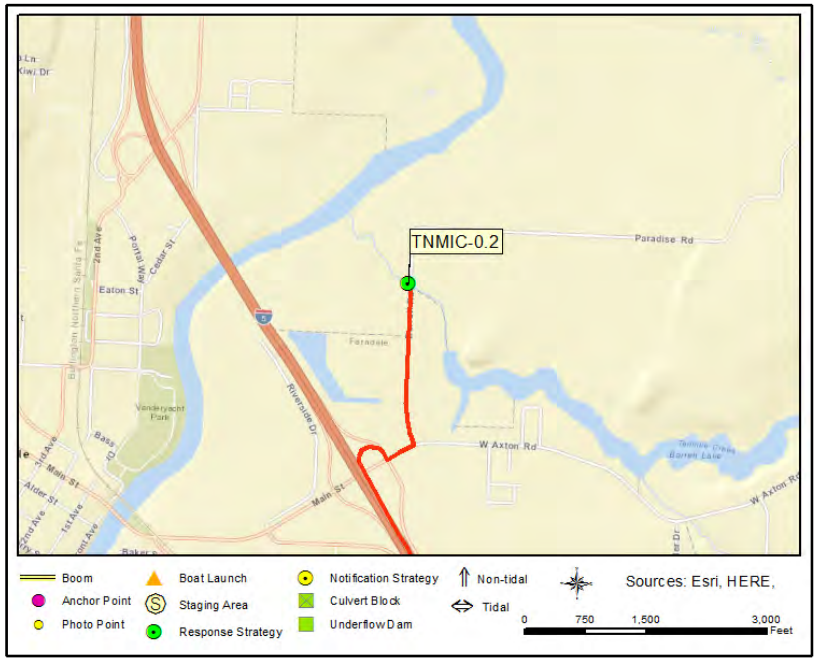
4	Each	Anchoring System(s)- Shoreside
200	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
200	Feet	Line - 1/2" poly line
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

2	Laborer
1	Supervisor

Tenmile Creek at Barrett Rd (KM TC-0.2) TNMIC-0.2

TNMIC-0.2 Photo: From creek right, looking W downstream at strategy location. Taken at average winter water.



Site Contact

No Information
Not Determined :

Nearest Address

5852 Barrett Rd
Ferndale, WA 98248

Driving Directions

1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 262 take ramp on the right to Main St toward City Center (0.3 miles)
3. Turn left on Main St (W Axton Rd) (0.07 miles)
4. Turn left on Barrett Rd (0.38 miles)
5. Finish at 5852 Barrett Rd, 98248, on the right

<< Go Back

Tenmile Creek at W Laurel Rd (KM TC-2.7) TNMIC-2.7

Position - Location:	48° 51.313', -122° 32.062'	48° 51' 18.8", -122° 32' 3.7"	48.85521, -122.53437	Ferndale

Strategy Objective:	Collection : Collect oil moving downstream on Tenmile Creek
Implementation:	Secure 100 ft section of boom to shore on creek left, at/near Point A (~20ft upstream of W Laurel Road bridge). Use bridge to extend boom SW downstream, and secure to shore on creek right, at/near Point B (roadside). Deploy additional length of hard boom downstream of roadway. Deploy multiple lengths of sorbent boom between bridge and hard boom. Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angles as needed based on streamflow. Vac truck or skimmer/storage collection from roadway.
Staging Area:	Onsite : Stage onsite, on roadway. Lane closure required.
Site Safety:	Natural Gas Pipeline; Traffic Hazard; Water Hazard (PFD Required); Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Natural gas pipeline on bridge. Follow WSDOT work zone traffic control guidelines when working on or near roadway. No shoulder on road.
Watercourse:	Creek - Tenmile Creek
Resources at Risk:	Endangered Plant Species, Raptors, Salmon (Coho, Chinook and Chum), T/E Species, Waterfowl, Wetland Habitat

Recommended Equipment

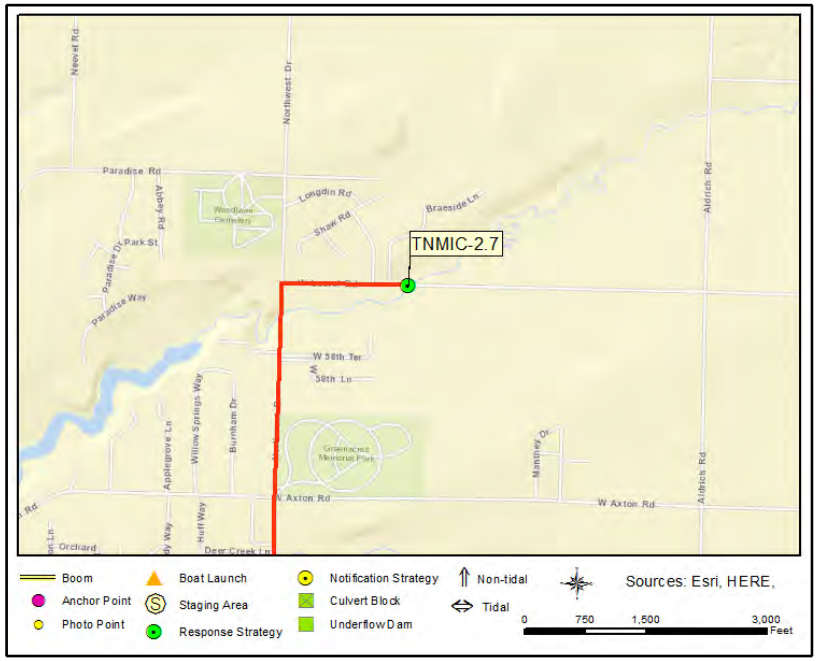
4	Each	Anchoring System(s)- Shoreside
200	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
200	Feet	Line - 1/2" poly line
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

2	Laborer
1	Supervisor

Tenmile Creek at W Laurel Rd (KM TC-2.7) TNMIC-2.7

TNMIC-2.7 Photo: From creek right at shoreside anchor point (Point B), upstream of roadway, looking E at strategy location. Taken at average winter water.



Site Contact

No Information
Not Determined :

Nearest Address

971 W Laurel Rd
Ferndale, WA 98248

Driving Directions

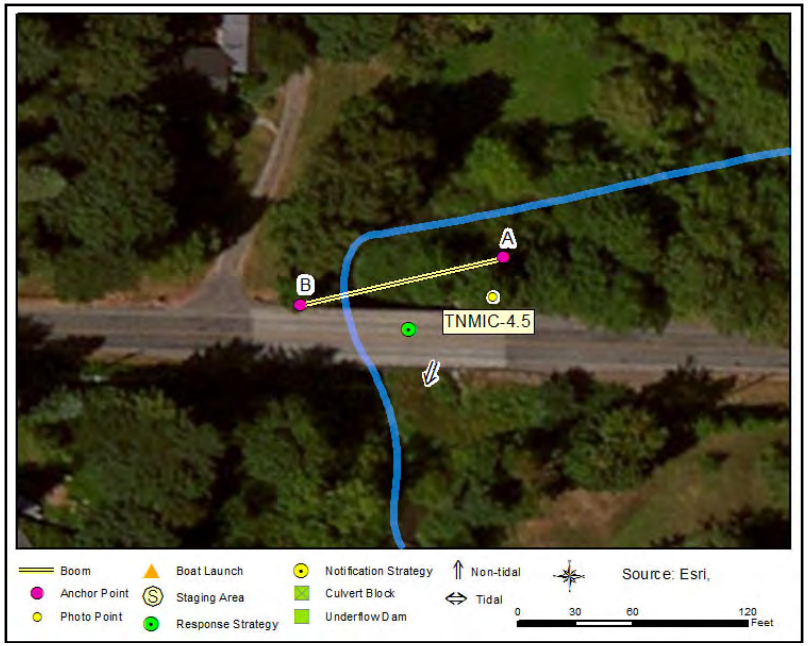
1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 257 take ramp on the right to Northwest Ave (0.22 miles)
3. Bear right on Northwest Dr (0.06 miles)
4. At roundabout, take the first exit to proceed on Northwest Dr (5.24 miles)
5. Turn right on W Laurel Rd (0.3 miles)
6. Finish at 971 W Laurel Rd, 98248, on the right

<< Go Back

Tenmile Creek at W Hemmi Rd (KM TC-4.5) TNMIC-4.5

Position - Location:	48° 51.747', -122° 30.847'	48° 51' 44.8", -122° 30' 50.8"	48.86245, -122.51412	Bellingham

Strategy Objective:	Collection : Collect oil moving downstream on Tenmile Creek
Implementation:	Secure 100 ft section of boom to shore on creek left, at/near Point A (~30ft upstream of W Hemmi Road bridge). Use bridge to extend boom SW downstream, and secure to shore on creek right, at/near Point B (roadside). Deploy multiple lengths of sorbent boom between bridge and hard boom. Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angles as needed based on streamflow. Vac truck or skimmer/storage collection from driveway or roadway.
Staging Area:	Onsite : Stage onsite, on driveway adjacent to site. Lane closure may be required.
Site Safety:	Traffic Hazard; Water Hazard (PFD Required); Slips, Trips, Falls; Heavy Vegetation; Homes Nearby
Field Notes:	Follow WSDOT work zone traffic control guidelines when working on or near roadway. Upstream side has veg cleared next to bridge and wide bank in low water; driveway to west is paved. Downstream is thicket.
Watercourse:	Creek - Tenmile Creek
Resources at Risk:	Emergent Wetlands, Salmon (Coho, Chinook and Chum), T/E Species, Waterfowl



Recommended Equipment

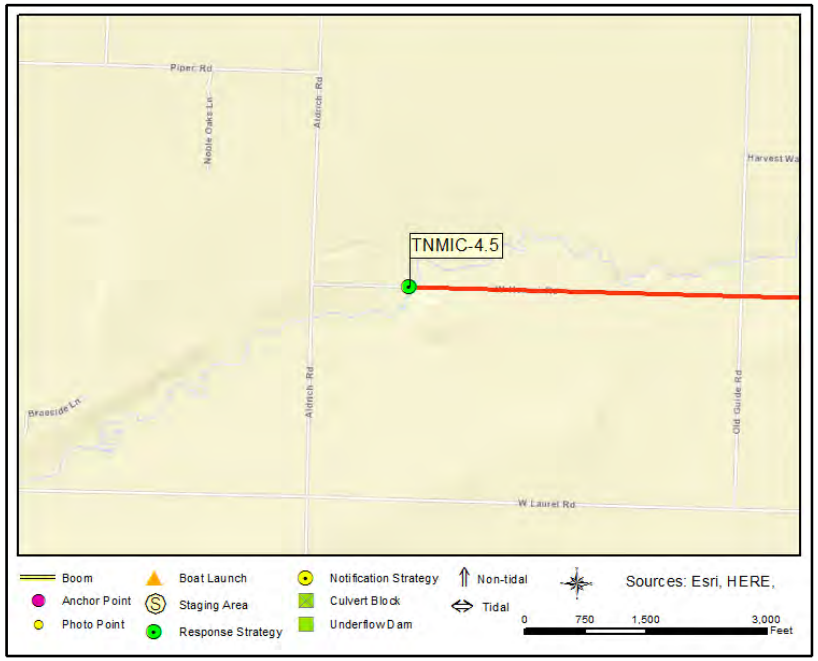
2	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
100	Feet	Boom - Sorbent
100	Feet	Line - 1/2" poly line
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

2	Laborer
1	Supervisor

Tenmile Creek at W Hemmi Rd (KM TC-4.5) TNMIC-4.5

TNMIC-4.5 Photo: From creek left at shoreside anchor point (Point A), upstream of roadway, looking W at strategy location. Taken at average winter water.



Site Contact

No Information
Not Determined :

Nearest Address

608 W Hemmi Rd
Bellingham, WA 98226

Driving Directions

1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 256A-B take ramp on the right to Bellis Fair-Mall Pkwy / WA-539 N / Meridian St (0.16 miles)
3. At exit 256A keep right on WA-539 N / Meridian St. toward Lynden (0.14 miles)
4. Turn right on Guide Meridian Rd (WA-539) (5.45 miles)
5. Turn left on W Hemmi Rd (1.28 miles)
6. Finish at 608 W Hemmi Rd, 98226, on the right

<< Go Back

Tenmile Creek at Old Guide Rd (KM TC-6.0) TNMIC-6.0

Position - Location:	48° 51.821', -122° 29.823'	48° 51' 49.3", -122° 29' 49.4"	48.86369, -122.49705	Bellingham

Strategy Objective:	Collection : Collect oil moving downstream on Tenmile Creek
Implementation:	Secure 100ft hard boom to creek left, at/near Point A (~10 ft upstream of bridge). Extend boom NW downstream and secure to shore on creek right, at/near Point B (roadside). Using hand-launch boat or waders, extend remaining boom across side channel/ditch and anchor to creek right, at/near Point C (30 ft upstream of bridge). Secure second 100ft section of hard boom downstream of bridge. Deploy multiple lengths of sorbent boom between bridge and hard boom. Use shoreside anchoring systems or existing features to secure boom to banks. Vac truck or skimmer/storage collection from roadway.
Staging Area:	Onsite : Stage onsite, on roadway. Lane closure required.
Site Safety:	Natural Gas Pipeline; Wire Fencing; Traffic Hazard; Water Hazard (PFD Required); Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Follow WSDOT work zone traffic control guidelines when working on or near roadway. Natural gas pipeline on bridge. Livestock fencing in area, may need to cut to access banks. No road shoulder. Slow and wide stream in winter that floods wetland area upstream.
Watercourse:	Creek - Tenmile Creek
Resources at Risk:	Emergent Wetlands, Riparian Habitat, Salmon (Coho, Chinook and Chum), T/E Species, Waterfowl

Recommended Equipment

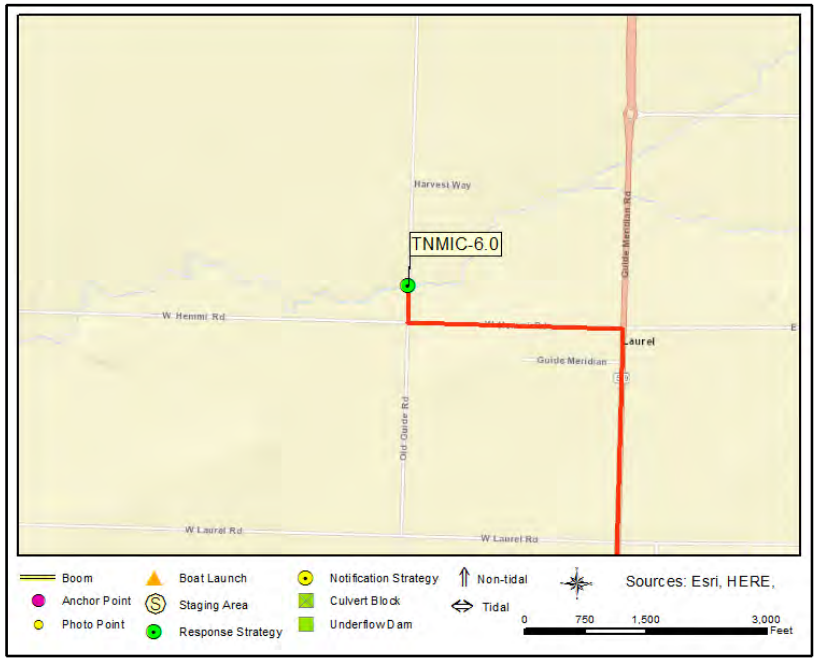
5	Each	Anchoring System(s)- Shoreside
1	Each	Bolt Cutters
200	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
200	Feet	Line - 1/2" poly line
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Vac Truck or Skimmer and Storage
1	Each	Waders
1	Each	Workboat(s) - (hand-launch)

Recommended Personnel

2	Laborer
1	Supervisor

Tenmile Creek at Old Guide Rd (KM TC-6.0) TNMIC-6.0

TNMIC-6.0 Photo: From creek left at shoreside anchor point (Point A), upstream of roadway, looking N at strategy location. Taken at average winter water.



Site Contact

No Information
Not Determined :

Nearest Address

6131 Old Guide Rd
Bellingham, WA 98226

Driving Directions

1. From Seattle, take I-5 N towards Bellingham
2. At exit 256A-B take ramp on the right to Bellis Fair-Mall Pkwy / WA-539 N / Meridian St (0.16 miles)
3. At exit 256A keep right on WA-539 N / Meridian St. toward Lynden (0.14 miles)
4. Turn right on Guide Meridian Rd (WA-539) (5.45 miles)
5. Turn left on W Hemmi Rd (0.51 miles)
6. Turn right on Old Guide Rd (0.09 miles)
7. Finish at 6131 Old Guide Rd, 98226, on the left

<< Go Back

Tenmile Creek at Chasteen Rd (KM TC-7.5) TNMIC-8.2

Position - Location:	48° 52.217', -122° 27.878'	48° 52' 13.0", -122° 27' 52.7"	48.87029, -122.46463	Lynden

Strategy Objective:	Collection : Collect oil moving downstream on Tenmile Creek
Implementation:	Secure 100 ft section of boom to shore on creek right, at/near Point A (~downstream edge of roadway). Use bridge to extend boom SW downstream, and secure to shore on creek left, at/near Point B (~40 ft downstream of bridge). Deploy multiple lengths of sorbent boom upstream of hard boom. Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angles as needed based on streamflow. Vac truck or skimmer/storage collection from roadway.
Staging Area:	Onsite : Stage onsite, on roadway. Lane closure required.
Site Safety:	Traffic Hazard; Water Hazard (PFD Required); Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Follow WSDOT work zone traffic control guidelines when working on or near roadway. Narrow to no shoulder on road but small pull-off into field just north of collection site.
Watercourse:	Creek - Tenmile Creek
Resources at Risk:	Riparian Habitat, Salmon (Coho, Chinook and Chum), T/E Species, Waterfowl, Wetlands

Recommended Equipment

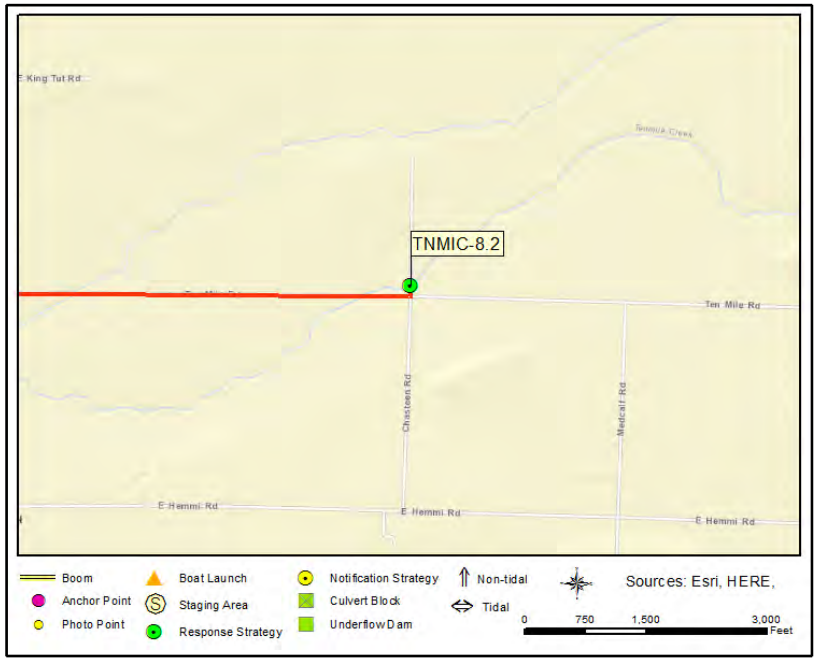
4	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (River Boom) or equivalent
200	Feet	Boom - Sorbent
2	Each	Plywood sheets (4ft x 8ft)
1	Each	Vac Truck or Skimmer and Storage

Recommended Personnel

2	Laborer
1	Supervisor

Tenmile Creek at Chasteen Rd (KM TC-7.5) TNMIC-8.2

TNMIC-8.2 Photo: From creek right, looking W downstream at strategy location. Taken at high spring water.



Site Contact

No Information
Not Determined :

Nearest Address

6407 Chasteen Rd
Lynden, WA 98264

Driving Directions

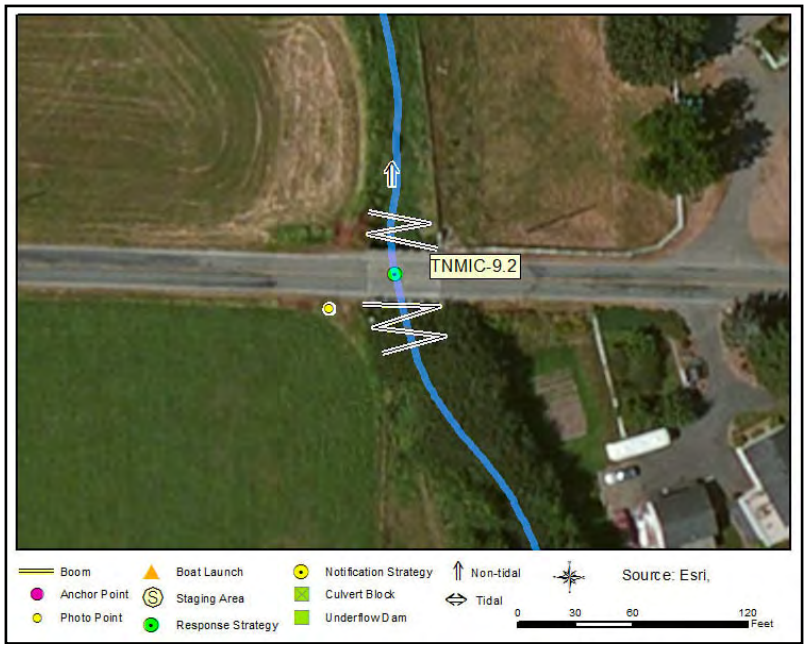
1. From Seattle, take I-5 N towards Bellingham.
2. At exit 256A-B take ramp on the right to Bellis Fair-Mall Pkwy / WA-539 N / Meridian St (0.16 miles)
3. At exit 256A keep right on WA-539 N / Meridian St. toward Lynden (0.14 miles)
4. Turn right on Guide Meridian Rd (WA-539) (5.9 miles)
5. Bear right (0.05 miles)
6. At roundabout, take the first exit to proceed on Ten Mile Rd (0.97 miles)
7. Turn left on Chasteen Rd (0.03 miles)
8. Finish at 6407 Chasteen Rd, 98264, on the left

<< Go Back

Tenmile Creek at Ten Mile and McClue (KM TC-9.2) TNMIC-9.2

Position - Location:	48° 52.191', -122° 26.224'	48° 52' 11.5", -122° 26' 13.4"	48.86985, -122.43706	Everson

Strategy Objective:	Collection : Collect oil moving downstream on Tenmile Creek
Implementation:	Deploy multiple lengths of sorbent or sweep across creek, upstream and downstream of Ten Mile Road bridge. Use stakes, anchor posts or trees to secure ends of sorbent boom to banks of tributary. Replace saturated sorbents as needed.
Staging Area:	Onsite : Stage onsite, on roadway. Lane closure required.
Site Safety:	Traffic Hazard; Farm Animals and Equipment; Water Hazard (PFD Required); Slips, Trips, Falls; Heavy Vegetation
Field Notes:	Follow WSDOT work zone traffic control guidelines when working on or near roadway. East side of creek is very close to homes with farm animals & equipment. Downside of bridge has more open space, less vegetation.
Watercourse:	Creek - Tenmile Creek
Resources at Risk:	Downstream Resources, Riparian Habitat, Salmon (Coho, Chinook and Chum), Steelhead, T/E Species



Recommended Equipment

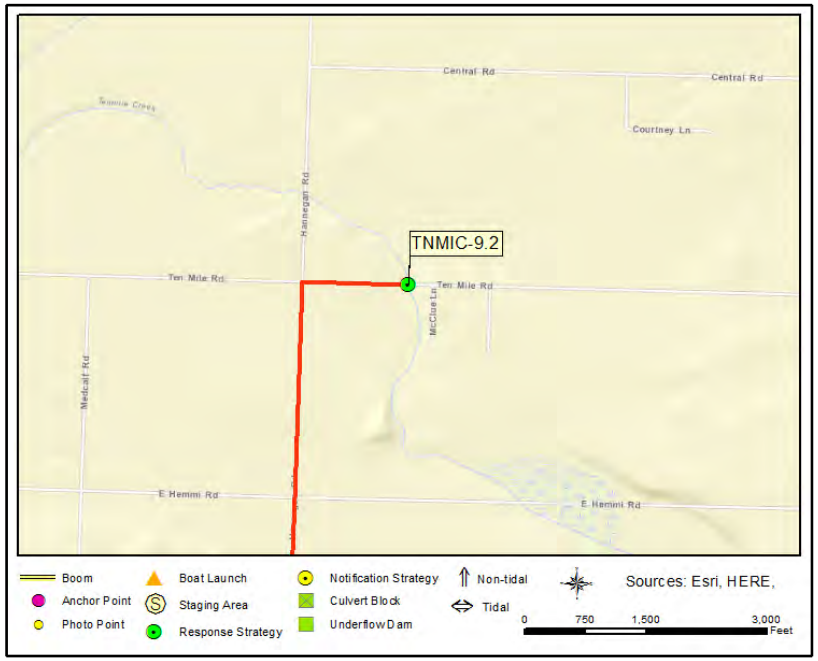
4	Each	Anchoring System(s)- Shoreside
200	Feet	Boom - Sorbent

Recommended Personnel

2	Laborer
1	Supervisor

Tenmile Creek at Ten Mile and McClue (KM TC-9.2) TNMIC-9.2

TNMIC-9.2 Photo: From creek left, upstream of roadway, looking E at strategy location. Taken at average winter water.



Site Contact

No Information
Not Determined :

Nearest Address

1015 Ten Mile Rd
Everson, WA 98247-9783

Driving Directions

1. From Seattle, take I-5 N toward Bellingham
2. At exit 255 take ramp on the right to WA-542 E / Sunset Dr toward Mt Baker (0.2 miles)
3. Turn right on E Sunset Dr (WA-542) (0.87 miles)
4. Turn left on Hannegan Rd (6.53 miles)
5. Turn right on Ten Mile Rd (0.28 miles)
6. Finish at 1015 Ten Mile Rd, 98247-9783, on the right

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Shuksan Golf Course Tenmile Creek Tributary TNMICU-11.6

Position - Location:	48° 51.204', -122° 24.014'	48° 51' 12.2", -122° 24' .8"	48.85340, -122.40023	Bellingham

Strategy Objective:	Collection : Collect oil moving downstream on unnamed tributary of Tenmile Creek
Implementation:	Secure 100ft hard boom to shore on creek right, at/near Point A (~100 ft upstream of golf cart bridge). Extend boom SW downstream and secure to shore on creek left, at/near Point B (~60 ft upstream of bridge). Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angles as needed based on streamflow. Vac truck or skimmer/storage collection from golf cart trail south of bridge. Keep vac truck or heavy equipment off golf cart bridge.
Staging Area:	Onsite : Stage onsite, on golf cart path near Hole 13, south of bridge. Keep heavy equipment off bridge.
Site Safety:	KEEP TRUCKS OFF BRIDGE; Active Golf Course; Water Hazard (PFD Required); Slips, Trips, Falls
Field Notes:	Best access to site is from gates on Noon Rd or High Noon Rd and drive across rough/golf cart paths. Site is on large pond by 13th Hole. Transmountain Pipeline ROW nearby.
Watercourse:	Creek - Unnamed Tributary of Tenmile Creek
Resources at Risk:	Riparian Habitat, Salmon (Coho, Chinook and Chum), T/E Species, Wetlands

Recommended Equipment

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

Recommended Personnel

2	Laborer
1	Supervisor

Shuksan Golf Course Tenmile Creek Tributary TNMICU-11.6

TNMICU-11.6 Photo: From roadway, looking E upstream at strategy location. Taken at average winter water.

Site Contact

Shuksan Golf Course
Pre-Notification Required : Land owner
360-398-8888

Kinder Morgan Trans Mountain Pipeline
Alternate Contact : Maintains resident contact info
888-876-6711

Nearest Address

5849 Noon Rd
Bellingham, WA 98226

Driving Directions

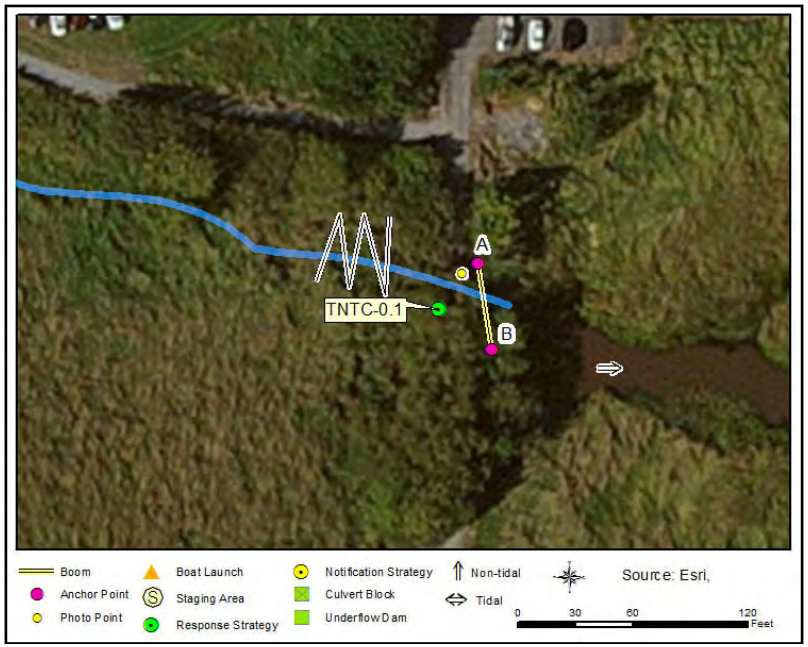
DIRECTIONS TO STRATEGY SITE:
1. From Seattle, take I-5 N towards Bellingham.
2. At exit 255 take ramp on the right to WA-542 E / Sunset Dr toward Mt Baker (0.2 miles)
3. Turn right on WA-542 (E Sunset Dr) (3.74 miles)
4. Turn left on Noon Rd (3.67 miles)
5. Enter through golf cart fence (cut lock if needed) and drive through rough along south side of pond to collection site at golf cart trail bridge.

DRIVING DIRECTIONS TO MAIN GOLF CLUBHOUSE:
1. From WA-542/E Sunset Dr, turn west on E Smith Rd. 2. Make the next right onto Starry Rd.
3. Where Starry Rd makes a sharp left turn and changes names to Axton Road, proceed straight into golf course parking lot. 1500 E Axton Rd, 98226
4. Collection site is next to green at 13th Hole (between 14 & 15).

Tennant Creek at Tennant Lake (KM TL-0.1) TNTC-0.1

Position - Location:	48° 49.837', -122° 35.091'	48° 49' 50.2", -122° 35' 5.5"	48.83061, -122.58485	Ferndale

Strategy Objective:	Collection : Collect oil moving downstream on Tennant Creek
Implementation:	Secure 100 ft segment of hard boom to shore on creek left, downstream of road, near A. Extend boom downstream and secure to shore on creek right, at/near Point B (~10 ft from roadside). Deploy multiple lengths of sorbent boom across Tennant Creek, upstream of road. Use shoreside anchoring systems or existing features to secure boom to banks. Adjust boom angles as needed based on streamflow. Collect oil using vac truck or skimmer/storage from roadway. Replace saturated sorbents as needed.
Staging Area:	Onsite : Stage onsite, on private roadway.
Site Safety:	Hunting Nearby; Public Park; Water Hazard (PFD Required); Slips, Trips, Falls; Heavy Vegetation
Field Notes:	High water may flood road. Gravel hand-launch 50 ft south of site, or use waders. Just upstream of critical habitat: Tennant Lake is shallow with dense vegetation.
Watercourse:	Creek - Tennant Creek at Tennant Lake
Resources at Risk:	Critical Wetland Area, Public Recreation Site/Area, Salmon - Coho, T/E Species, Waterfowl Concentrations, Wildlife Refuge



Recommended Equipment

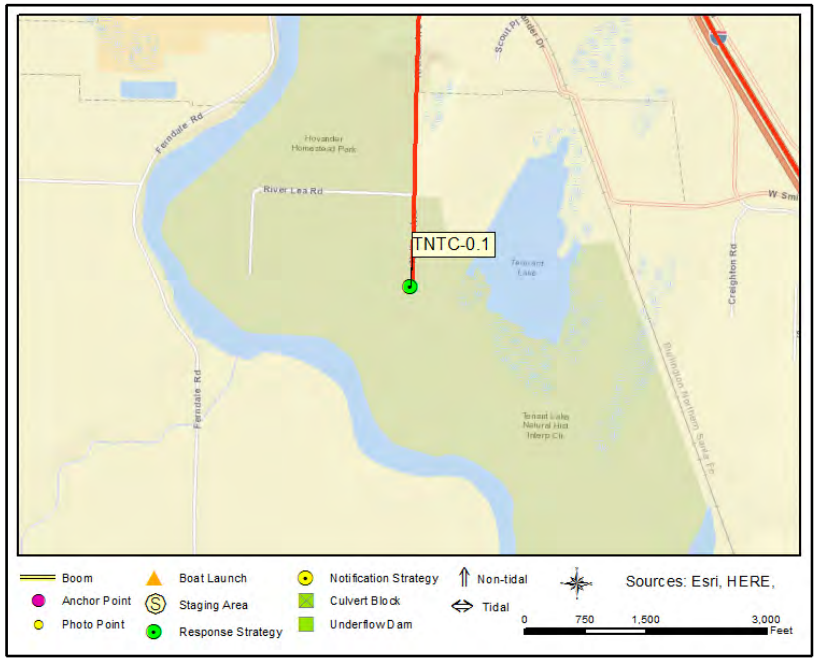
4	Each	Anchoring System(s)- Shoreside
100	Feet	Boom - B3 (Contractor Boom) or equivalent
300	Feet	Boom - Sorbent
1	Each	Machete(s) - (or other vegetation cutting tool)
1	Each	Vac Truck or Skimmer and Storage
1	Each	Waders
1	Each	Workboat(s) - (hand-launch)

Recommended Personnel

3	Laborer
1	Supervisor

Tennant Creek at Tennant Lake (KM TL-0.1) TNTC-0.1

TNTC-0.1 Photo: From gravel road S of parking area, looking E at Tennant Creek and wetlands. Average winter water.



Site Contact

Washington Department of Fish and Wildlife
Land/Property Contact : Region 4
425-775-1311

Whatcom County Parks and Recreation
Alternate Contact : Land owner
360.778.5850

Nearest Address

5209 Neilsen Ave
Ferndale, WA 98248

Driving Directions

1. From Seattle, take I-5 N past downtown Bellingham
2. At exit 262 take ramp on the right to Main St toward City Center (0.3 miles)
3. Turn right on Main St (W Axton Rd) (0.6 miles)
4. Make sharp left on Hovander Dr (0.11 miles)
5. Turn right on Nielsen Ave - sign for Hovander Homestead Park (0.85 miles)
6. Continue past Interpretive Center parking lot at 5209 Neilsen Ave, 98248, to gravel road and culvert.

APPENDIX 4B

Notification Strategy 2-Pagers

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NOTIFICATION STRATEGIES – LIST

NFNOOR-45.5-N **NOOR-5.4-N** **NOOR-9.2-N**

NOOR-17.9-N **NPS-10-N**** **SFNOOR-14.1-N**

** Strategies from the **North Puget Sound GRP** that are included in this appendix for ease of reference

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WDFW Kendall Creek Hatchery NFNOOR-45.5-N

Position - Location:	48° 49.050', -122° 11.041'	48° 49' 3.0", -122° 11' 2.4"	48.81750, -122.18401	Deming

Strategy Objective: Notification : Notify WDFW's Kendall Creek hatchery so they can take action to protect their fish

Implementation: Notify Kendall Creek Hatchery at (360) 599-2841 and inform them of any significant oil spill or potential spill that impacts or threatens to impact the North Fork or main stem Nooksack River, so they can take action to protect the resources under their control, including adjusting planned fish releases.

Field Notes: Located on Kendall Creek, a tributary of the North Fork Nooksack River, 45 miles NE of main fork.

Watercourse: Creek - Kendall Creek (tributary of North Fork Nooksack River)

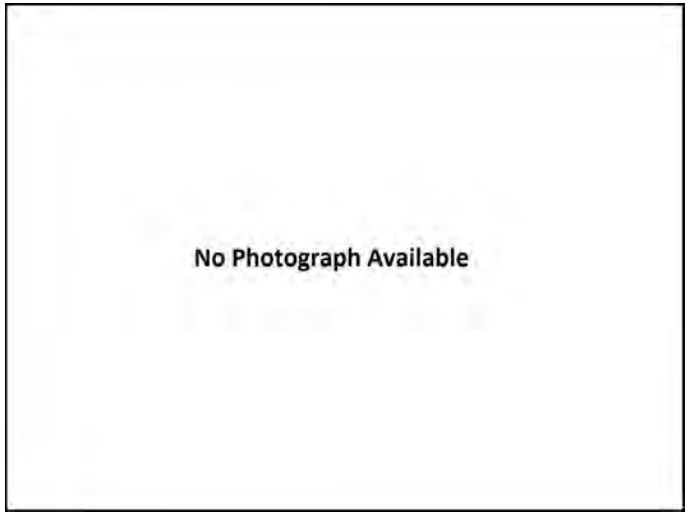
Resources at Risk: Economic Resource, Fish Hatchery

Communication Process and Action:

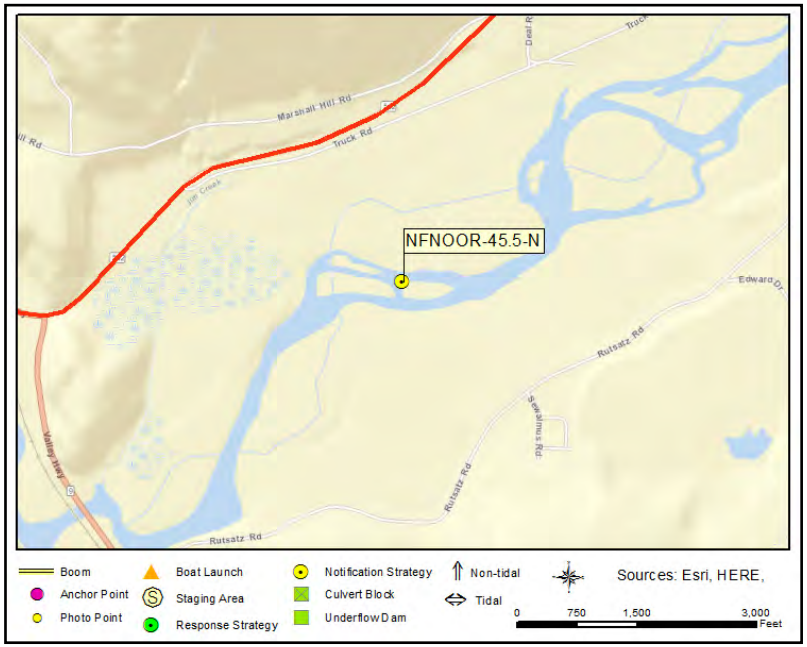
Call Kendall Creek Hatchery at (360) 599-2841 and inform them of any significant oil spill or potential spill that impacts or threatens to impact a planned release of hatchery fish to the North Fork Nooksack River, main stem Nooksack River, or one of its tributaries. Once notified, the hatchery will determine what action(s) they need to take to protect the fish. Actions by the hatchery might include delaying or relocating any fish releases.

If no answer at the hatchery, call the following numbers and inform them of the need to notify Kendall Creek Hatchery:
WDFW Oil Spill Response Team: (360) 534-8233
WDFW Region 4 HQ: (425) 775-1311

WDFW Kendall Creek Hatchery NFNOOR-45.5-N



NFNOOR-45.5-N Photo: No photo available.



Site Contact

WDFW Kendall Creek Hatchery
Primary Contact : Hatchery phone
360-534-8233

Washington Department of Fish and Wildlife
Alternate Contact : Region 4
425-775-1311

Nearest Address

6263 Mt Baker Hwy
Deming, WA 98244

Driving Directions

1. Head N on I-5 towards Bellingham.
2. At exit 255 take ramp on the right to WA-542 E / Sunset Dr toward Mt Baker (0.2 miles)
3. Turn right on WA-542 (E Sunset Dr) (9.93 miles)
4. At roundabout, take the first exit to proceed on WA-542 E (WA-9 S) (7.41 miles)
5. At fork keep left on WA-542 E (Mount Baker Highway Route 542) (3.93 miles)
6. Take the hairpin turn right at signs for WDFW hatchery, then take the first left.

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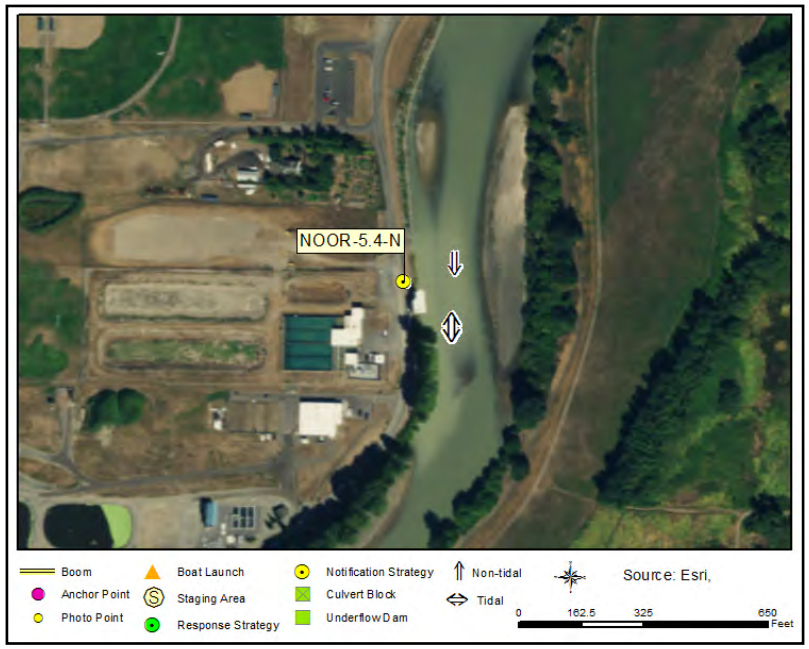
Whatcom PUD #1 Downstream Intake (KM NO-5.4) NOOR-5.4-N

Position - Location:	48° 50.343', -122° 35.538'	48° 50' 20.6", -122° 35' 32.3"	48.83905, -122.59230	Ferndale

Strategy Objective:	Notification : Notify Whatcom PUD #1 so they can take action to protect their water intakes
Implementation:	Call Whatcom PUD #1 at 360-384-4288 and inform them of any significant oil spill or potential spill that impacts or threatens to impact the industrial water intake on the Nooksack River, so they can take action to protect the resources under their control, including the protection of their water intake near this location.
Field Notes:	Intake provides 50 cfs of industrial grade water to Cherry Point refinery and irrigation customers.
Watercourse:	River - Nooksack River
Resources at Risk:	Economic Resource, Water Intakes



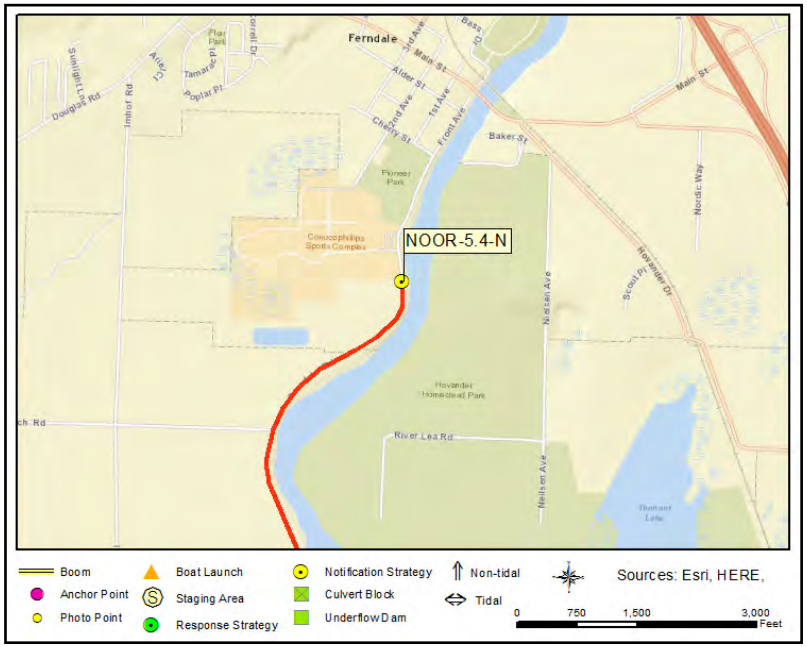
Communication Process and Action:

Call Whatcom PUD #1 at 360-384-4288 and inform them of any significant oil spill or potential spill that impacts or threatens to impact the industrial water intake on the Nooksack River. Once notified, the PUD will determine what action(s) they need to take to protect the water intakes. Actions by the PUD might include shutting down the intake pumps and closing intake valves. Another action to protect the intake is the deployment of response strategy NOOR-5.4.

Steps to reach the PUD:
1. Call 360-384-4288
2. After the prompts, press 5 to call the Water Plants or maintenance building.
3. If there is no answer, press 1 to call the emergency line and reach the operator on call. (There may be a long silent pause.)
4. If nobody answers and it goes to voicemail, leave a callback number and a detailed message, and specify that the Plant is involved.
5. Wait for callback.

Whatcom PUD #1 Downstream Intake (KM NO-5.4) NOOR-5.4-N

NOOR-5.4-N Photo: View of water intake, from upstream side, looking south on Nooksack River right.



Site Contact

Whatcom County PUD #1
Emergency Contact : Water intake operator

Ferndale, WA 98248
360-384-4288

Nearest Address

5431 Ferndale Rd
Ferndale, WA 98248

Driving Directions

1. Head N on I-5 towards Bellingham.
2. At exit 260 take ramp on the right to Slater Rd toward Lummi Is. (0.25 miles)
3. At roundabout, take the third exit to proceed on Slater Rd (0.22 miles)
4. At roundabout, take the first exit to proceed on Slater Rd (2.08 miles)
5. Turn right on Ferndale Rd (1.55 miles)
6. Finish at 5431 Ferndale Rd, 98248, on the left

Whatcom PUD #1 Upstream Water Intake (KM NO-8.8) NOOR-9.2-N

Position - Location:	48° 52.787', -122° 33.885'	48° 52' 47.2", -122° 33' 53.1"	48.87978, -122.56475	Ferndale

Strategy Objective: Notification : Notify Whatcom PUD #1 so they can take action to protect their water intakes

Implementation: Call Whatcom PUD #1 at 360-384-4288 and inform them of any significant oil spill or potential spill that impacts or threatens to impact the industrial water intake on the Nooksack River, so they can take action to protect the resources under their control, including the protection of their water intake near this location.

Field Notes: Intake supplies 28 cfs of industrial-grade water to Cherry Point refinery and irrigation customers.

Watercourse: River - Nooksack River

Resources at Risk: Economic Resource, Water Intakes

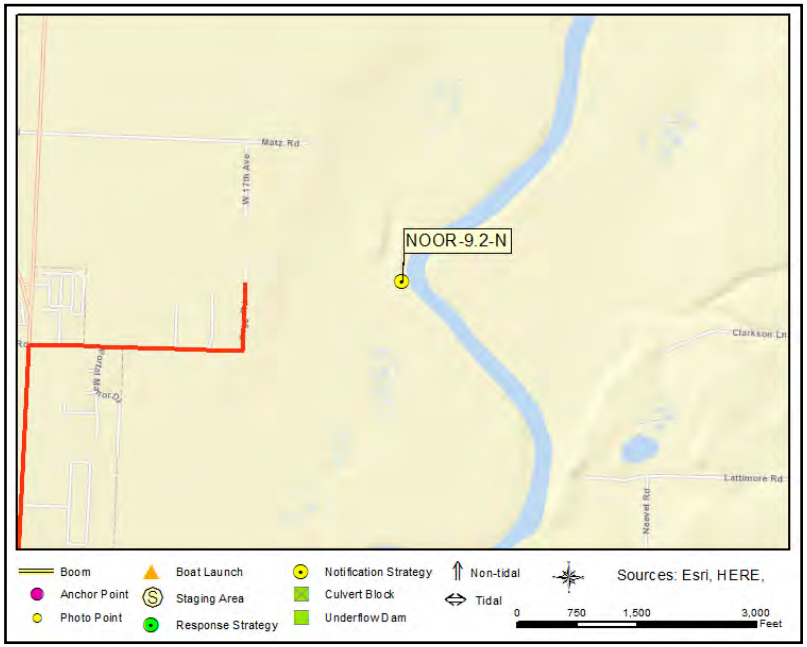
Communication Process and Action:

Call Whatcom PUD #1 at 360-384-4288 and inform them of any significant oil spill or potential spill that impacts or threatens to impact the industrial water intake on the Nooksack River. Once notified, the PUD will determine what action(s) they need to take to protect the water intakes. Actions by the PUD might include shutting down the intake pumps and closing intake valves. Another action to protect the intake is the deployment of response strategy NOOR-9.2.

Steps to reach the PUD:
1. Call 360-384-4288
2. After the prompts, press 5 to call the Water Plants or maintenance building.
3. If there is no answer, press 1 to call the emergency line and reach the operator on call. (There may be a long silent pause.)
4. If nobody answers and it goes to voicemail, leave a callback number and a detailed message, and specify that the Plant is involved.
5. Wait for callback.

Whatcom PUD #1 Upstream Water Intake (KM NO-8.8) NOOR-9.2-N

NOOR-9.2-N Photo: Downstream side of water intake on Nooksack River right, looking NE at river.



Site Contact

Whatcom County PUD #1
Emergency Contact : Water intake operator

Ferndale, WA 98248
360-384-4288

Nearest Address

1703 Trigg Rd
Ferndale, WA 98248

Driving Directions

1. Head North on I-5 N towards Bellingham.
2. At exit 263 take ramp on the right to Portal Way (0.24 miles)
3. Turn right on Portal Way (1.33 miles)
4. Turn right on Trigg Rd (0.67 miles)
5. Finish at 1703 Trigg Rd, 98248, on the right

City of Lynden Water Intake (KM NO-17.9) NOOR-17.9-N

Position - Location:	48° 56.196', -122° 26.497'	48° 56' 11.8", -122° 26' 29.8"	48.93661, -122.44161	Lynden

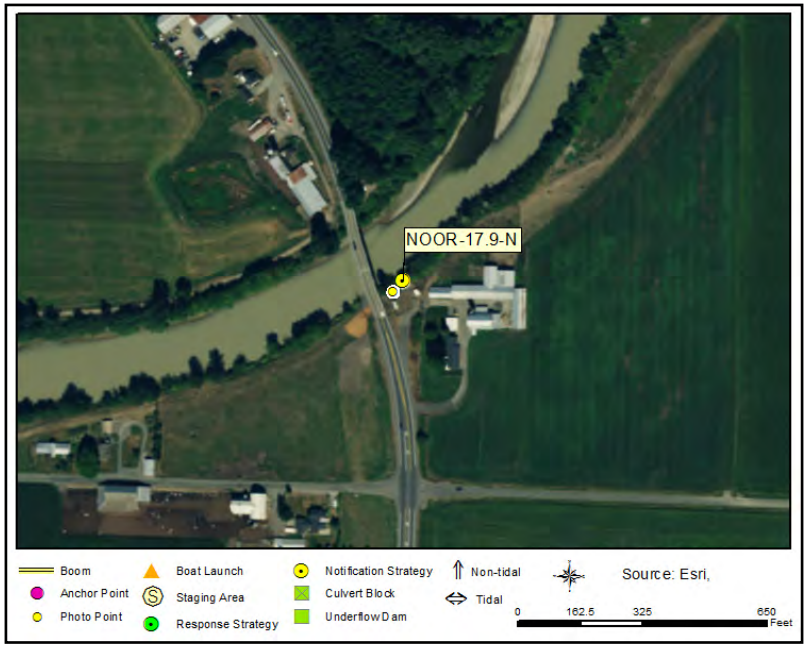
Strategy Objective: Notification : Notify City of Lynden so they can protect their water intakes

Implementation: Call City of Lynden Public Works at 360-354-0633 and advise of spill, and that they take protective action, which may include shutting down their water intakes.

Field Notes: Intake is just upstream of Hannegan Rd.

Watercourse: River - Nooksack River

Resources at Risk: Economic Resource, Public Health and Safety, Water Intakes



Communication Process and Action:

Notify City of Lynden of the spill, so they take action to protect the resources under their control, which may include closing their water intakes. Try the following numbers until someone at the City has been properly notified:

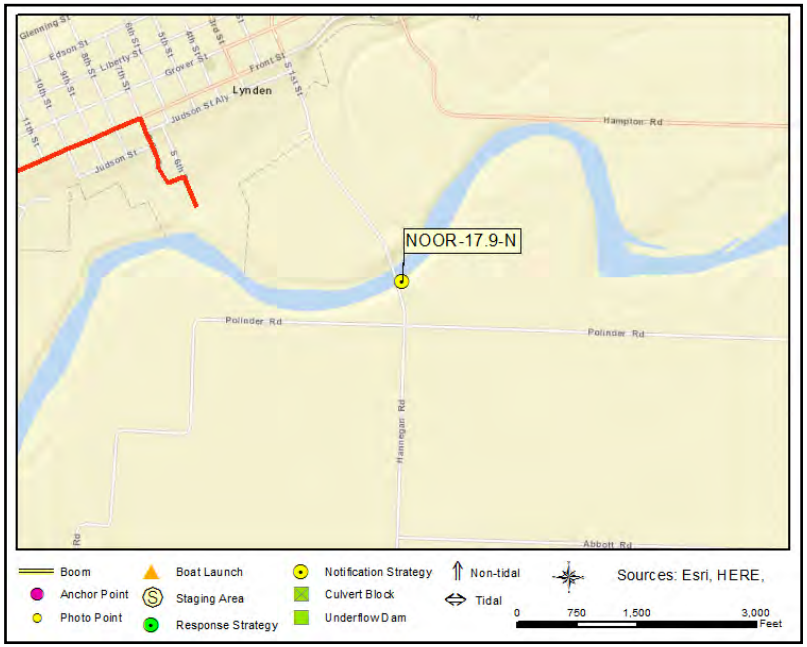
Main office:
City of Lynden Public Works 360-354-0633

Pagers:
360-758-9125
360-758-6629
360-714-4059

Telephones:
360-354-3446
360-592-2131

City of Lynden Water Intake (KM NO-17.9) NOOR-17.9-N

NOOR-17.9-N Photo: From south bank on Nooksack River left, looking NE upstream at water intake. Taken in very low winter water, <2000 cfs.



Site Contact

City of Lynden Public Works Department
Primary Contact : Water/Wastewater Treatment Plant

Lynden, WA 98264
360-354-0633

Nearest Address

800 S 6th St
Lynden, WA 98264

Driving Directions

1. Head N on I-5 towards Bellingham.
2. At exit 256A-B take ramp on the right to Bellis Fair-Mall Pkwy / WA-539 N / Meridian St (0.16 miles)
3. At exit 256A keep right on WA-539 N / Meridian St. toward Lynden (0.14 miles)
4. Turn right on Guide Meridian Rd (WA-539) (5.9 miles)
5. At roundabout, take the second exit to proceed on WA-539 N (Guide Meridian Rd) (4.56 miles)
6. Turn right on Kok Rd (0.73 miles)
7. Bear left on S 17th St (0.28 miles)
8. Turn right on Front St (0.65 miles)
9. Turn right on S 7th St (0.17 miles)
10. Bear left on Riverview Rd (0.04 miles)
11. Turn right on S 6th St (0.08 miles)
12. Finish at gated entrance to Treatment Plant, 800 S 6th St, 98264

Lummi Bay Hatchery Water Intake and Net Pens NPS-10-N

Position - Location:	48° 47.477', -122° 35.455'	48° 47' 28.6", -122° 35' 27.3"	48.79128, -122.59091	Bellingham

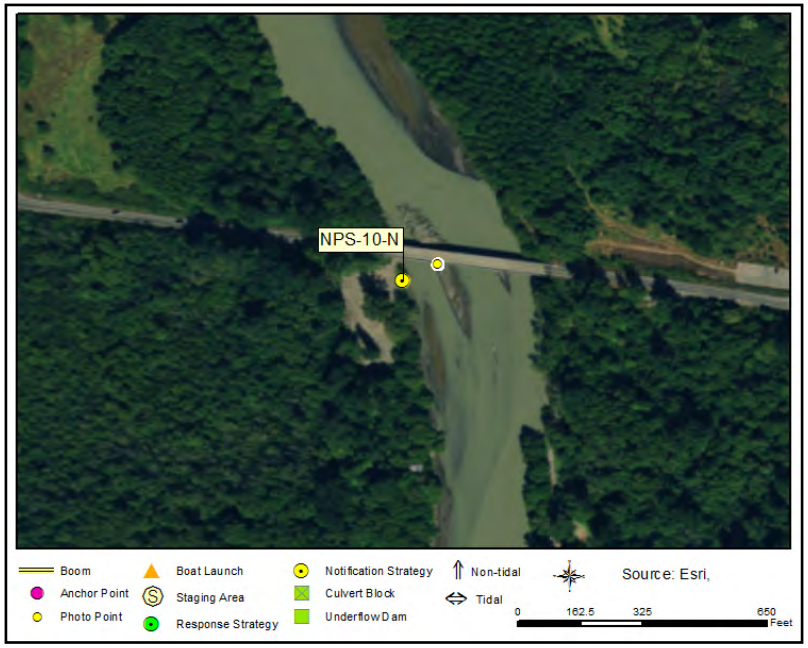
Strategy Objective: Notification : Notify Lummi Nation so they can take action to protect their water intake and net pens

Implementation: Call Lummi Nation Natural Resources Director at 360-410-1706 and inform them of any significant oil spill, or potential spill, that threatens to impact the hatchery water intake on the Nooksack River, or net pens in Lummi Bay, so they can take action to protect the resources under their control.

Field Notes: Water intake pump (RM 1.3) only runs certain times of year, Aug.- Dec. and Feb. - May. Water intake depth about 10 feet. The fish being fed with this water can only live a few hours with the pump off.

Watercourse: River - Nooksack River

Resources at Risk: Economic Resource, Tribal Lands/Resources, Water Intakes



Communication Process and Action:

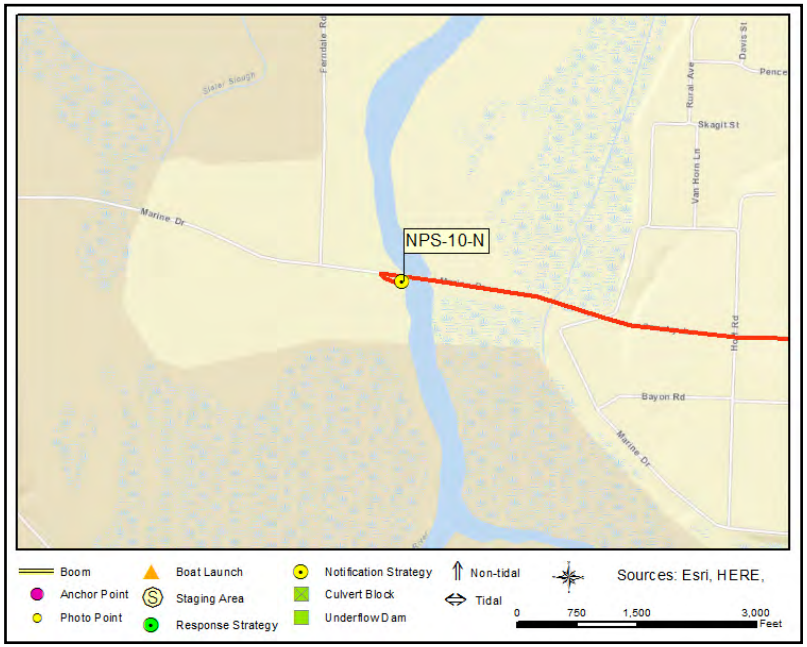
Call Lummi Nation Natural Resources Director at 360-410-1706 and inform them of any significant oil spill or potential spill that impacts or threatens to impact the water intake on the Nooksack River, or the net pens in Lummi Bay. The hatchery wil determine what action(s) they need to take to protect their hatchery. Actions by the Lummi Nation might include shutting down their water intake pumps and closing intake valves, or other actions in Lummi Bay.

If the Director is unavailable, try the following numbers until someone at Lummi Nation has been notified:

Lummi Bay Hatchery: 360-384-2221
24-hour Fisheries Hotline: 360-380-6899
Water Resources: 360-312-2314

Lummi Bay Hatchery Water Intake and Net Pens NPS-10-N

NPS-10-N Photo: From Marine Dr bridge over Nooksack River, looking SW at water intake for Lummi Bay Salmon Hatchery.



Site Contact

Lummi Nation Natural Resources
Primary Contact : Director
360-410-1706

Lummi Bay Salmon Hatchery
Alternate Contact : Pump Station Control
360-384-2221

Nearest Address

2031 Marine Drive
Bellingham, WA 98226

Driving Directions

1. From Seattle, take I-5 N towards Bellingham
2. At exit 258 take ramp on the right to Bakerview Road toward Bellingham Int'l Airport (0.25 miles)
3. Turn left on W Bakerview Rd (0.26 miles)
4. Bear right on Airport Dr (0.76 miles)
5. Continue on Alderwood Ave (0.33 miles)
6. Turn right on Marine Dr (0.86 miles)
7. Turn right on Bancroft Rd (0.59 miles)
8. Continue on Country Ln (0.82 miles)
9. Continue on Marine Dr (0.52 miles)
10. Take the first left after the bridge into gravel/dirt lot.

Lummi Nation Hatchery on Skookum Creek SFNOOR-14.1-N

Position - Location:	48° 41.802', -122° 9.998'	48° 41' 48.1", -122° 9' 59.9"	48.69670, -122.16664	Acme

Strategy Objective: Notification : Notify Lummi Nation's Skookum Creek hatchery so they can take action to protect their fish and water intakes

Implementation: Notify Lummi Nation Natural Resources Director at 360-410-1706 and inform them of any significant oil spill or potential spill that impacts or threatens to impact the hatchery water intake on Skookum Creek, or the South Fork or mainstem Nooksack River, so they can take action to protect the resources under their control, including adjusting planned fish releases.

Field Notes: Water intake is on Skookum Creek. Hatchery is located on South Fork Nooksack River at RM 14.1.

Watercourse: Creek - Skookum Creek and South Fork Nooksack River

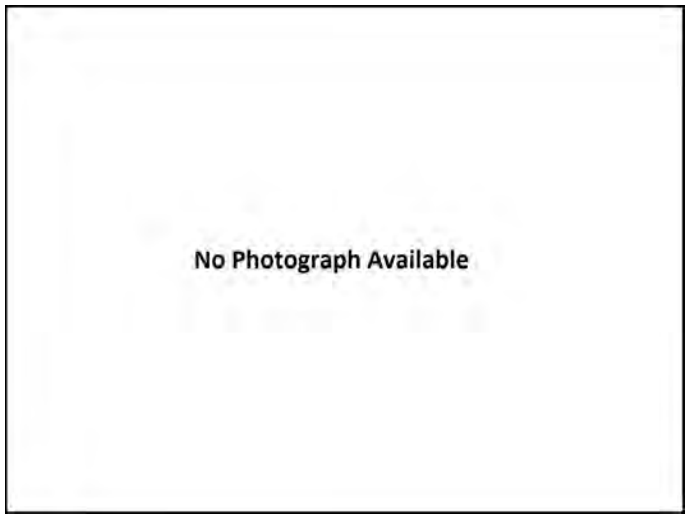
Resources at Risk: Fish Hatchery, Tribal Lands/Resources, Water Intakes

Communication Process and Action:

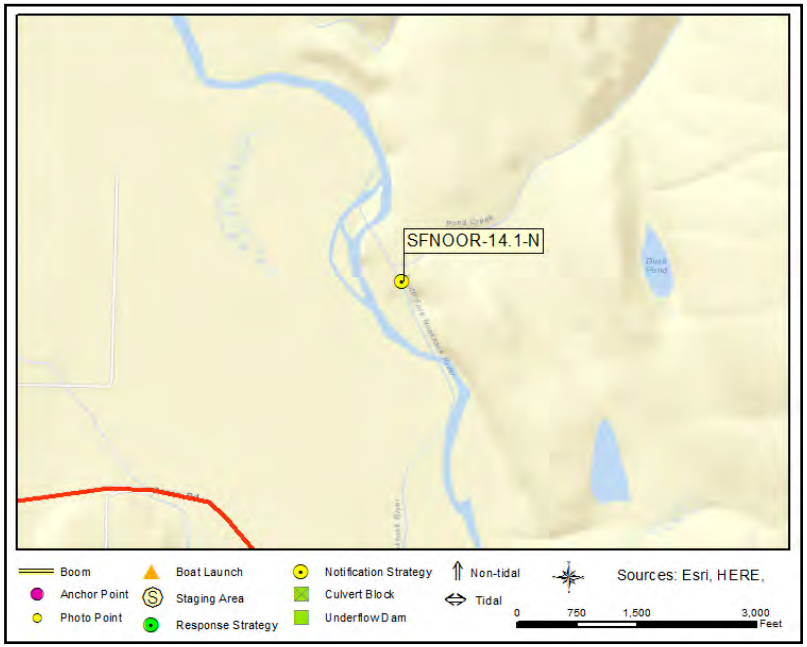
Call Lummi Nation Natural Resources Director at 360-410-1706 and notify of any spill, or potential spill, that may impact their resources. Advise that they take protective action, which may include delaying or relocating any fish releases. If the spill is to Skookum Creek, protective actions may include shutting down their surface water intake.

If the Director is unavailable, try the following numbers in order until someone at the Lummi Nation has been notified:
Bill Finkbonner (Hatchery Manager): 360-410-9992 (cell)
360-595-2142 (office)
Marlon Dennis (Assistant Hatchery Manager): 360-305-2260 (cell)
360-595-2093 (office)

Lummi Nation Hatchery on Skookum Creek SFNOOR-14.1-N



SFNOOR-14.1-N Photo: No photo available.



Site Contact

Lummi Nation Oil Spill Response Team
Emergency Contact : Natural Resources Department
2665 Kwina Road
Bellingham, WA 98226
360-410-1706

Nearest Address

6473 Saxon Rd
Acme, WA 98220

Driving Directions

1. From Mt Vernon, Follow I-5 N to exit 232. (9.6 mi)
2. Turn right onto Cook Rd (4.2 mi)
3. At the traffic circle, take the 2nd exit and stay on Cook Rd (0.1 mi)
4. At the traffic circle, take the 2nd exit onto Borseth St (0.2 mi)
5. Continue onto W Moore St (466 ft)
6. At the traffic circle, continue straight to stay on W Moore St (0.7 mi)
7. Turn left onto WA-9 N/N Township St. Continue to follow WA-9 N (12.7 mi)
8. Turn right onto Saxon Rd (2.6 mi)
9. The Skookum Creek Fish Hatchery will be on the left near 6473 Saxon Road, Acme, WA 98220.

APPENDIX 4C

Staging Area 2-Pagers

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STAGING AREAS - LIST

SA-NOOR-5.8 **SA-NOOR-30.8**

Ferndale Boat Launch - Hovander SA-NOOR-5.8

Staging Area

Position - Location:	48° 50.583', -122° 35.363'	48° 50' 35.0", -122° 35' 21.8"	48.84305, -122.58939	Ferndale

Comments: Coordinate use of staging area with Washington Department of Fish and Wildlife Region 4; call 425-775-1311.

GRP Response Strategies Served:

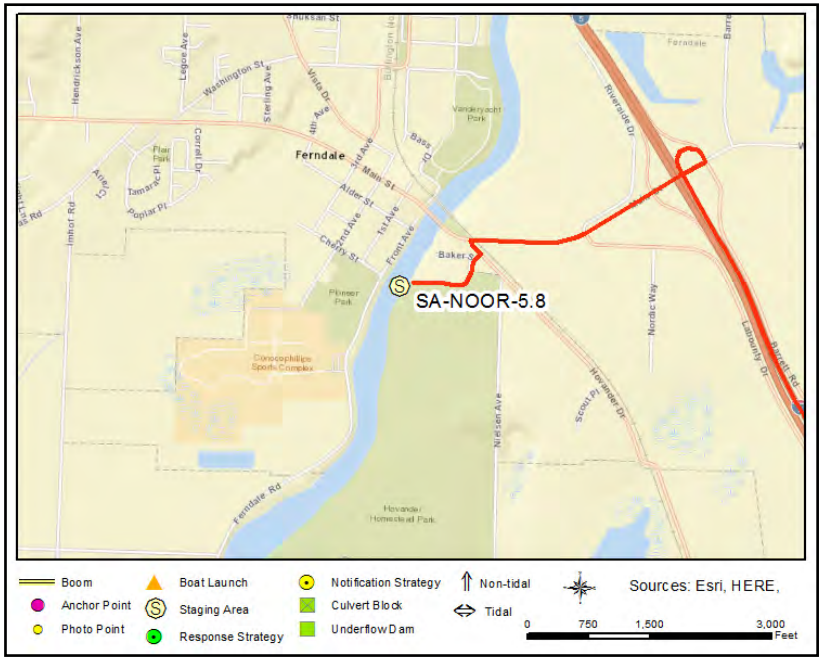
NOOR-5.9, NOOR-5.4, NOOR-6.0, NOOR-9.2, NOOR-6.8, NOOR-7.2, NOOR-6.9

Location Information

Asset	Type/Status	Amount/Number
Boat Dock(s)	No	
Boat Ramp(s)	Concrete, Solid	1
Cell Phone Coverage	Yes	3/4 bars on Sprint + Verizon
Covered Spaces	Yes	In S part of park
Estimated Lot Size		9000 Sq Ft (gravel)
Fuel	No	
Lot Cover (Primary)	Gravel	
Parking - Car	Gravel	20
Parking - Trailer	Gravel	20
Power	No	
Restroom	Restroom - Portable	1 More in S part of park
User Fee	No	
Waste Disposal	None	
Water (potable)	No	

Ferndale Boat Launch - Hovander SA-NOOR-5.8

SA-NOOR-5.8 Photo: On Nooksack River left, looking SW down boat launch. Taken at 4200 cfs, avg winter water.



Site Contact

Washington Department of Fish and Wildlife
Land/Property Contact : Region 4
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
425-775-1311

Nearest Address

5528 Baker St
Ferndale, WA 98248

Driving Directions

1. Head north on I-5 past downtown Bellingham
2. At exit 262 take ramp on the right to Main St toward City Center (0.3 miles)
3. Turn right on Main St (W Axton Rd) (0.6 miles)
4. Make sharp left on Hovander Dr (0.04 miles)
5. Take a right at the sign for public boat launch/park (0.2 mi)
6. Continue past parking area to boat launch.

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Nugent's Corner SA-NOOR-30.8

Staging Area

Position - Location:	48° 50.609', -122° 17.625'	48° 50' 36.5", -122° 17' 37.5"	48.84348, -122.29375	Everson

Comments: Coordinate use of staging area with Washington Department of Fish and Wildlife Region 4; call 425-775-1311.

GRP Response Strategies Served:

NOOR-30.9, NOOR-30.8

Location Information

Asset	Type/Status	Amount/Number
Boat Dock(s)	No	
Boat Ramp(s)	Concrete, Plank	1
Cell Phone Coverage	Yes	2 bars on Sprint/Verizon
Covered Spaces	No	
Estimated Lot Size		25000 Sq Ft at launch more at park
Fuel	No	
Lot Cover (Primary)	Dirt/Gravel	
Parking - Car	Dirt Trail	10
Parking - Trailer	Dirt Trail	8
Power	No	
Restroom	Restroom - Portable	1
User Fee	No	
Waste Disposal	None	
Water (potable)	No	Store nearby

Nugent's Corner SA-NOOR-30.8

SA-NOOR-30.8 Photo: From Nooksack River right, looking W at Nugent's Corner boat launch. Taken mid-Jan at 3100 cfs.

Site Contact

Washington Department of Fish and Wildlife
Land/Property Owner : Region 4
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
425-775-1311

Nearest Address

Nugents Corner River Access Rd
Everson, WA 98247

Driving Directions

1. Head north on I-5 towards Bellingham.
2. At exit 255 take ramp on the right to WA-542 E / Sunset Dr toward Mt Baker (0.2 miles)
3. Turn right on WA-542 (E Sunset Dr) (9.86 miles)
4. Turn right on Nugents Corner River Access Rd (Mt Baker Hwy) (0.5 miles)
5. Follow the road past the park to the turnaround and boat launch.

APPENDIX 4D

Boat Launch 2-Pagers

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BOAT LAUNCHES – LIST

BL-NOOR-5.8 **BL-NOOR-30.8**

<< Go Back

Ferndale Boat Launch - Hovander BL-NOOR-5.8

Boat Launch Location

Position - Location:	48° 50.583', -122° 35.363'	48° 50' 35.0", -122° 35' 21.8"	48.84305, -122.58939	Ferndale

Comments: Coordinate use of boat launch with Washington Department of Fish and Wildlife Region 4; call 425-775-1311.

GRP Response Strategies Served:

NOOR-5.9, NOOR-5.4, NOOR-6.0, NOOR-9.2, NOOR-6.8, NOOR-7.2, NOOR-6.9

Location Information

Asset	Type/Status	Amount/Number
Boat Dock(s)	No	
Boat Ramp(s)	Concrete, Solid	1
Cell Phone Coverage	Yes	3/4 bars on Sprint + Verizon
Covered Spaces	Yes	In S part of park
Estimated Lot Size		9000 Sq Ft (gravel)
Fuel	No	
Lot Cover (Primary)	Gravel	
Parking - Car	Gravel	20
Parking - Trailer	Gravel	20
Power	No	
Restroom	Restroom - Portable	1 More in S part of park
User Fee	No	
Waste Disposal	None	
Water (potable)	No	

Ferndale Boat Launch - Hovander BL-NOOR-5.8

SA-NOOR-5.8 Photo: On Nooksack River left, looking SW down boat launch. Taken at 4200 cfs, avg winter water.

Site Contact

Washington Department of Fish and Wildlife
Land/Property Contact : Region 4
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
425-775-1311

Nearest Address

5528 Baker St
Ferndale, WA 98248

Driving Directions

1. Head north on I-5 past downtown Bellingham
2. At exit 262 take ramp on the right to Main St toward City Center (0.3 miles)
3. Turn right on Main St (W Axton Rd) (0.6 miles)
4. Make sharp left on Hovander Dr (0.04 miles)
5. Take a right at the sign for public boat launch/park (0.2 mi)
6. Continue past parking area to boat launch.

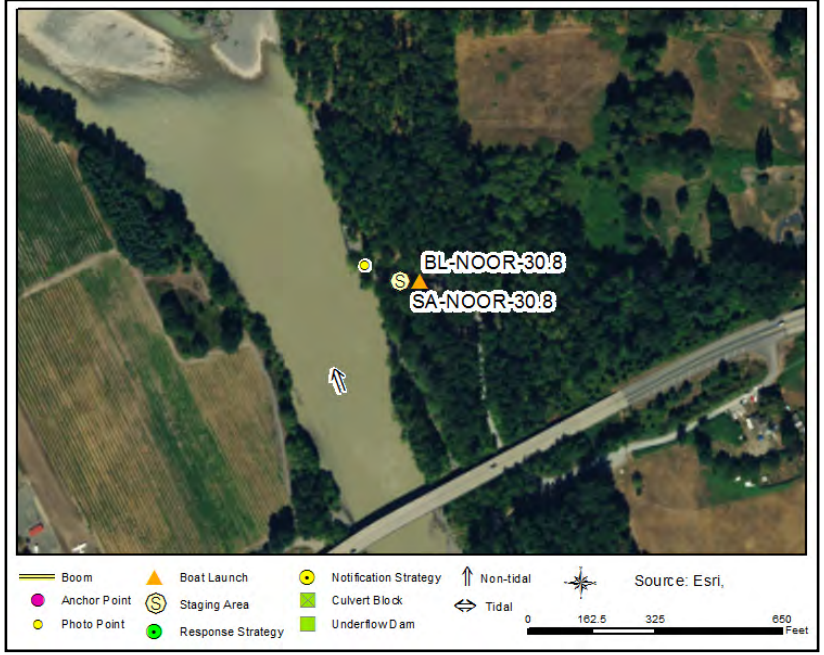
<< Go Back

Nugent's Corner BL-NOOR-30.8

Boat Launch Location

Position - Location:	48° 50.609', -122° 17.625'	48° 50' 36.5", -122° 17' 37.5"	48.84348, -122.29375	Everson

Comments: Coordinate use of boat launch with Washington Department of Fish and Wildlife Region 4; call 425-775-1311.



GRP Response Strategies Served:

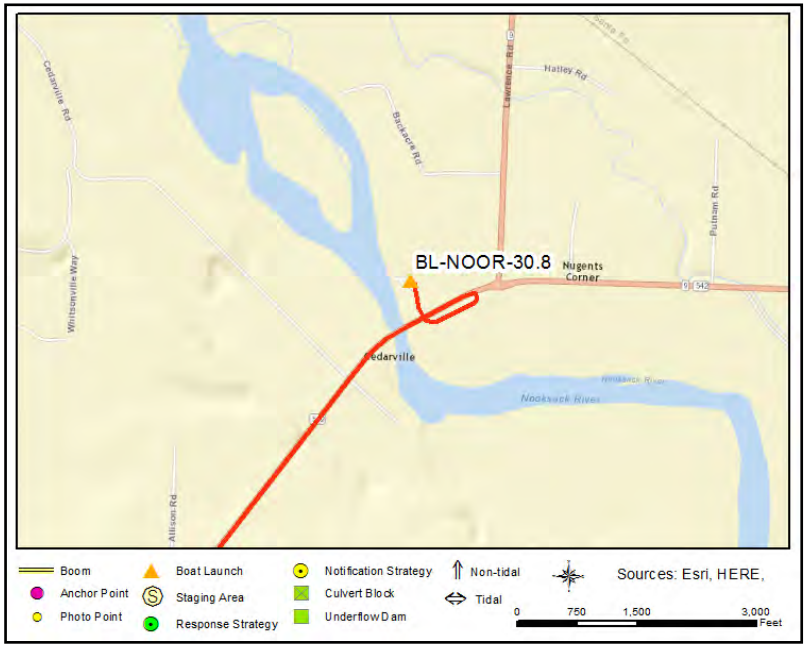
NOOR-30.9, NOOR-30.8

Location Information

Asset	Type/Status	Amount/Number
Boat Dock(s)	No	
Boat Ramp(s)	Concrete, Plank	1
Cell Phone Coverage	Yes	2 bars on Sprint/Verizon
Covered Spaces	No	
Estimated Lot Size		25000 Sq Ft at launch more at park
Fuel	No	
Lot Cover (Primary)	Dirt/Gravel	
Parking - Car	Dirt Trail	10
Parking - Trailer	Dirt Trail	8
Power	No	
Restroom	Restroom - Portable	1
User Fee	No	
Waste Disposal	None	
Water (potable)	No	Store nearby

Nugent's Corner BL-NOOR-30.8

SA-NOOR-30.8 Photo: From Nooksack River right, looking W at Nugent's Corner boat launch. Taken mid-Jan at 3100 cfs.



Site Contact

Washington Department of Fish and Wildlife
Land/Property Owner : Region 4
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
425-775-1311

Nearest Address

Nugents Corner River Access Rd
Everson, WA 98247

Driving Directions

1. Head north on I-5 towards Bellingham.
2. At exit 255 take ramp on the right to WA-542 E / Sunset Dr toward Mt Baker (0.2 miles)
3. Turn right on WA-542 (E Sunset Dr) (9.86 miles)
4. Turn right on Nugents Corner River Access Rd (Mt Baker Hwy) (0.5 miles)
5. Follow the road past the park to the turnaround and boat launch.

CHAPTER 5

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CHAPTER 6

Resources at Risk

6.1 CHAPTER INTRODUCTION

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

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

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

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, aquatic plants; microscopic plants and animals; and larger animals, such as fish, amphibians and reptiles, birds, mammals, and a wide variety of invertebrates, are all potentially at risk from

smothering, acute toxicity, and/or the chronic long-term effects that may result from being exposed to spilled oil.

The Nooksack River basin includes a wide variety of aquatic, riparian, and upland habitats. These varied habitats support a complex diversity of wildlife species, including various salmonid species; large and small mammals; passerine (i.e., song) birds, raptors, upland birds, and waterfowl; reptiles; and amphibians. Some species are resident throughout the year; others are migratory either within the basin or, in many cases, seasonally migrate outside the basin. Many wildlife species found in the Nooksack River basin are classified as threatened, endangered, sensitive, or of special concern under the federal Endangered Species Act or Washington State guidelines.

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

- Federal Endangered (FE)
- Federal Threatened (FT)
- Federal Candidate (FC)
- State Endangered (SE)
- State Threatened (ST)
- 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

- Common loon [SS]
- Marbled Murrelet [FT/ST]
- Sandhill Crane [SE]
- Streaked Horned Lark [FT/SE]*
- Yellow-billed Cuckoo [FT]*

Fish

- Bull Trout [FT]
- Chinook [FT]
- Dolly Varden [FT]
- Steelhead [FT]

Reptiles/Amphibians

- Oregon Spotted Frog [FT/SE]

Plants

- Whitebark pine [FC]*

** Unlikely to be directly oiled during a spill incident.*

6.2.1 General Resource Concerns

6.2.1a Habitats

- ***Wetlands*** in this region include areas along the main stem of the Nooksack River. All wetland types support a diverse array of bird, insect and fish and wildlife species.
- ***Islands*** provide important nesting habitat for a variety of bird species, as well as habitat for a variety of mammals. Associated gravel bars provide spawning habitat for Chinook salmon.
- ***Stream mouths*** may be concentration areas for anadromous fish and are feeding areas for a variety of birds.
- ***Human-made structures*** such as pilings, rock jetties or log rafts may be used as roosting or nesting areas for a variety of birds.
- ***Shallow intertidal and subtidal habitats*** in the delta and lower reach of the river are critically important as rearing areas for juvenile salmon, Dungeness crab, hardshell clams and other fish and shellfish. These habitats are often important feeding areas for marine birds, shorebirds and herons.
- The ***tributaries*** of this river provide abundant habitat for spawning salmonids.
- The ***riparian areas*** adjacent to the Nooksack 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. ***Riparian vegetation*** is heavily used by a variety of wildlife and provides nearshore fish habitat. Approximately 85 percent of Washington's terrestrial vertebrate wildlife species depend on riparian habitats for all or critical portions of their life histories. In particular, passerine and other bird species use riparian areas for foraging year-round, and for nesting in the spring and summer, including sensitive species such as Lewis's woodpecker and willow flycatcher.

6.2.1b Fish & Shellfish

- ***Salmonids*** (including Chinook, coho, chum, pink, sockeye, cutthroat trout - resident and coastal, steelhead, and bull trout) are present in the river system throughout the year. Spawning occurs throughout the system and juvenile salmonids use backwaters, nearshore areas, and protected bays as rearing and foraging areas prior to migration into the ocean. Returning adult salmonids support significant tribal, commercial and recreational fisheries.

- In addition to salmonids, several dozen species of ***freshwater fish*** exist in the Nooksack River basin. These species all provide important contributions to stream ecology.
- ***Hardshell clams*** are found intertidally along marine shorelines throughout the Nooksack River Basin. Extensive geoduck beds also occur intertidally and sub-tidally throughout much of the region.
- ***Dungeness crabs*** are commonly found within the Nooksack Delta and throughout Bellingham Bay.
- ***Freshwater mussels*** have been documented in tributaries to the Nooksack River.

6.2.1c Wildlife

- ***Seabird concentrations*** routinely occur year-round in marine areas adjacent to the river mouth and adjacent shoreline. 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. Peregrine falcons occur along the lower river and delta.
- ***Waterfowl concentrations***, including trumpeter swans, may be found seasonally throughout the region with heavy concentrations in the lower river and delta.
- ***Shorebird concentrations*** are common at along the outer part of the delta and other scattered sites.
- ***Harbor seal haulouts*** are present in the area in the vicinity of the river delta. In addition, California sea lions are often observed using navigational buoys in adjacent areas as haulouts.
- ***Mammals*** common to the region include deer and elk, bats, and various semi-aquatic species such as muskrat, beaver, river otter, etc. throughout the basin. In general, this group is dependent on riverine areas, ponds, tributaries, and riparian forests for den sites and foraging areas.

6.2.3 Specific Geographic Areas of Concern

1. **Lower Nooksack River (~RM 0 to ~RM 6.5)**: The river reach from the I-5 bridge to the mouth serves as a transition area from freshwater to saltwater and includes Tennant Lake, Tennant Wildlife Area and nearby critical habitats for a variety of species including waterfowl, shorebirds, raptors, salmonids, crabs, multiple bat species, and harbor seals.
2. **Smith Road/Wiser Road shorebird staging area**. Farm fields and wetlands north of Bellingham in the vicinity of Smith and Wiser roads are used by shorebirds during spring migration for staging, feeding, and resting habitat.

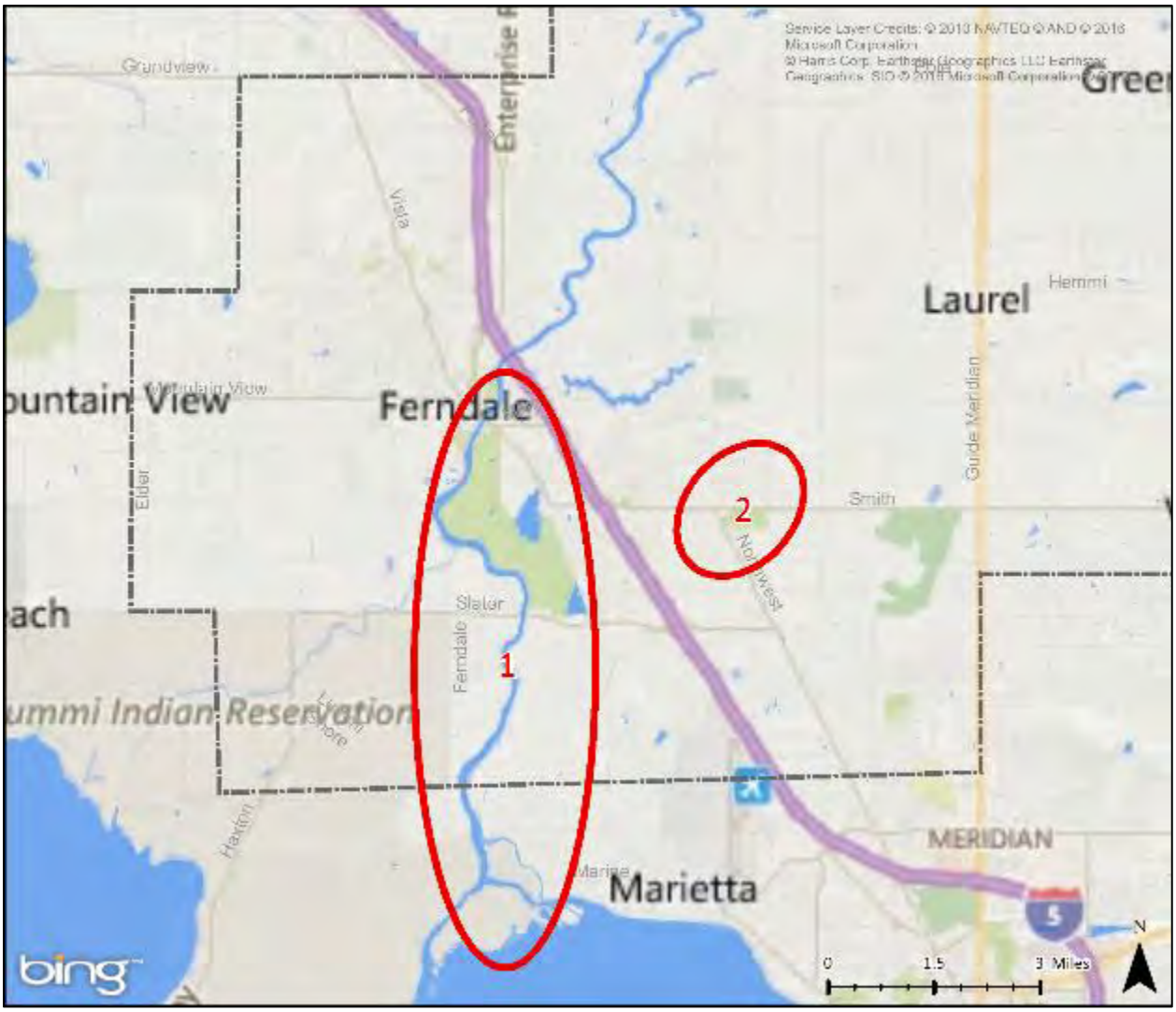

Figure 6-1: Specific Geographic Areas of Concern (1 and 2)

3. **Whatcom County shorebird and waterfowl wintering area**. Bird concentrations present along river main stem (~RM 11 thru RM 16), farm fields, wetlands, and Wiser Lake. Species present may include various geese, swans, cormorants, grebes, ducks and a shorebirds.
4. **Green Lake and Fountain Lake.** Waterfowl concentrations, especially geese and swans.
5. **Lake Fazon.** Waterfowl concentrations, especially geese and swans.
6. **Squaw Creek sandhill crane staging area**. Wetlands and farm fields located between Squaw Creek and Kamm Ditch provide sandhill crane staging areas during spring migration.

Figure 6-2: Specific Geographic Areas of Concern (3 - 6)

7. **South Fork of the Nooksack River (~RM 10 to ~RM 0)**. From Acme to the confluence with the main stem. Oregon spotted frog breeding – particularly in Black Slough. This reach is also adjacent to documented marbled murrelet breeding habitat.

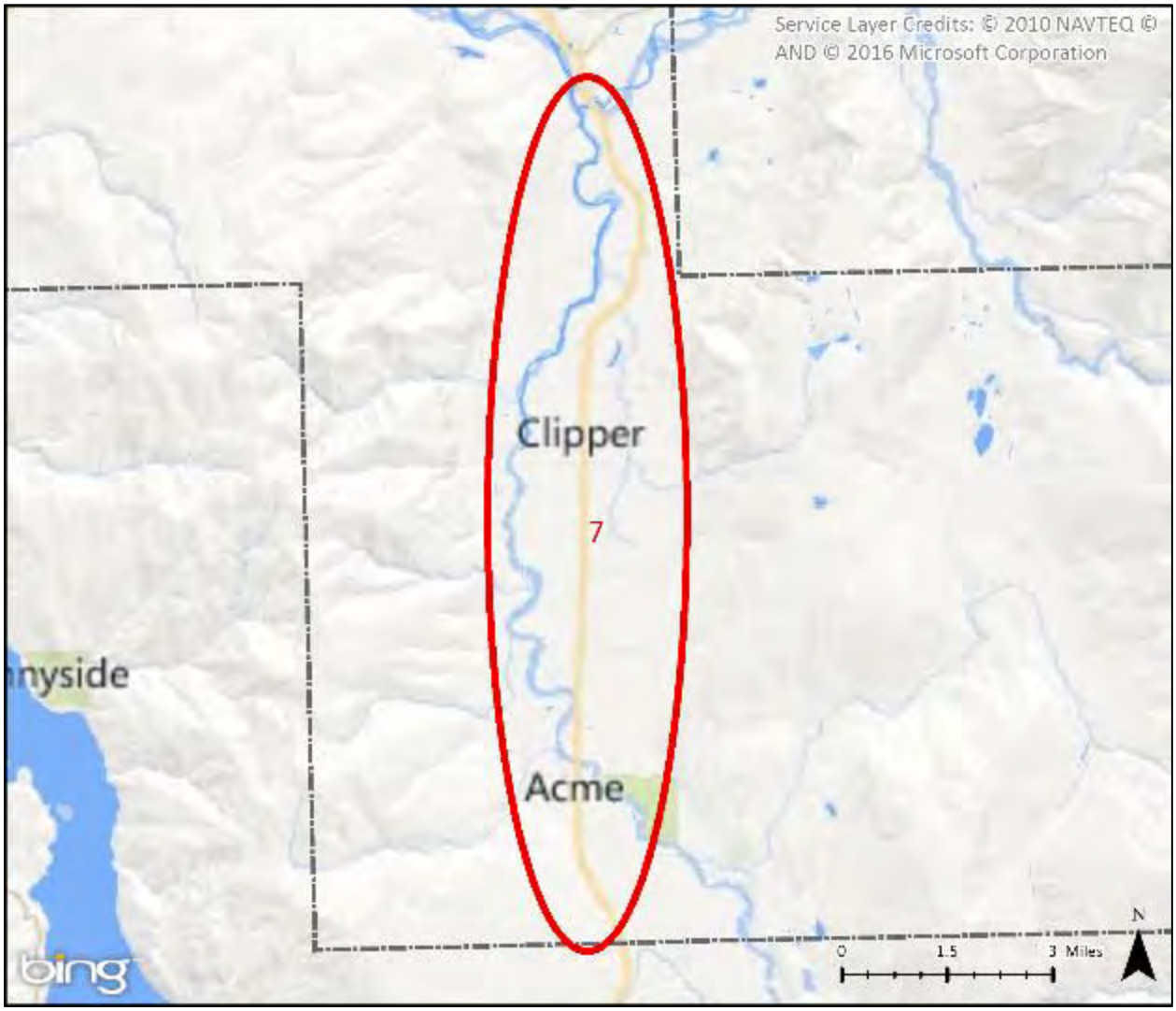

Figure 6-3: Specific Geographic Areas of Concern (7)

6.3 CULTURAL RESOURCES AT RISK - SUMMARY

Culturally significant resources are present within the planning area. Information regarding the type and locations of cultural resources is maintained by the Washington Department of Archeology and Historic Preservation (WDAHP). This sensitive information is made available to the Washington Department of Ecology for oil spill preparedness and response planning. The Tribal Historic Preservation Offices (THPOs) or Cultural Resource Departments of local tribes (see Table 6-1) may also be able to provide information on cultural resources at risk in the area and should be contacted, along with WDAHP, through normal trustee notification processes when significant oil spills, or smaller spills above reportable thresholds, occur in the area.

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

Table 6-1: NOOR-GRP Cultural Resource Contacts

Contact	Phone	Email
Washington Department of Archaeology and Historic Preservation	(360) 586-3080	Rob.Whitlam@dahp.wa.gov
Lummi Nation	(360) 312-2257, (360) 961-7752	lenat@lummi-nsn.gov
Muckleshoot Tribe	(253) 876-3272	laura.murphy@muckleshoot.nsn.us
Nooksack Indian Tribe	(360) 592-5176 (360) 305-9126	george.swanasetjr@nooksack.nsn.gov
Samish Indian Nation	(360) 293-6404 x126	jferry@samishtribe.nsn.us
Sauk-Suiattle Indian Tribe	(360) 436-0347	njoseph@sauk-suiattle.com
Stillaguamish Tribe of Indians	(360) 652-3687 x14	KLyste@stillaguamish.com
The Suquamish Tribe	(360) 394-8529	dlewarch@suquamish.nsn.us
Swinomish Indian Tribal Community	(360) 466-7352	lcampbell@swinomish.nsn.us
Tulalip Tribes	(425) 239-0182	ryoung@tulaliptribes-nsn.gov
Upper Skagit Indian Tribe	(360) 854-7009	sschuyler@upperskagit.com

6.3.1 Discovery of Human Skeletal Remains

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

6.3.2 Procedures for the Discovery of Cultural Resources

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

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

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

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

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

6.4 ECONOMIC RESOURCES AT RISK SUMMARY

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

6.5 GENERAL INFORMATION

6.5.1 Flight restriction zones

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

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

6.5.2 Wildlife Deterrence

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

6.5.3 Oiled Wildlife

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

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APPENDIX 6A

List of Economic Resources

Category	Name	Location	Lat	Long	Contact	Phone	Email
A1 – Drinking Water Intakes	City of Lynden Intake	Nooksack River at Hannegan Rd	48.9366	-122.4416	City of Lynden Public Works	360-354-0633	n/a
B1 – Industrial Water Intakes	Whatcom PUD #1 Downstream Intake	Ferndale below Main St bridge (RM 5.4)	48.8391	-122.5923	Whatcom PUD #1	360-384-4288	n/a
B1 – Industrial Water Intakes	Whatcom PUD #1 Upstream Intake	Ferndale at Trigg Rd (RM 9)	48.8798	-122.5648	Whatcom PUD #1	360-384-4288	n/a
B3 – Aquaculture	Rusatz Slough Rearing Pond	North Fork Nooksack River east of Highway 9	48.8124	-122.1878	Nooksack Indian Tribe	360-592-5176	n/a
B3 – Aquaculture	Lummi Bay Seapond Aquaculture Facility	Lummi Bay/Lummi Flats near Sandy Point	48.7779	-122.653	Lummi Nation	360-410-1706	n/a
B6 – Fish Hatcheries	WDFW Kendall Creek	North Fork Nooksack (RM 45.5)	48.8980	-122.1406	Kendall Creek Hatchery	360-599-2841	n/a
B6 – Fish Hatcheries	Skookum Creek Hatchery	South Fork Nooksack (RM 14.1)	48.6722	-122.1433	Lummi Nation Natural Resources	360-410-1706	n/a
C2 – Public Recreation Areas	Nugents Corner River Access	3671 Mount Baker Highway, Ferndale	48.8414	-122.2921	Whatcom County Parks & Rec	360-599-2776	n/a
C2 – Public Recreation Areas	Phillips66 Sports Complex	2nd Ave, Ferndale	48.8402	-122.5971	City of Ferndale Parks & Rec	360-685-2376 Ext 1215	n/a
C2 – Public Recreation Areas	Whatcom Wildlife Area - Nooksack Unit	Marine Drive to Tennant Lake Wildlife Area	48.8141	-122.5851	WDFW Whatcom Wildlife Area Manager	360-384-4723	n/a
C2 – Public Recreation Areas	Whatcom Wildlife Area - Tennant Lake Unit	5299 Nielsen Road, Ferndale	48.8228	-122.5723	WDFW Whatcom Wildlife Area Manager	360-384-4723	n/a

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Category	Name	Location	Lat	Long	Contact	Phone	Email
C4 – Parks and Beaches	Centennial Riverwalk	5667 Front Ave, Ferndale, WA	48.8444	-122.5891	City of Ferndale Parks & Rec	360-685-2376 Ext 1215	n/a
C4 – Parks and Beaches	Deming Homestead Eagle Park	8160 Truck Road, Deming	48.8237	-122.1830	Whatcom County Parks & Rec	360-599-2776	n/a
C4 – Parks and Beaches	Hovander Homestead Park	5299 Nielsen Road, Ferndale	48.8356	-122.5888	Whatcom County Parks & Rec	360-384-3444	n/a
C4 – Parks and Beaches	Pioneer Park	2000 Cherry St, Ferndale	48.8426	-122.5929	City of Ferndale Parks & Rec	360-384-6461	n/a
C4 – Parks and Beaches	Riverside Park	Park Dr, Everson	48.9204	-122.3513	City of Everson Public Works Director	360-966-3411	n/a
C4 – Parks and Beaches	South Fork Park (under development)	Mosquito Lake Road, Acme	48.7161	-122.1901	Whatcom County Parks & Rec	360-778-5850	n/a
C4 – Parks and Beaches	Tennant Lake Park and Fragrance Garden	5299 Nielsen Road, Ferndale	48.8306	-122.5802	Whatcom County Parks & Rec	360-599-2776	n/a
C4 – Parks and Beaches	VanderYacht Park	Bass Dr, Ferndale	48.8402	-122.5971	City of Ferndale Parks & Rec	360-685-2376 Ext 1215	n/a