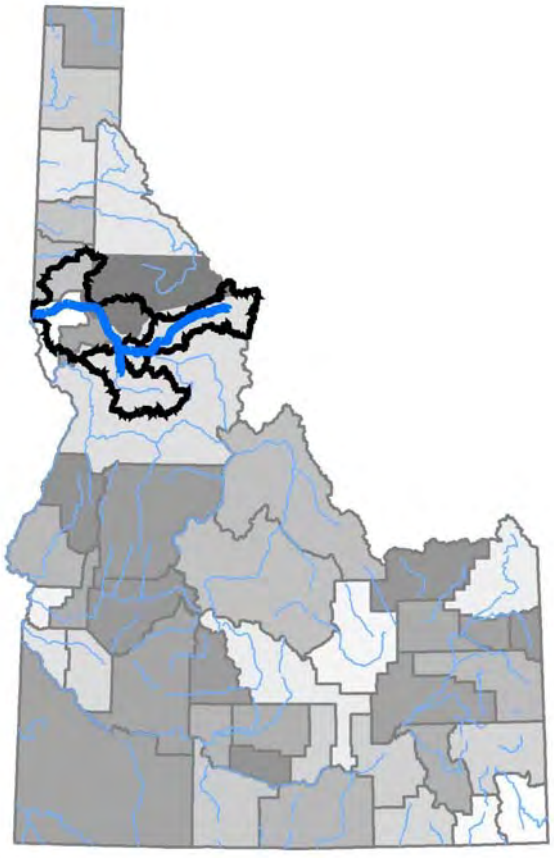
CLEARWATER/LOCHSA RIVER GEOGRAPHIC RESPONSE PLAN (GRP)



Clearwater and Lochsa Rivers

Geographic Response Plan

February 2019

Emergency Contact Sheet

Required Notifications

National Response Center	**800-424-8802**
Activation of StateComm through 911 system will automatically include these notifications	
Idaho Dept. of Environmental Quality, Lewiston Regional Office	**208-799-4370**
Idaho Office of Emergency Management	**800-632-8000**

Federal	
US EPA Region 10 Spill Response Team	206-553-1263
Coast Guard Watchstander	503-240-9301
Coast Guard Pacific Strike Team	415-883-3311
Coast Guard Region 13 Officer of the Day	206-217-6004
US Fish and Wildlife Service	509-891-6839 (Spokane) 208-241-8043 (Idaho)
US Forest Service-Nez Perce Clearwater National Forest	208-9352513
Department of Interior, Office of Environmental Policy and Compliance	503-326-2489
US Army Corps of Engineers- Environmental Response Specialist, Walla Walla	509-527-7121
NOAA Weather/Hydrology	509-244-0537
NOAA Hazmat Response	206-526-4911
NOAA Scientific Support Coordinator	206-849-9926
US Fish Wildlife Service—Boise	208-378-5243
US Fish Wildlife Service—Dworshak	208-476-4591
US Fish Wildlife Service—Kooskia	208-926-4272

Tribal	
Nez Perce Emergency Response Team	208-621-3760
Nez Perce Cultural Resources Program	208-843-7313

Local Government (County, City)	
Idaho County Emergency Management	208-983-3074
Clearwater County Emergency Management	208-476-4064
Lewis County Emergency Management	208-937-2380
Nez Perce County Emergency Management	208-799-3084
Idaho County Sheriff	208-983-1100
Clearwater County Sheriff	208-476-4521
Lewis County Sheriff	208-937-2447
Nez Perce County Sheriff	208-937-2447
City of Lewiston	208-746-1316
City of Orofino	208-476-4725
City of Kamiah	208-935-2672
City of Kooskia	208-926-4684
Powell Ranger Station	208-942-3113

State	
Idaho State Police	208-884-7000 HQ in Boise 208-209-8730 dispatch
Idaho DOT- Lewiston (District 2)	208-799-5090
Idaho Ops Office	208-378-5773
Idaho Department of Fish and Game	208-769-1414 208-488-7468
State Historic Preservation Office	208-334-3861
Dig Line (ID)	800-342-1585 or 811
Idaho Public Health-District 2	208-799-3100
Idaho Department of Water Resources	208-769-1422

Medical Services	
St. Joseph Hospital-Lewiston	208-799-3100
Tri-State Memorial Hospital- Clarkston	509-758-5511
Clearwater Valley Hospital- Orofino	208-476-4555
St. Mary's Hospital-Kamiah	208-935-7809

Water Supply Contacts	
Orofino Water Intake-Rick Laam	208-476-4725
Riverside Water Intake	208-476-6313
Kamiah Water Intake	208-935-0319
Lewiston Water Intake-Brian Lacy	208-816-1285 (Mobile) 208-746-1316 (Office)
Ahsahka Water Intake	208-476-4350

Response Contractors	
WRI Environmental Response	406-207-2027 406-240-9833
NRC Environmental	503-283-1150 800-899-4672
Clean Harbors Environmental Services	509-766-3290 800-645-8265

HOW TO USE THIS GEOGRAPHIC RESPONSE PLAN

Purpose of Geographic Response Plan (GRP)

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

GRPs are used during the initial phase of a spill that lasts from the time a spill occurs until the Unified Command is operating and/or the spill has been contained and cleaned up. Generally this lasts no longer than 24 hours. GRPs constitute the federal and state on-scene coordinator (OSC) "orders" during the initial phase of the spill. During the project phase, the GRP will continue to be used, but with input from natural resource trustees.

Strategy Selection

Chapter 4.1 of the GRP contains complete strategy descriptions in matrix form and response priorities. The accompanying maps are located in **Chapter 4.2**. The strategies depicted in Chapter 4.2 will be implemented after reviewing on-scene information, including: river currents, weather conditions, oil type, initial trajectories, etc.

It is important to note that strategies rely on the trajectory of the spill. A booming strategy listed as a high priority would not necessarily be implemented if the spill trajectory and location did not warrant action in that area.

Chapter 6 outlines the sensitive resources requiring protection and the seasonality of their sensitivity. This information must be consulted before strategies are implemented, as there may be flight restrictions associated with a resource. Flight restriction information is also found in Chapter 6.

Standardized Response Language

In order to avoid confusion in response terminology, this GRP uses strategy names defined in **Appendix A** (e.g., diversion booming, exclusion booming).

Response Equipment

A table outlining equipment availability and response times is being developed for this GRP. In the interim, strategies will be deployed in the order equipment arrives on scene and as directed/selected by the on-scene coordinator.

Record of Changes

Date	Change Number	Summary of Changes

Table of Contents

Section 1 & 2: Introduction and Site Description

Clearwater/Lochsa River, Idaho
GEOGRAPHIC RESPONSE PLAN

1. Introduction: Scope of this Project

Geographic Response Plans (GRPs) are intended to help first responders to a spill avoid the initial confusion that generally accompanies any spill. They prioritize resources to be protected and allow for immediate and proper action.

GRPs are developed for marine waters of Washington and Oregon State, the Columbia River, and the inland areas of Washington, Oregon, and Idaho. They are prepared through the efforts of the Washington Department of Ecology, Idaho and Oregon Departments of Environmental Quality, Idaho State Emergency Response Commission, the U.S. Coast Guard, and the Environmental Protection Agency.

GRPs are developed through workshops involving federal, state, and local oil spill emergency response experts; representatives from tribes, industry, ports, and environmental organizations; pilots; and response contractors. Workshop participants identify resources that require protection, develop operational strategies, and pinpoint logistical support.

The first goal of a GRP is to identify resources, physical features, hydrology, currents and tides, winds, and climate that may affect response strategies. After compiling this information, sensitive natural resources are identified.

Secondly, response strategies are developed based on the sensitive resources noted, hydrology, and climatic considerations. Individual response strategies identify the amount and type of equipment necessary for implementation. The response strategies are then applied to likely spill scenarios for oil movement, taking into account factors such as wind, current, and tidal conditions.

Finally, additional logistical support is identified, including:

- Location of operations centers for the central response organization
- Local equipment and trained personnel
- Local facilities and services and appropriate contacts for each
- Response times for bringing equipment in from other areas.

This GRP addresses the downstream portions of the Clearwater/Lochsa River system from Lewiston to the Powell Ranger Station in Idaho, covering 75 miles of the Clearwater River, 23 miles of the Middle Fork Clearwater River, 16 miles of the South Fork Clearwater River, and 69 miles of the Lochsa River. The Clearwater River is accessible from U.S. Highway 12 along its entirety, with a short overlapping road segment of U.S. Highway 95; the South Fork Clearwater

River is accessible from State Route (SR) 13.

This GRP provides:
Section 2 – Site Descriptions: General setting that includes physical setting, hydrology, climate, and public/environmental risk attributes.
Section 3 – Vicinity Map.
Section 4 – Protection strategies described for each identified river access point, including summary tables and maps.
Section 5 – Response method descriptions for identified shoreline types and petroleum product types.
Section 6 – Descriptions of sensitive natural resources.
Section 7 – Logistical information for accessing river and staging and deploying equipment.
Appendix A – Summary of protection techniques.

2. Site Description

The Clearwater subbasin is one of the most biologically rich and diverse drainages in the Columbia Basin, encompassing more that 9,600 square miles of north-central Idaho. The Clearwater subbasin is bordered to the north by the St. Joe subbasin, to the south by the Salmon River subbasin, to the east by Montana, and it joins the Snake River in the west. The Lochsa, Selway, South Fork, and North Fork Clearwater rivers represent the primary tributaries in the subbasin. All but the North Fork Clearwater River are unregulated. The mouth of the Clearwater River is located on the Washington–Idaho border at the town of Lewiston, Idaho where it enters the Snake River 139 river miles upstream of the Columbia River. Six counties (Clearwater, Idaho, Latah, Lewis, Nez Perce, and Shoshone) make up portions of the Clearwater subbasin.

Roughly two-thirds of the subbasin is federally managed, while the remainder is privately owned. The U.S. Forest Service manages most of the forested land within the Clearwater (over 3.5 million acres), but the state of Idaho, Potlatch Corporation, and Plum Creek Timber Company also own extensive forested tracts. Other agencies managing land in the Clearwater subbasin include the National Park Service, U.S. Bureau of Land Management, U.S. Army Corps of Engineers, and Idaho Department of Fish and Game. The western half of the subbasin is generally in the private ownership of small forest landowners and timber companies, as well as farming and ranching families and companies. Nez Perce Tribal lands are located within or adjacent to Lewis, Nez Perce, and Idaho counties. Approximately 47 percent of the Clearwater subbasin is designated as having some degree of protected status, the majority of which is either inventoried roadless or wilderness area.

Agriculture, forest products, and recreation form the economic base of the Clearwater subbasin. The rivers are heavily used for recreational fishing, rafting, angling, hunting and camping.

(Information and text provided from the Clearwater Draft Subbasin Plan prepared by the Northwest Power and Conservation Council in November 2003.)

2.1 Physical Features

The westernmost portion of the Clearwater subbasin is characterized by plateaus and foothills, which are divided by breaklands. The plateau region, in the southern lobe of the Lower Clearwater AU and parts of the Lolo/Middle Fork AU, has moderately sloping terrain, with local elevations ranging from 2,500 to 3,500 feet above mean sea level (msl). Hill slopes are greatest in areas dissected by streams (15 to > 60 percent), while in other areas range from 0 to 15 percent. The isolated buttes in the western part of the plateau reach elevations to 5,000 feet above msl and have slopes ranging from 30 to 60 percent. The valleys that have been eroded into the plateau have bench topography from the multiple underlying lava layers forming a series of stepped, cliff-faced outcrops of basalt up the steep slopes (BLM 2000).

Breakland landforms typify the central portion of the lower Clearwater AU and closely border the mainstem Clearwater River and most associated tributaries. Slope gradients in the breaklands average between 60 to 80 percent, an attribute that greatly contributes to sediment transport efficiency.

The northern lobe of the Lower Clearwater AU is characterized by low relief rolling hills and mountain landforms. The dune- like formations, which are typical throughout the Palouse Prairie, range in elevation from 1,000 to 3,000 feet, with slope gradients of 0 to 30 percent. Mountain landforms, which are common throughout the uppermost portions of the assessment unit (i.e., upper Potlatch River drainage), range in elevation from 3,000 to 4,500 feet, with slope gradients between 30 to 60 percent.

Moving east, the topography of the Clearwater subbasin undergoes a notable increase in relief, especially in the southern and northern portions of the drainage. Topography in the lower North Fork, upper North Fork, Lochsa, and South Fork AUs is dominated by mountain landforms, with mean elevations ranging from 3,800 to 7,100 feet above msl. The Clearwater Mountains, which rise from the Salmon River, breaks to the south, extend northward through the South Fork and into the North Fork Clearwater subbasins. The ridges of the Clearwater range are often frost-shattered, with convex or straight sideslopes (Ford et al. 1997). Slope gradients vary by aspect, but average 35 to 60 percent and are greatest at stream dissections. Infrequent, small basins occur throughout the higher elevations of mountain landforms, such as those in the Gospel Hump Wilderness Area. Many of the alpine lakes in the subbasin form in the cirques at the head of these snow-formed basins and provide flow to perennial Clearwater River tributaries (Hubbard 1956). Because of their rounded formation, steep (>65 percent) side slopes, and erodible and mobile geologic parent materials (i.e., schist), the Clearwater Mountains supply a continual source of sediment to the lower elevation streams and rivers.

Similar to the western portion of the subbasin, breakland landforms divide the southern and northern portions of the mid Clearwater drainage area, and effectively demarcate landform differences throughout the central and eastern assessment units. The confluence of the Lochsa and Selway Rivers delineate some of the most extensive of the breakland landforms in the subbasin. The Lochsa River proper is entirely bordered by breaks, which separate the glaciated mountain landforms to the south and foothills/mountain landforms to the north.

The Selway-Bitterroot mountain range dominates the landscape of the eastern portion of the subbasin, and in effect forms the Idaho/Montana border. In general, the Bitterroots are comprised of glaciated mountains to the south (upper Selway AU), intermontane basin in the central portion (upper Lochsa AU), and mountain landforms to the north (upper North Fork and portions of the lower North Fork AUs).

The intermontane basin in the eastern portion of the Lochsa AU separates the glaciated and non-glaciated portions of the Selway Bitterroot Mountains to the south and north, respectively. These areas have largely been formed through glacial meltwater and fluvial action and have developed a gently rolling surface shape. Mean elevation ranges between 5,700 feet and 7,100 feet, while slope gradients are generally between 10-30 percent.

Topography of the Bitterroots again changes in the upper North Fork AU with the transition from intermontane basin to non- glaciated mountains. Although mean elevations (4,650–5,700 feet) are not as great as those to the south (upper Selway AU), relief tends to be high with slopes commonly in excess of 50 percent. The ridges and sideslopes in this area are frost shattered, convex and straight (respectively), and have been formed by fluvial and colluvial processes (Ford et al. 1997). The schist parent material,

which dominates much of the landform, is erodible and considered a likely sediment source to downstream areas (Wilson et al. 1983).

(Information and text provided from the Clearwater Draft Subbasin Plan prepared by the Northwest Power and Conservation Council in November 2003.)

2.2 Hydrology

The mainstem Clearwater River originates in the Bitterroot Mountains at elevations ranging from 8,400-9,000 feet (2,560- 2,743 m). The Clearwater River contributes approximately one-third of the flow of the Snake River and ten percent of the flow of the Columbia River system annually (USFS 1969 cited in Maughn 1972), with a mean annual discharge of approximately 15,300 cubic feet per second (ft^3/s) near its mouth (Lipscomb 1998).

The Clearwater derives its flow from a network of tributaries, four of which are primary (North and South Forks, and Lochsa and Selway rivers). The Selway and Lochsa rivers both originate at the Idaho–Montana border in the Selway Bitterroot divide and flow in a westerly to northwesterly direction through precipitous breaklands and forested canyons to their junction at Lowell, Idaho. The confluence of the Lochsa and Selway form the Middle Fork of the Clearwater, which flows in a westerly direction before joining the South Fork Clearwater at the town of Kooskia, Idaho. From this point on, the river is known as the mainstem Clearwater. The Clearwater continues to flow in a westerly to northwesterly direction through sparsely vegetated and weathered canyon lands to the town of Ahsahka, where the North Fork of the Clearwater enters the mainstem. From Ahsahka, the Clearwater River courses through semi-arid canyons and agricultural land until joining the Snake River at Lewiston, Idaho.

(Information and text provided from the Clearwater Draft Subbasin Plan prepared by the Northwest Power and Conservation Council in November 2003.)

2.3 Climate

The Clearwater subbasin experiences a wide variety of climates. Warm, moist maritime air masses from the Pacific strongly influence the climate across the Clearwater subbasin (Lipscomb 1998; Stapp et al. 1984), except for the southernmost and high elevation eastern portions of the subbasin, which experience dryer and colder climatic conditions more typical of the northern Rocky Mountains (Bugosh 1999; Finklin 1977; N. Gerhardt, Nez Perce National Forest, personal communication February 2000).

A general increase in precipitation occurs from west to east across the subbasin coincident with increasing elevation (Stapp et al. 1984), resulting in greater precipitation in the mountainous terrain in the eastern half of the subbasin compared to the low elevation canyons and plateaus to the west. Mean annual precipitation ranges from 12 inches at the Clearwater River confluence with the Snake River, to greater than 90 inches in the highest elevations. Precipitation also varies seasonally, with little occurring during the summer months (Stapp et al. 1984; Bugosh 1999). Due to colder average temperatures, winter precipitation above 4,000 feet falls largely as snow (McClelland et al. 1997; Paradis et al. 1999b; Bugosh 1999), where it may remain through late spring to early summer. Below 4,000 feet, a higher probability of

winter precipitation falling as rain occurs with subsequently reduced storage duration. The area below the 4,000-foot elevation band also defines the rain-on- snow zone in the subbasin, an area susceptible to rapid melting and extreme runoff events. Rain-on-snow events can occur from November through March (Thomas et al. 1963). The highest precipitation areas tend to be in the northeastern portion of the subbasin, with the Upper North Fork Clearwater AU averaging nearly 60 inches per year. The Lower Clearwater AU has the lowest annual precipitation, averaging 25.7 inches (Table 2-1).

Table 2-1. Minimum, maximum, and mean annual precipitation

Assessment Unit	Min. Precipitation (inches)	Max. Precipitation (inches)	Mean Precipitation (inches)
Lower Clearwater	11.0	57.0	25.7
S. F. Clearwater	25.0	53.0	36.0
Lolo/Middle Fork	23.0	75.0	40.2
Lower Selway	27.0	61.0	41.6
Lower North Fork	23.0	87.0	43.1
Upper Selway	19.0	71.0	43.7
Lochsa	27.0	81.0	53.0
Upper North Fork	31.0	97.0	59.0

Mean annual temperature throughout the Clearwater subbasin ranges from 50–55°F (10–13°C) at lower elevations to 25-32°F (-3–0°C) in the upper elevations. Temperatures are generally below freezing in higher elevations of the subbasin during the winter and can be in excess of 90°F (32°C) in the lower elevation canyons during the summer (Bugosh 1999; Maughan 1972). The highest temperatures recorded in Idaho occurred at Orofino and Lewiston, Idaho (118°F and 117°F, respectively; Stapp et al. 1984). Both towns are located at low elevation at the bottom of the main Clearwater canyon, with Lewiston having the lowest elevation of any location in Idaho (679 feet (207 m) above MSL).

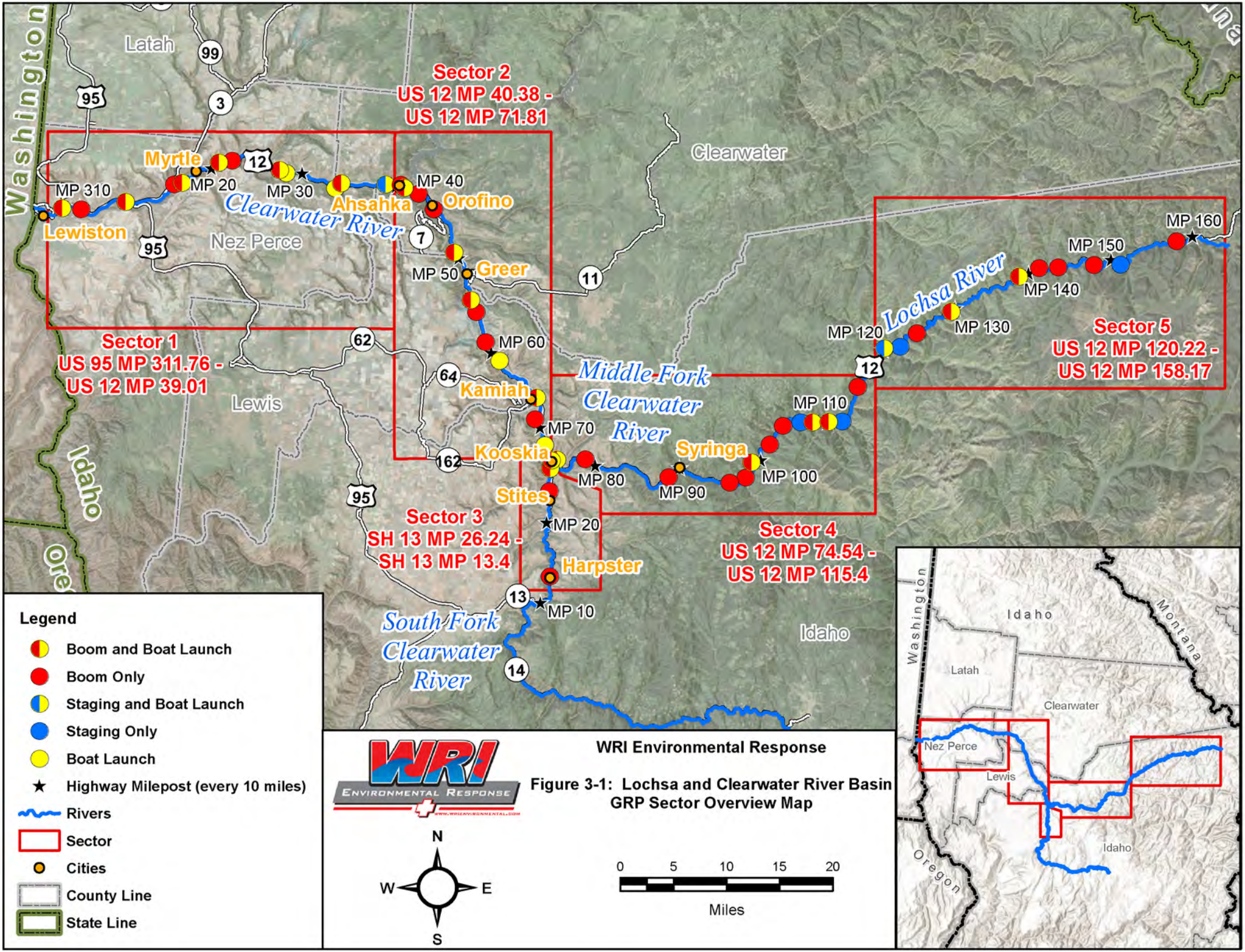
(Information and text provided from the Clearwater Draft Subbasin Plan prepared by the Northwest Power and Conservation Council in November 2003.)

2.4 Risk Assessment

Approximately 47 percent of the Clearwater subbasin is designated with some degree of protected status, the majority of which is either inventoried roadless or wilderness area. Roughly two-thirds of the subbasin is federally managed, while the remainder is privately owned. Nez Perce Tribal lands are located within or adjacent to Lewis, Nez Perce, and Idaho Counties. The rivers are popular for recreation resources in the state and are heavily used for recreational fishing, rafting, angling, hunting and camping. Access to the canyon is limited, making response to any spill difficult. State Highway 12 parallels both the Lochsa and Clearwater River and is the primary spill risk.

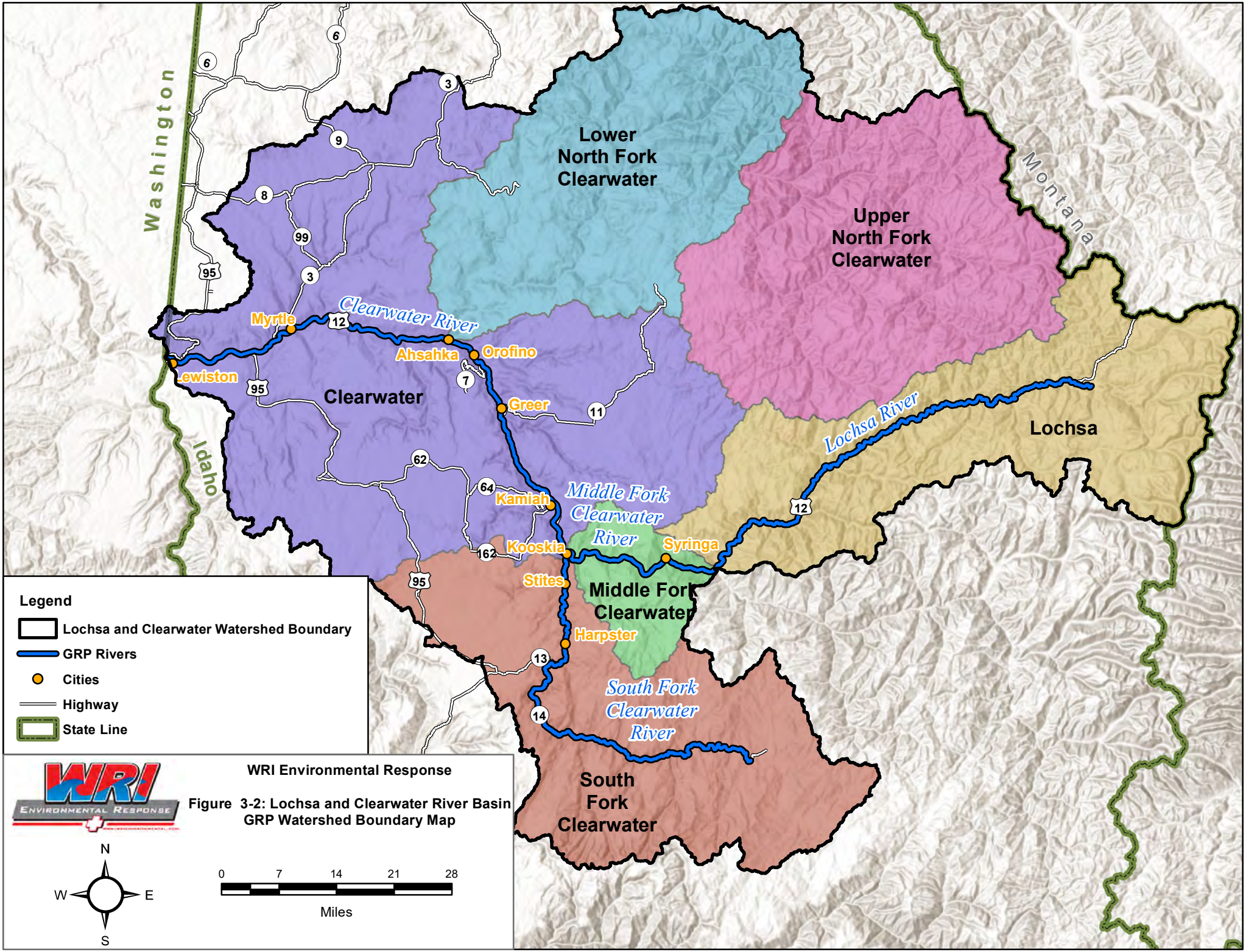
(Information and text provided from the Clearwater Draft Subbasin Plan prepared by the Northwest Power and Conservation Council in November 2003.)

Section 3: Figures



WRI Environmental Response

Figure 3-1: Lochsa and Clearwater River Basin GRP Sector Overview Map


Lower North Fork Clearwater
Upper North Fork Clearwater
Clearwater
Lochsa
Middle Fork Clearwater
South Fork Clearwater
Clearwater River
Lochsa River
Middle Fork Clearwater River
South Fork Clearwater River
Washington
Idaho
Montana
Myrtle
Ahsahka
Orofino
Lewiston
Greer
Kamiah
Kooskia
Syringa
Stites
Harpster
Legend
Lochsa and Clearwater Watershed Boundary
GRP Rivers
Cities
Highway
State Line
WRI Environmental Response
Figure 3-2: Lochsa and Clearwater River Basin
GRP Watershed Boundary Map
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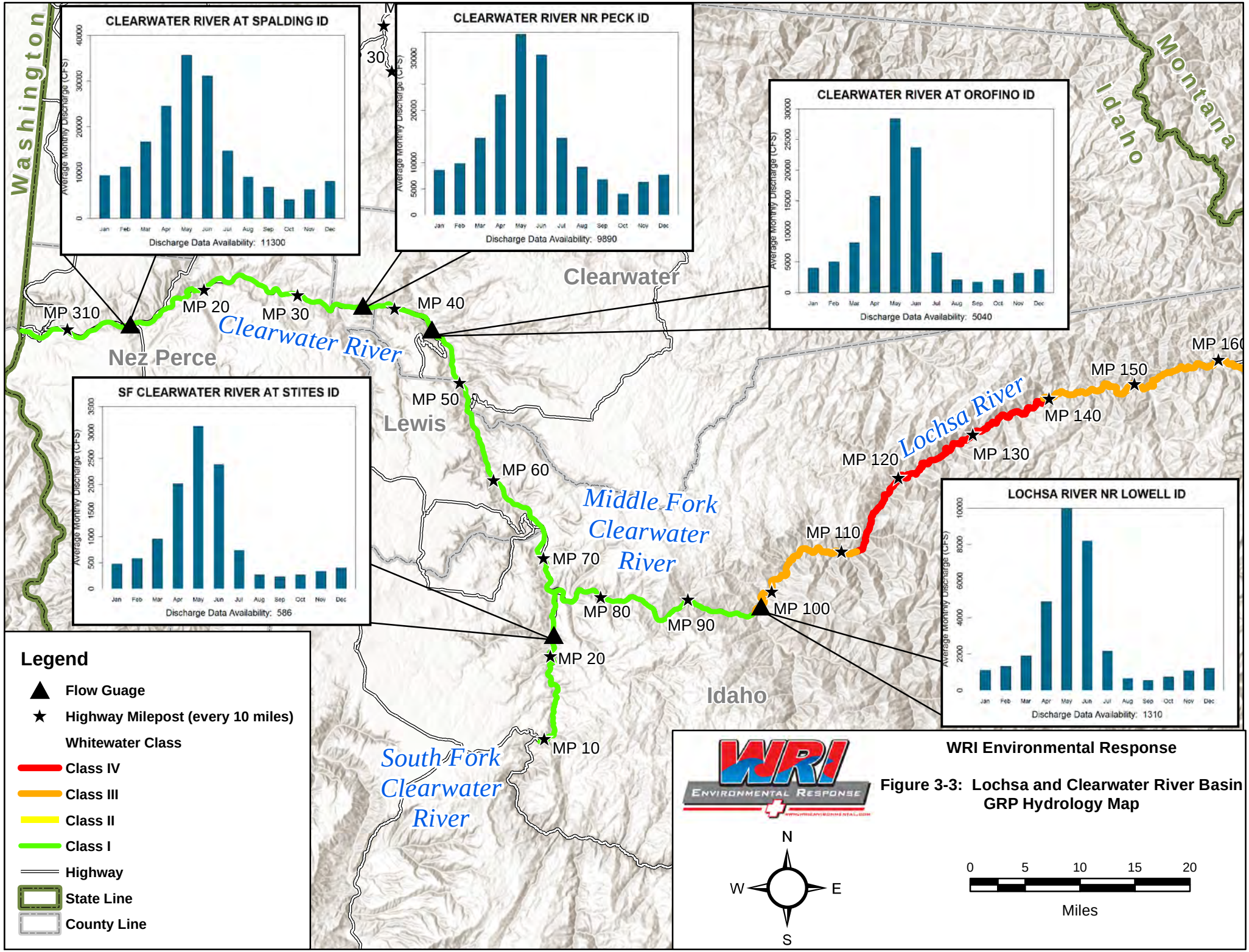
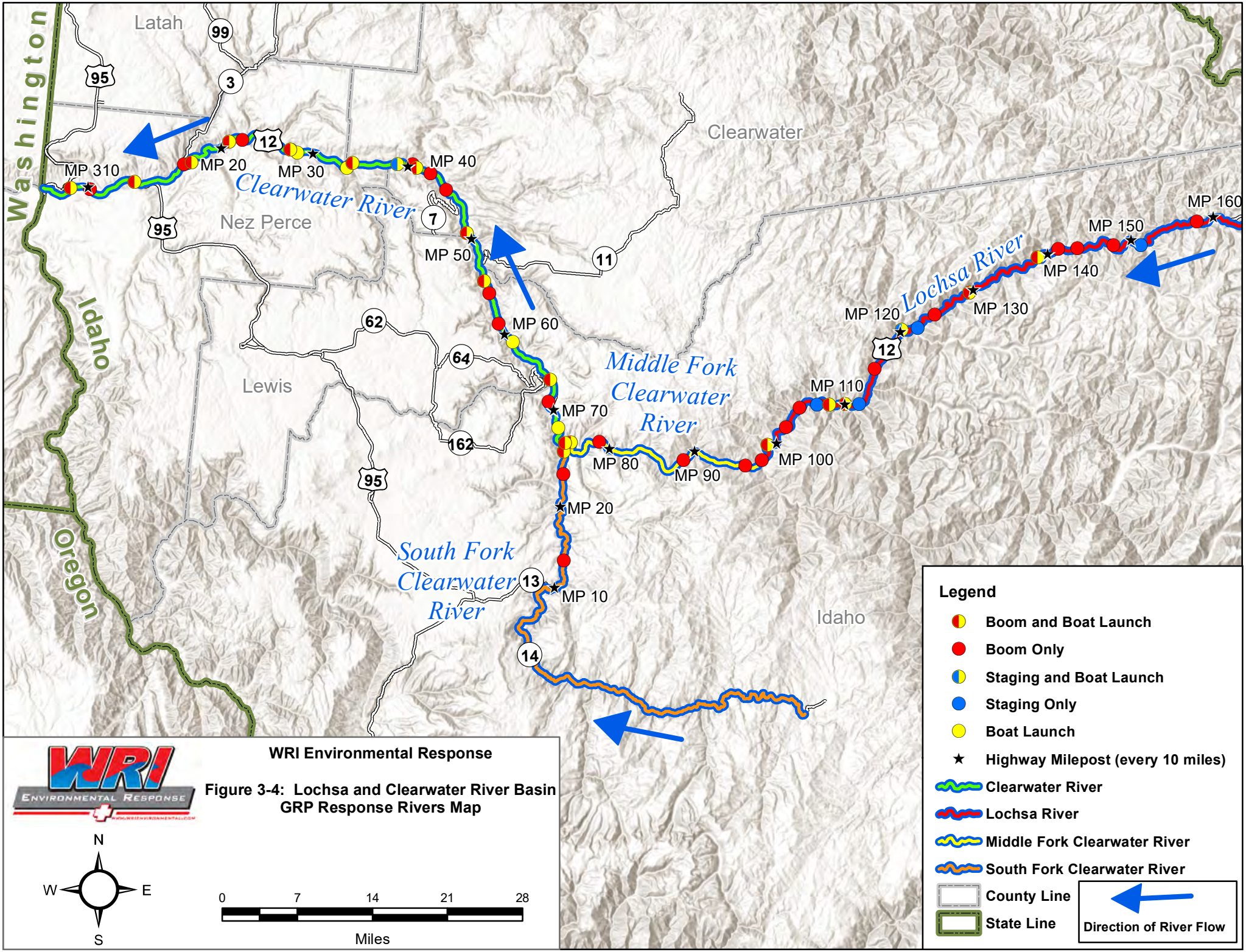


WRI Environmental Response

Figure 3-3: Lochsa and Clearwater River Basin GRP Hydrology Map


Washington
Idaho
Oregon
Latah
Clearwater
Nez Perce
Lewis
Idaho
Clearwater River
Lochsa River
Middle Fork Clearwater River
South Fork Clearwater River
MP 310
MP 20
MP 30
MP 40
MP 50
MP 60
MP 70
MP 80
MP 90
MP 100
MP 110
MP 120
MP 130
MP 140
MP 150
MP 160
MP 20
MP 10
99
95
3
12
95
7
11
62
64
162
95
12
13
14
Legend
Boom and Boat Launch
Boom Only
Staging and Boat Launch
Staging Only
Boat Launch
Highway Milepost (every 10 miles)
Clearwater River
Lochsa River
Middle Fork Clearwater River
South Fork Clearwater River
County Line
State Line
Direction of River Flow
WRI Environmental Response
Figure 3-4: Lochsa and Clearwater River Basin
GRP Response Rivers Map
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Miles

Section 4: General Protection/Collection Strategies

4. General Protection/Collection Strategies 4.1 Chapter Overview

This chapter details specific response strategies and the natural resources requiring protection, as outlined by participants of the GRP workshops for the Clearwater/Lochsa River system. Other pertinent information necessary for proper implementation of scenarios is found in **Chapters 5** and **6**, including wildlife areas, economic areas, sensitive aquatic areas and flight restriction zones that may be implemented by the on-scene coordinator (OSC), if necessary.

4.1.1 Sectors

The Clearwater/Lochsa geographic region is divided into five sectors, shown by the **reference map in Chapter 3** (**Figure 3-1**).

4.1.2 Maps

The maps in this chapter provide information on specific locations of strategy points. They are designed to help the responder visualize response strategies in relation to valuable wildlife zones, economic areas, and sensitive aquatic areas. Maps under development will be added as they are completed and placed in their respective subject matter areas. For a complete list of all maps contained in this GRP, refer to the **Table of Contents**.

Protection/Collection maps provide information on specific locations of strategy points. These maps are designed to help the responder visualize response strategies in relation to valuable wildlife zones, economic areas, and sensitive aquatic areas, providing access information based on adjacent developed roads. **Please note: river access is only shown on some maps.**

Booming Strategies and Resources Protected tables provide information to support strategy implementation at each designated location, including strategy type, site access, and the resources of concern.

Scenario Response Priority Strategies details the order in which strategies will be implemented based on various local scenarios.

Response Strategy Table describes response strategy details, indicates the purpose of the strategy, and lists special considerations that may be needed to carry out the strategies.

Whitewater Classification Map describes the class of whitewater on international scale of I-VI, with I being moving flat water and VI being unnavigable.

Hydrology Map details the average flow in cubic feet per second for each major U.S.G.S. station.

Critical Habitat Map details the reach of each habitat region for threatened and endangered species.

Hydrologic Unit Code (HUC) Map describes the reach of each drainage.

Risk Prioritization Map describes the identified high risk locations along the river corridor.

4.1.3 Major Protection Techniques

All response strategies fall into one of three major techniques that may be utilized either individually or in combination. The strategies listed in **Section 4-2** are based on one or more of the following techniques:

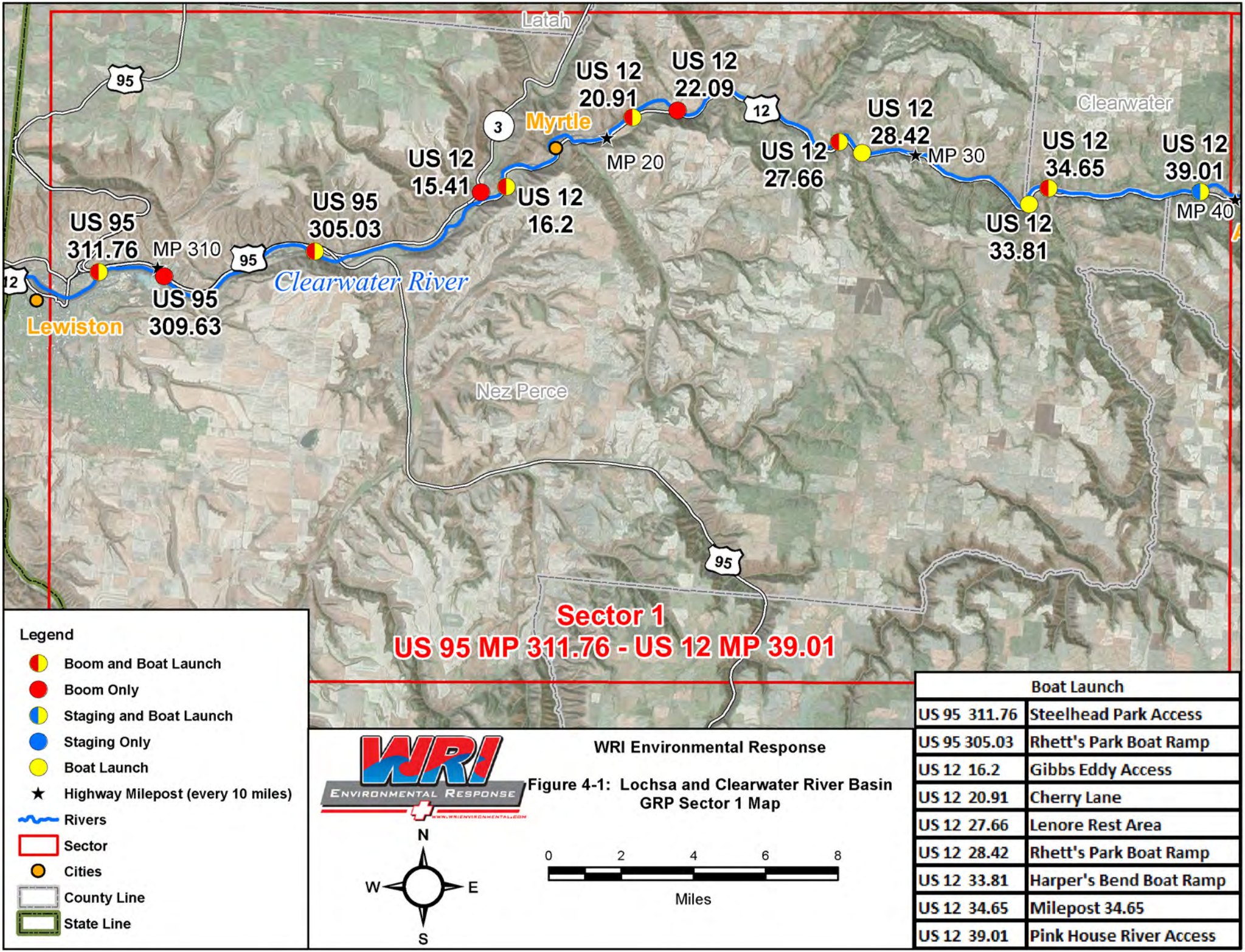
Dispersants
Chemical dispersants can be used to break up slicks on the water. Dispersants can decrease the severity of a spill by speeding the dissipation of certain oil types. Their use will require approval of the Unified Command. Dispersants will only be used in offshore situations under certain conditions, until the Area Committee makes further determinations and publishes them in the Northwest Area Contingency Plan (**http://www.rrt10nwac.com/nwacp_document.htm**).

In-Situ Burning
If possible, an oil slick may be set on fire. Burning must be authorized by the Unified Command, who confers with state and local air and water quality authorities. This option is often preferable to allowing a slick to reach the shore. This method works on many types of oil, and requires special equipment, including a fire boom and ignitors. In-situ burning will only be allowed when consistent with the Northwest Area Contingency Plan's In-Situ Burning Policy and Guidelines.

Mechanical Recovery Strategies
If a spill is too close to the shore for in-situ burning or dispersants, the key strategies are to use **deflection**, **diversion**, or **exclusion** booming to contain the slick and prevent it from entering areas with sensitive wildlife and fisheries resources. Booming strategies are described in detail in **Appendix A**.

4.2 Strategy Locations and Descriptions

The following response strategies and locations are organized by sector (index map), highway mile (strategy map), and description (strategy table). The location numbers on maps represent highway milepost designations, derived via GIS. The mileposts are a tangent from the nearest major highway or state road rounded to the nearest tenth. Milepost designations for U.S. Highway 95 are used where U.S. Highway 95 overlaps U.S. Highway 12; milepost designations along the South Fork Clearwater River reflect State Route (SR) 13 stations. Labels for all segments are labeled with the associated highway designations.



WRI Environmental Response

Figure 4-1: Lochsa and Clearwater River Basin GRP Sector 1 Map

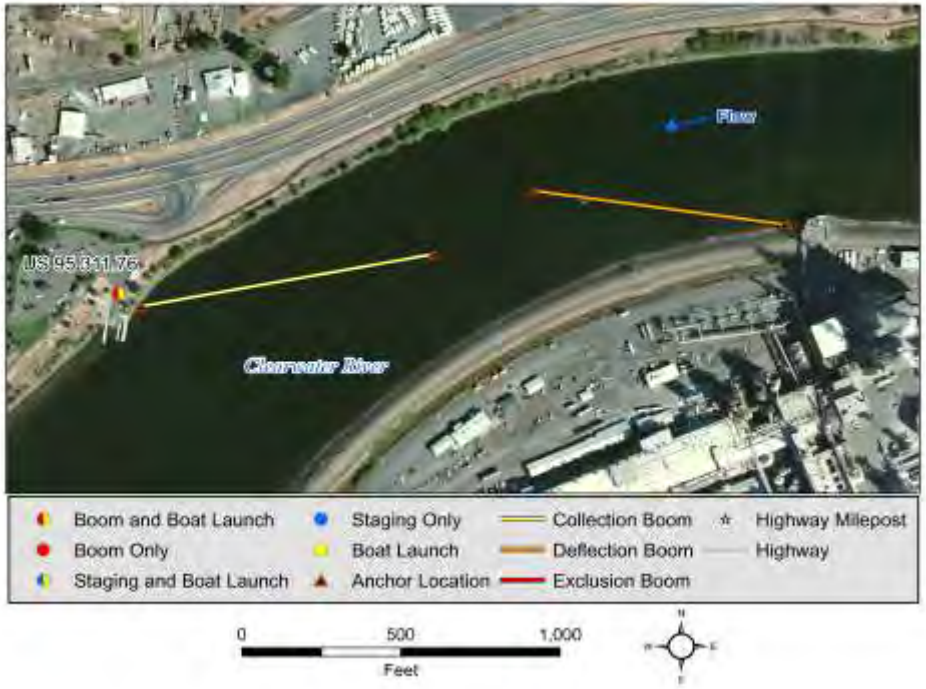
Boat Launch	
US 95 311.76	Steelhead Park Access
US 95 305.03	Rhett's Park Boat Ramp
US 12 16.2	Gibbs Eddy Access
US 12 20.91	Cherry Lane
US 12 27.66	Lenore Rest Area
US 12 28.42	Rhett's Park Boat Ramp
US 12 33.81	Harper's Bend Boat Ramp
US 12 34.65	Milepost 34.65
US 12 39.01	Pink House River Access

Nearest Highway Milepost	Location Description	Site Type	Site Specific Notification	Location Lattitude/Longitude decimal degrees	Shown on Sector Map	Adjacent Receiving Waterbody	Next Downstream Milepost (MP) and Downstream Arrow Indicator	Strategy Type						Onsite Resources		Site-Specific Notification Information and/or Strategy Implementation Notes
								Collection and Recovery	Deflection	Exclusion	Boat Launch	Staging	Boom Length Recommended (feet)	Jet Boat Required to Implement?	Large Staging Onsite?	
Sector 1: US 95 MP 311.76 - US 12 MP 39.01																
Clearwater River																
US 95 311.76	Steelhead Park Access	Boom and boat launch	Idaho Fish and Game: 208-799-5010	46.430351, -116.983475	1	Clearwater River	US 95 309.63	X			X	X	1500	YES	Large	Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Steelhead Park Access. Secure upstream end of boom river left to steel post. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river right to steel post. Notify Idaho Fish and Game.
US 95 309.63	City of Lewiston water intake	Boom only	City of Lewiston Public Works: 208-746-1316	46.43111, -116.945381	1	Clearwater River	US 95 305.03		X				100	YES	Small	Clearwater River flow direction is to the west. Prevent product from impacting sensitive area at City of Lewiston water intake. Secure upstream end of boom river right to steel post. Secure downstream end of boom midstream to buoy. Notify City of Lewiston Public Works.
US 95 305.03	Upper Hog Island Access	Boom and boat launch	Idaho Fish and Game: 208-799-5010	46.446785, -116.859886	1	Clearwater River	US 12 15.41	X			X	X	1500	YES	Large	Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Upper Hog Island Access. Secure upstream end of boom river left to tree. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river right to steel post. Notify Idaho Fish and Game.
US 12 15.41	Potlach river confluence with Clearwater river	Boom only	Idaho Department of Transportation: 208-799-5090	46.47662, -116.767128	1	Clearwater River	US 12 16.2	X					200	NO	Small	Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Potlach river confluence with Clearwater river. Secure upstream end of boom river left to steel post. Secure downstream end of boom river right to steel post. Notify Idaho Department of Transportation.
US 12 16.2	Gibbs Eddy Access	Boom and boat launch	Idaho Fish and Game: 208-799-5010	46.479649, -116.752716	1	Clearwater River	US 12 20.91	X			X	X	1100	YES	Large	Clearwater River flow direction is to the southwest. Deploy containment boom and initiate product recovery at Gibbs Eddy Access. Secure upstream end of boom river right to tree. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river left to steel post. Notify Idaho Fish and Game.
US 12 20.91	Cherry Lane	Boom and boat launch	Idaho Fish and Game: 208-799-5010	46.512074, -116.683495	1	Clearwater River	US 12 22.09	X			X		1800	YES	Small	Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Cherry Lane. Secure upstream end of boom river right to steel post. Secure downstream end of boom midstream to bridge piling. Secure upstream end of second boom midstream to bridge piling. Secure downstream end of second boom river left to steel post. Notify Idaho Fish and Game.
US 12 22.09	Nez Perce Tribal Fish Hatchery water intake	Boom only	Nez Perce Tribe Dept. of Fisheries: 208-843-7320	46.516518, -116.657722	1	Clearwater River	US 12 27.66		X			X	50	NO	Large	Clearwater River flow direction is to the northwest. Prevent product from impacting sensitive area at Nez Perce Tribal Fish Hatchery water intake. Secure upstream end of boom river right to tree. Secure downstream end of boom midstream to buoy. Notify Nez Perce Tribe Department of Fisheries.
US 12 27.66	Lenore Rest Area	Boom and boat launch	Idaho Department of Transportation: 208-799-5090	46.509701, -116.562607	1	Clearwater River	US 12 28.42		X		X	X	250	YES	Large	Clearwater River flow direction is to the west. Deflect product moving downstream away from shoreline at Lenore Rest Area. Secure upstream end of boom midstream to buoy. Secure downstream end of boom midstream to buoy. Notify Idaho Department of Transportation.
US 12 28.42	Rhett's Park	Boat launch only	Idaho Fish and Game: 208-799-5010	46.506302, -116.548927	1	Clearwater River	US 12 33.81				X	X		NO	Large	Clearwater River flow direction is to the northwest. Access only at Rhett's Park. Notify Idaho Fish and Game.
US 12 33.81	Harper's Bend	Boat launch only	BLM: 208-962-3245	46.491623, -116.449745	1	Clearwater River	US 12 34.65				X			NO	Medium	Clearwater River flow direction is to the west. Access only at Harper's Bend. Notify BLM.
US 12 34.65	Milepost 34.65	Boom and boat launch	Nez Perce Tribe Dept. of Fisheries: 208-843-7320	46.498699, -116.439217	1	Clearwater River	US 12 39.01	X			X		1100	YES	Medium	Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Milepost 34.65. Secure upstream end of boom river right to tree. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river left to steel post. Secure upstream end of third boom river left to steel post. Secure downstream end of third boom midstream to buoy. Notify Nez Perce Tribe Dept. of Fisheries.
US 12 39.01	Pink House River Access	Staging and boat launch	BLM: 208-962-3245	46.502758, -116.35128	1	Clearwater River	US 12 40.38				X	X		NO	Large	Clearwater River flow direction is to the west. Staging area only at Pink House River Access. Notify BLM.

Strategy Reports

Steelhead Park Access — US 95 311.76

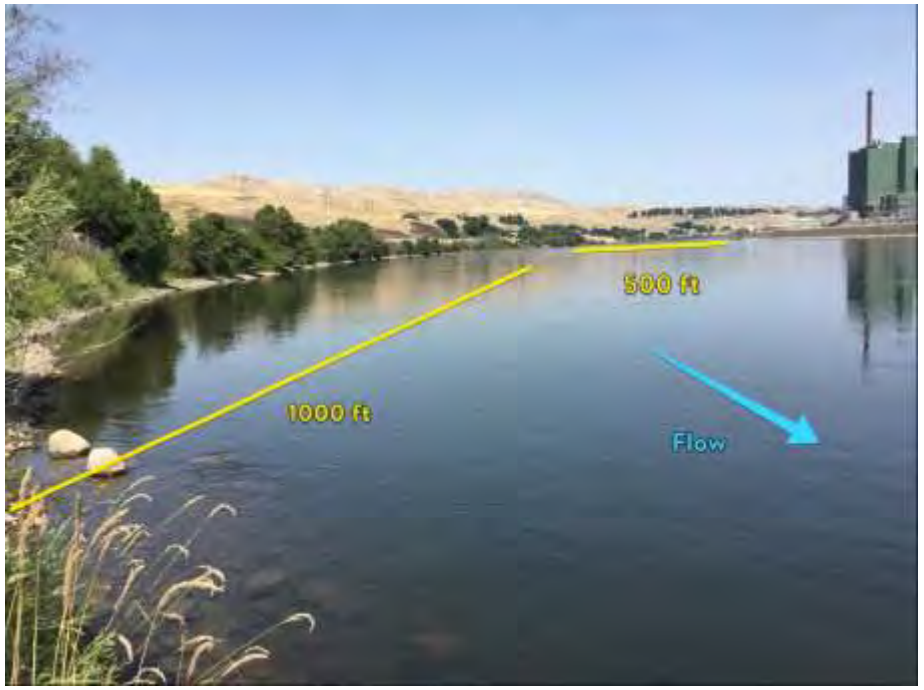
Site Lat Long:	46.430351 -116.983475 (http://www.google.com/maps/place/46.430351,-116.983475)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Steelhead Park Access. Secure upstream end of boom river left to steel post. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river right to steel post. Notify Idaho Fish and Game.
Site Safety Note:	High traffic rest area.
Staging Area:	On site staging is large. Large concrete parking area. Concrete boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 750 ft.; approx. depth is 10 to 20 feet; slow moving



Suggested Equipment	
Quantity	Description
1500 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
1900 ft.	Polypropylene Line
8	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
8	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-19. River discharge in cfs: 3000



Looking upstream at collection site and diversion anchor.

Site Specific Contact

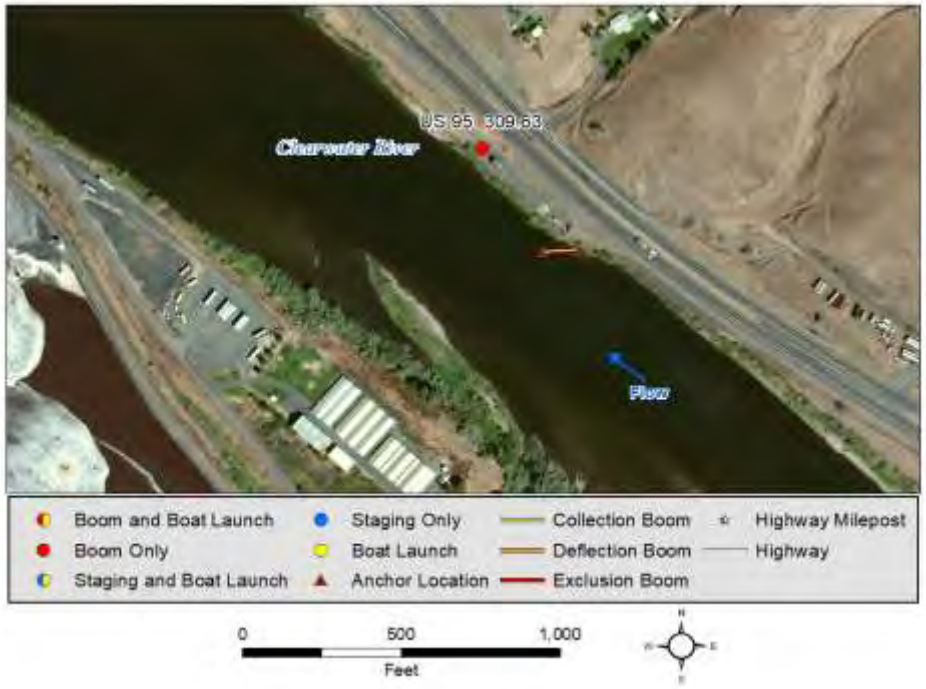
Idaho Fish and Game: 208-799-5010

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 1.3 mi
2. Sharp right onto Frontage Rd - 0.1 mi
3. Turn left onto Steelhead Way - 0.1 mi
Frontage Rd
Lewiston, ID 83501

City of Lewiston water intake — US 95 309.63

Site Lat Long:	46.43111 -116.945381 (http://www.google.com/maps/place/46.43111,-116.945381)
Strategy Objective:	Boom only. Notification and deflection booming.
Implementation:	Clearwater River flow direction is to the west. Prevent product from impacting sensitive area at City of Lewiston water intake. Secure upstream end of boom river right to steel post. Secure downstream end of boom midstream to buoy. Notify City of Lewiston Public Works.
Site Safety Note:	Access is via narrow bikepath. Traffic Control is needed for safety of cyclists and drivers.
Staging Area:	On site staging is small. Long narrow paved bike path with parking lot near water intake structure. No boat launch facilities. Steelhead Park Access boat launch is 3.7 miles away.
Field Notes:	• Access to bike path from East bound highway 12 at MP 310 • 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Water Intake
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 600 ft.; approx. depth is 10 to 20 feet; slow moving



Suggested Equipment	
Quantity	Description
100 ft.	Curtain Boom Tow Bridles
125 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-19. River discharge in cfs: 3000

Looking downstream at exclusion site for water intake

Site Specific Contact

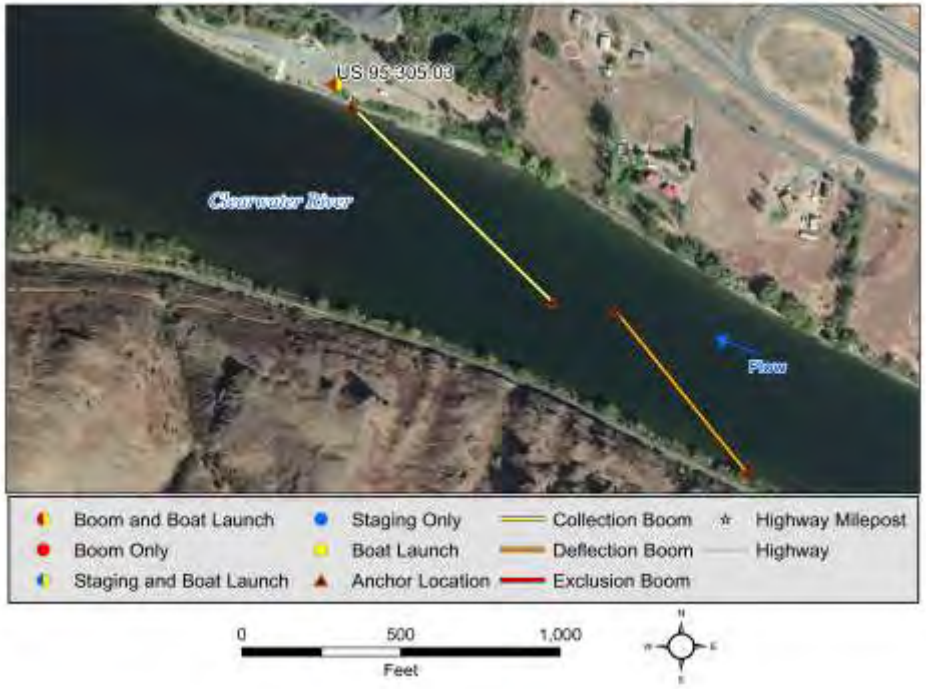
City of Lewiston Public Works: 208-746-1316

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 2.7 mi
2. Turn right - 82 ft
US-12
Lewiston, ID 83501

Upper Hog Island Access — US 95 305.03

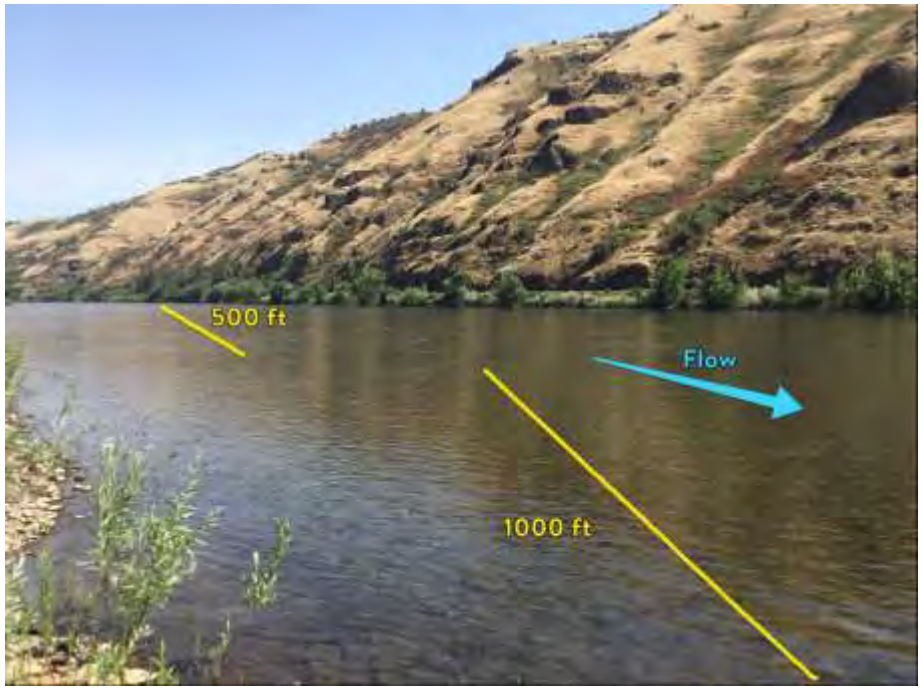
Site Lat Long:	46.446785 -116.859886 (http://www.google.com/maps/place/46.446785,-116.859886)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Upper Hog Island Access. Secure upstream end of boom river left to tree. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river right to steel post. Notify Idaho Fish and Game.
Site Safety Note:	
Staging Area:	On site staging is large. Large gravel parking area. Concrete boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Heron Rookery
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 600 ft.; approx. depth is 10 to 20 feet; slow moving



Suggested Equipment	
Quantity	Description
1500 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
1900 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
8	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-19. River discharge in cfs: 3000



Looking upstream at collection site and deflection anchor.

Site Specific Contact

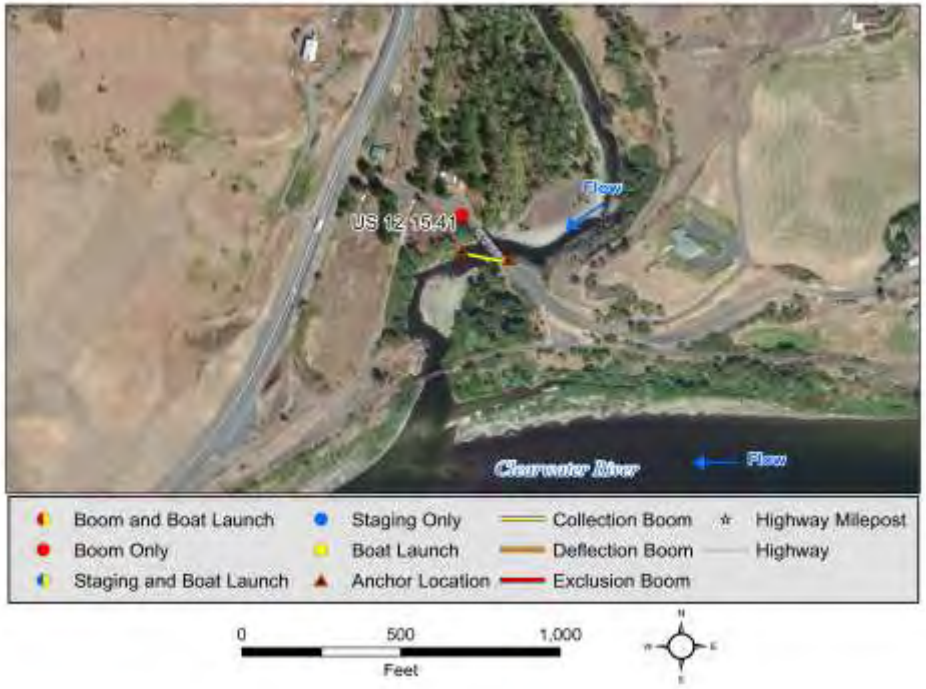
Idaho Fish and Game: 208-799-5010

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1.Head north on US-12 E toward 3rd Ave N - 7.8 mi
2.Turn right onto Mullalley Rd – 459 ft
20000-20198 Mullalley Rd
Lewiston, ID 83501

Potlach river confluence with Clearwater river — US 12 15.41

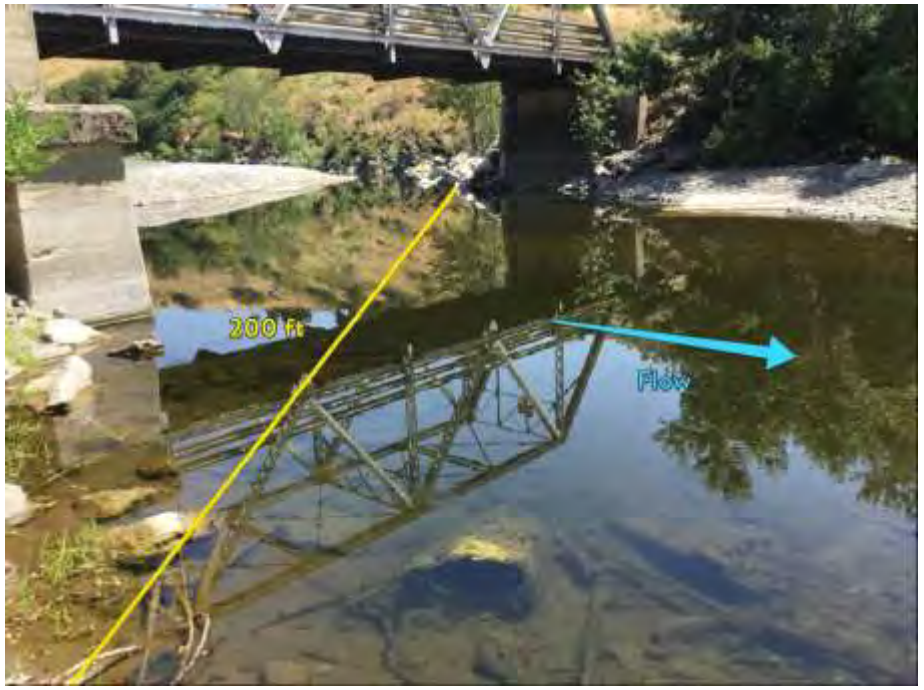
Site Lat Long:	46.47662 -116.767128 (http://www.google.com/maps/place/46.47662,-116.767128)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Potlach river confluence with Clearwater river. Secure upstream end of boom river left to steel post. Secure downstream end of boom river right to steel post. Notify Idaho Department of Transportation.
Site Safety Note:	
Staging Area:	On site staging is small. Small roadside pullout. No boat launch facilities. Gibbs Eddy Access boat launch is 1.8 miles away.
Field Notes:	• Collection site on Potlatch river 500 ft upstream of confluence, beneath bridge. • 4WD Access: **NO** Low Water Only: **NO** Locked Gate:
Resources Targeted:	Clearwater River/Potlach River
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 100 ft.; approx. depth is 1 to 5 feet; slow moving; braided channels



Suggested Equipment	
Quantity	Description
200 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
250 ft.	Polypropylene Line
8	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	N

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
2	Traffic Flagger
	Boat Operator
	Swiftwater Tech

Visited on 2017-07-19. River discharge in cfs: 2500



Potlach river confluence with Clearwater river.

Site Specific Contact

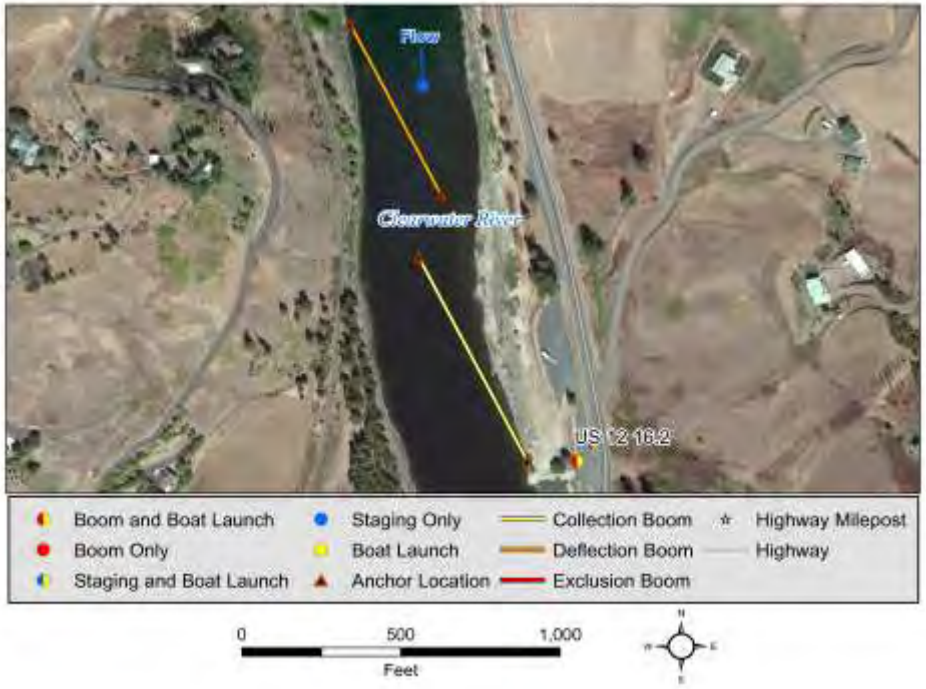
Idaho Department of Transportation: 208-799-5090

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 4.1 mi
4. Turn left onto ID-3 N - 0.4 mi
5. Turn right onto 285 Rd/Arrow Highline Rd
6. Destination will be on the left - 0.1 mi
Arrow Highline Rd
Idaho

Gibbs Eddy Access — US 12 16.2

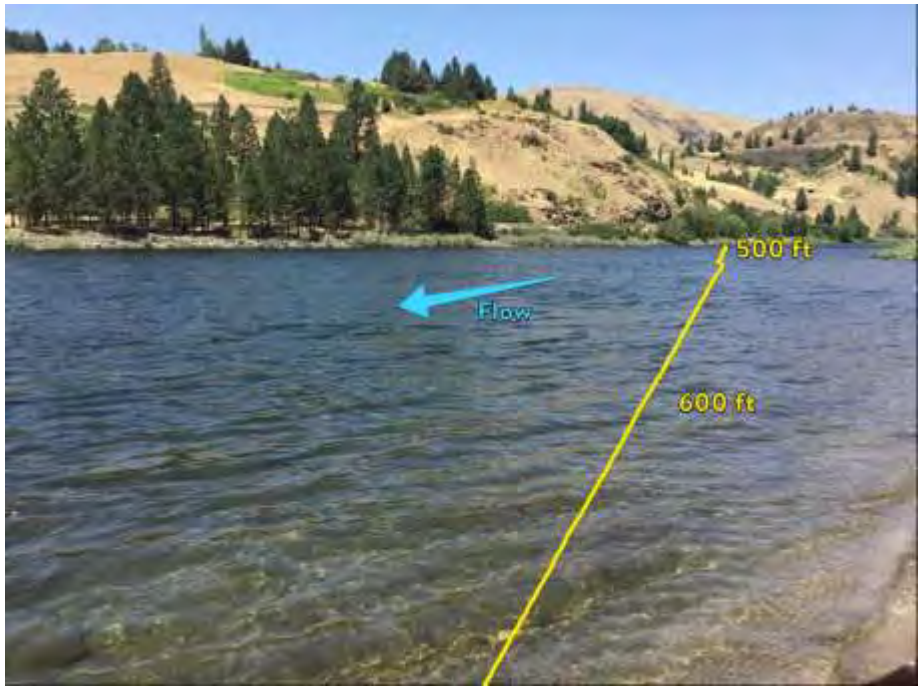
Site Lat Long:	46.479649 -116.752716 (http://www.google.com/maps/place/46.479649,-116.752716)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	Clearwater River flow direction is to the southwest. Deploy containment boom and initiate product recovery at Gibbs Eddy Access. Secure upstream end of boom river right to tree. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river left to steel post. Notify Idaho Fish and Game.
Site Safety Note:	
Staging Area:	On site staging is large. Gravel road and parking area with boat ramp. Concrete boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 400 ft.; approx. depth is 5 to10 feet; slow moving



Suggested Equipment	
Quantity	Description
1100 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
1350 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
7	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-19. River discharge in cfs: 2500



Looking upstream at collection site and deflection boom anchor site.

Site Specific Contact

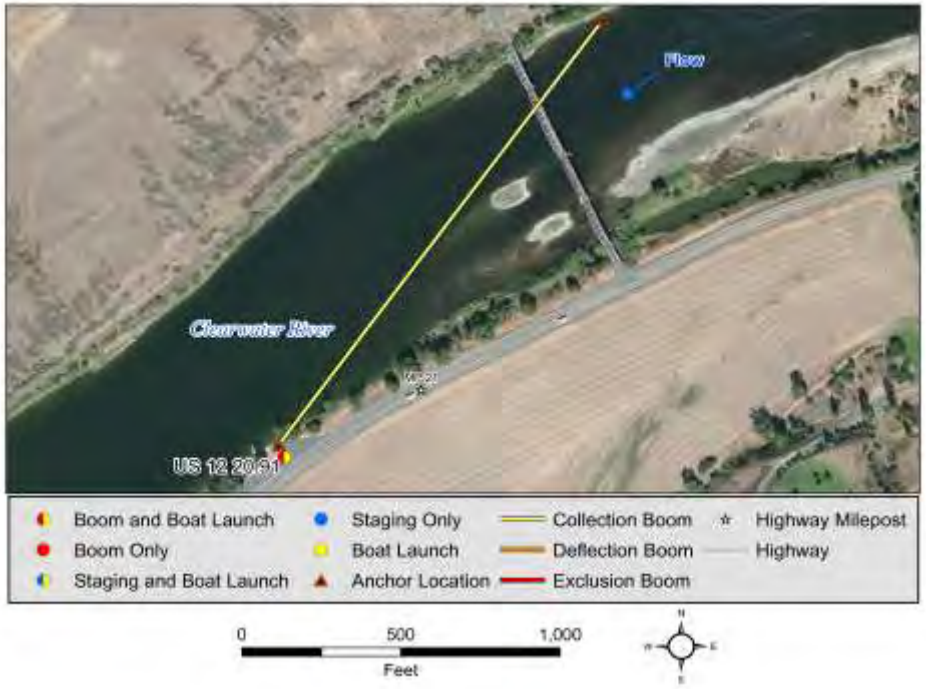
Idaho Fish and Game: 208-799-5010

Directions to Site

Memorial Bridge
Lewiston, ID 83501
Head north on US-12 E/Memorial Bridge
Continue to follow US-12 E
8.1 mi
Use the right lane to take the US-12 ramp to Missoula/Orofino
0.7 mi
Continue onto US-12 E
Destination will be on the left
5.3 mi
US-12
Lapwai, ID 83540

Cherry Lane — US 12 20.91

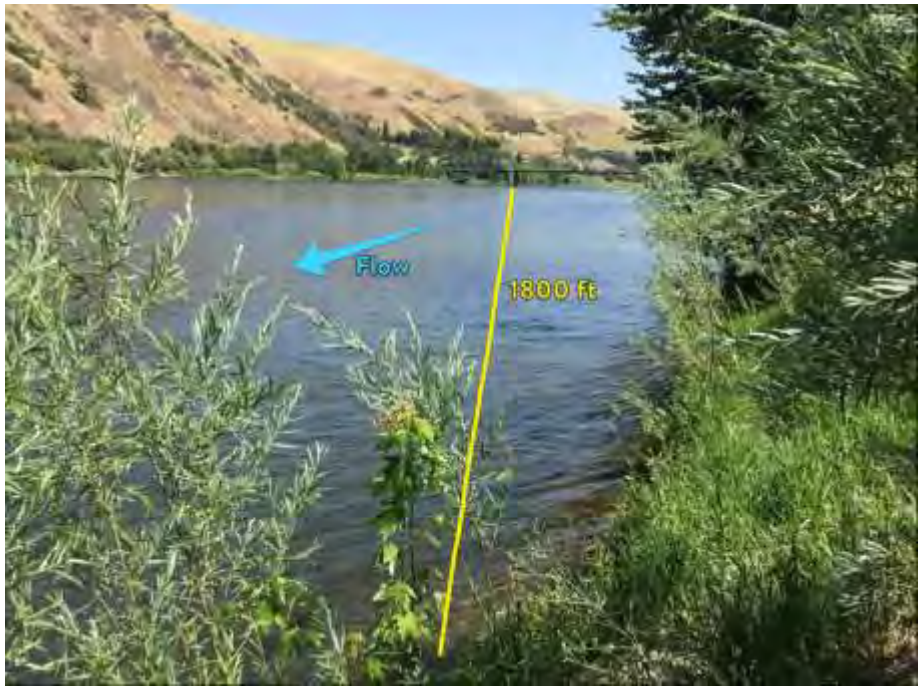
Site Lat Long:	46.512074 -116.683495 (http://www.google.com/maps/place/46.512074,-116.683495)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Cherry Lane. Secure upstream end of boom river right to steel post. Secure downstream end of boom midstream to bridge piling. Secure upstream end of second boom midstream to bridge piling. Secure downstream end of second boom river left to steel post. Notify Idaho Fish and Game.
Site Safety Note:	
Staging Area:	On site staging is small. Gravel pullout with boat ramp. Concrete boat launch.
Field Notes:	• This strategy is the best option for river access between river miles 16 and 22. • Although, it may not work, the slow moving current and the option of tethering boom to the bridge is a potential strategy.
Resources Targeted:	Downstream Habitat
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 520 ft.; approx. depth is 5 to10 feet; slow moving

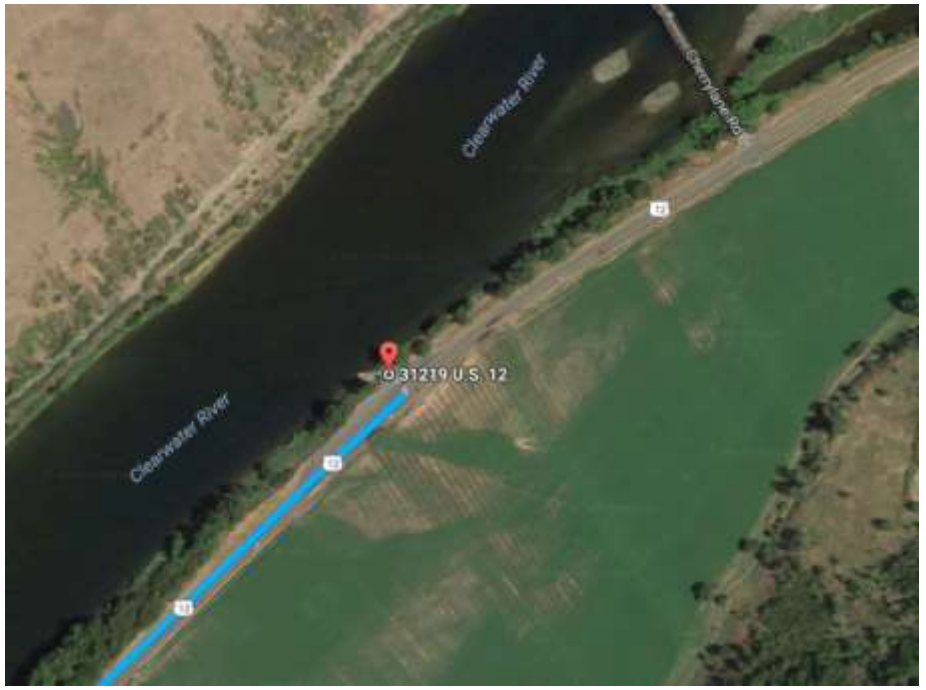


Suggested Equipment	
Quantity	Description
1800 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
2300 ft.	Polypropylene Line
8	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
8	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-19. River discharge in cfs: 2500





Looking upstream from Boat Ramp and collection point towards upstream bridge piling anchor.

Site Specific Contact

Idaho Fish and Game: 208-799-5010

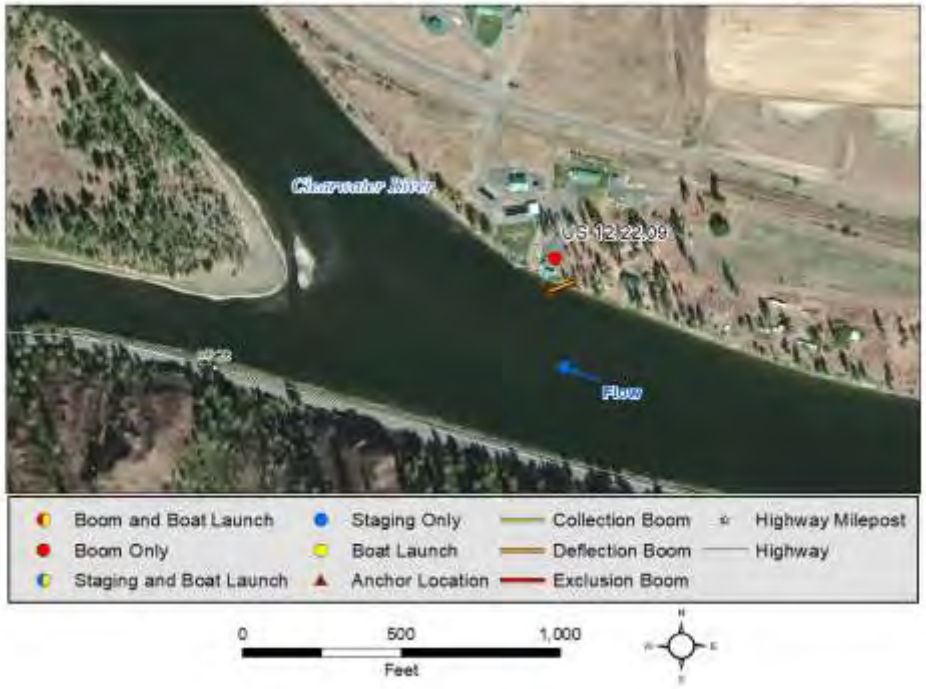
Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E
4. Destination will be on the left - 10.0 mi

31219 US-12
Lenore, ID 83541

Nez Perce Tribal Fish Hatchery water intake — US 12 22.09

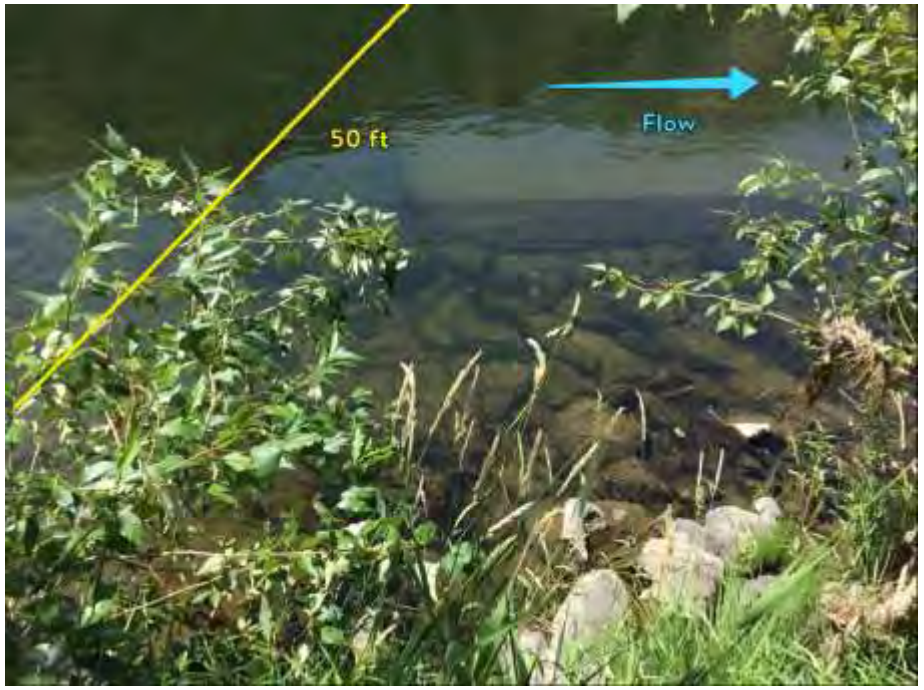
Site Lat Long:	46.516518 -116.657722 (http://www.google.com/maps/place/46.516518,-116.657722)
Strategy Objective:	Boom only. Notification and deflection booming.
Implementation:	Clearwater River flow direction is to the northwest. Prevent product from impacting sensitive area at Nez Perce Tribal Fish Hatchery water intake. Secure upstream end of boom river right to tree. Secure downstream end of boom midstream to buoy. Notify Nez Perce Tribe Department of Fisheries.
Site Safety Note:	
Staging Area:	On site staging is large. Large gravel area at fish hatchery. No boat launch facilities. Cherry Lane boat launch is 1.8 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **YES**
Resources Targeted:	Fish Hatchery Water Intake
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 300 ft.; approx. depth is 5 to10 feet; slow moving



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
65 ft.	Polypropylene Line
	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	N

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
	Traffic Flagger
	Boat Operator
	Swiftwater Tech

Visited on 2017-07-19. River discharge in cfs: 2500



Looking from shore to water intake.

Site Specific Contact

Nez Perce Tribe Department of Fisheries: 208-843-7320

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 10.2 mi
4. Turn left onto Cherrylane Rd/River Rd - 1.2 mi
5. Continue onto River Rd - .3 mi
6. Destination will be on the right
River Rd
Lenore, ID 83541

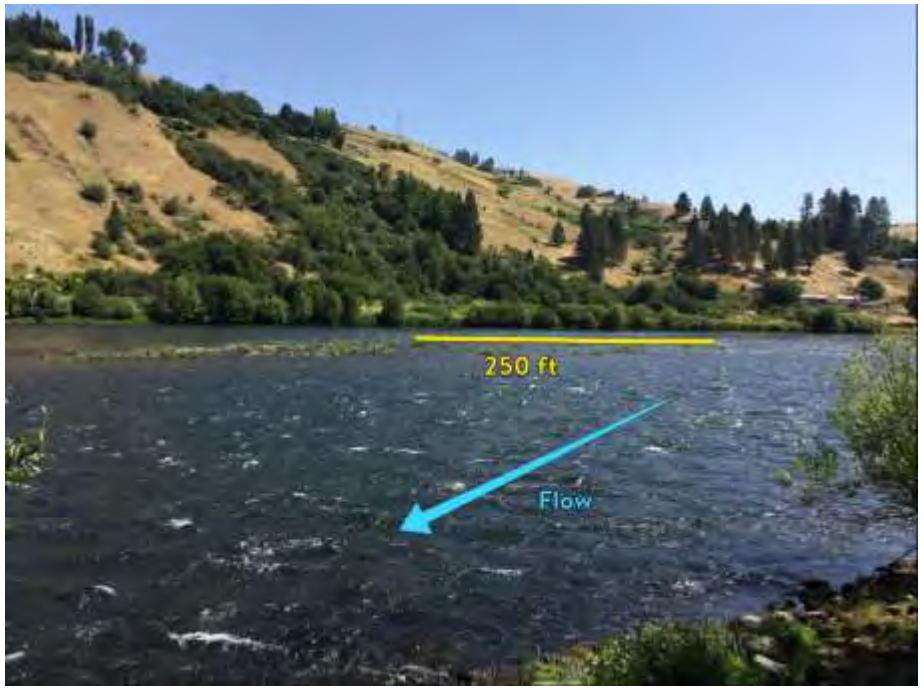
Lenore Rest Area — US 12 27.66

Site Lat Long:	46.509701 -116.562607 (http://www.google.com/maps/place/46.509701,-116.562607)
Strategy Objective:	Boom and boat launch. Notification and deflection booming. Goal is to protect gravel spawning area.
Implementation:	Clearwater River flow direction is to the west. Deflect product moving downstream away from shoreline at Lenore Rest Area. Secure upstream end of boom midstream to buoy. Secure downstream end of boom midstream to buoy. Notify Idaho Department of Transportation.
Site Safety Note:	Rapids downstream of deflection boom.
Staging Area:	On site staging is large. Large concrete parking area. Concrete boat launch.
Field Notes:	• Protecting North shore of island for Chinook spawning ground. • 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Fall Chinook spawning beds on north shore of unnamed island
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 600 ft.; approx. depth is 5 to10 feet; shoals; fast moving

Suggested Equipment	
Quantity	Description
250 ft.	Curtain Boom Tow Bridles
325 ft.	Polypropylene Line
	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-19. River discharge in cfs: 2500



Looking North at midstream island.

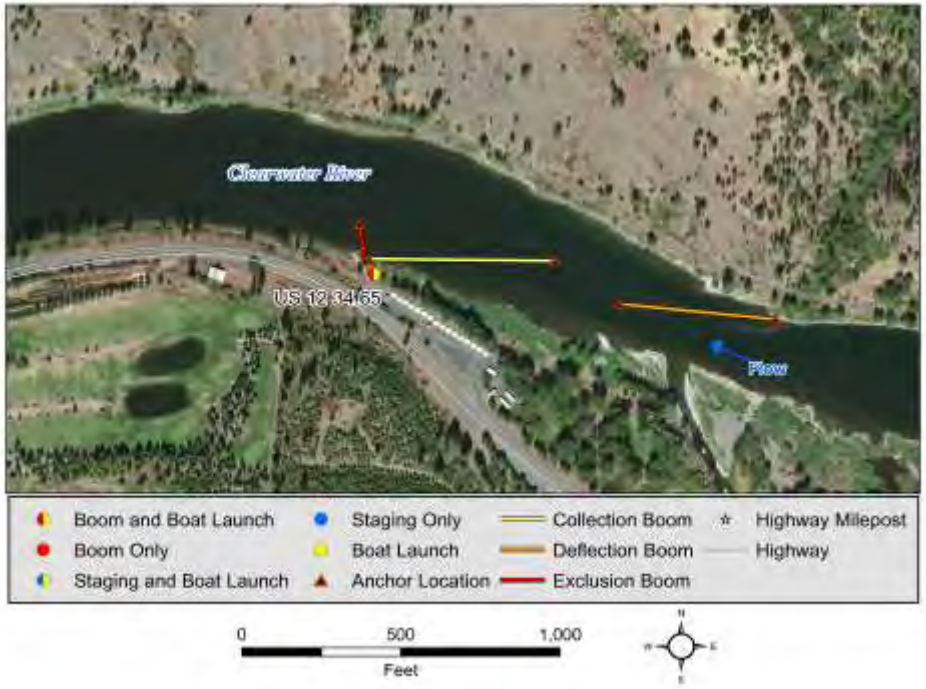
Site Specific Contact

Idaho Department of Transportation: 208-799-5090

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 16.9 mi
4. Destination will be on the left
US-12 Lenore Rest Area
37495 US-12, Lenore, ID 83541

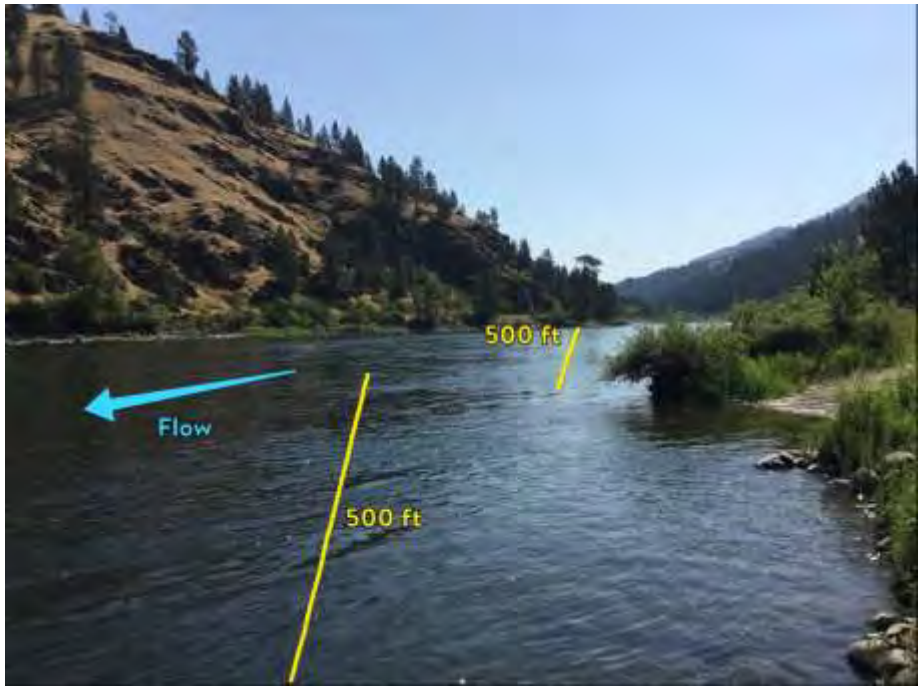
Site Lat Long:	46.498699 -116.439217 (http://www.google.com/maps/place/46.498699,-116.439217)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery
Implementation:	Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Milepost 34.65. Secure upstream end of boom river right to tree. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river left to steel post. Secure upstream end of third boom river left to steel post. Secure downstream end of third boom midstream to buoy. Notify Nez Perce Tribe Dept. of Fisheries.
Site Safety Note:	
Staging Area:	On site staging is medium. Gravel parking area Concrete boat launch.
Field Notes:	• Water Intake for old hatchery located immediately downstream of boat ramp. Hatchery may be out of use. • 4WD Access: **NO** Low Water Only: **NO**
Resources Targeted:	Water Intake
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 400 ft.; approx. depth is 10 to 20 feet; slow moving; channelized



Suggested Equipment	
Quantity	Description
1100 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
1250 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
6	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-19. River discharge in cfs: 2500



Looking upstream from collection site towards anchors

Site Specific Contact

Nez Perce Tribe Dept. of Fisheries: 208-843-7320

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 23.7 mi
4. Destination will be on the left
44819 US-12
Lenore, ID 83541

Staging Areas

Pink House River Access — US 12 39.01

Site Lat Long:	46.502758 -116.35128 (http://www.google.com/maps/place/46.502758,-116.35128)
Strategy Objective:	Staging and boat launch only.
Site Safety Note:	
Staging Area:	On site staging is large. Paved parking area with boat ramp. Concrete boat launch.
Field Notes:	• Alternate dirt boat ramp upstream at same site. • 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 28.2 mi
4. Destination will be on the left
Pink House Recreation Site

Boat Ramps

Steelhead Park Access — US 95 311.76

Site Lat Long:	46.430351 -116.983475 (http://www.google.com/maps/place/46.430351,-116.983475)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	High traffic rest area.
Staging Area:	On site staging is large. Large concrete parking area. Concrete boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 1.3 mi
2. Sharp right onto Frontage Rd - 0.1 mi
3. Turn left onto Steelhead Way - 0.1 mi
Frontage Rd
Lewiston, ID 83501

Upper Hog Island Access — US 95 305.03

Site Lat Long:	46.446785 -116.859886 (http://www.google.com/maps/place/46.446785,-116.859886)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	
Staging Area:	On site staging is large. Large gravel parking area. Concrete boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1.Head north on US-12 E toward 3rd Ave N - 7.8 mi
2.Turn right onto Mullalley Rd – 459 ft
20000-20198 Mullalley Rd
Lewiston, ID 83501

Gibbs Eddy Access — US 12 16.2

Site Lat Long:	46.479649 -116.752716 (http://www.google.com/maps/place/46.479649,-116.752716)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	
Staging Area:	On site staging is large. Gravel road and parking area with boat ramp. Concrete boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

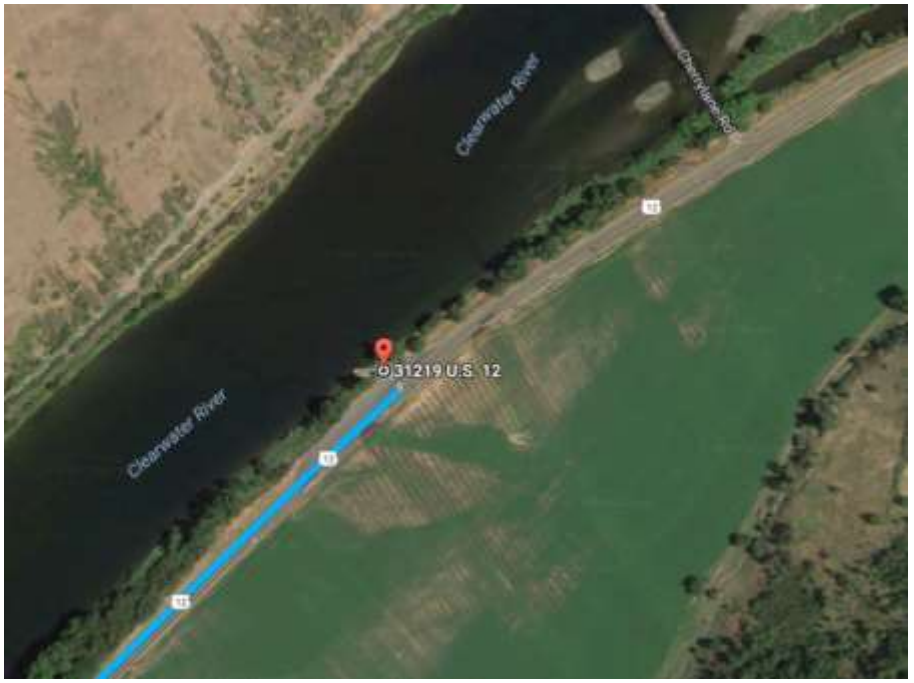
Memorial Bridge
Lewiston, ID 83501
Head north on US-12 E/Memorial Bridge
Continue to follow US-12 E
8.1 mi
Use the right lane to take the US-12 ramp to Missoula/Orofino
0.7 mi

Cherry Lane — US 12 20.91

Site Lat Long:	46.512074 -116.683495 (http://www.google.com/maps/place/46.512074,-116.683495)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	
Staging Area:	On site staging is small. Gravel pullout with boat ramp. Concrete boat launch.
Field Notes:	• This strategy is the best option for river access between river miles 16 and 22. • Although, it may not work, the slow moving current and the option of tethering boom to the bridge is a potential strategy.

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E
4. Destination will be on the left - 10.0 mi



Lenore Rest Area — US 12 27.66

Site Lat Long:	46.509701 -116.562607 (http://www.google.com/maps/place/46.509701,-116.562607)
Strategy Objective:	Boom and boat launch. Notification and deflection booming. Goal is to protect gravel spawning area.
Site Safety Note:	Rapids downstream of deflection boom.
Staging Area:	On site staging is large. Large concrete parking area. Concrete boat launch.
Field Notes:	• Protecting North shore of island for Chinook spawning ground. • 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 16.9 mi
4. Destination will be on the left
US-12 Lenore Rest Area

Rhett's Park — US 12 28.42

Site Lat Long:	46.506302 -116.548927 (http://www.google.com/maps/place/46.506302,-116.548927)
Strategy Objective:	Boat launch only. Access only.
Site Safety Note:	
Staging Area:	On site staging is large. Large gravel campground. Concrete boat launch.
Field Notes:	• Launch site located on North side of river across bridge. • 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

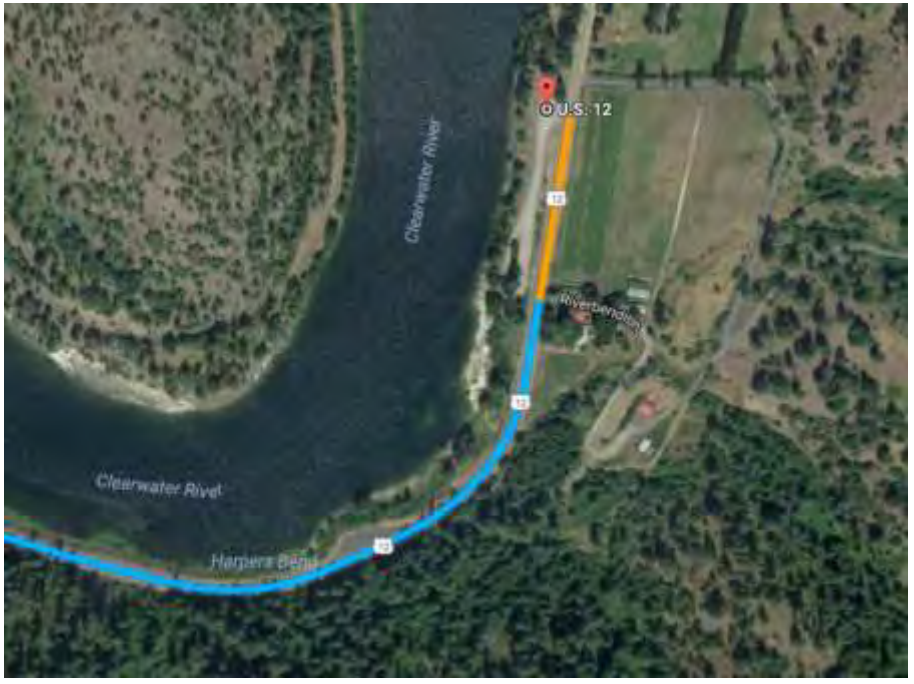
Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 17.3 mi
4. Turn left onto Lenore Grade - .2 mi
5. Destination will be on the right

Harper's Bend — US 12 33.81

Site Lat Long:	46.491623 -116.449745 (http://www.google.com/maps/place/46.491623,-116.449745)
Strategy Objective:	Boat launch only. Access only.
Site Safety Note:	
Staging Area:	On site staging is medium. Large gravel parking area. Concrete boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 23.0 mi
4. Destination will be on the left
US-12



Site Lat Long:	46.498699 -116.439217 (http://www.google.com/maps/place/46.498699,-116.439217)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery
Site Safety Note:	
Staging Area:	On site staging is medium. Gravel parking area Concrete boat launch.
Field Notes:	• Water Intake for old hatchery located immediately downstream of boat ramp. Hatchery may be out of use. • 4WD Access: **NO** Low Water Only: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 23.7 mi
4. Destination will be on the left
44819 US-12

Pink House River Access — US 12 39.01

Site Lat Long:	46.502758 -116.35128 (http://www.google.com/maps/place/46.502758,-116.35128)
Strategy Objective:	Staging and boat launch only.
Site Safety Note:	
Staging Area:	On site staging is large. Paved parking area with boat ramp. Concrete boat launch.
Field Notes:	• Alternate dirt boat ramp upstream at same site. • 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 28.2 mi
4. Destination will be on the left
Pink House Recreation Site

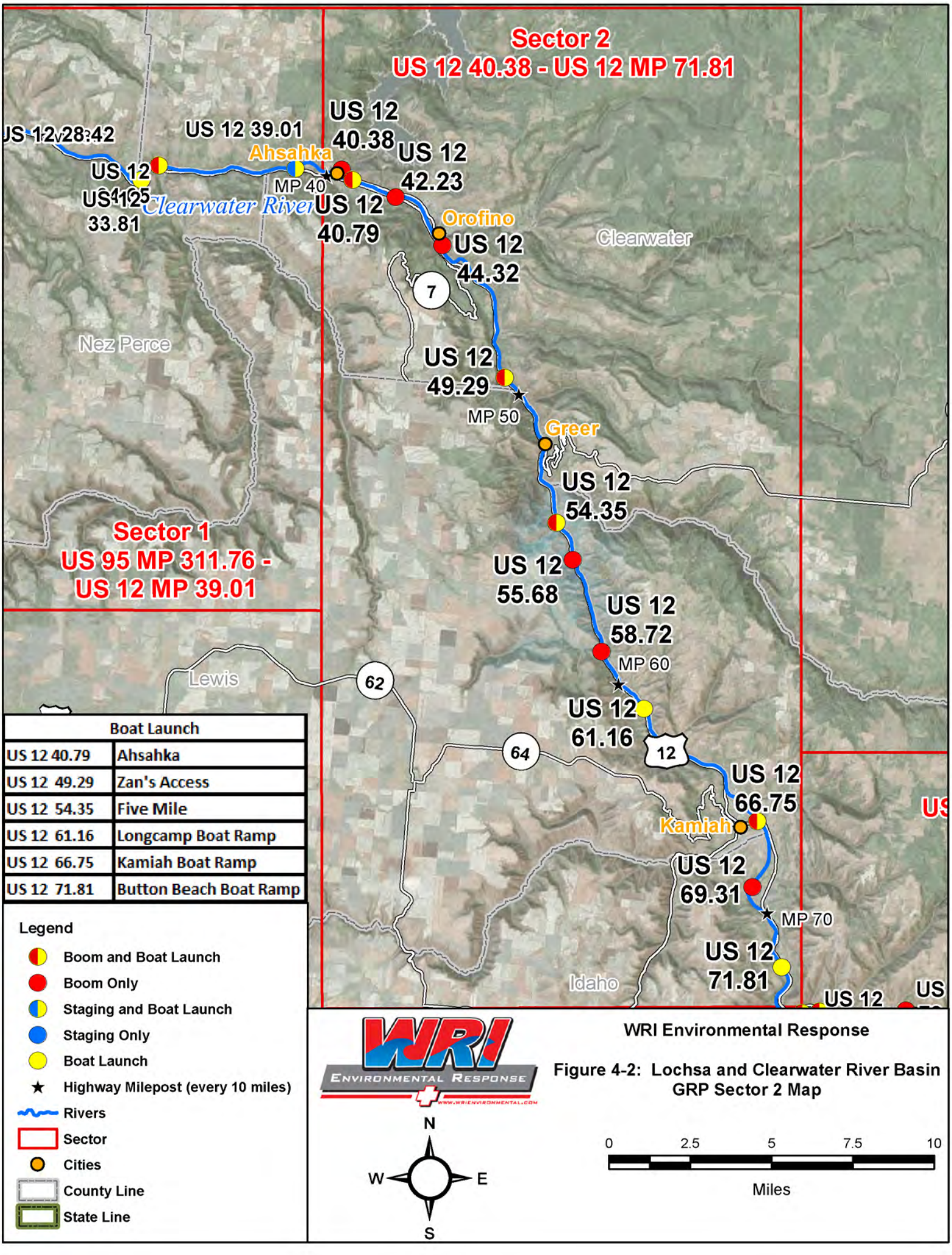

Sector 2
US 12 40.38 - US 12 MP 71.81
US 12 28.42
US 12 39.01
US 12 40.38
US 12 42.23
US 12 40.79
US 12 44.32
US 12 33.81
Ahsahka
MP 40
Clearwater River
Orofino
Clearwater
Nez Perce
7
US 12 49.29
MP 50
Greer
US 12 54.35
Sector 1
US 95 MP 311.76 -
US 12 MP 39.01
US 12 55.68
US 12 58.72
MP 60
Lewis
62
US 12 61.16
64
12
US 12 66.75
Kamiah
US 12 69.31
MP 70
US 12 71.81
Idaho
US 12
Boat Launch
US 12 40.79 Ahsahka
US 12 49.29 Zan's Access
US 12 54.35 Five Mile
US 12 61.16 Longcamp Boat Ramp
US 12 66.75 Kamiah Boat Ramp
US 12 71.81 Button Beach Boat Ramp
Legend
Boom and Boat Launch
Boom Only
Staging and Boat Launch
Staging Only
Boat Launch
Highway Milepost (every 10 miles)
Rivers
Sector
Cities
County Line
State Line
N
W
E
S
WRI Environmental Response
Figure 4-2: Lochsa and Clearwater River Basin
GRP Sector 2 Map
0
2.5
5
7.5
10
Miles

Table 4-2: Strategies US 12 40.38 to US 12 71.81 Booming Strategies, Staging Areas, and Boat Launches

Nearest Highway Milepost	Location Description	Site Type	Site Specific Notification	Location Lattitude/Longitude decimal degrees	Shown on Sector Map	Adjacent Receiving Waterbody	Next Downstream Milepost (MP) and Downstream Arrow Indicator	Strategy Type						Onsite Resources		Site-Specific Notification Information and/or Strategy Implementation Notes
								Collection and Recovery	Deflection	Exclusion	Boat Launch	Staging	Boom Length Recommended (feet)	Jet Boat Required to Implement?	Large Staging Onsite?	
Sector 2: US 12 MP 40.38 - US 12 MP 71.81																
Clearwater River																
US 12 40.38	Ahsahka Water Intake	Boom only	Ahsahka Water Intake: 208-476-4350	46.504211, -116.321602	2	Clearwater River	US 12 40.79		X				50	YES	Small	Clearwater River flow direction is to the southwest. Prevent product from impacting sensitive area at Ahsahka Water Intake. Secure upstream end of boom river right to tree. Secure downstream end of boom midstream to buoy. Notify Idaho Fish and Game.
US 12 40.79	Ahsahka	Boom and boat launch	Idaho Fish and Game: 208-799-5010	46.500011, -116.313873	2	Clearwater River	US 12 42.23	X			X	X	600	YES	Large	Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Ahsahka. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to rock. Notify Idaho Fish and Game.
US 12 42.23	Riverside Water Intake	Boom only	Riverside Water Intake: 208-476-6313	46.493973, -116.284988	2	Clearwater River	US 12 44.32			X			100	YES	Small	Clearwater River flow direction is to the west. Prevent product from impacting sensitive area at Riverside Water Intake. Secure upstream end of boom river left to rock. Secure downstream end of boom river left to rock. Notify City of Orofino (Riverside).
US 12 44.32	Orofino Water Intake	Boom only	City of Orofino Water Intake - Rick Laam: 208-476-4725	46.474319, -116.252396	2	Clearwater River	US 12 49.29			X		X	100	YES	Large	Clearwater River flow direction is to the northwest. Prevent product from impacting sensitive area at Orofino Water Intake. Secure upstream end of boom river right to rock. Secure downstream end of boom river right to rock. Notify City of Orofino.
US 12 49.29	Zan's Access	Boom and boat launch	Idaho Fish and Game: 208-799-5010	46.418068, -116.205223	2	Clearwater River	US 12 54.35	X			X	X	300	YES	Large	Clearwater River flow direction is to the northwest. Deploy containment boom and initiate product recovery at Zan's Access. Secure upstream end of boom river right to rock. Secure downstream end of boom river left to rock. Notify Idaho Fish and Game.
US 12 54.35	Five Mile	Boom and boat launch	Idaho Fish and Game: 208-799-5010	46.355442, -116.164009	2	Clearwater River	US 12 55.68	X			X	X	800	YES	Large	Clearwater River flow direction is to the northwest. Deploy containment boom and initiate product recovery at Five Mile. Secure upstream end of boom river right to rock. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river left to steel post. Notify Idaho Fish and Game.
US 12 55.68	Milepost 55.68	Boom only	Idaho Fish and Game: 208-799-5010	46.339661, -116.151482	2	Clearwater River	US 12 58.72	X					300	YES	Small	Clearwater River flow direction is to the northwest. Deploy containment boom and initiate product recovery at Milepost 55.68. Secure upstream end of boom river right to rock. Secure downstream end of boom river left to rock. Notify Idaho Fish and Game.
US 12 58.72	Milepost 58.72	Boom only	Idaho Department of Transportation: 208-799-5090	46.300011, -116.127914	2	Clearwater River	US 12 61.16	X					550	YES	Small	Clearwater River flow direction is to the north. Deploy containment boom and initiate product recovery at Milepost 58.72. Secure upstream end of boom river right to steel post. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river left to rock.
US 12 61.16	Longcamp Access	Boat launch only	Idaho Fish and Game: 208-799-5010	46.276165, -116.097755	2	Clearwater River	US 12 66.75				X	X		NO	Large	Access only at Longcamp Access. Notify Idaho Fish and Game.
US 12 66.75	Kamiah Boat Ramp and Water Intake	Boom and boat launch	City of Kamiah Water Intake: 208-935-0319	46.230377, -116.019043	2	Clearwater River	US 12 69.31	X			X	X	850	YES	Large	Clearwater River flow direction is to the northwest. Deploy containment boom and initiate product recovery at Kamiah Boat Ramp and Water Intake. Secure upstream end of boom river right to steel post. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom midstream to buoy. Secure upstream end of third boom midstream to buoy. Secure downstream end of third boom river left to steel post. Notify City of Kamiah.
US 12 69.31	Haight Road Backchannel	Boom only	Idaho Fish and Game: 208-799-5010	46.200962, -116.018646	2	Clearwater River	US 12 71.81			X			1000	YES	Small	Clearwater River flow direction is to the north. Prevent product from impacting sensitive area at Haight Road Backchannel. Secure upstream end of boom river right to steel post. Secure downstream end of boom river right to steel post. Notify Idaho Fish and Game.
US 12 71.81	Button Beach	Boat launch only	Idaho Fish and Game: 208-799-5010	46.166553, -115.995567	2	Clearwater River	SH 13 26.24				X	X		NO	Large	Access only at Button Beach. Notify Idaho Fish and Game.

Strategy Reports

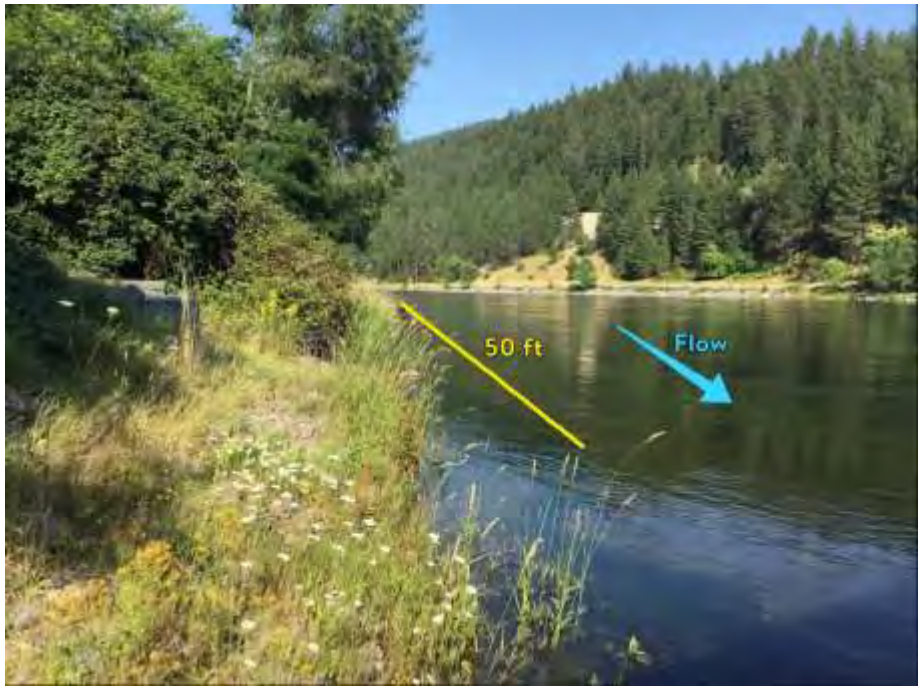
Ahsahka Water Intake — US 12 40.38

Site Lat Long:	46.504211 -116.321602 (http://www.google.com/maps/place/46.504211,-116.321602)
Strategy Objective:	Boom only. Notification and deflection booming.
Implementation:	Clearwater River flow direction is to the southwest. Prevent product from impacting sensitive area at Ahsahka Water Intake. Secure upstream end of boom river right to tree. Secure downstream end of boom midstream to buoy. Notify Idaho Fish and Game.
Site Safety Note:	
Staging Area:	On site staging is small. Ahsahka Bridge handicapped fishing access with small parking area. No boat launch facilities. Ahsahka boat launch is .5 miles away.
Field Notes:	• Access is from SR7. Site is on the North shore of North Fork Clearwater River. • 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Clearwater River/Downstream Habitat
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 500 ft.; approx. depth is 5 to10 feet; channelized; slow moving

Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
75 ft.	Polypropylene Line
	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-19. River discharge in cfs: 2500



Looking upstream at the Ahsahka Water Intake located just upstream of the SR 7 bridge on river right.

Site Specific Contact

Ahsahka Water Intake: 208-476-4350

Directions to Site

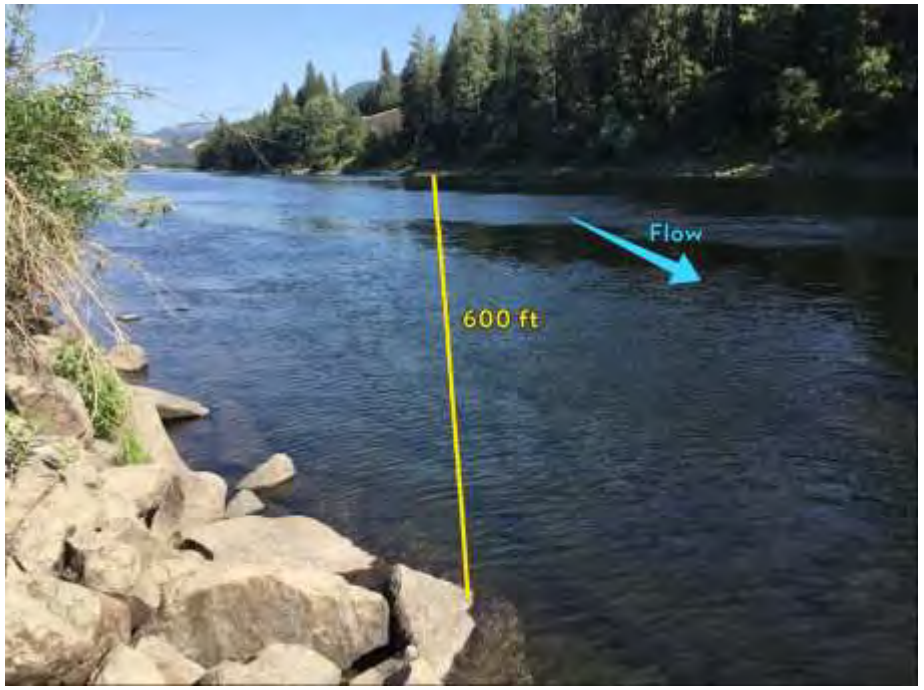
Memorial Bridge
Lewiston, ID 83501
1. Take US-12 E to ID-7 N/Michigan Ave in Clearwater County - 46 min (41.7 mi)
2. Follow ID-7 N to your destination in Lenore - 9 min (4.2 mi)
ID-7
Ahsahka, ID 83520

Site Lat Long:	46.500011 -116.313873 (http://www.google.com/maps/place/46.500011,-116.313873)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Ahsahka. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to rock. Notify Idaho Fish and Game.
Site Safety Note:	Railroad Crossing at entrance to staging area.
Staging Area:	On site staging is large. Large staging area with concrete Boat Ramp. Concrete boat launch.
Field Notes:	• Boat Ramp and collection site accessed from SR 7 in Orofino. • 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 270 ft.; approx. depth is 5 to10 feet; slow moving; channelized

Suggested Equipment	
Quantity	Description
600 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
900 ft.	Polypropylene Line
	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
5	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 2500



Looking towards upstream anchors from collection site just upstream of Boat Ramp.

Site Specific Contact

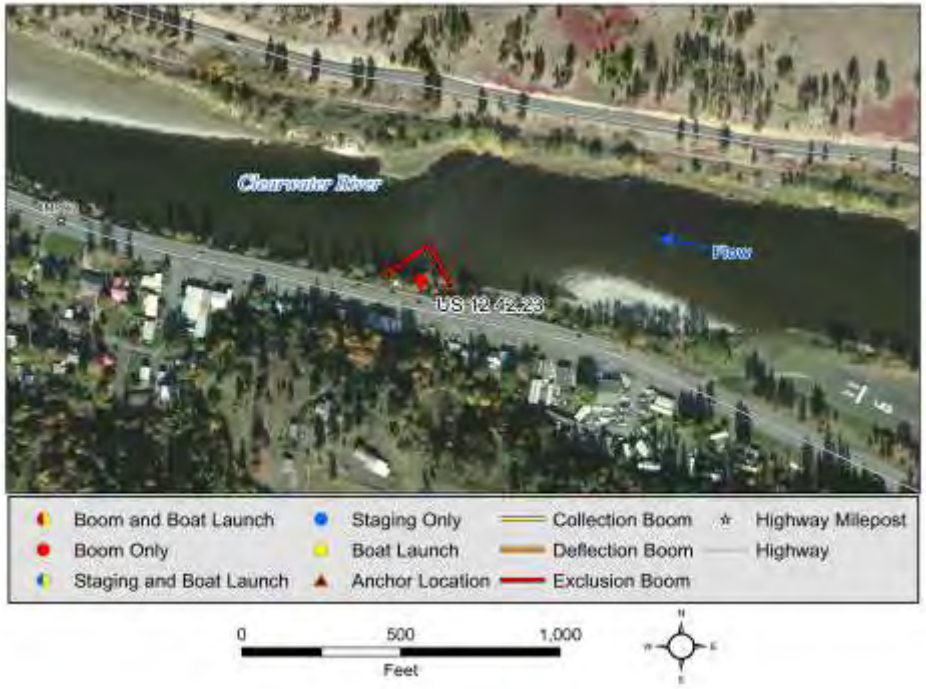
Idaho Fish and Game: 208-799-5010

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 33.0 mi
4. Turn left onto ID-7 N/Michigan Ave - 0.2 mi
5. Turn left onto ID-7 N/Riverside Ave
6. Continue to follow ID-7 N - 3.3 mi
7. Turn left - 348 ft
1915 Cavendish Hwy
Ahsahka, ID 83520

Riverside Water Intake — US 12 42.23

Site Lat Long:	46.493973 -116.284988 (http://www.google.com/maps/place/46.493973,-116.284988)
Strategy Objective:	Boom only. Notification and exclusion booming.
Implementation:	Clearwater River flow direction is to the west. Prevent product from impacting sensitive area at Riverside Water Intake. Secure upstream end of boom river left to rock. Secure downstream end of boom river left to rock. Notify City of Orofino (Riverside).
Site Safety Note:	Steep rocky shoreline and narrow highway shoulder. Traffic control needed for safety.
Staging Area:	On site staging is small. Small parking area near airport on north side of highway 12. No boat launch facilities. Ahsahka boat launch is 5.3 miles away. Access to Boat Ramp is from SR 7.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Water Intake
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 300 ft.; approx. depth is 1 to 5 feet; fast moving; channelized



Suggested Equipment	
Quantity	Description
100 ft.	Curtain Boom Tow Bridles
125 ft.	Polypropylene Line
	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-19. River discharge in cfs: 2500

Site Specific Contact

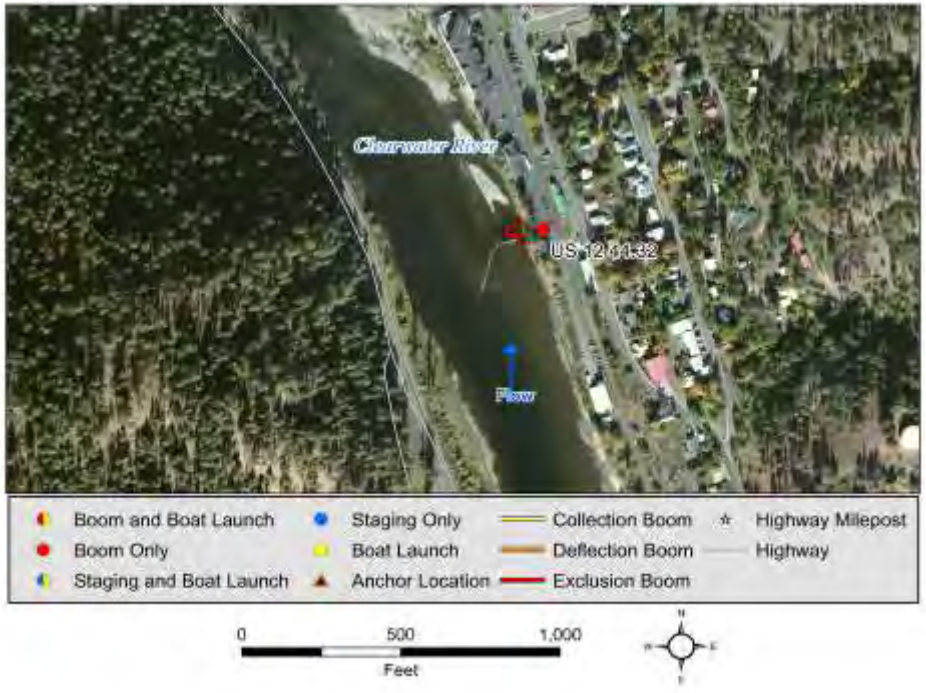
Riverside Water Intake: 208-476-6313

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 31.3 mi
4. Destination will be on the left
46.4939001, -116.2855202

Orofino Water Intake — US 12 44.32

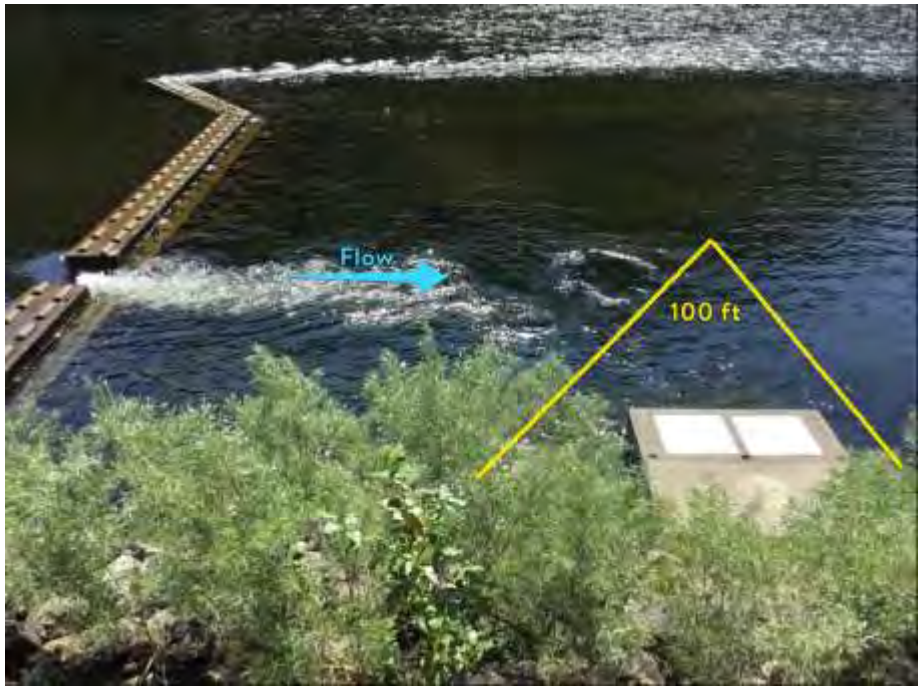
Site Lat Long:	46.474319 -116.252396 (http://www.google.com/maps/place/46.474319,-116.252396)
Strategy Objective:	Boom only. Notification and exclusion booming.
Implementation:	Clearwater River flow direction is to the northwest. Prevent product from impacting sensitive area at Orofino Water Intake. Secure upstream end of boom river right to rock. Secure downstream end of boom river right to rock. Notify City of Orofino.
Site Safety Note:	
Staging Area:	On site staging is large. Large parking area at restaurant near Water Intake. No boat launch facilities. Ahsahka boat launch is 3.9 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Water Intake
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 270 ft.; approx. depth is 1 to 5 feet; slow moving



Suggested Equipment	
Quantity	Description
100 ft.	Curtain Boom Tow Bridles
125 ft.	Polypropylene Line
	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 2500



View of the Water Intake and protective wall from North shore.

Site Specific Contact

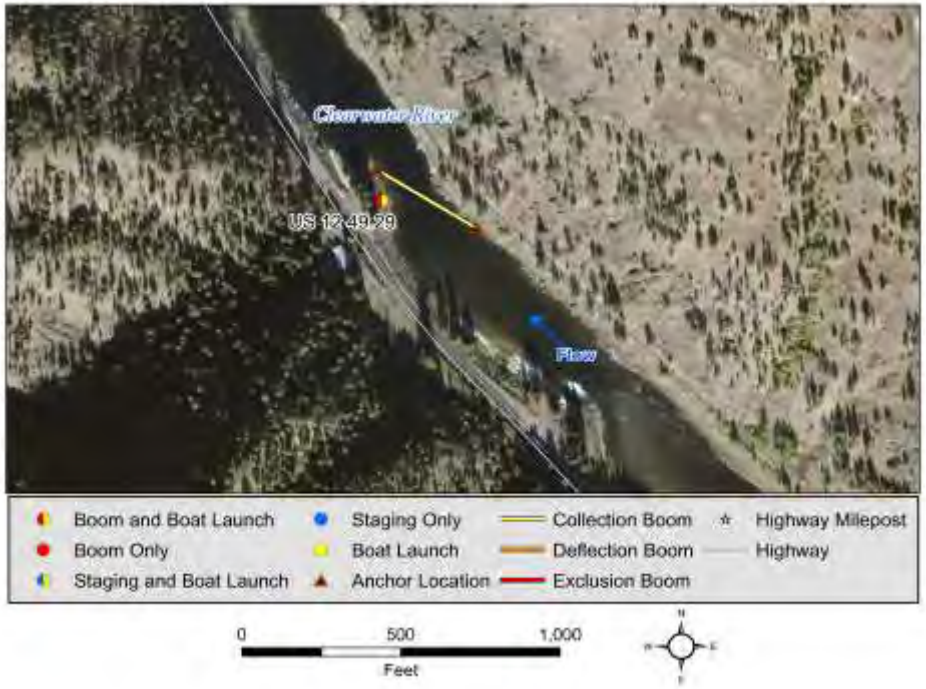
City of Orofino Water Intake - Rick Laam: 208-476-4725

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 33.0 mi
4. Turn left onto ID-7 N/Michigan Ave - 0.2 mi
5. Continue straight onto Michigan Ave - 351 ft
6. Turn right onto Main St - .4 mi
7. Destination will be on the right
245 Main St
Orofino, ID 83544

Zan's Access — US 12 49.29

Site Lat Long:	46.418068 -116.205223 (http://www.google.com/maps/place/46.418068,-116.205223)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	Clearwater River flow direction is to the northwest. Deploy containment boom and initiate product recovery at Zan's Access. Secure upstream end of boom river right to rock. Secure downstream end of boom river left to rock. Notify Idaho Fish and Game.
Site Safety Note:	
Staging Area:	On site staging is large. Large parking area and Boat Ramp. Concrete boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 150 ft.; approx. depth is 5 to10 feet; slow moving; channelized



Suggested Equipment	
Quantity	Description
300 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
500 ft.	Polypropylene Line
	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 2500

Looking upstream from collection site towards upstream anchor.

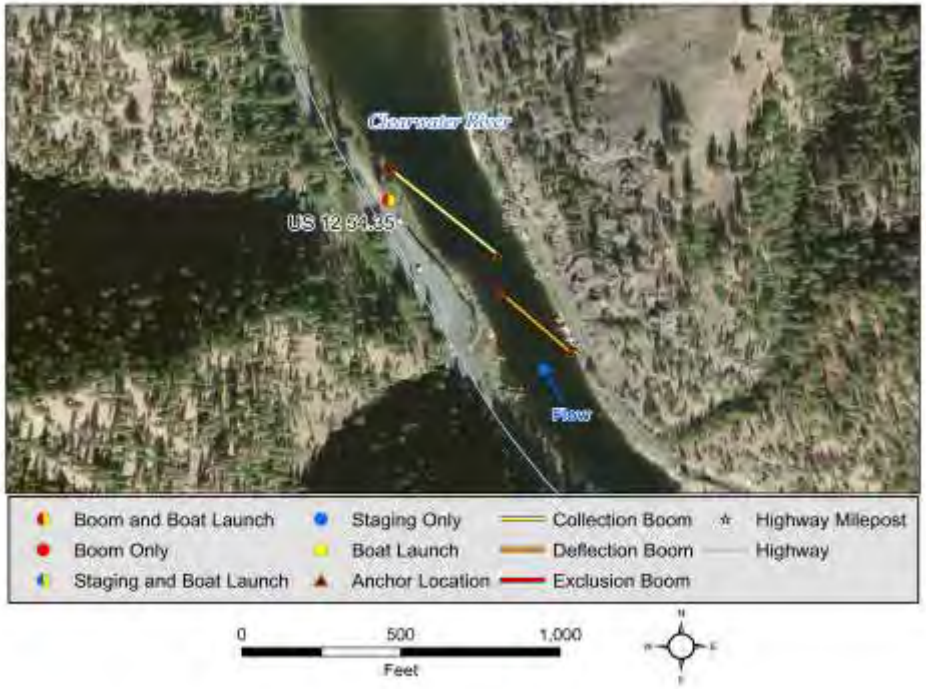
Site Specific Contact

Idaho Fish and Game: 208-799-5010

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 38.3 mi
4. Destination will be on the left
49334 US-12
Orofino, ID 83544

Site Lat Long:	46.355442 -116.164009 (http://www.google.com/maps/place/46.355442,-116.164009)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	Clearwater River flow direction is to the northwest. Deploy containment boom and initiate product recovery at Five Mile. Secure upstream end of boom river right to rock. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river left to steel post. Notify Idaho Fish and Game.
Site Safety Note:	
Staging Area:	On site staging is large. Large staging area with concrete Boat Ramp. Concrete boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 300 ft.; approx. depth is 5 to10 feet; slow moving; channelized



Suggested Equipment	
Quantity	Description
800 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
1250 ft.	Polypropylene Line
3	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
6	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 2500

Looking upstream from Boat Ramp and collection site towards midstream anchor and upstream deflection.

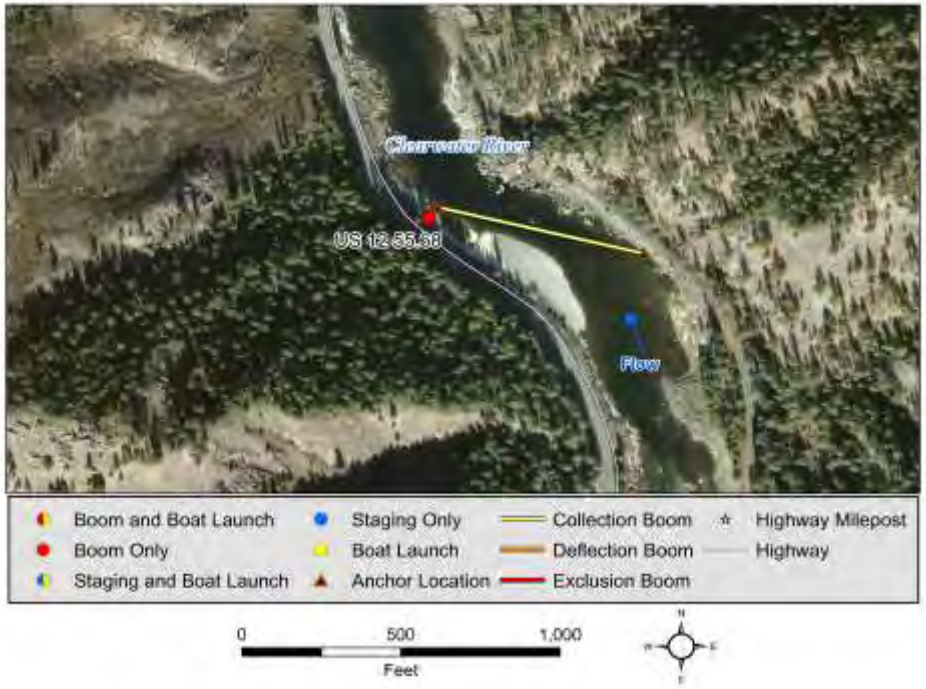
Site Specific Contact

Idaho Fish and Game: 208-799-5010

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 43.4 mi
4. Destination will be on the left
US-12
Nezperce, ID 83543

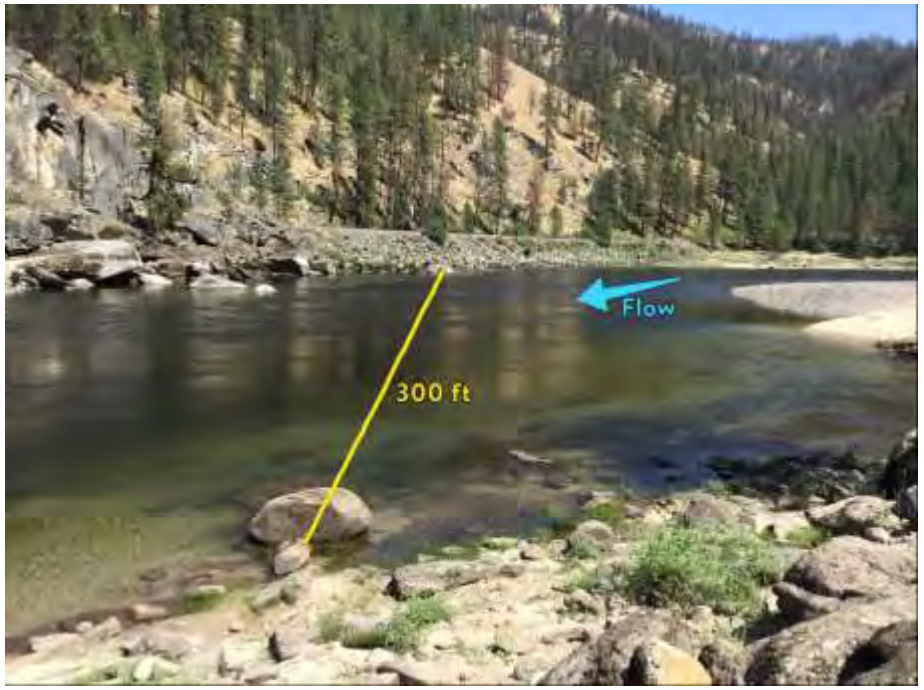
Site Lat Long:	46.339661 -116.151482 (http://www.google.com/maps/place/46.339661,-116.151482)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	Clearwater River flow direction is to the northwest. Deploy containment boom and initiate product recovery at Milepost 55.68. Secure upstream end of boom river right to rock. Secure downstream end of boom river left to rock. Notify Idaho Fish and Game.
Site Safety Note:	Traffic control needed for safety.
Staging Area:	On site staging is small. Small gravel pullout. No boat launch facilities. Five Mile boat launch is 1.3 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 210 ft.; approx. depth is 5 to10 feet; slow moving; channelized



Suggested Equipment	
Quantity	Description
300 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
750 ft.	Polypropylene Line
	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
5	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 2500



Looking upstream from collection site towards anchors.

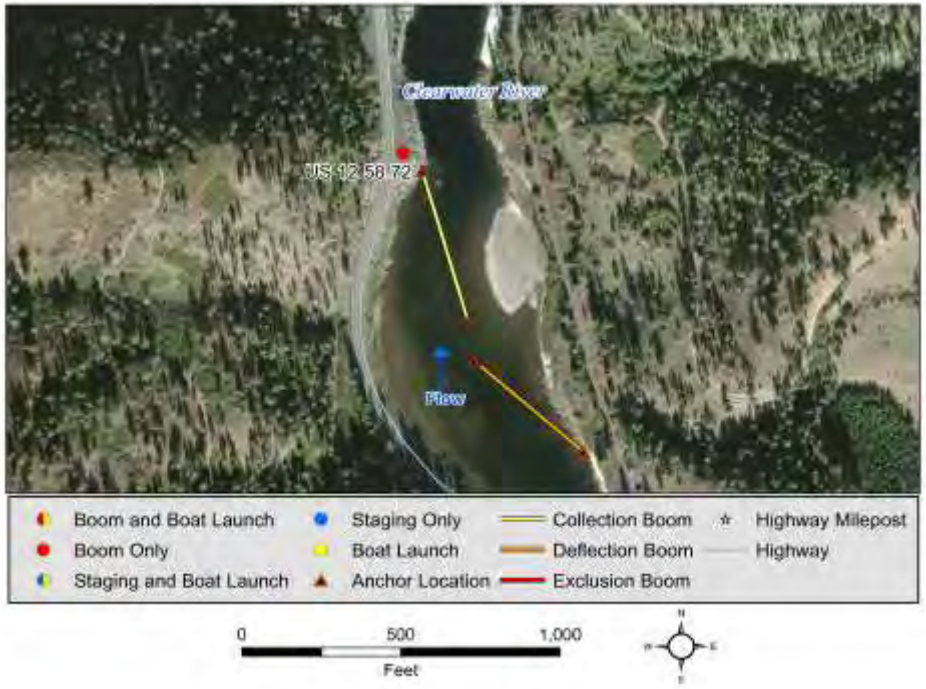
Site Specific Contact

Idaho Fish and Game: 208-799-5010

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 44.7 mi
4. Destination will be on the left
US-12
Nezperce, ID 83543

Site Lat Long:	46.300011 -116.127914 (http://www.google.com/maps/place/46.300011,-116.127914)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	Clearwater River flow direction is to the north. Deploy containment boom and initiate product recovery at Milepost 58.72. Secure upstream end of boom river right to steel post. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river left to rock.
Site Safety Note:	Steep bank and narrow shoulder requiring traffic control.
Staging Area:	On site staging is small. Small gravel pullout on West side of highway. No boat launch facilities. Longcamp Access boat launch is 2.3 miles away.
Field Notes:	• This is the best option for accessing the river for an 11 mile stretch. • Collecting oil against rip rap isn't ideal, but may be the only option.
Resources Targeted:	Downstream Habitat
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 210 ft.; approx. depth is 5 to10 feet; slow moving; channelized



Suggested Equipment	
Quantity	Description
550 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
1250 ft.	Polypropylene Line
3	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
6	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 2500

Looking upstream from collection site towards midstream anchor and upstream deflection.

Site Specific Contact

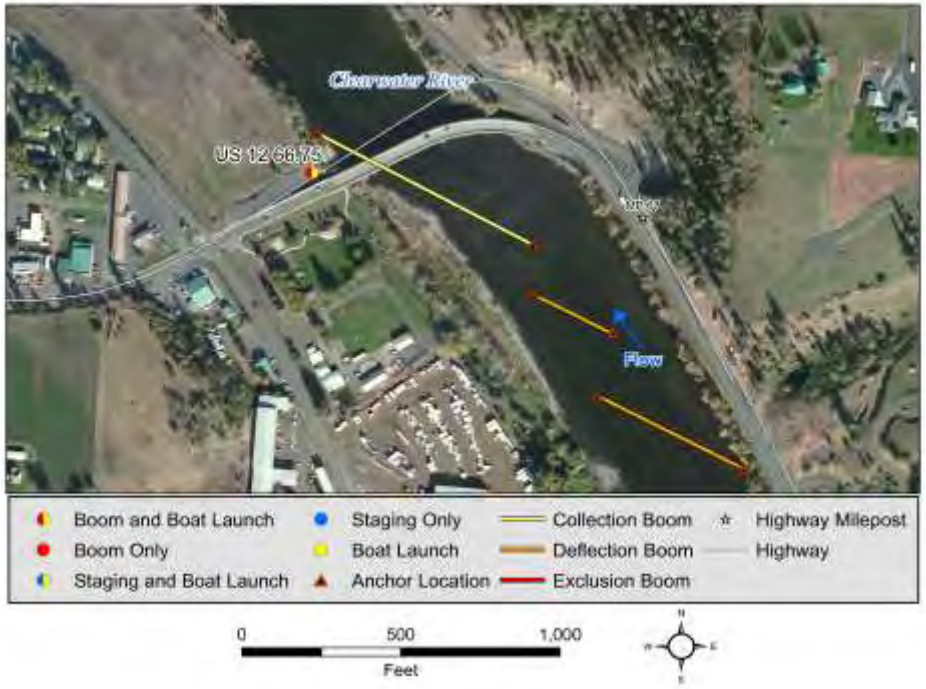
Idaho Department of Transportation: 208-799-5090

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N -7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 47.8 mi
4. Destination will be on the left
US-12
Kamiah, ID 83536

Kamiah Boat Ramp and Water Intake — US 12 66.75

Site Lat Long:	46.230377 -116.019043 (http://www.google.com/maps/place/46.230377,-116.019043)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	Clearwater River flow direction is to the northwest. Deploy containment boom and initiate product recovery at Kamiah Boat Ramp and Water Intake. Secure upstream end of boom river right to steel post. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom midstream to buoy. Secure upstream end of third boom midstream to buoy. Secure downstream end of third boom river left to steel post. Notify City of Kamiah.
Site Safety Note:	
Staging Area:	On site staging is large. Large parking area adjacent to Boat Ramp with additional parking at city park across the highway. Concrete boat launch.
Field Notes:	• Mid-stream deflection is used to prevent product from entering Water Intake. • Collection is targeted for left descending bank because the right descending bank has access and safety issues.
Resources Targeted:	Water Intake
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 420 ft.; approx. depth is 1 to 5 feet; shoals; channelized



Suggested Equipment	
Quantity	Description
850 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
1200 ft.	Polypropylene Line
8	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
3	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
6	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 2500

Looking upstream towards midstream bridge pier anchor and upstream deflection around Water Intake.

Site Specific Contact

City of Kamiah Water Intake: 208-935-0319

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 55.8 mi
4. Destination will be on the left
107 3rd St
Kamiah, ID 83536

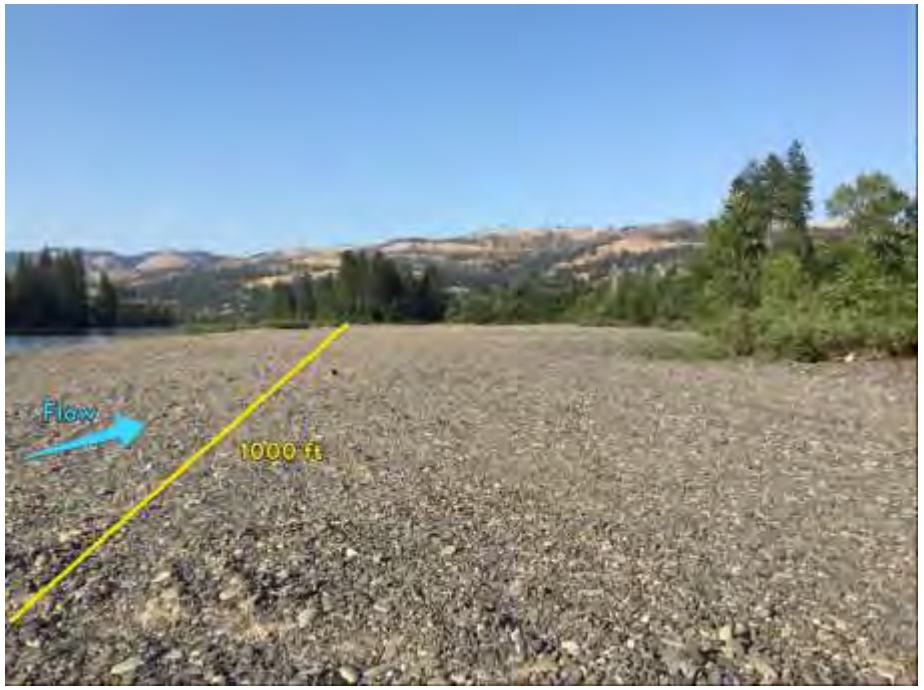
Haight Road Backchannel — US 12 69.31

Site Lat Long:	46.200962 -116.018646 (http://www.google.com/maps/place/46.200962,-116.018646)
Strategy Objective:	Boom only. Notification and exclusion booming.
Implementation:	Clearwater River flow direction is to the north. Prevent product from impacting sensitive area at Haight Road Backchannel. Secure upstream end of boom river right to steel post. Secure downstream end of boom river right to steel post. This strategy is only beneficial with the gravel underwater during high water. If the gravel bar is visible, do not implement. Notify Idaho Fish and Game.
Site Safety Note:	High water only site. Access may be difficult depending on water levels.
Staging Area:	On site staging is small. At low water there is a large gravel beach for parking. At high flows, parking is limited to one lane road with no easy turn around location. No boat launch facilities. Kamia Boat Ramp is 2.8 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Back-channel Habitat
Watercourse:	Clearwater River: gradient is low; substrate is gravel; approx. width is 400 ft.; approx. depth is 1 to 5 feet; shoals; slow moving

Suggested Equipment	
Quantity	Description
1000 ft.	Curtain Boom Tow Bridles
1500 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
6	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-19. River discharge in cfs: 3000



Looking downstream at high water back channel

Site Specific Contact

Idaho Fish and Game: 208-799-5010

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 58.0 mi
4. Turn right onto Rock Rd - 0.6 mi
5. Destination will be on the right
203 Rock Rd
Kamiah, ID 83536

Boat Ramps

Site Lat Long:	46.500011 -116.313873 (http://www.google.com/maps/place/46.500011,-116.313873)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	Railroad Crossing at entrance to staging area.
Staging Area:	On site staging is large. Large staging area with concrete Boat Ramp. Concrete boat launch.
Field Notes:	• Boat Ramp and collection site accessed from SR 7 in Orofino. • 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 33.0 mi
4. Turn left onto ID-7 N/Michigan Ave - 0.2 mi
5. Turn left onto ID-7 N/Riverside Ave

Zan's Access — US 12 49.29

Site Lat Long:	46.418068 -116.205223 (http://www.google.com/maps/place/46.418068,-116.205223)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	
Staging Area:	On site staging is large. Large parking area and Boat Ramp. Concrete boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 38.3 mi
4. Destination will be on the left
49334 US-12

Site Lat Long:	46.355442 -116.164009 (http://www.google.com/maps/place/46.355442,-116.164009)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	
Staging Area:	On site staging is large. Large staging area with concrete Boat Ramp. Concrete boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 43.4 mi
4. Destination will be on the left
US-12

Longcamp Access — US 12 61.16

Site Lat Long:	46.276165 -116.097755 (http://www.google.com/maps/place/46.276165,-116.097755)
Strategy Objective:	Boat launch only. Access only.
Site Safety Note:	
Staging Area:	On site staging is large. Large pullout on West side of highway adjacent to Boat Ramp. Concrete boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 50.1 mi
4. Destination will be on the left
2850 US-12

Kamiah Boat Ramp and Water Intake — US 12 66.75

Site Lat Long:	46.230377 -116.019043 (http://www.google.com/maps/place/46.230377,-116.019043)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	
Staging Area:	On site staging is large. Large parking area adjacent to Boat Ramp with additional parking at city park across the highway. Concrete boat launch.
Field Notes:	• Mid-stream deflection is used to prevent product from entering Water Intake. • Collection is targeted for left descending bank because the right descending bank has access and safety issues.

Directions to Site

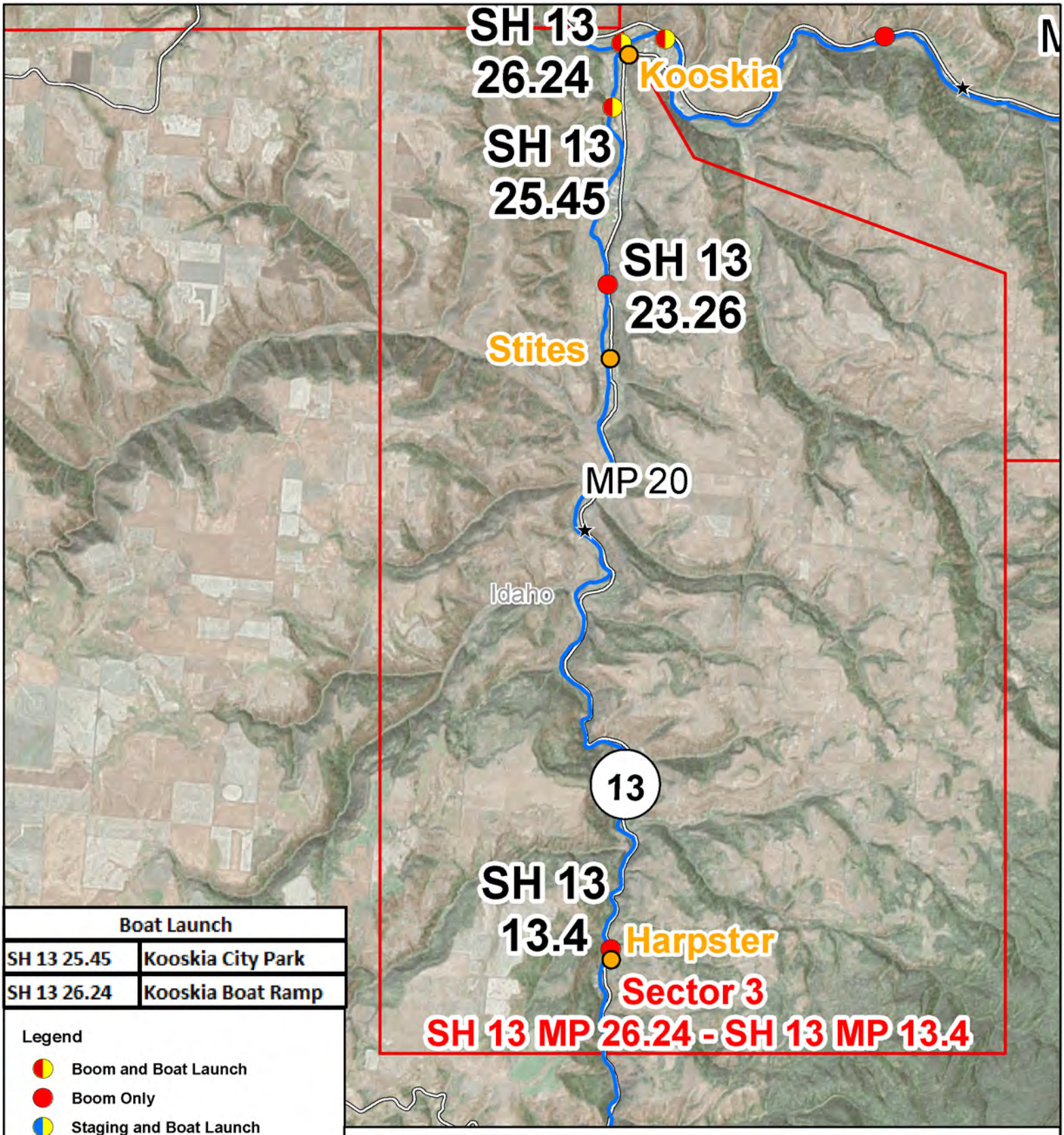
Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E toward 3rd Ave N - 7.9 mi
2. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
3. Continue onto US-12 E - 55.8 mi
4. Destination will be on the left
107 3rd St

Button Beach — US 12 71.81

Site Lat Long:	46.166553 -115.995567 (http://www.google.com/maps/place/46.166553,-115.995567)
Strategy Objective:	Boat launch only. Access only.
Site Safety Note:	
Staging Area:	On site staging is large. Large gravel pullout with Boat Ramp on south side of highway. Concrete boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 60.9 mi
5. Destination will be on the right



Boat Launch	
SH 13 25.45	Kooskia City Park
SH 13 26.24	Kooskia Boat Ramp

Legend

- Boom and Boat Launch
- Boom Only
- Staging and Boat Launch
- Staging Only
- Boat Launch
- Highway Milepost (every 10 miles)
- Rivers
- Sector
- Cities
- County Line
- State Line

WRI Environmental Response

Figure 4-3: Lochsa and Clearwater River Basin GRP Sector 3 Map

N W E S

0 1 2 3 4

Miles

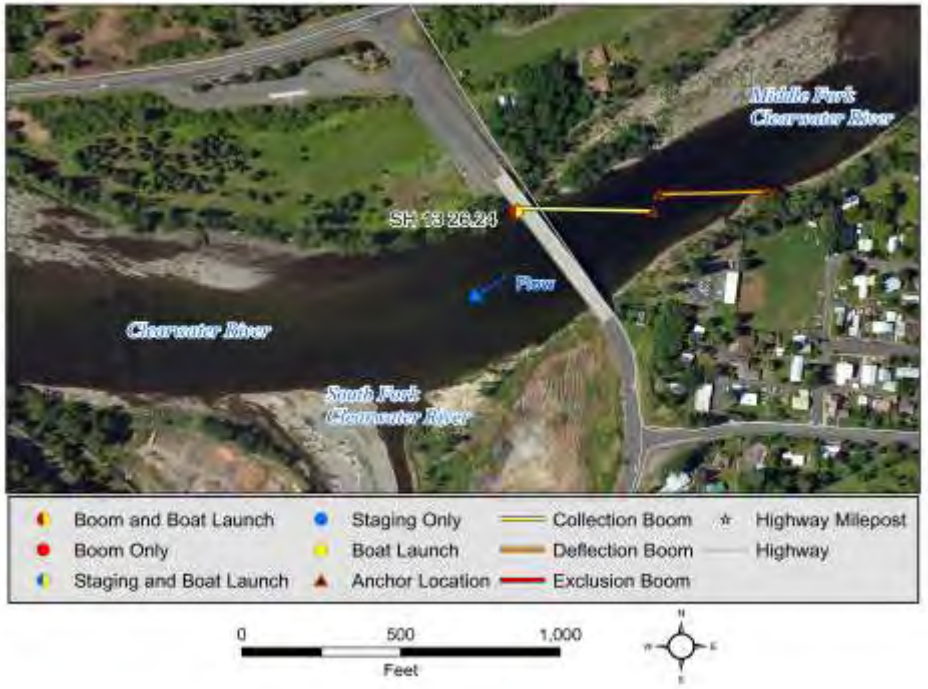
Table 4-3: Strategies SH 13 26.24 to SH 13 13.4 Booming Strategies, Staging Areas, and Boat Launches

Nearest Highway Milepost	Location Description	Site Type	Site Specific Notification	Location Lattitude/Longitude decimal degrees	Shown on Sector Map	Adjacent Receiving Waterbody	Next Downstream Milepost (MP) and Downstream Arrow Indicator	Strategy Type						Onsite Resources		Site-Specific Notification Information and/or Strategy Implementation Notes
								Collection and Recovery	Deflection	Exclusion	Boat Launch	Staging	Boom Length Recommended (feet)	Jet Boat Required to Implement?	Large Staging Onsite?	
Sector 3: SH 13 MP 26.24 - SH 13 MP 13.4																
South Fork Clearwater River																
SH 13 26.24	Kooskia Boat Ramp	Boom and boat launch	City of Kooskia: 208-926-4684	46.146824, -115.980118	3	South Fork Clearwater River	SH 13 25.45	X			X		750	YES	Large	Middle Fork Clearwater River flow direction is to the southwest. Deploy containment boom and initiate product recovery at Kooskia Boat Ramp. Secure upstream end of boom river left to tree. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river right to steel post. Notify City of Kooskia.
SH 13 25.45	Kooskia City Park	Boom and boat launch	City of Kooskia: 208-926-4684	46.135551, -115.981056	3	South Fork Clearwater River	SH 13 23.26	X			X		250	NO	Large	South Fork Clearwater River flow direction is to the north. Deploy containment boom and initiate product recovery at Kooskia City Park. Secure upstream end of boom river left to steel post. Secure downstream end of boom river right to steel post. Notify City of Kooskia.
SH 13 23.26	Milepost 23.26	Boom only	Idaho Department of Transportation: 208-799-5090	46.104565, -115.978531	3	South Fork Clearwater River	SH 13 13.4	X			X		550	YES	Large	South Fork Clearwater River flow direction is to the north. Deploy containment boom and initiate product recovery at Milepost 23.26. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to steel post. Notify Idaho Department of Transportation.
SH 13 13.4	Harpster	Boom only	Idaho Department of Transportation: 208-799-5090	45.988541, -115.963928	3	South Fork Clearwater River	US 12 74.54	X					200	NO	Small	South Fork Clearwater River flow direction is to the north. Deploy containment boom and initiate product recovery at Harpster. Secure upstream end of boom river left to steel post. Secure downstream end of boom river right to steel post. Notify Idaho Department of Transportation.

Strategy Reports

Kooskia Boat Ramp — SH 13 26.24

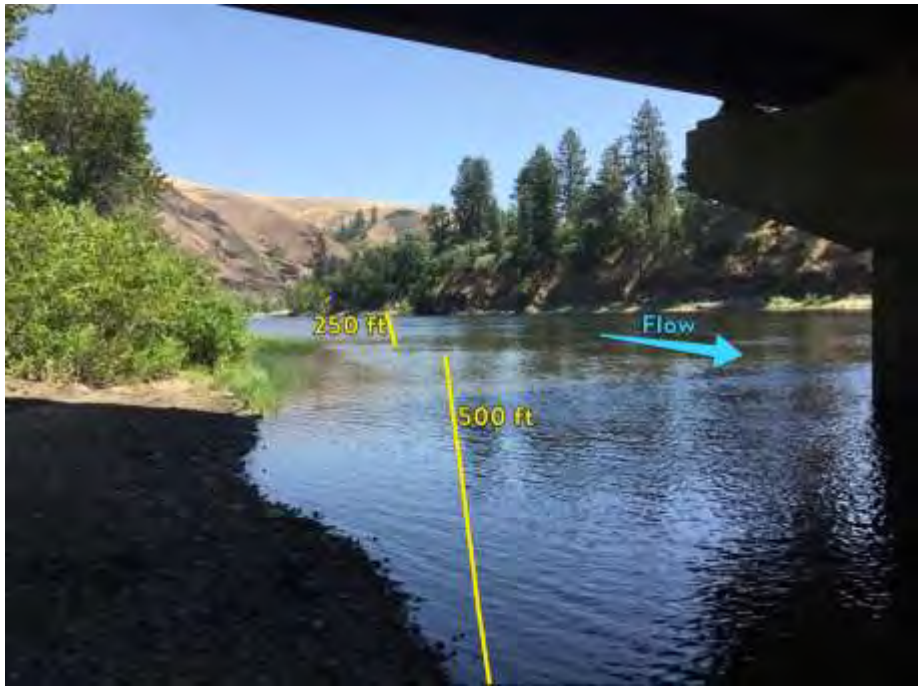
Site Lat Long:	46.146824 -115.980118 (http://www.google.com/maps/place/46.146824,-115.980118)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	Middle Fork Clearwater River flow direction is to the southwest. Deploy containment boom and initiate product recovery at Kooskia Boat Ramp. Secure upstream end of boom river left to tree. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river right to steel post. Notify City of Kooskia.
Site Safety Note:	
Staging Area:	On site staging is large. Large staging area with Boat Ramp just west of SR 13 bridge over Clearwater River. Concrete boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Middle Fork Clearwater River: gradient is low; substrate is gravel; approx. width is 400 ft.; approx. depth is 1 to 5 feet; slow moving; channelized



Suggested Equipment	
Quantity	Description
750 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
1250 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
5	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 2000



View from collection site upstream towards midstream anchor and upstream deflection.

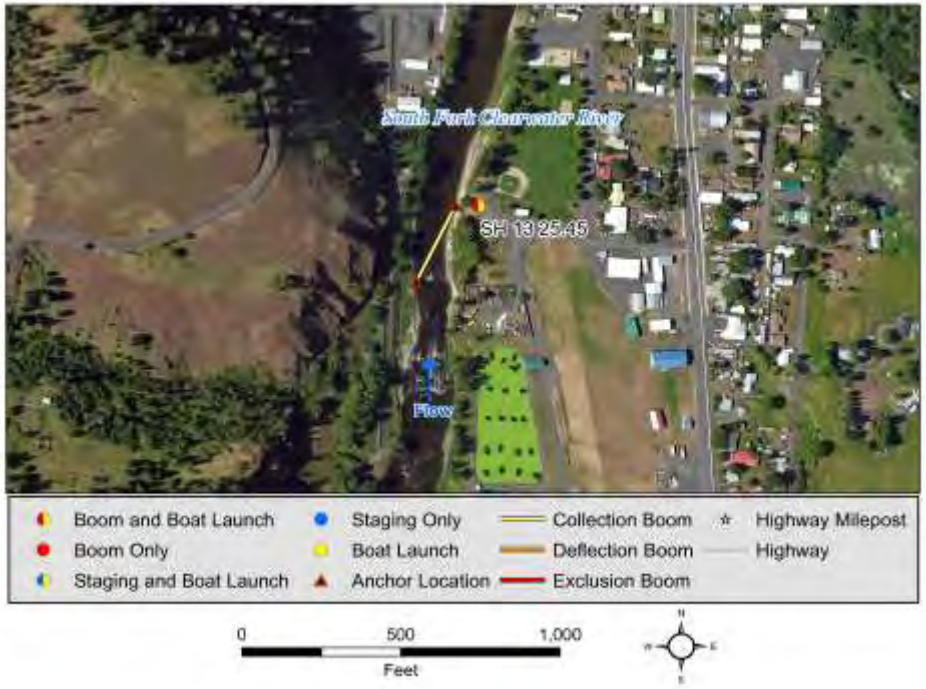
Site Specific Contact

City of Kooskia: 208-926-4684

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 62.9 mi
5. Turn right onto ID-13 W - .1 mi
6. Destination will be on the right
ID-13 Scenic
Kooskia, ID 83539

Site Lat Long:	46.135551 -115.981056 (http://www.google.com/maps/place/46.135551,-115.981056)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	South Fork Clearwater River flow direction is to the north. Deploy containment boom and initiate product recovery at Kooskia City Park. Secure upstream end of boom river left to steel post. Secure downstream end of boom river right to steel post. Notify City of Kooskia.
Site Safety Note:	
Staging Area:	On site staging is large. Large staging area at the south end of the city park. Fire station east of the park on 2nd street. Hand boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	South Fork Clearwater River: gradient is low; substrate is gravel; approx. width is 130 ft.; approx. depth is 1 to 5 feet; shoals; slow moving



Suggested Equipment	
Quantity	Description
250 ft	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
375 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	N

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
	Traffic Flagger
	Boat Operator
	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 280

Looking upstream from collection site towards upstream anchors.

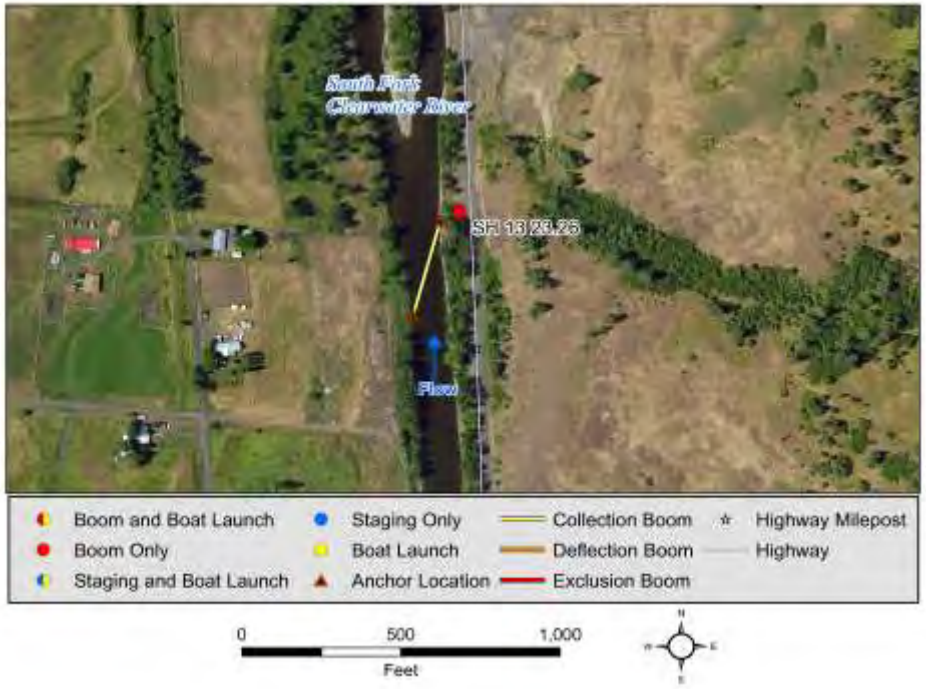
Site Specific Contact

City of Kooskia: 208-926-4684

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 62.9 mi
5. Turn right onto ID-13 W - 1.0 mi
6. Turn right onto 4th Ave - 397 ft
4th Ave
Kooskia, ID 83539

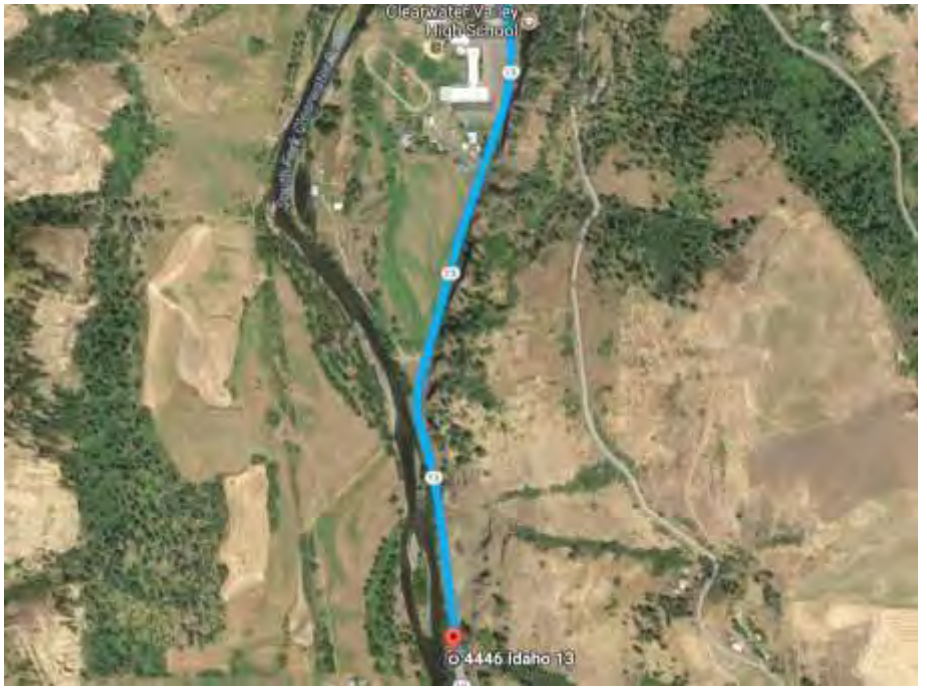
Site Lat Long:	46.104565 -115.978531 (http://www.google.com/maps/place/46.104565,-115.978531)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	South Fork Clearwater River flow direction is to the north. Deploy containment boom and initiate product recovery at Milepost 23.26. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to steel post. Notify Idaho Department of Transportation.
Site Safety Note:	Traffic Flagger needed for highway safety.
Staging Area:	On site staging is large. Large gravel pullout on west side of highway. Kooskia City Park boat launch is 2.2 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	South Fork Clearwater River: gradient is low; substrate is gravel; approx. width is 150 ft.; approx. depth is 1 to 5 feet; slow moving; channelized



Suggested Equipment	
Quantity	Description
550 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
700 ft.	Polypropylene Line
3	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 280



Looking upstream from collection site towards anchors.

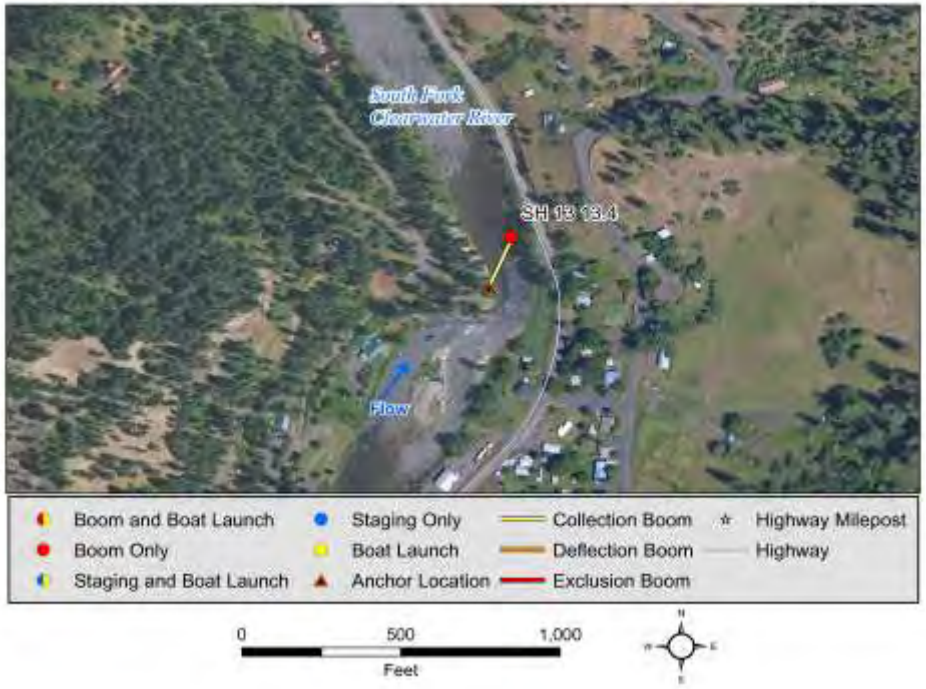
Site Specific Contact

Idaho Department of Transportation: 208-799-5090

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 62.9 mi
5. Turn right onto ID-13 W - 3.1 mi
6. Destination will be on the right
4446 ID-13
Kooskia, ID 83539

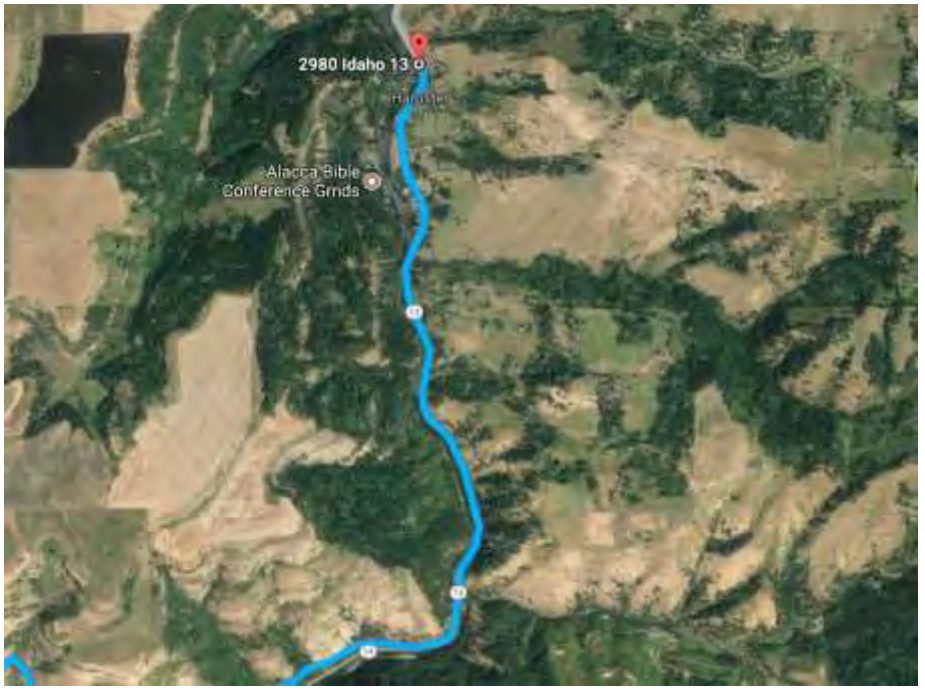
Site Lat Long:	45.988541 -115.963928 (http://www.google.com/maps/place/45.988541,-115.963928)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	South Fork Clearwater River flow direction is to the north. Deploy containment boom and initiate product recovery at Harpster. Secure upstream end of boom river left to steel post. Secure downstream end of boom river right to steel post. Notify Idaho Department of Transportation.
Site Safety Note:	
Staging Area:	On site staging is small. Small gravel pullout on east side of highway. No boat launch facilities. Kooskia City Park boat launch is 12.1 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	South Fork Clearwater River: gradient is low; substrate is gravel; approx. width is 115 ft.; approx. depth is 1 to 5 feet; slow moving; channelized



Suggested Equipment	
Quantity	Description
200 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
250 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	N

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
2	Traffic Flagger
	Boat Operator
	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 280



Looking upstream from collection site towards anchors.

Site Specific Contact

Idaho Department of Transportation: 208-799-5090

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Continue onto US-95 S - 62.3 mi
4. Turn left onto County Rd - 1.0 mi
5. Continue onto N Florence St - 0.5 mi
6. Turn left onto Nez Perce St - 0.2 mi
7. Slight right toward ID-13 E - 0.2 mi
8. Turn left at the 1st cross street onto ID-13 E - 12.2 mi
9. Destination will be on the left
2980 ID-13

Boat Ramps

Kooskia Boat Ramp — SH 13 26.24

Site Lat Long:	46.146824 -115.980118 (http://www.google.com/maps/place/46.146824,-115.980118)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	
Staging Area:	On site staging is large. Large staging area with Boat Ramp just west of SR 13 bridge over Clearwater River. Concrete boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

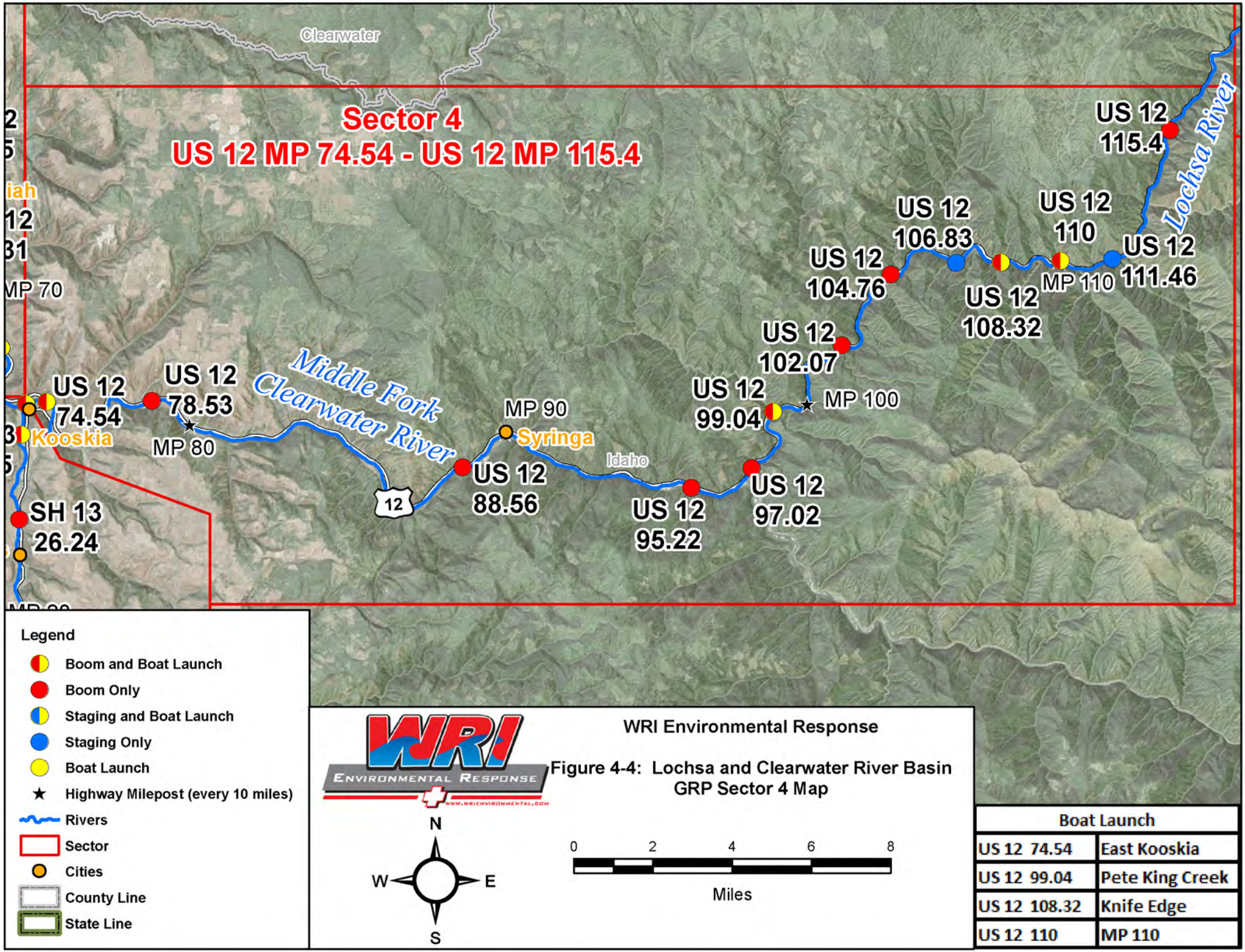
Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 62.9 mi
5. Turn right onto ID-13 W - .1 mi

Kooskia City Park — SH 13 25.45

Site Lat Long:	46.135551 -115.981056 (http://www.google.com/maps/place/46.135551,-115.981056)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	
Staging Area:	On site staging is large. Large staging area at the south end of the city park. Fire station east of the park on 2nd street. Hand boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 62.9 mi
5. Turn right onto ID-13 W - 1.0 mi



WRI Environmental Response

Figure 4-4: Lochsa and Clearwater River Basin GRP Sector 4 Map

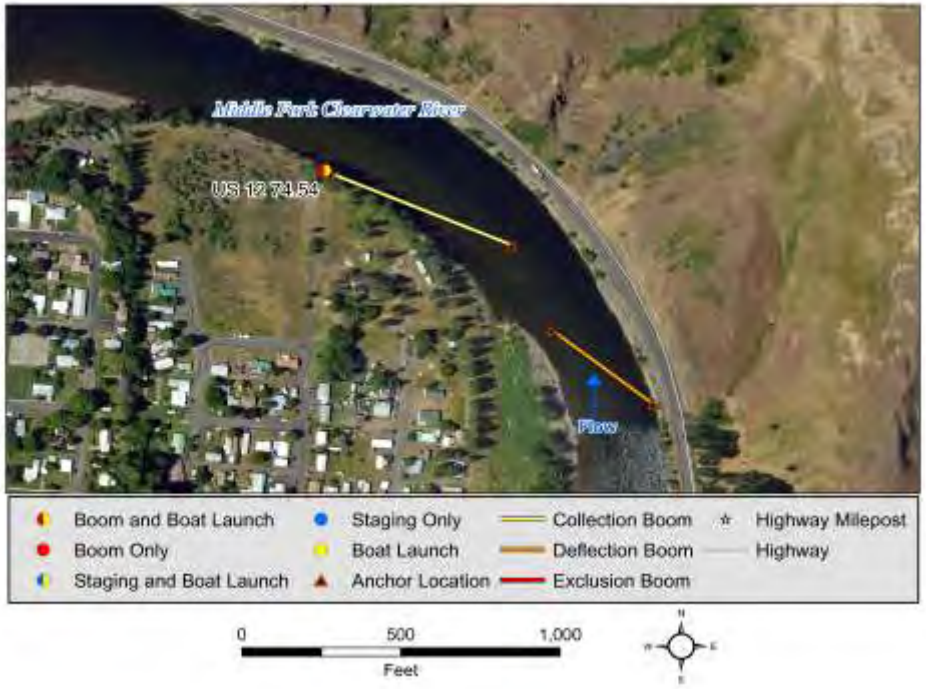
Boat Launch	
US 12 74.54	East Kooskia
US 12 99.04	Pete King Creek
US 12 108.32	Knife Edge
US 12 110	MP 110

Table 4-4: Strategies US 12 74.54 to US 12 115.4 Booming Strategies, Staging Areas, and Boat Launches

Nearest Highway Milepost	Location Description	Site Type	Site Specific Notification	Location Lattitude/Longitude decimal degrees	Shown on Sector Map	Adjacent Receiving Waterbody	Next Downstream Milepost (MP) and Downstream Arrow Indicator	Strategy Type						Onsite Resources		Site-Specific Notification Information and/or Strategy Implementation Notes
								Collection and Recovery	Deflection	Exclusion	Boat Launch	Staging	Boom Length Recommended (feet)	Jet Boat Required to Implement?	Large Staging Onsite?	
Sector 4: US 12 MP 74.54 - US 12 MP 115.4																
Middle Fork Clearwater River																
US 12 74.54	East Kooskia	Boom and boat launch	City of Kooskia: 208-926-4684	46.148216, -115.969223	4	Middle Fork Clearwater River	US 12 78.53	X			X		1000	YES	Medium	Middle Fork Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at East Kooskia. Secure upstream end of boom river right to rock. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river left to steel post. Notify City of Kooskia.
US 12 78.53	Milepost 78.53	Boom only	Idaho Department of Transportation: 208-799-5090	46.151833, -115.91404	4	Middle Fork Clearwater River	US 12 88.56	X					1000	YES	Small	Middle Fork Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Milepost 78.53. Secure upstream end of boom river left to tree. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river right to steel post. Notify Idaho Department of Transportation.
US 12 88.56	Number One River Access	Boom only	USFS: 208-935-2513	46.136738, -115.748344	4	Middle Fork Clearwater River	US 12 95.22	X					500	YES	Medium	Middle Fork Clearwater River flow direction is to the northwest. Deploy containment boom and initiate product recovery at Number One River Access. Secure upstream end of boom river left to rock. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river right to steel post. Notify USFS.
US 12 95.22	Wild Goose Campground	Boom only	USFS: 208-935-2513	46.135815, -115.627693	4	Middle Fork Clearwater River	US 12 97.02	X				X	1200	YES	Large	Middle Fork Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Wild Goose Campground. Secure upstream end of boom river left to tree. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to steel post. Secure downstream end of second boom river right to steel post. Notify USFS.
Lochsa River																
US 12 97.02	Three Rivers Lodge Water Intake	Boom only	Three Rivers Lodge: 208-926-4430	46.144783, -115.597	4	Lochsa River	US 12 99.04			X		X	150	YES	Large	Lochsa River flow direction is to the southwest. Prevent product from impacting sensitive area at Three Rivers Lodge Water Intake. Secure upstream end of boom river left to steel post. Secure downstream end of boom river left to steel post. Notify Three Rivers Lodge.
US 12 99.04	Pete King Creek	Boom and boat launch	USFS: 208-935-2513	46.165905, -115.588036	4	Lochsa River	US 12 102.07	X			X		700	YES	Medium	Lochsa River flow direction is to the southwest. Deploy containment boom and initiate product recovery at Pete King Creek. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to steel post. Notify USFS.
US 12 102.07	Milepost 102.07	Boom only	USFS: 208-935-2513	46.192089, -115.554596	4	Lochsa River	US 12 104.76	X					300	YES	Medium	Lochsa River flow direction is to the northwest. Deploy containment boom and initiate product recovery at Milepost 102.07. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to tree. Notify USFS.
US 12 104.76	Upstream of Apgar Camp	Boom only	USFS: 208-935-2513	46.219292, -115.531731	4	Lochsa River	US 12 106.83	X					600	YES	Small	Lochsa River flow direction is to the southwest. Deploy containment boom and initiate product recovery at Upstream of Apgar Camp. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to rock. Notify USFS.
US 12 106.83	MP 106.8	Staging	USFS: 208-935-2513	46.225399, -115.497993	4	Lochsa River	US 12 108.32					X		NO	Large	Staging area only at MP 106.8. Notify USFS.
US 12 108.32	Knife Edge	Boom and boat launch	USFS: 208-935-2513	46.226772, -115.474548	4	Lochsa River	US 12 110	X			X		250	YES	Medium	Lochsa River flow direction is to the west. Deploy containment boom and initiate product recovery at Knife Edge. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to steel post. Notify USFS.
US 12 110	MP 110	Boom and boat launch	USFS: 208-935-2513	46.22892, -115.443321	4	Lochsa River	US 12 111.46	X			X		600	YES	Small	Lochsa River flow direction is to the southwest. Deploy containment boom and initiate product recovery at MP 110. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to rock. Notify USFS.
US 12 111.46	Split Creek Pack Bridge	Staging	USFS: 208-935-2513	46.23106, -115.416061	4	Lochsa River	US 12 115.4					X		NO	Large	Staging area only at Spilt Creek Pack Bridge. Notify USFS.
US 12 115.4	Shoestring Falls	Boom only	USFS: 208-935-2513	46.279537, -115.390915	4	Lochsa River	US 12 120.22	X					250	YES	Small	Lochsa River flow direction is to the southwest. Deploy containment boom and initiate product recovery at Shoestring Falls. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to rock. Notify USFS.

Strategy Reports

Site Lat Long:	46.148216 -115.969223 (http://www.google.com/maps/place/46.148216,-115.969223)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	Middle Fork Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at East Kooskia. Secure upstream end of boom river right to rock. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river left to steel post. Notify City of Kooskia.
Site Safety Note:	
Staging Area:	On site staging is medium. Small parking area at the end of West Road near the river. Hand boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Middle Fork Clearwater River: gradient is low; substrate is gravel; approx. depth is 1 to 5 feet; slow moving; channelized



Suggested Equipment	
Quantity	Description
1000 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
1250 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
6	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 2000

Looking upstream from collection point towards midstream anchor.

Site Specific Contact

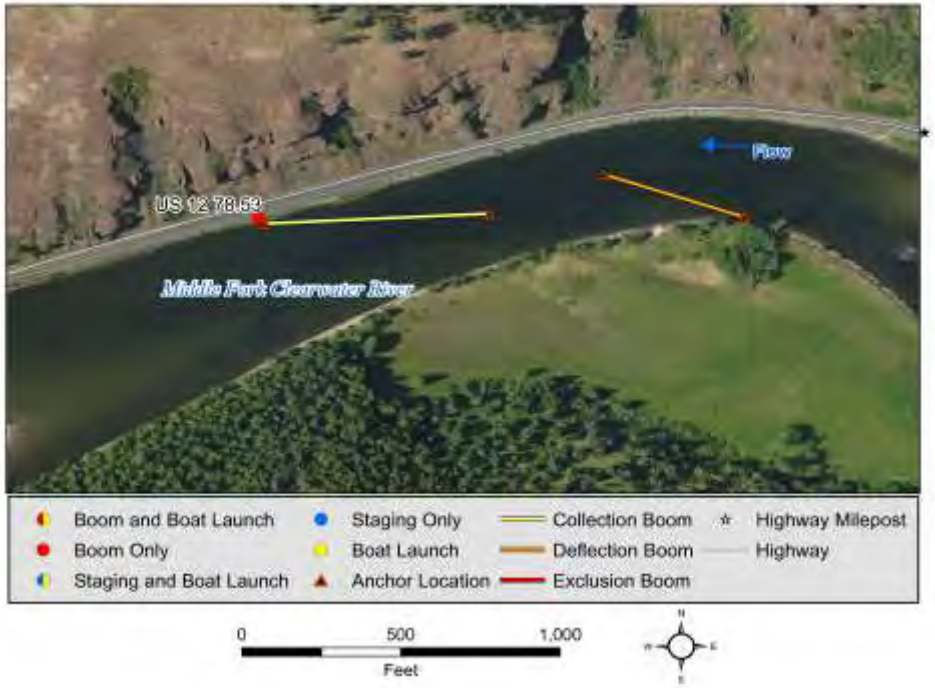
City of Kooskia: 208-926-4684

Directions to Site:

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 62.9 mi
5. Turn right onto ID-13 W - 0.3 mi
6. Turn left onto Broadway Ave - 0.3 mi
7. Continue straight onto Broadway Ave/Tuo - 0.1 mi
8. Turn left onto West St - 0.2 mi

704 West St
Kooskia, ID 83539

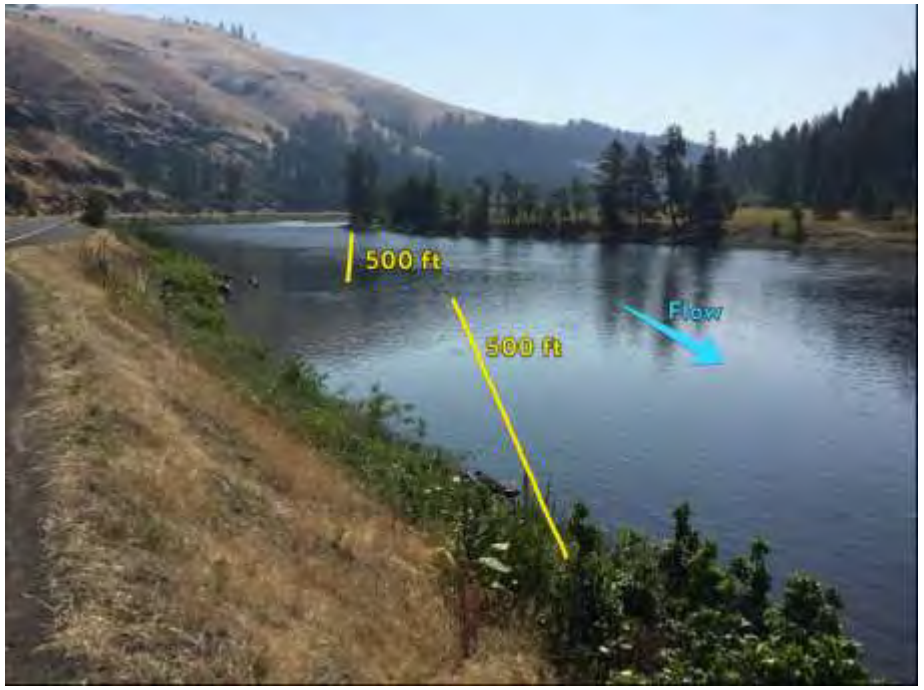
Site Lat Long:	46.151833 -115.91404 (http://www.google.com/maps/place/46.151833,-115.91404)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	Middle Fork Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Milepost 78.53. Secure upstream end of boom river left to tree. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river right to steel post. Notify Idaho Department of Transportation and USFS.
Site Safety Note:	Very small pullout directly adjacent to highway. Needs traffic flagger for safety.
Staging Area:	On site staging is small. Two very small pullouts on south side of highway. No boat launch facilities. East Kooskia boat launch is 4.3 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Middle Fork Clearwater River: gradient is low; substrate is gravel; approx. width is 425 ft.; approx. depth is 1 to 5 feet; shoals; slow moving



Suggested Equipment	
Quantity	Description
1000 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
1500 ft.	Polypropylene Line
5	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
6	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 2000



Looking upstream from collection point towards midstream anchor.

Site Specific Contact

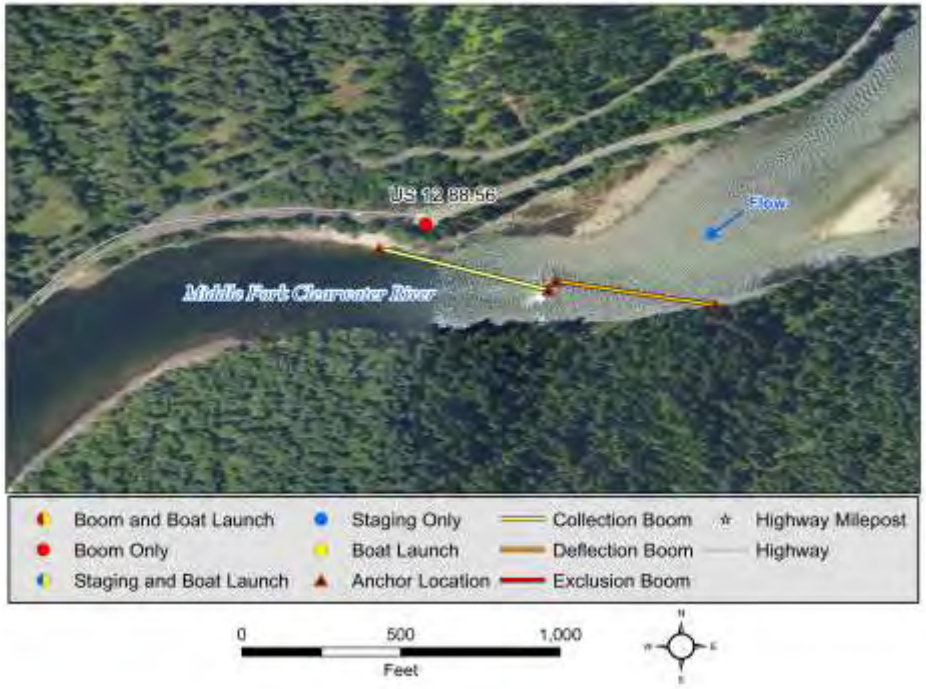
Idaho Department of Transportation: 208-799-5090

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 67.8 mi
5. Destination will be on the right
5987 US-12
Kooskia, ID 83539

Number One River Access — US 12 88.56

Site Lat Long:	46.136738 -115.748344 (http://www.google.com/maps/place/46.136738,-115.748344)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	Middle Fork Clearwater River flow direction is to the northwest. Deploy containment boom and initiate product recovery at Number One River Access. Secure upstream end of boom river left to rock. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to buoy. Secure downstream end of second boom river right to steel post. Boat launch is too far to be used. This will require establishing a high line and tethering a raft to it. Notify USFS.
Site Safety Note:	Traffic control may be needed to move equipment. Consider notifying ID Transportation Department.
Staging Area:	On site staging is medium. Pullout with bathroom at river access site. No boat launch facilities. Pete King Creek boat launch is 10.4 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Middle Fork Clearwater River: gradient is low; substrate is gravel; approx. width is 230 ft.; approx. depth is 1 to 5 feet; shoals; fast moving



Suggested Equipment	
Quantity	Description
500 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
1250 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 2000

Looking upstream from collection point towards midstream anchor point of collection boom.

Site Specific Contact

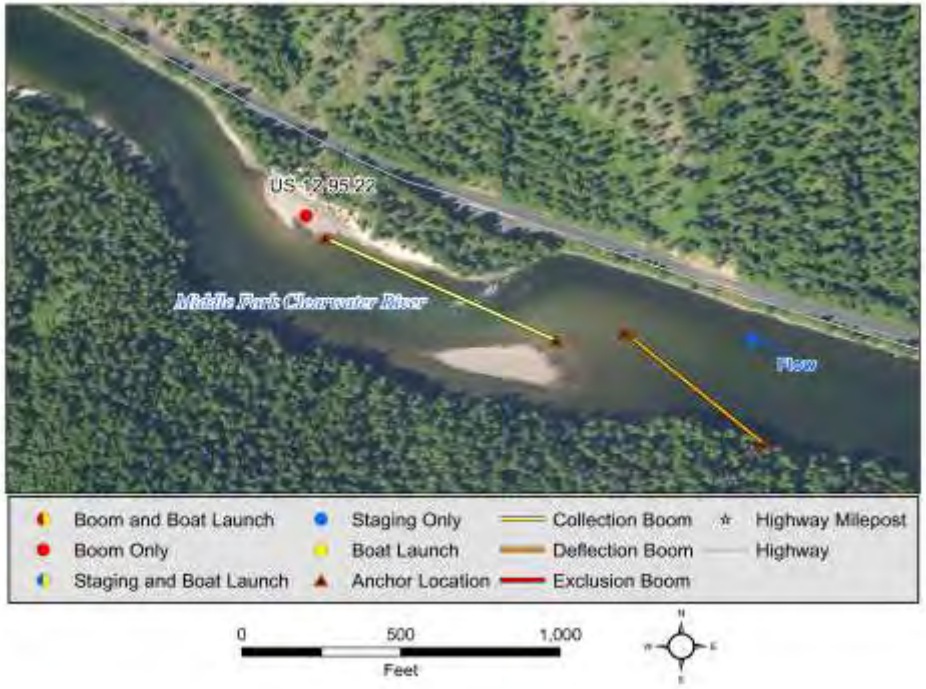
USFS: 208-935-2513

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 77.6 mi
5. Destination will be on the right
7686 US-12
Kooskia, ID 83539

Wild Goose Campground — US 12 95.22

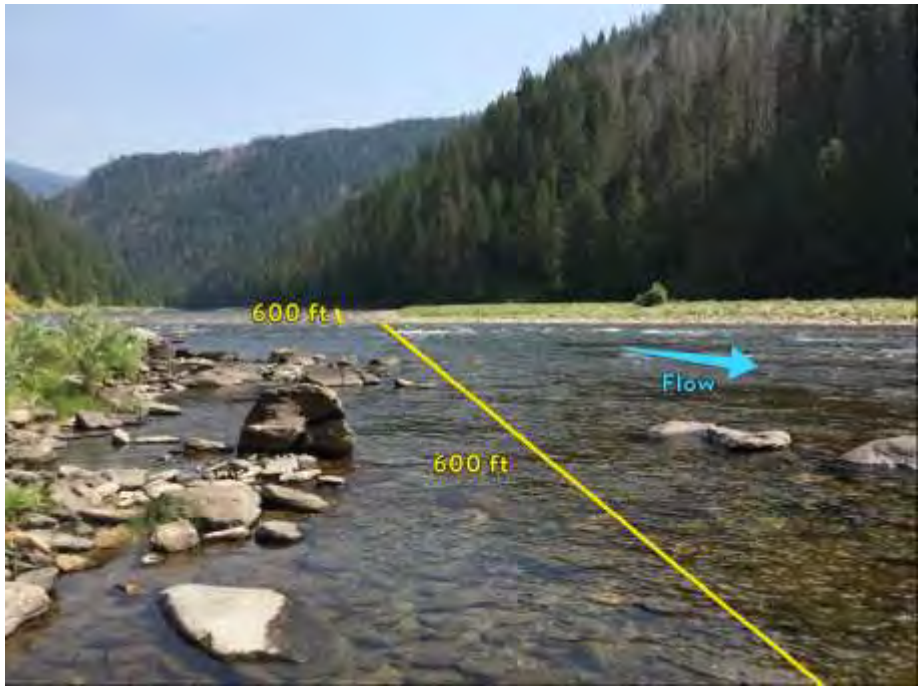
Site Lat Long:	46.135815 -115.627693 (http://www.google.com/maps/place/46.135815,-115.627693)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	Middle Fork Clearwater River flow direction is to the west. Deploy containment boom and initiate product recovery at Wild Goose Campground. Secure upstream end of boom river left to tree. Secure downstream end of boom midstream to buoy. Secure upstream end of second boom midstream to steel post. Secure downstream end of second boom river right to steel post. This is the best option for accessing the river for a 9 mile stretch. Collecting oil against rocky shore isn't ideal, but may be the only option. Notify USFS.
Site Safety Note:	
Staging Area:	On site staging is large. Paved campground loop with multiple parking sites and an additional paved pullout on the highway. No boat launch facilities. Pete King Creek boat launch is 3.8 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **YES**
Resources Targeted:	Downstream Habitat
Watercourse:	Middle Fork Clearwater River: gradient is low; substrate is gravel; approx. width is 250 ft.; approx. depth is 1 to 5 feet; braided channels; shoals



Suggested Equipment	
Quantity	Description
1200 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
1500 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
6	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-26. River discharge in cfs: 1700



Looking upstream from collection site towards upstream anchors on island and upstream deflection.

Site Specific Contact

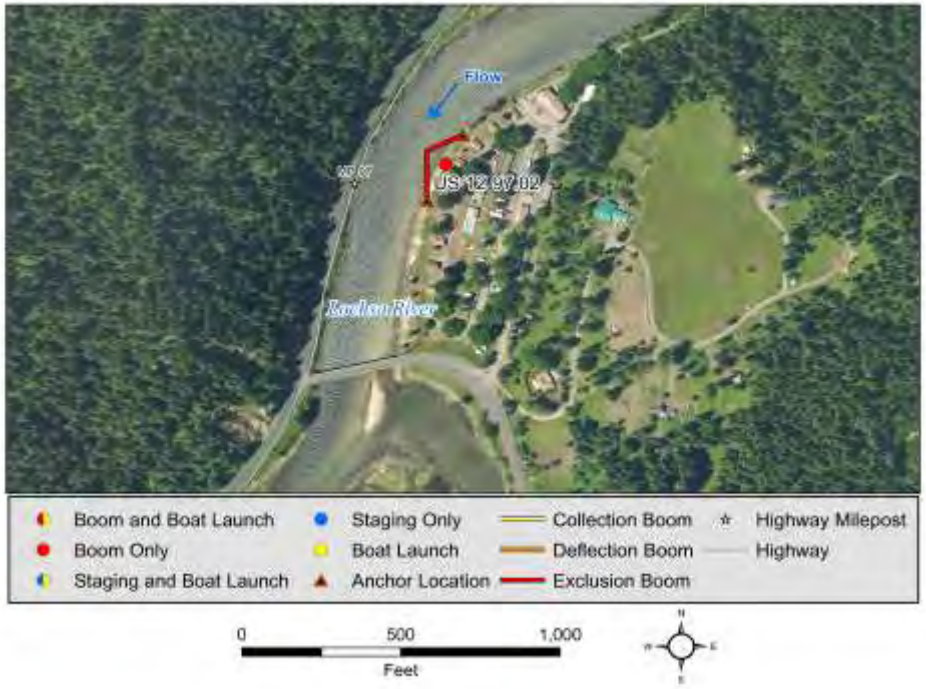
USFS: 208-935-2513

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 84.3 mi
5. Destination will be on the right
Wild Goose Campground
Kooskia, ID 83539

Three Rivers Lodge Water Intake — US 12 97.02

Site Lat Long:	46.144783 -115.597 (http://www.google.com/maps/place/46.144783,-115.597)
Strategy Objective:	Boom only. Notification and exclusion booming.
Implementation:	Lochsa River flow direction is to the southwest. Prevent product from impacting sensitive area at Three Rivers Lodge Water Intake. Water intake is a mobile intake used for agriculture and fire suppression. Secure upstream end of boom river left to steel post. Secure downstream end of boom river left to steel post. Notify Three Rivers Lodge and USFS.
Site Safety Note:	
Staging Area:	On site staging is large. Staging is available in the Lodge parking area. No boat launch facilities. Pete King Creek boat launch is 2.0 miles away.
Field Notes:	• Water Intake is a large pump that can be removed. • Pump is used for irrigation and fire protection, not drinking water.
Resources Targeted:	Three Rivers Lodge water intake
Watercourse:	Lochsa River: gradient is medium; substrate is gravel; approx. width is 180 ft.; approx. depth is 1 to 5 feet; shoals



Suggested Equipment	
Quantity	Description
150 ft.	Curtain Boom Tow Bridles
200 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 1120

Looking at the river from the water pump station.

Site Specific Contact

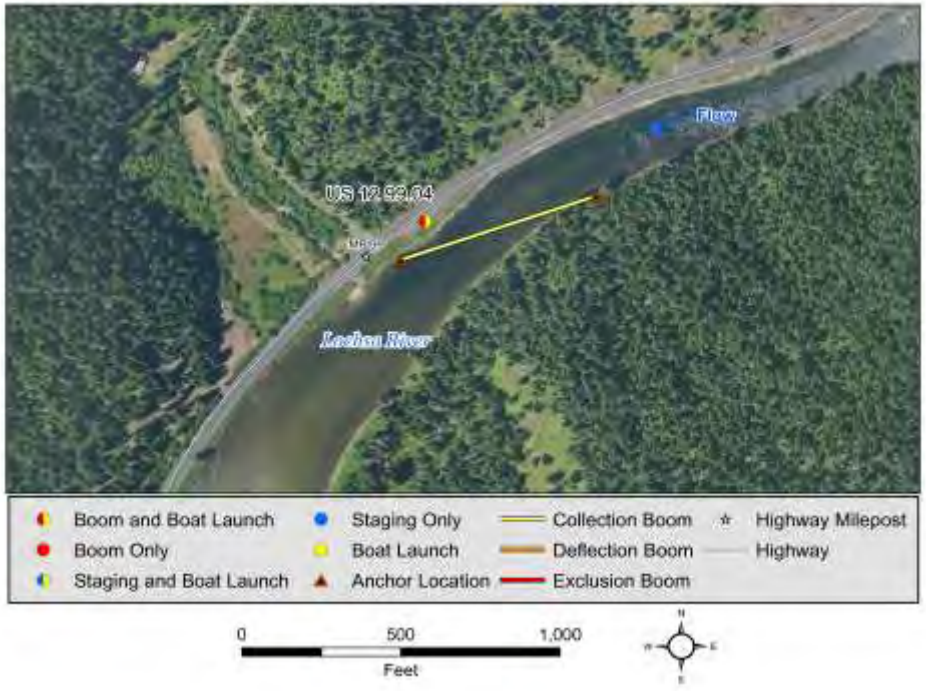
Three Rivers Lodge: 208-926-4430

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 85.8 mi
5. Turn right onto Selway Rd - 456 ft
6. Destination will be on the left
Three Rivers Motel & Rafting
115 Selway Rd, Kooskia, ID 83539

Pete King Creek — US 12 99.04

Site Lat Long:	46.165905 -115.588036 (http://www.google.com/maps/place/46.165905,-115.588036)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	Lochsa River flow direction is to the southwest. Deploy containment boom and initiate product recovery at Pete King Creek. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to steel post. Notify USFS.
Site Safety Note:	Small pullout that requires traffic control.
Staging Area:	On site staging is medium. Small pullout on south side of highway across from Pete King Creek road junction. Hand boat launch.
Field Notes:	• Gravel boat ramp at pullout can be used to hand launch a raft. • 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Lochsa River: gradient is low; substrate is gravel; approx. width is 235 ft.; approx. depth is 5 to10 feet; slow moving; channelized



Suggested Equipment	
Quantity	Description
700 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
875 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
5	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 1120

Looking upstream from collection point towards anchors.

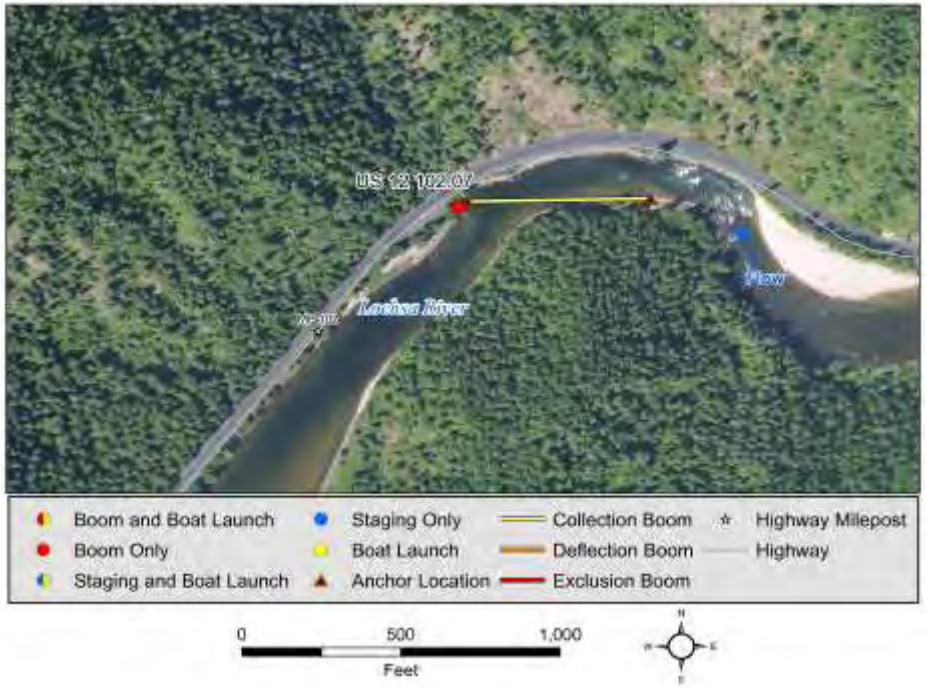
Site Specific Contact

USFS: 208-935-2513

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 88.0 mi
9133 US-12
Kooskia, ID 83539

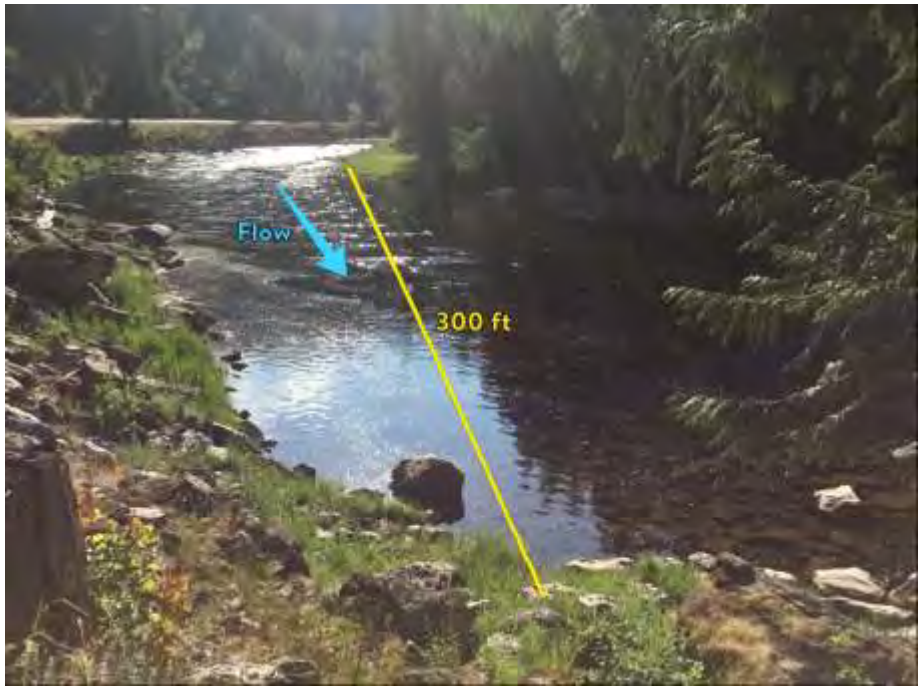
Site Lat Long:	46.192089 -115.554596 (http://www.google.com/maps/place/46.192089,-115.554596)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	Lochsa River flow direction is to the northwest. Deploy containment boom and initiate product recovery at Milepost 102.07. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to tree. Notify USFS.
Site Safety Note:	
Staging Area:	On site staging is medium. Medium sized paved pullout on south side of highway just upstream of MP 102. No boat launch facilities. Pete King Creek boat launch is 3.1 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Lochsa River: gradient is low; substrate is gravel; approx. width is 190 ft.; approx. depth is 1 to 5 feet; channelized; slow moving



Suggested Equipment	
Quantity	Description
300 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
450 ft.	Polypropylene Line
3	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-18. River discharge in cfs: 1120



Looking upstream from the collection point towards anchors.

Site Specific Contact

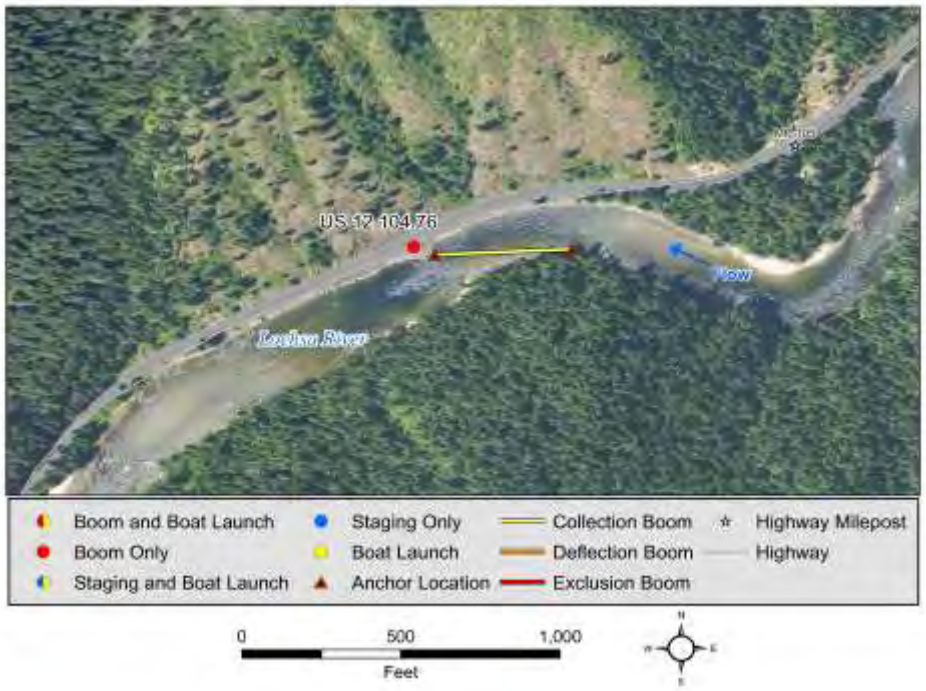
USFS: 208-935-2513

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 91.1 mi
5. Destination will be on the right
US-12
Kooskia, ID 83539

Upstream of Apgar Camp — US 12 104.76

Site Lat Long:	46.219292 -115.531731 (http://www.google.com/maps/place/46.219292,-115.531731)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	Lochsa River flow direction is to the southwest. Deploy containment boom and initiate product recovery at Upstream of Apgar Camp. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to rock. Notify USFS.
Site Safety Note:	Small pullout that requires traffic control.
Staging Area:	On site staging is small. Staging area at Apgar campground and small pullout upstream used for collection site access. No boat launch facilities. Knife Edge boat launch is 3.6 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat. Apgar Campground is just downstream.
Watercourse:	Lochsa River: gradient is low; substrate is gravel; approx. width is 180 ft.; approx. depth is 5 to10 feet; slow moving



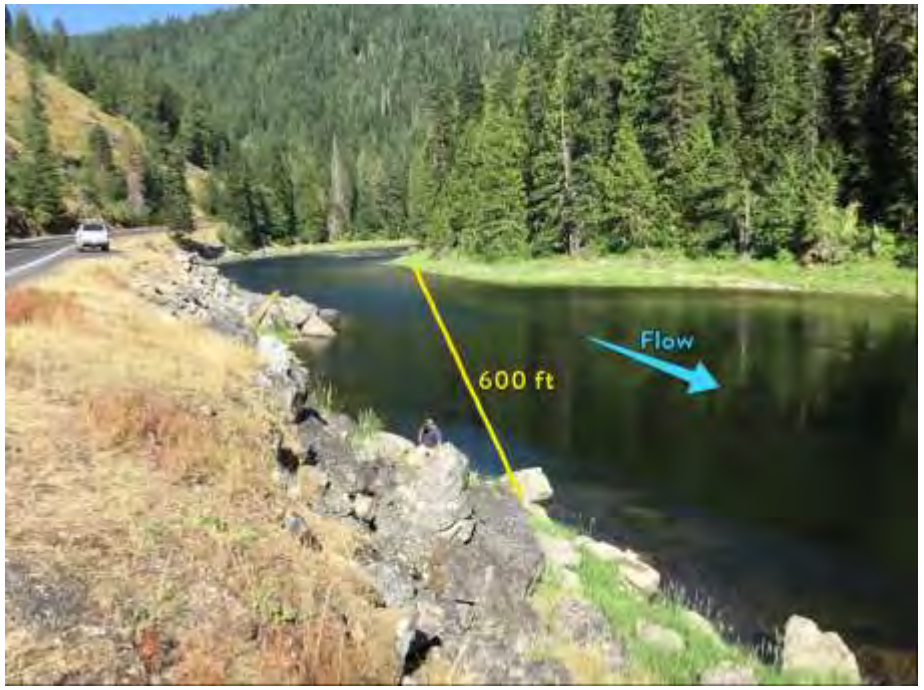
Suggested Equipment	
Quantity	Description
600 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
750 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
5	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-17. River discharge in cfs: 1120

Upstream of Apgar Camp

US 12 104.76



Looking from below collection site upstream towards anchors.

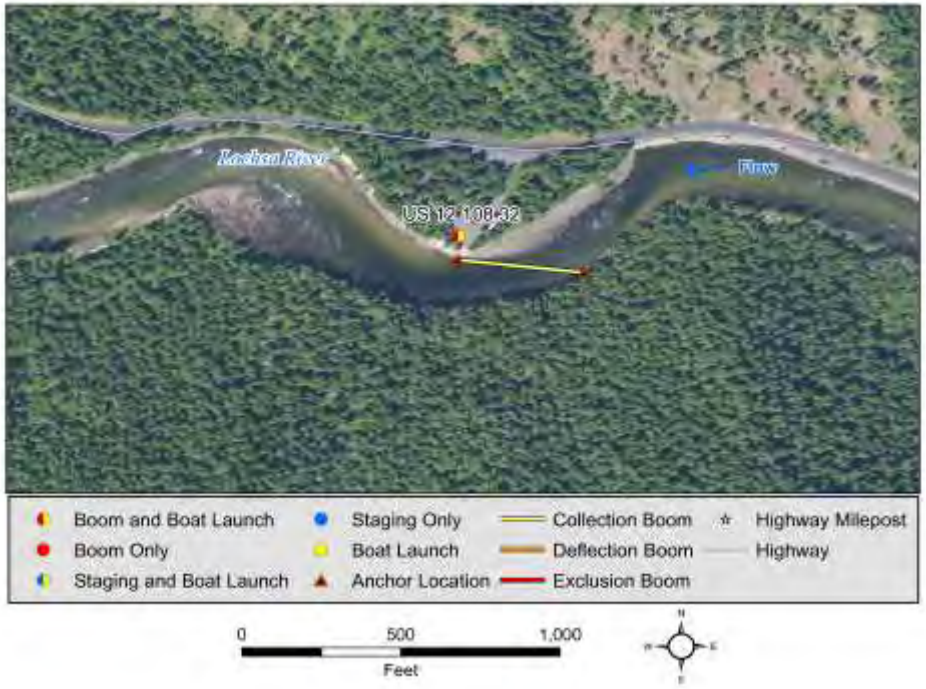
Site Specific Contact

USFS: 208-935-2513

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 93.7 mi
5. Destination will be on the right
US-12
Kooskia, ID 83539

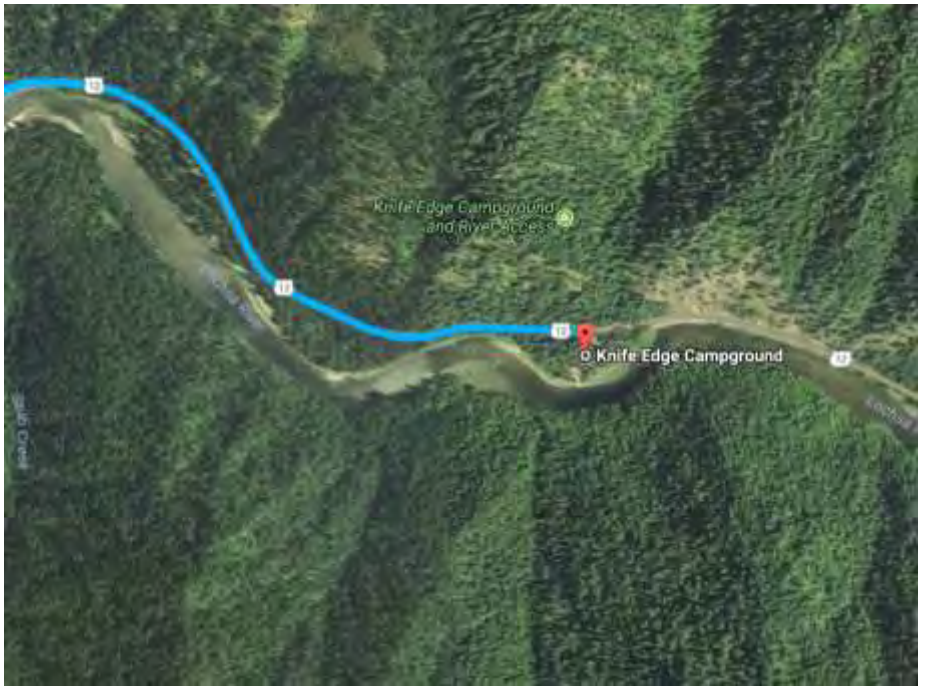
Site Lat Long:	46.226772 -115.474548 (http://www.google.com/maps/place/46.226772,-115.474548)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	Lochsa River flow direction is to the west. Deploy containment boom and initiate product recovery at Knife Edge. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to steel post. Notify USFS.
Site Safety Note:	During late spring and early summer this area has high volumes of commercial raft traffic.
Staging Area:	On site staging is medium. Large dirt turnaround and concrete highway pullout. Hand boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Lochsa River: gradient is low; substrate is gravel; approx. width is 170 ft.; approx. depth is 1 to 5 feet; slow moving



Suggested Equipment	
Quantity	Description
250 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
450 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-17. River discharge in cfs: 1120



Looking upstream from collection site to anchors.

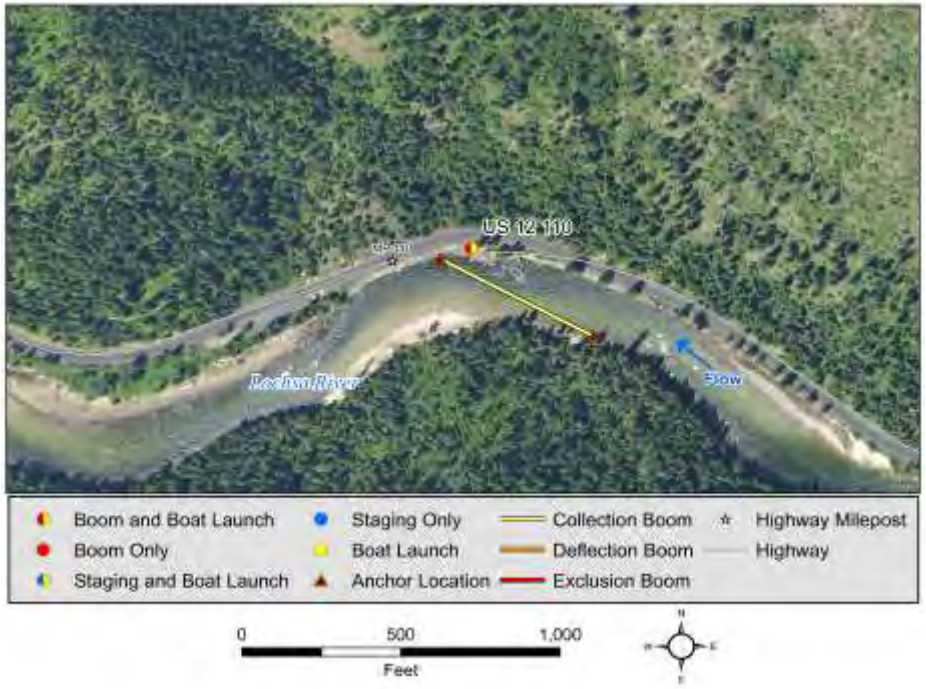
Site Specific Contact

USFS: 208-935-2513

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 97.3 mi
5. Destination will be on the right
Knife Edge Campground
Kooskia, ID 83539

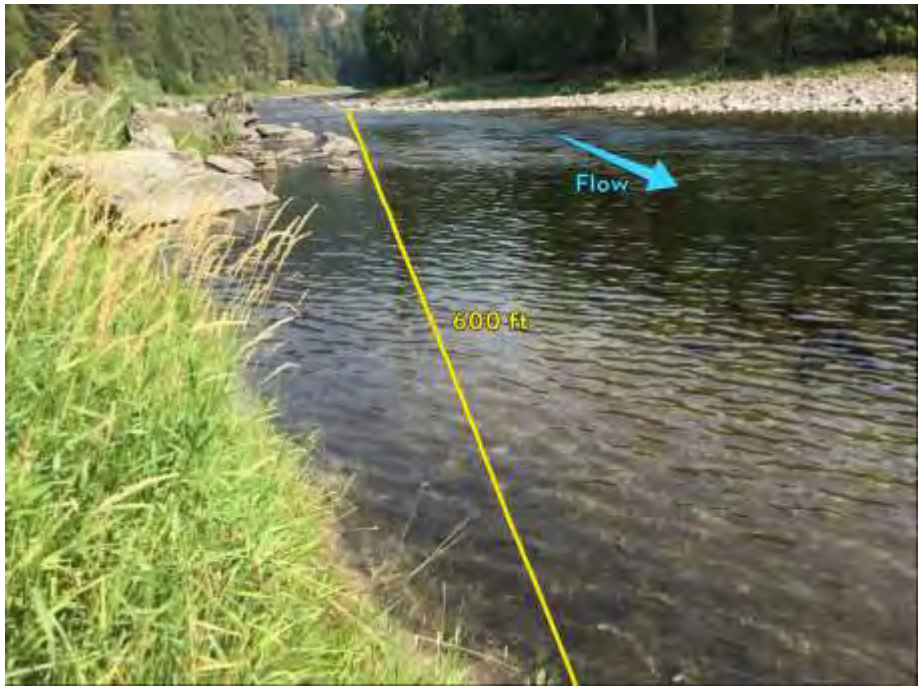
Site Lat Long:	46.22892 -115.443321 (http://www.google.com/maps/place/46.22892,-115.443321)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	Lochsa River flow direction is to the southwest. Deploy containment boom and initiate product recovery at MP 110. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to rock. Notify USFS.
Site Safety Note:	Small pullout. Needs traffic control.
Staging Area:	On site staging is small. Small gravel pullout on south side of highway with crude Boat Ramp. Hand boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Lochsa River: gradient is low; substrate is gravel; approx. width is 150 ft.; approx. depth is 1 to 5 feet; fast moving; shoals



Suggested Equipment	
Quantity	Description
600 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
750 ft.	Polypropylene Line
	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
5	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-26. River discharge in cfs: 1120



Looking upstream from collection site towards upstream anchors.

Site Specific Contact

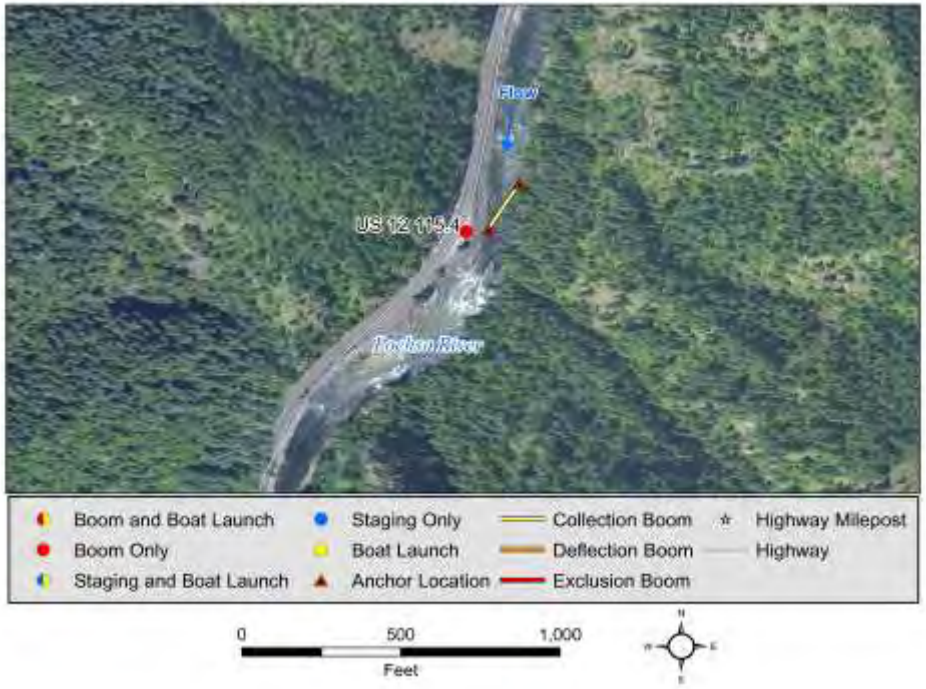
USFS: 208-935-2513

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 99.0 mi
5. Destination will be on the right
US-12
Kooskia, ID 83539

Shoestring Falls — US 12 115.4

Site Lat Long:	46.279537 -115.390915 (http://www.google.com/maps/place/46.279537,-115.390915)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	Lochsa River flow direction is to the southwest. Deploy containment boom and initiate product recovery at Shoestring Falls. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to rock. Notify USFS.
Site Safety Note:	Significant rapid immediately downstream (Class IV). River Characteristics change significantly with flow dynamics. River not runnable
Staging Area:	On site staging is small. Concrete pullout on East side of highway adjacent to river. No boat launch facilities. Fish Creek River Access boat launch is 4.8 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **YES** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Lochsa River: gradient is low; substrate is gravel; approx. width is 120 ft.; approx. depth is 5 to10 feet; slow moving; channelized



Suggested Equipment	
Quantity	Description
250 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
375 ft.	Polypropylene Line
	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-17. River discharge in cfs: 1120

Looking upstream from collection point to anchors.

Site Specific Contact

USFS: 208-935-2513

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 104 mi
5. Destination will be on the right
46.2796325, -115.3908854

Staging Areas

Site Lat Long:	46.225399 -115.497993 (http://www.google.com/maps/place/46.225399,-115.497993)
Strategy Objective:	Staging only.
Site Safety Note:	
Staging Area:	On site staging is large. Large paved pullout on South side of highway. No boat launch facilities. Knife Edge boat launch is 1.5 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 95.8 mi
5. Destination will be on the right

Split Creek Pack Bridge — US 12 111.46

Site Lat Long:	46.23106 -115.416061 (http://www.google.com/maps/place/46.23106,-115.416061)
Strategy Objective:	Staging only.
Site Safety Note:	
Staging Area:	On site staging is large. Large paved pullout on North side of Highway. MP 110 boat launch is 1.4 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 100 mi
5. Destination will be on the left

Boat Ramps

Site Lat Long:	46.148216 -115.969223 (http://www.google.com/maps/place/46.148216,-115.969223)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	
Staging Area:	On site staging is medium. Small parking area at the end of West Road near the river. Hand boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site:

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 62.9 mi
5. Turn right onto ID-13 W - 0.3 mi

Pete King Creek — US 12 99.04

Site Lat Long:	46.165905 -115.588036 (http://www.google.com/maps/place/46.165905,-115.588036)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	Small pullout that requires traffic control.
Staging Area:	On site staging is medium. Small pullout on south side of highway across from Pete King Creek road junction. Hand boat launch.
Field Notes:	• Gravel boat ramp at pullout can be used to hand launch a raft. • 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

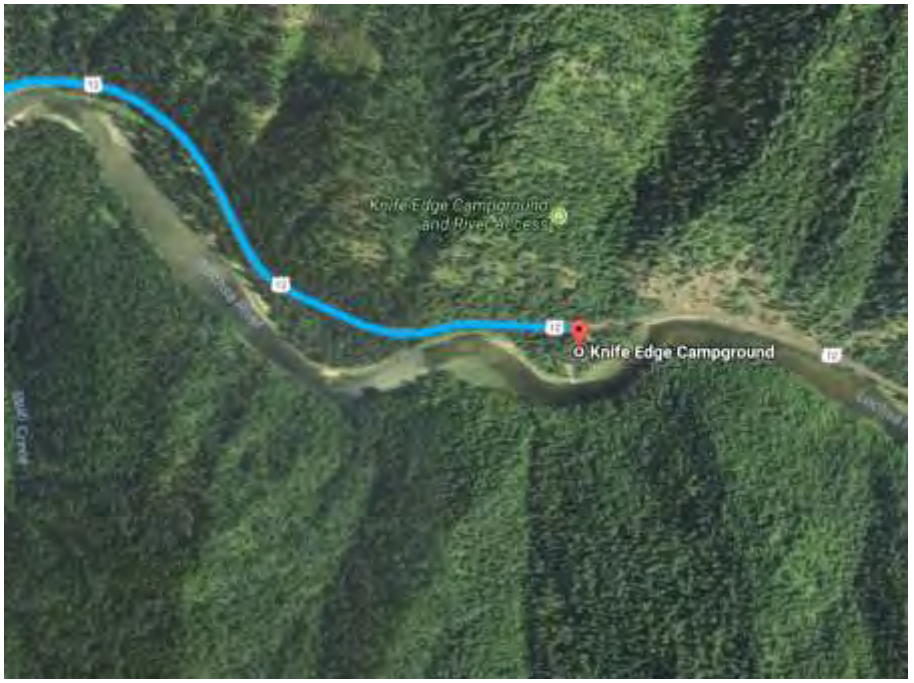
Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 88.0 mi
9133 US-12

Knife Edge — US 12 108.32

Site Lat Long:	46.226772 -115.474548 (http://www.google.com/maps/place/46.226772,-115.474548)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	During late spring and early summer this area has high volumes of commercial raft traffic.
Staging Area:	On site staging is medium. Large dirt turnaround and concrete highway pullout. Hand boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 97.3 mi
5. Destination will be on the right



Site Lat Long:	46.22892 -115.443321 (http://www.google.com/maps/place/46.22892,-115.443321)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	Small pullout. Needs traffic control.
Staging Area:	On site staging is small. Small gravel pullout on south side of highway with crude Boat Ramp. Hand boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 99.0 mi
5. Destination will be on the right

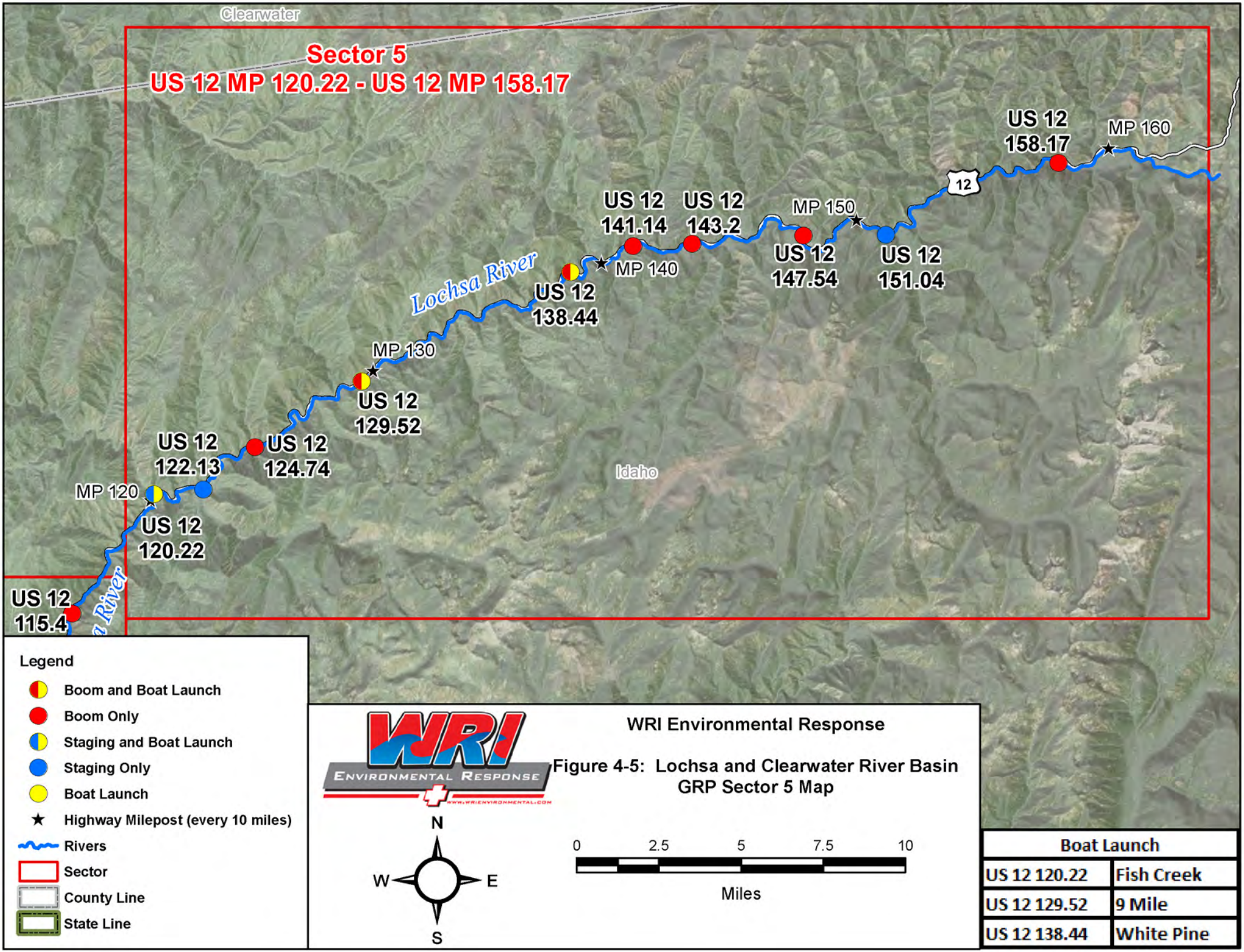

Clearwater
Sector 5
US 12 MP 120.22 - US 12 MP 158.17
US 12 158.17
MP 160
12
US 12 141.14
US 12 143.2
MP 150
US 12 147.54
US 12 151.04
MP 140
Lochsa River
US 12 138.44
MP 130
US 12 129.52
US 12 122.13
US 12 124.74
Idaho
MP 120
US 12 120.22
US 12 115.4
Legend
Boom and Boat Launch
Boom Only
Staging and Boat Launch
Staging Only
Boat Launch
Highway Milepost (every 10 miles)
Rivers
Sector
County Line
State Line
N
W
E
S
0
2.5
5
7.5
10
Miles
WRI Environmental Response
Figure 4-5: Lochsa and Clearwater River Basin
GRP Sector 5 Map
Boat Launch
US 12 120.22
Fish Creek
US 12 129.52
9 Mile
US 12 138.44
White Pine

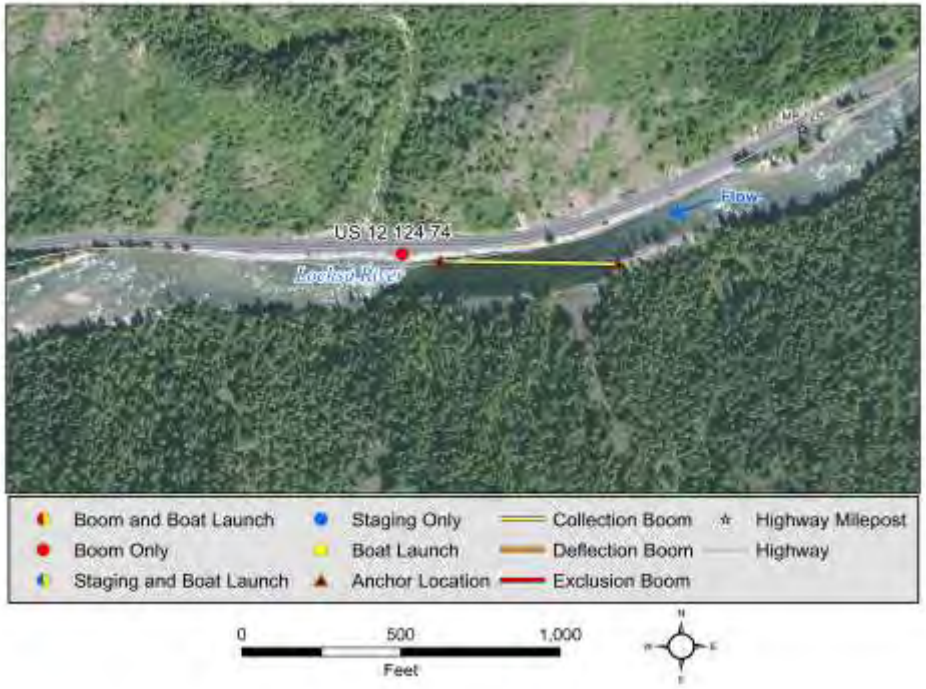
Table 4-5: Strategies US 12 120.22 to US 12 158.17 Booming Strategies, Staging Areas, and Boat Launches

Nearest Highway Milepost	Location Description	Site Type	Site Specific Notification	Location Lattitude/Longitude decimal degrees	Shown on Sector Map	Adjacent Receiving Waterbody	Next Downstream Milepost (MP) and Downstream Arrow Indicator	Strategy Type						Onsite Resources		Site-Specific Notification Information and/or Strategy Implementation Notes
								Collection and Recovery	Deflection	Exclusion	Boat Launch	Staging	Boom Length Recommended (feet)	Jet Boat Required to Implement?	Large Staging Onsite?	
Sector 5: US 12 MP 120.22 - US 12 MP 158.17																
Lochsa River																
US 12 120.22	Fish Creek River Access	Staging and boat launch	USFS: 208-935-2513	46.334724, -115.344856	5	Lochsa River	US 12 122.13				X	X		NO	Large	Staging area only at Fish Creek River Access. Notify USFS.
US 12 122.13	North Wilderness Gateway	Staging	USFS: 208-935-2513	46.338486, -115.313736	5	Lochsa River	US 12 124.74					X		NO	Large	Staging area only at North Wilderness Gateway. Notify USFS.
US 12 124.74	Culvert Rapid	Boom only	USFS: 208-935-2513	46.358746, -115.282799	5	Lochsa River	US 12 129.52	X					300	YES	Small	Lochsa River flow direction is to the west. Deploy containment boom and initiate product recovery at Culvert Rapid. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to rock. Notify USFS.
US 12 129.52	9 Mile River Access	Boom and boat launch	USFS: 208-935-2513	46.391178, -115.218231	5	Lochsa River	US 12 138.44	X			X		600	YES	Medium	Lochsa River flow direction is to the west. Deploy containment boom and initiate product recovery at 9 Mile River Access. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to tree. Notify USFS.
US 12 138.44	White Pine River Access	Boom and boat launch	USFS: 208-935-2513	46.445801, -115.09037	5	Lochsa River	US 12 141.14	X			X		400	YES	Medium	Lochsa River flow direction is to the west. Deploy containment boom and initiate product recovery at White Pine River Access. Secure upstream end of boom river left to steel post. Secure downstream end of boom river right to steel post. Notify USFS.
US 12 141.14	MP 141	Boom only	USFS: 208-935-2513	46.459198, -115.051727	5	Lochsa River	US 12 143.2	X				X	500	YES	Large	Lochsa River flow direction is to the southwest. Deploy containment boom and initiate product recovery at MP 141. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to steel post. Notify USFS.
US 12 143.2	Mocus Point	Boom only	USFS: 208-935-2513	46.462036, -115.014191	5	Lochsa River	US 12 147.54	X				X	350	YES	Large	Lochsa River flow direction is to the west. Deploy containment boom and initiate product recovery at Mocus Point. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to steel post. Notify USFS.
US 12 147.54	Colgate Camp	Boom only	USFS: 208-935-2513	46.469078, -114.94397	5	Lochsa River	US 12 151.04	X					450	YES	Medium	Lochsa River flow direction is to the northwest. Deploy containment boom and initiate product recovery at Colgate Camp. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to tree. Notify USFS.
US 12 151.04	Below Warm Springs Creek	Staging	None	46.472019, -114.891304	5	Lochsa River	US 12 158.17					X		NO	Large	Staging area only at Below Warm Springs Creek.
US 12 158.17	Wendover campground	Boom only	USFS: 208-935-2513	46.508747, -114.784622	5	Lochsa River		X					500	YES	Small	Lochsa River flow direction is to the west. Deploy containment boom and initiate product recovery at Wendover campground. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to steel post. Notify USFS.

Strategy Reports

Culvert Rapid — US 12 124.74

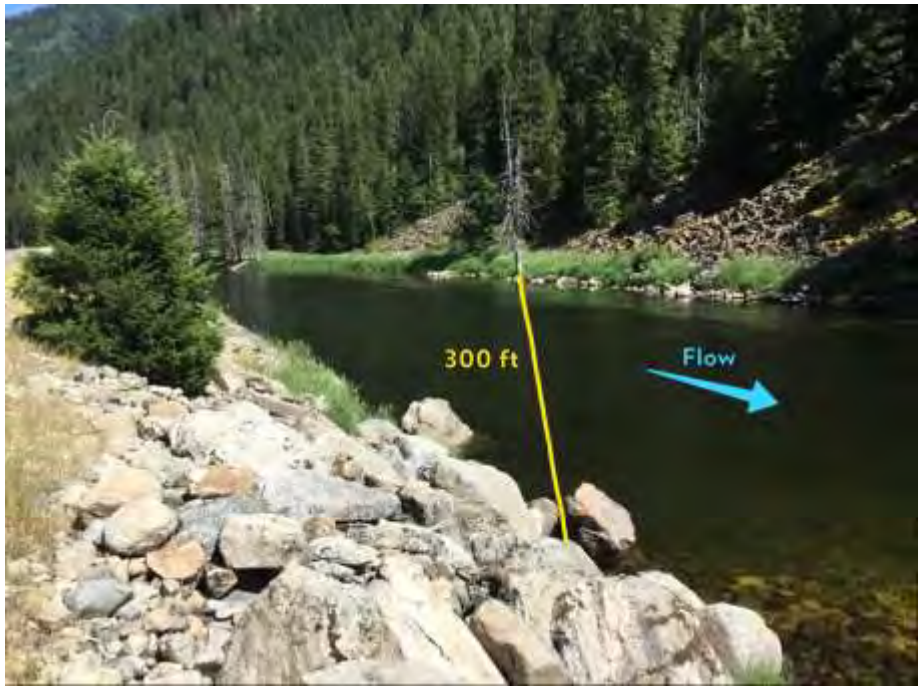
Site Lat Long:	46.358746 -115.282799 (http://www.google.com/maps/place/46.358746,-115.282799)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	Lochsa River flow direction is to the west. Deploy containment boom and initiate product recovery at Culvert Rapid. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to rock. Notify USFS.
Site Safety Note:	Significant Rapid downstream, especially at high water. Pullout on roadside is small and requires traffic control.
Staging Area:	On site staging is small. Small gravel pullout on south side of road adjacent to Rapid. No boat launch facilities. Fish Creek River Access boat launch is 4.5 miles away. Travel upstream from Fish Creek generally not possible.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Lochsa River: gradient is low; substrate is gravel; approx. width is 140 ft.; approx. depth is 5 to10 feet; slow moving; channelized



Suggested Equipment	
Quantity	Description
300 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
700 ft.	Polypropylene Line
	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-17. River discharge in cfs: 1120



Looking upstream from collection point towards anchors.

Site Specific Contact

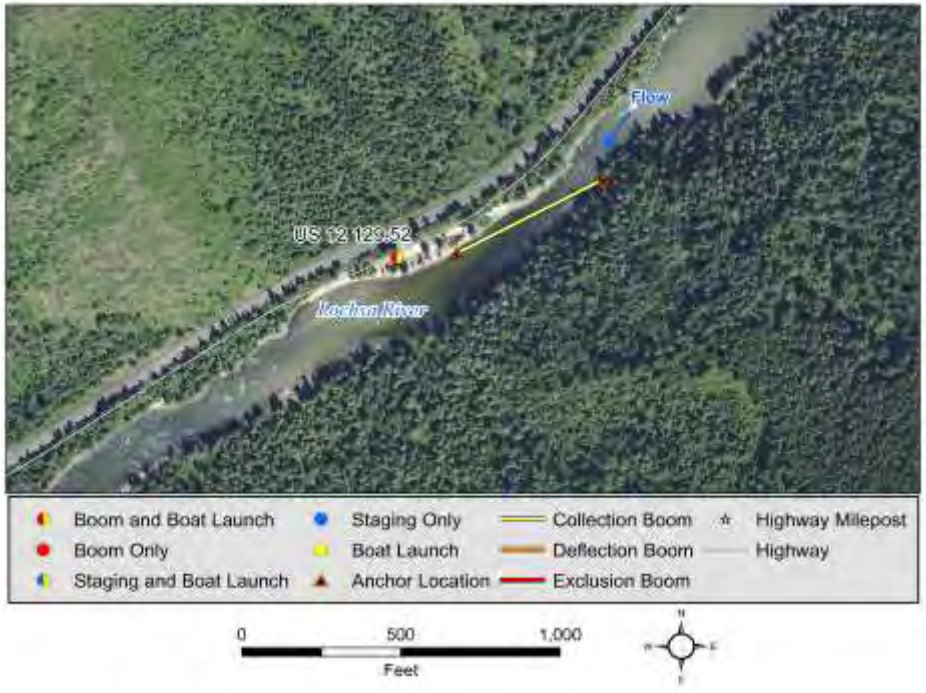
USFS: 208-935-2513

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 114 mi
5. Destination will be on the right
46.3587666, -115.2827449

9 Mile River Access — US 12 129.52

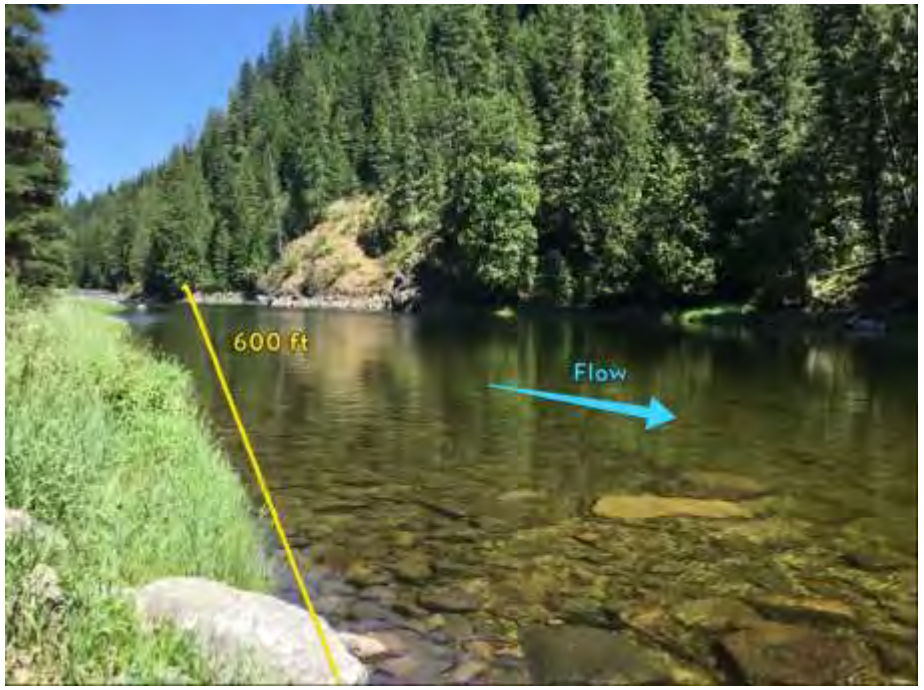
Site Lat Long:	46.391178 -115.218231 (http://www.google.com/maps/place/46.391178,-115.218231)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	Lochsa River flow direction is to the west. Deploy containment boom and initiate product recovery at 9 Mile River Access. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to tree. Notify USFS.
Site Safety Note:	Class IV rapids downstream.
Staging Area:	On site staging is medium. Staging located at 9 Mile River Access. Large gravel pullout with adequate space for turning around trucks and trailers. Hand boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Lochsa River: gradient is low; substrate is gravel; approx. width is 150 ft.; approx. depth is 1 to 5 feet; slow moving



Suggested Equipment	
Quantity	Description
600 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
750 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
5	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-17. River discharge in cfs: 1120



Looking upstream from collection site.

Site Specific Contact

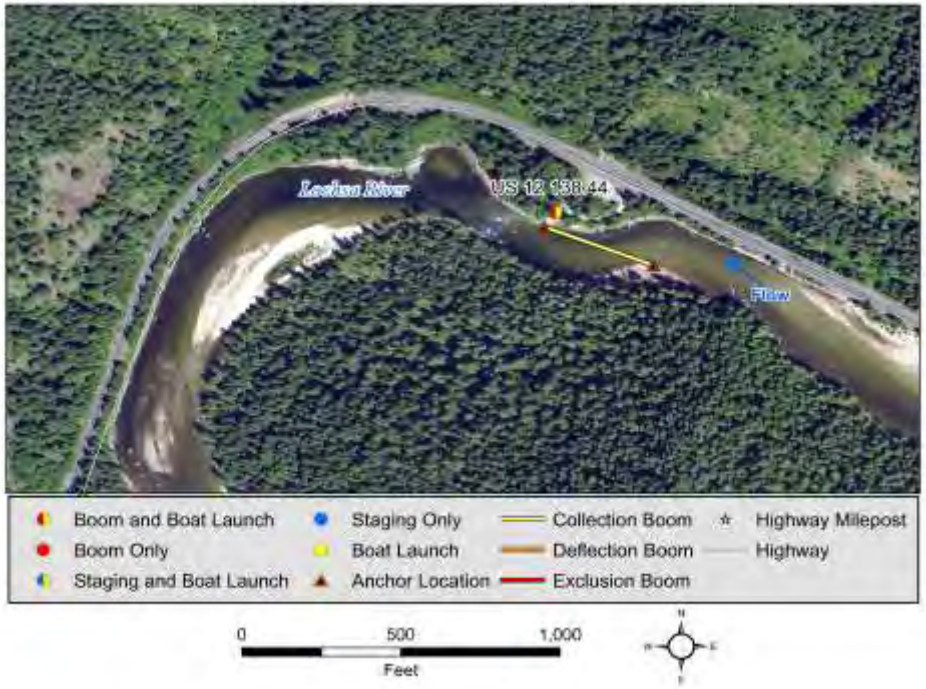
USFS: 208-935-2513

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 118 mi
5. Destination will be on the right
US-12
Kooskia, ID 83539

White Pine River Access — US 12 138.44

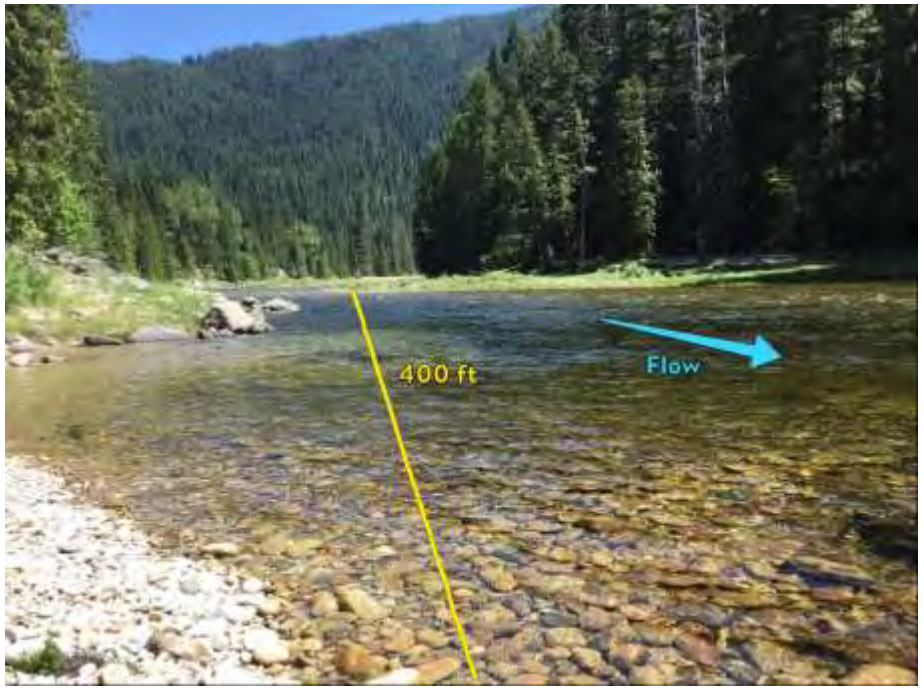
Site Lat Long:	46.445801 -115.09037 (http://www.google.com/maps/place/46.445801,-115.09037)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Implementation:	Lochsa River flow direction is to the west. Deploy containment boom and initiate product recovery at White Pine River Access. Secure upstream end of boom river left to steel post. Secure downstream end of boom river right to steel post. Notify USFS.
Site Safety Note:	
Staging Area:	On site staging is medium. Narrow gravel road that leads to river access. Large pullout next to highway on river side. Hand boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Lochsa River: gradient is low; substrate is gravel; approx. width is 150 ft.; approx. depth is 1 to 5 feet; slow moving



Suggested Equipment	
Quantity	Description
400 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
500 ft.	Polypropylene Line
8	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-17. River discharge in cfs: 1120



View from collection point looking upstream towards steel post anchor site.

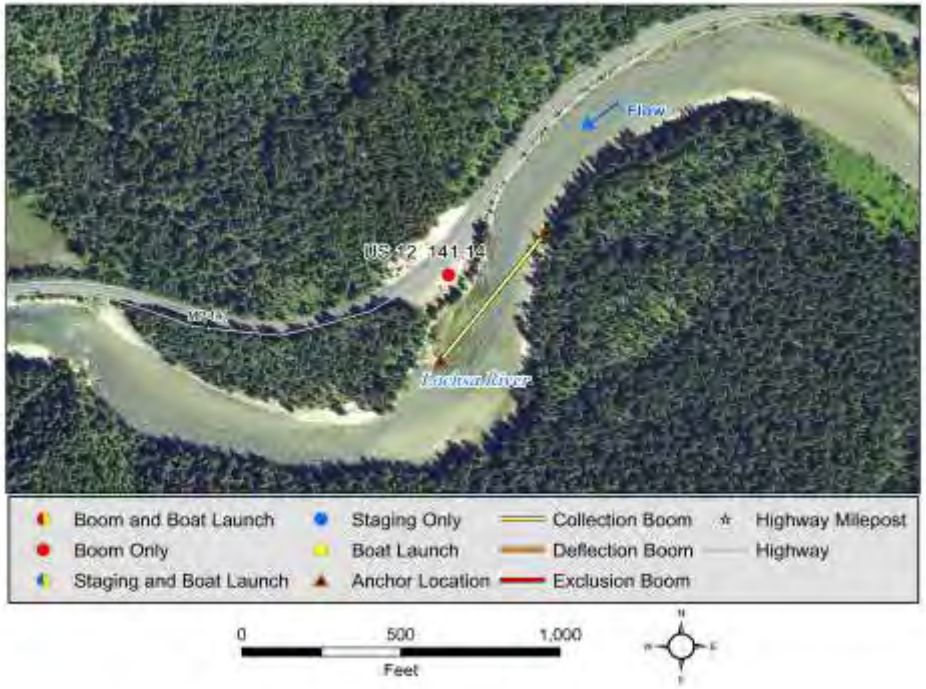
Site Specific Contact

USFS: 208-935-2513

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 127 mi
5. Destination will be on the right
US-12
Kooskia, ID 83539

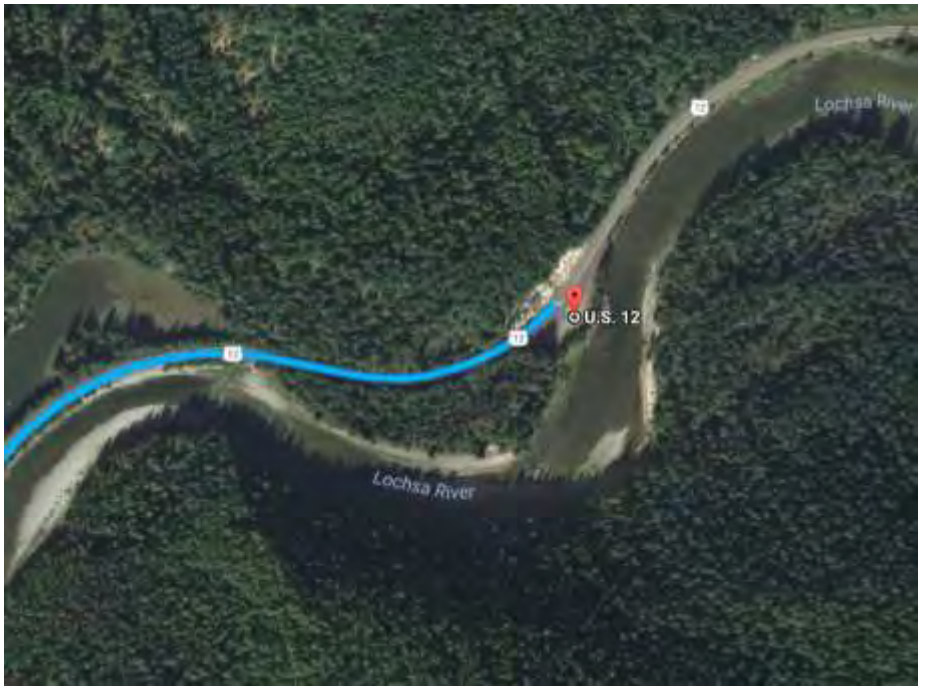
Site Lat Long:	46.459198 -115.051727 (http://www.google.com/maps/place/46.459198,-115.051727)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	Lochsa River flow direction is to the southwest. Deploy containment boom and initiate product recovery at MP 141. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to steel post. Notify USFS.
Site Safety Note:	
Staging Area:	On site staging is large. Large gravel pullout on south side of highway. No boat launch facilities. White Pine River Access boat launch is 2.7 miles away downstream.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Lochsa River: gradient is low; substrate is gravel; approx. width is 150 ft.; approx. depth is 1 to 5 feet; channelized; shoals



Suggested Equipment	
Quantity	Description
500 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
625 ft.	Polypropylene Line
3	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-26. River discharge in cfs: 1120



Looking upstream from collection site towards upstream anchors.

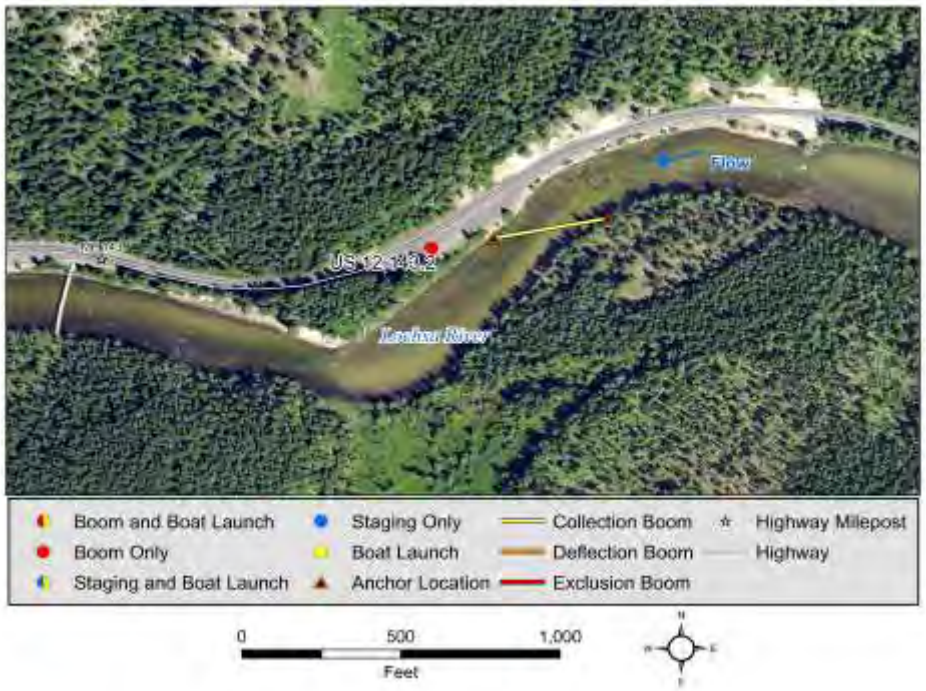
Site Specific Contact

USFS: 208-935-2513

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 130 mi
5. Destination will be on the right
US-12
Kooskia, ID 83539

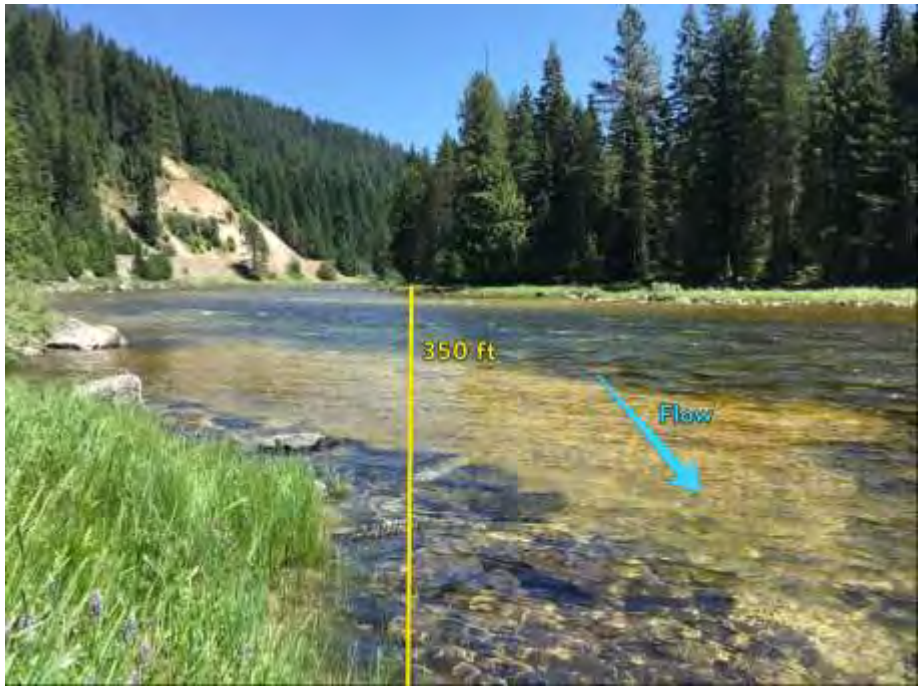
Site Lat Long:	46.462036 -115.014191 (http://www.google.com/maps/place/46.462036,-115.014191)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	Lochsa River flow direction is to the west. Deploy containment boom and initiate product recovery at Mocus Point. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to steel post. Notify USFS.
Site Safety Note:	
Staging Area:	On site staging is large. Wide paved pullout on South side of highway. No boat launch facilities. White Pine River Access boat launch is 4.8 miles away downstream.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Lochsa River: gradient is low; substrate is gravel; approx. width is 180 ft.; approx. depth is 1 to 5 feet; channelized; slow moving



Suggested Equipment	
Quantity	Description
350 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
425 ft.	Polypropylene Line
5	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
2	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-17. River discharge in cfs: 1120



View from collection site looking upstream towards anchors.

Site Specific Contact

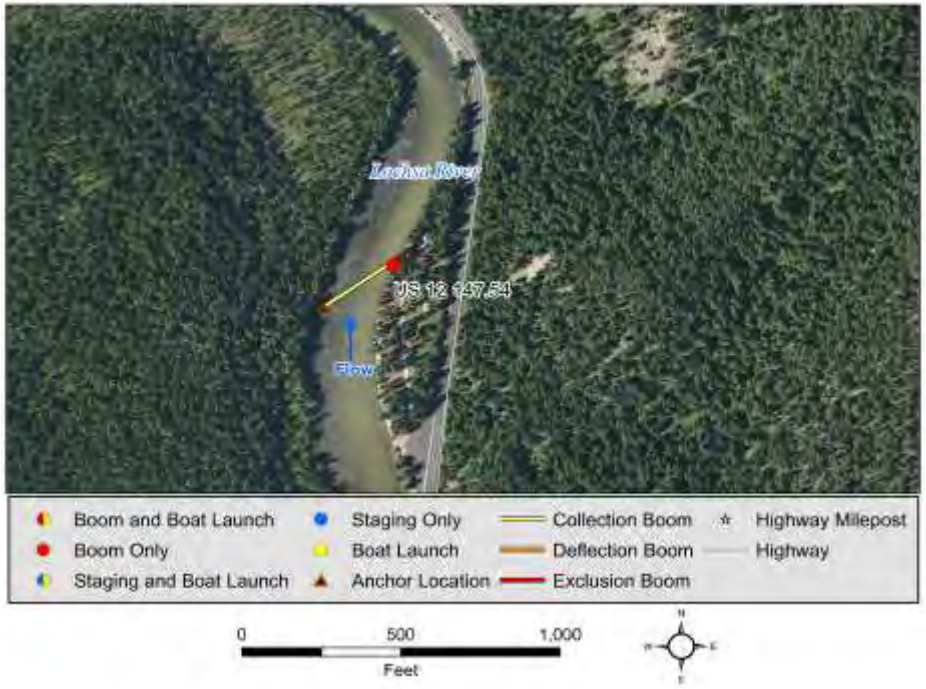
USFS: 208-935-2513

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 132 mi
5. Destination will be on the right
US-12
Kooskia, ID 83539

Colgate Camp — US 12 147.54

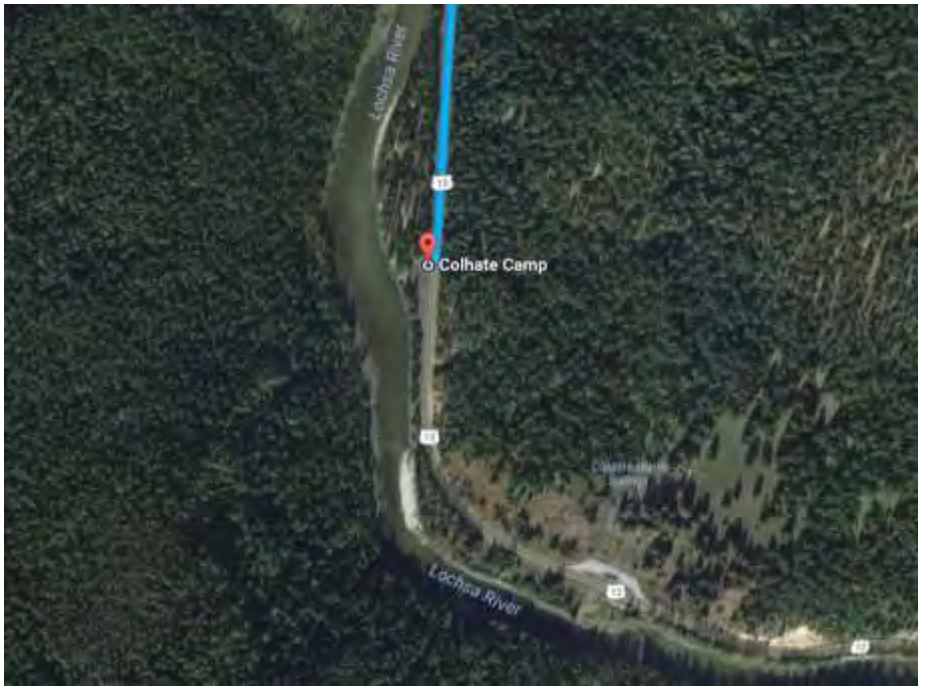
Site Lat Long:	46.469078 -114.94397 (http://www.google.com/maps/place/46.469078,-114.94397)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	Lochsa River flow direction is to the northwest. Deploy containment boom and initiate product recovery at Colgate Camp. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to tree. Notify USFS.
Site Safety Note:	
Staging Area:	On site staging is medium. Dirt loop road through undeveloped campground. No boat launch facilities. White Pine River Access boat launch is 9.1 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Lochsa River: gradient is low; substrate is gravel; approx. width is 190 ft.; approx. depth is 1 to 5 feet; boulder garden; shoals



Suggested Equipment	
Quantity	Description
450 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
600 ft.	Polypropylene Line
3	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
4	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-17. River discharge in cfs: 1120



Looking upstream from collection point towards anchors.

Site Specific Contact

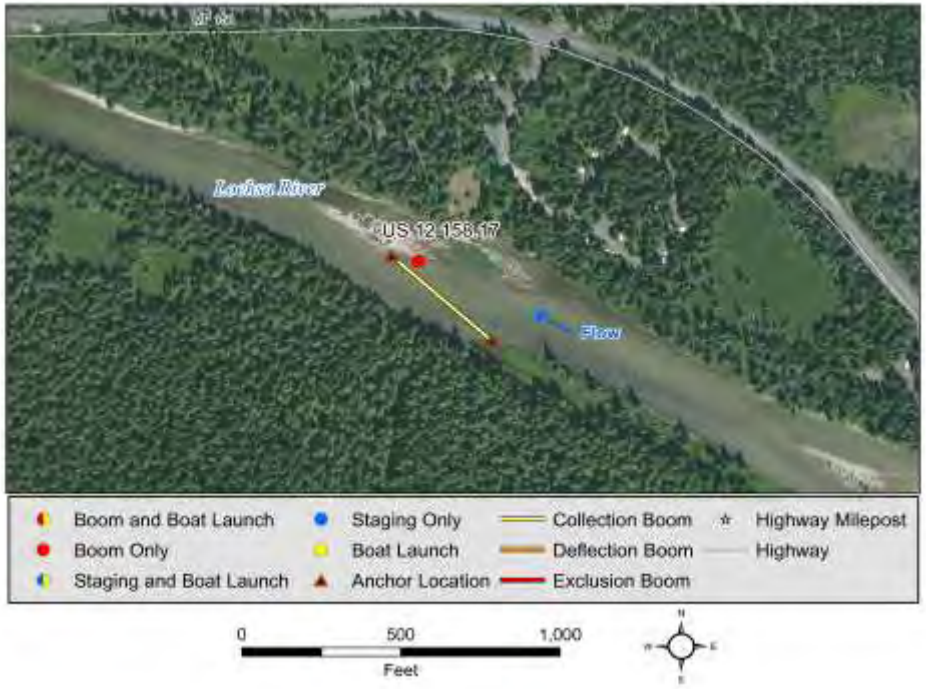
USFS: 208-935-2513

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 137 mi
5. Destination will be on the right
Colhate Camp
Kooskia, ID 83539

Wendover campground — US 12 158.17

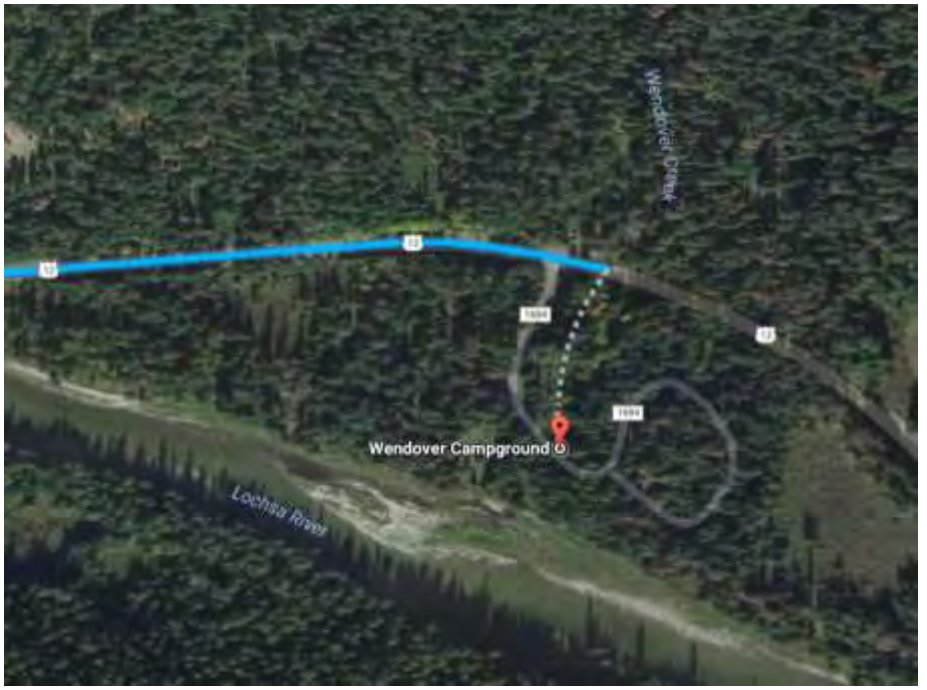
Site Lat Long:	46.508747 -114.784622 (http://www.google.com/maps/place/46.508747,-114.784622)
Strategy Objective:	Boom only. Notification and collection and recovery.
Implementation:	Lochsa River flow direction is to the west. Deploy containment boom and initiate product recovery at Wendover campground. Boat launch is too far to be useful, will need to establish a high line to tether a raft to. Secure upstream end of boom river left to tree. Secure downstream end of boom river right to steel post. Notify USFS.
Site Safety Note:	
Staging Area:	On site staging is small. Small parking spaces available in campground. No boat launch facilities, recommend hand launching of rafts on this river. White Pine River Access boat launch is 19.8 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **YES** Locked Gate: **NO**
Resources Targeted:	Downstream Habitat
Watercourse:	Lochsa River: gradient is medium; substrate is gravel; approx. width is 180 ft.; approx. depth is 1 to 5 feet; boulder garden; shoals; fast and shallow



Suggested Equipment	
Quantity	Description
500 ft.	Curtain Boom Tow Bridles
As Appropriate	Vaccum Truck; Portable Skimmer; Absorbent Boom
800 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation?	Y

Suggested Personnel	
Quantity	Description
5	Hazmat Field Tech
	Traffic Flagger
1	Boat Operator
1	Swiftwater Tech

Visited on 2017-07-17. River discharge in cfs: 1120



View from collection area looking upstream towards anchors.

Site Specific Contact

USFS: 208-935-2513

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 147 mi
Wendover Campground
Clearwater National Forest, US-12, Lolo, ID 59847

Staging Areas

Fish Creek River Access — US 12 120.22

Site Lat Long:	46.334724 -115.344856 (http://www.google.com/maps/place/46.334724,-115.344856)
Strategy Objective:	Staging and boat launch only.
Site Safety Note:	
Staging Area:	On site staging is large. Large paved pullout with bathroom and boat launch. Hand boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 109 mi
5. Destination will be on the right

North Wilderness Gateway — US 12 122.13

Site Lat Long:	46.338486 -115.313736 (http://www.google.com/maps/place/46.338486,-115.313736)
Strategy Objective:	Staging only.
Site Safety Note:	
Staging Area:	On site staging is large. Large paved loop with gravel staging area and bathroom and Helicopter landing zone. No boat launch facilities. Fish Creek River Access boat launch is 1.9 miles away.
Field Notes:	• 4WD Access: **NO** Low Water Only: **None** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
4. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 111 mi
5. Destination will be on the right

Below Warm Springs Creek — US 12 151.04

Site Lat Long:	46.472019 -114.891304 (http://www.google.com/maps/place/46.472019,-114.891304)
Strategy Objective:	Staging only.
Site Safety Note:	
Staging Area:	On site staging is large. Large gravel pull out on south side of road. No boat launch facilities. White Pine River Access boat launch is 12.6 miles away.
Field Notes:	• 4WD Access: **None** Low Water Only: **None** Locked Gate: **None**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 140 mi
5. Destination will be on the right

Boat Ramps

Fish Creek River Access — US 12 120.22

Site Lat Long:	46.334724 -115.344856 (http://www.google.com/maps/place/46.334724,-115.344856)
Strategy Objective:	Staging and boat launch only.
Site Safety Note:	
Staging Area:	On site staging is large. Large paved pullout with bathroom and boat launch. Hand boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

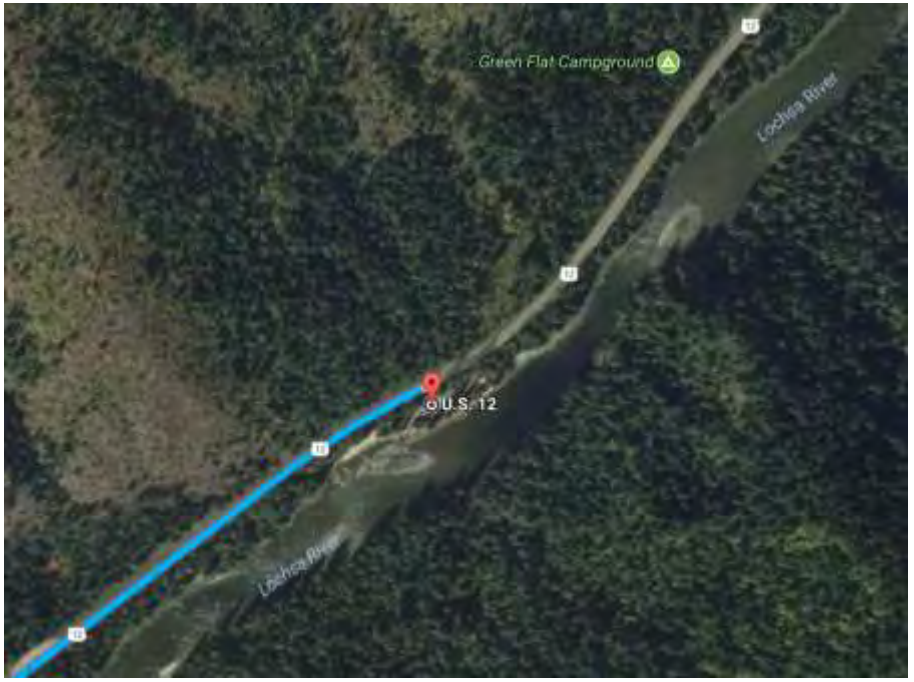
Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 109 mi
5. Destination will be on the right

9 Mile River Access — US 12 129.52

Site Lat Long:	46.391178 -115.218231 (http://www.google.com/maps/place/46.391178,-115.218231)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	Class IV rapids downstream.
Staging Area:	On site staging is medium. Staging located at 9 Mile River Access. Large gravel pullout with adequate space for turning around trucks and trailers. Hand boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 118 mi
5. Destination will be on the right



White Pine River Access — US 12 138.44

Site Lat Long:	46.445801 -115.09037 (http://www.google.com/maps/place/46.445801,-115.09037)
Strategy Objective:	Boom and boat launch. Notification and collection and recovery.
Site Safety Note:	
Staging Area:	On site staging is medium. Narrow gravel road that leads to river access. Large pullout next to highway on river side. Hand boat launch.
Field Notes:	• 4WD Access: **NO** Low Water Only: **NO** Locked Gate: **NO**

Directions to Site

Memorial Bridge
Lewiston, ID 83501
1. Head north on US-12 E/Memorial Bridge
2. Continue to follow US-12 E - 8.1 mi
3. Use the right lane to take the US-12 ramp to Missoula/Orofino - 0.7 mi
4. Continue onto US-12 E - 127 mi
5. Destination will be on the right

4.3 Protection/Collection Priorities for Clearwater and Lochsa River Scenarios

The following table may be used as a guideline for initiating spill response action along the Lochsa and Clearwater Rivers. This table offers a general guideline. Spill location, response time, weather, water levels, and type of spill may all affect the responder's ability to initiate product recovery.

Procedures:

The first priority in an emergency spill response is safety. Personal and group safety is paramount to the success of spill response operations. Ensure that everyone in the group has the proper equipment and training before engaging in spill response operations. The second priority of the responders is to contain the source of the spill. It is important to contain the source of the spill, and thereby limit the amount of product introduced into the river. Once the source of the spill has been contained, or concurrent to source containment if there are adequate personnel, begin initiating downstream collection and mechanical recovery.

Table 4-6: Priorities of Work

Priority	Strategy	Comments
1	Contain the Source of the Spill	Mobilize response units to contain the source of the spill.
2	Strategy 311.76 (US 95) - Strategy US 12 34.65	If spill is upstream of milepost 34.65, implement downstream strategies. The Clearwater River downstream of Orofino is generally slower moving and easier to access with boats.
3	Strategy SH 13 26.24	If spill is upstream of City of Kooskia, implement strategy SH 13 26.24 at the Kooskia Boat Ramp.
4	Strategy US 12 129.52	If spill is upstream of milepost 129.52, implement strategy at 9 Mile River Access US 12 129.52.
5	Work back upstream from Collection Site towards source containment	As resources become available, implement additional strategies and recovery efforts between downstream collection site and upstream source containment.

Refer to Strategy Tables and Maps for exact locations of strategies (Section 4.2)

4.4 Priority Tables

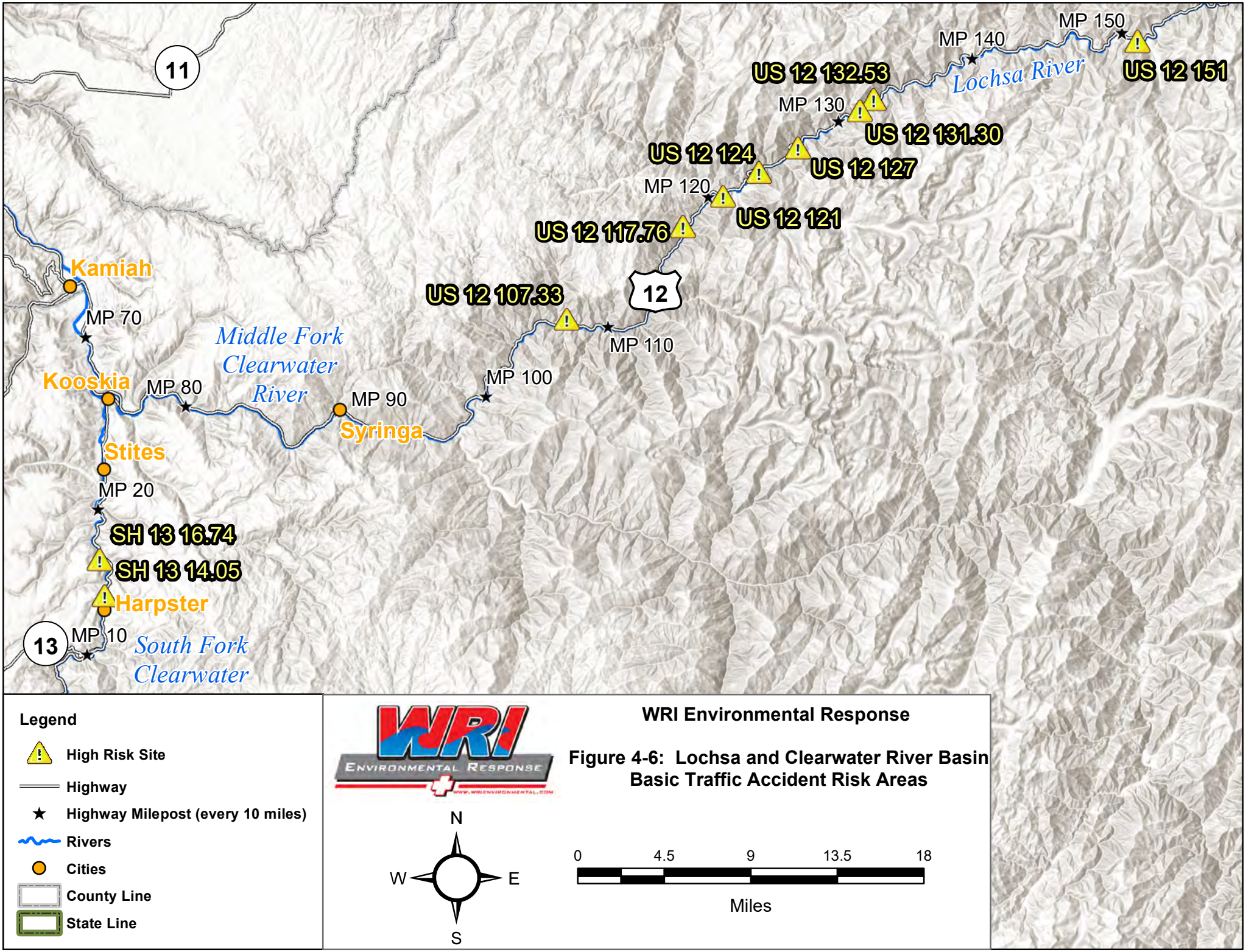
Certain locations along the Lochsa and Clearwater Rivers are more susceptible to vehicle accidents. Lacking any formal study on the highway corridors, sites were evaluated during the data collection process for sharp curves, bridges, tunnels, narrow roads, and high traffic intersections where accidents are more likely. Ten locations in total were identified and grouped into six areas based on proximity.

- SH 13 14.0 (Harpster Area)
  SH 13 16.74
- US 12 107.33 (Knife Edge Area)
- US 12 117.76 (Fish Creek Area)
  US 12 121.00
- US 12 127.00 (Upper Lochsa Area)
  US 12 124.00

- US 12 132.53 (Upper Lochsa Area)
  US 12 131.30
- US 12 151.00 (Warm Springs Creek Area)

Table 4-7 attempts to give responders a realistic location for mobilization. These locations were determined by factoring in a seven-hour mobilization time from either Missoula, MT or Spokane, WA (nearest response contractors). The mobilization time is to Kamiah, ID, the halfway point between the two cities listed above and assumes that responders will require 1.5 hours to initiate mobilization, will be driving 35 mph, and will require 1.5 hours to complete a strategy. Current speed was estimated on high water/wet year flow rates and recreational float times on rivers. The assumption made was that the Lochsa speed was 8 mile per hour and the Clearwater speed was 5 miles per hour.

The tables suggest staging areas, boat ramps, response strategies, and needed key equipment. The order in which the strategies are deployed is dependent entirely on the location of an accident in that hazard zone. The incident commander will need to make a field judgment on which strategy to deploy first.



WRI Environmental Response

Figure 4-6: Lochsa and Clearwater River Basin Basic Traffic Accident Risk Areas

High Risk Points	**SH 13 14.0 & SH 13 16.74**
Harpster Area	

Sector Map 2
Sector Map 3

General Strategy Description

Product Collection and Recovery and Resource Protection

Staging Area	**Site ID**
Pink House River Access	US 12 39.01

Suggested Boat Launches	**Site ID**
Pink House River Access	US 12 39.01
Ahsahka	US 12 40.79

Suggested Strategies	**Site ID**	**Equipment Needs**					
		Curtain Boom	**Recovery Device**	**Polypro Line**	**Steel Post Anchors**	**In-water Anchors**	**Boat?**
Orofino Water Intake	US 12 44.32	100 ft	N/A (Exclusion)	125 ft	0	0	Yes
Riverside Water Intake	US 12 42.23	100 ft	N/A (Exclusion)	125 ft	0	0	Yes
Ahsahka	US 12 40.79	600 ft	Skimmer, Vac Truck	900 ft	0	0	Yes

High Risk Point Knife Edge Area	**US 12 107.33**						
						Sector Map	4
General Strategy Description	Product Collection and Recovery and Resource Protection					Sector Map	5
Staging Area	**Site ID**						
Kamiah Boat Ramp and Water Intake	US 12 66.75						
Suggested Boat Launches	**Site ID**						
Kamiah Boat Ramp and Water Intake	US 12 66.75						
		Equipment Needs					
Suggested Strategies	**Site ID**	**Curtain Boom**	**Recovery Device**	**Polypro Line**	**Steel Post Anchors**	**In-water Anchors**	**Boat?**
Kamiah Boat Ramp and Water Intake	US 12 66.75	850 ft	Skimmer, Vac Truck	1200 ft	8	3	Yes
Milepost 58.72	US 12 58.72	550 ft	Skimmer, Vac Truck	1250 ft	3	2	Yes

High Risk Point	**US 12 117.76 & US 12 121.00**
Fish Creek Access	

		Sector Map	2
General Strategy Description	Product Collection and Recovery and Resource Protection	Sector Map	4
		Sector Map	5

Staging Area	**Site ID**
Kooskia Boat Ramp	SH 13 26.24

Suggested Boat Launches	**Site ID**
Kooskia Boat Ramp	SH 13 26.24
East Kooskia	US 12 74.54

		Equipment Needs					
Suggested Strategies	**Site ID**	**Curtain Boom**	**Recovery Device**	**Polypro Line**	**Steel Post Anchors**	**In-water Anchors**	**Boat?**
Milepost 78.53	US 12 78.53	1000 ft	Skimmer, Vac Truck	1500 ft	5	2	Yes
East Kooskia	US 12 74.54	1000 ft	Skimmer, Vac Truck	1250 ft	4	2	Yes

High Risk Point	**US 12 127.00 & US 12 124.00**						
Upper Lochsa Area							
						Sector Map	4
General Strategy Description	Product Collection and Recovery					Sector Map	5

Staging Area	**Site ID**
North Wilderness Gateway	US 12 122.13
Kooskia Boat Ramp	SH 13 26.24

Suggested Boat Launches	**Site ID**
Kooskia Boat Ramp	SH 13 26.24
East Kooskia Boat Ramp	US 12 74.54
Button Beach	US 12 71.81

		Equipment Needs					
Suggested Strategies	**Site ID**	**Curtain Boom**	**Recovery Device**	**Polypro Line**	**Steel Post Anchors**	**In-water Anchors**	**Boat?**
East Kooskia	US 12 74.54	1000 ft	Skimmer, Vac Truck	1250 ft	4	2	Yes
Kooskia Boat Ramp	SH 13 26.24	750 ft	Skimmer, Vac Truck	1250 ft	4	2	Yes

High Risk Point	**US 12 132.53 & US 12 131.30**
Upper Lochsa Area	

		Sector Map	4
General Strategy Description	Product Collection and Recovery	Sector Map	5

Staging Area	**Site ID**
North Wilderness Gateway	US 12 122.13
Kooskia Boat Ramp	SH 13 26.24

Suggested Boat Launches	**Site ID**
Kooskia Boat Ramp	SH 13 26.24
East Kooskia Boat Ramp	US 12 74.54

		Equipment Needs					
Suggested Strategies	**Site ID**	**Curtain Boom**	**Recovery Device**	**Polypro Line**	**Steel Post Anchors**	**In-water Anchors**	**Boat?**
78.53	US 12 78.53	1000 ft	Skimmer, Vac Truck	1500 ft	5	2	Yes
Kooskia Boat Ramp	SH 13 26.24	750 ft	Skimmer, Vac Truck	1250 ft	4	2	Yes

High Risk Point **Warm Springs Creek Area**	**US 12 151.00**						
						Sector Map	4
General Strategy Description	Product Collection and Recovery					Sector Map	5
Staging Area	**Site ID**						
Below Warm Springs Creek	US 12 151.04						
MP 106.8	US 12 106.83						
Suggested Boat Launches	**Site ID**						
Pete King Creek	US 12 99.04						
		Equipment Needs					
Suggested Strategies	**Site ID**	**Curtain Boom**	**Recovery Device**	**Polypro Line**	**Steel Post Anchors**	**In-water Anchors**	**Boat?**
Three Rivers Lodge Water Intake	US 12 97.02	150ft	Skimmer, Vac Truck	200 ft	6	1	Yes
Wild Goose Campground	US 12 95.22	1200 ft	Skimmer, Vac Truck	1500 ft	6	1	Yes

Section 5: Shoreline Countermeasures

5. Shoreline Countermeasures

Note: At this time, shoreline type mapping has not been completed on the Clearwater/Lochsa River. Until such an effort is undertaken, a series of photographs showing example shoreline types is included. These shoreline types can be matched with the shoreline countermeasures matrix to determine appropriate cleanup response.

5.1 Chapter Overview

The following text and photos are in draft form, and are intended to serve as a training tool for countermeasure contingency planning and implementation for shoreline areas in federal Region 10. Shoreline countermeasure processes evolve to reflect increasingly efficient treatment techniques. Accordingly, the following information will be altered as new information is added.

5.2 Shoreline Type Photos

Because shoreline type mapping has not been completed for this portion of the Clearwater/Lochsa River, photos of six typical shorelines (types 1, 3, 4, 5, 6, and 8) and their associated codes are shown on pages 5-2 through 5-4. A full list of shoreline types is provided in **Section 5.3.1**.

5.3 Oil Countermeasure Matrix

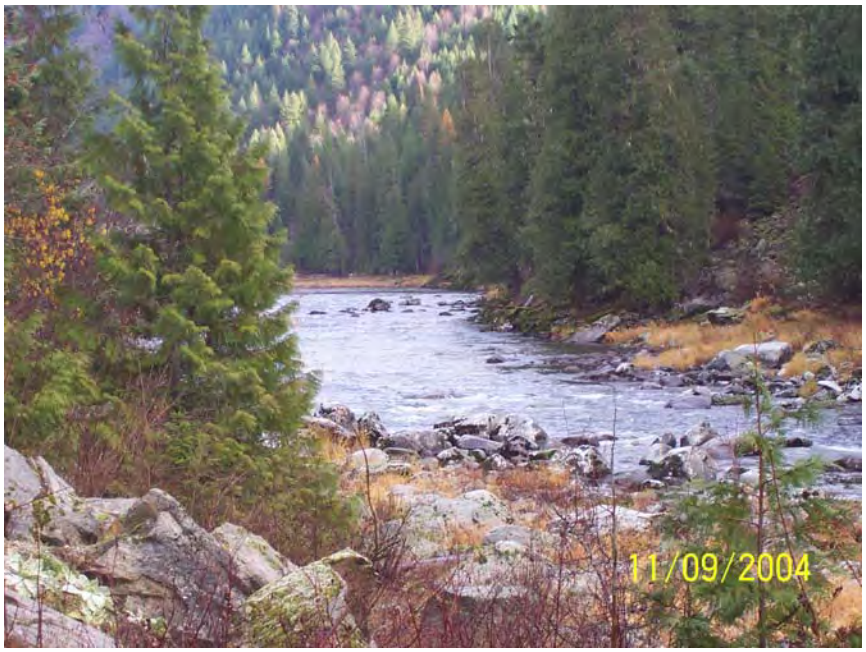
Shoreline countermeasures following an oil spill are a critical element in determining the ultimate environmental impact and cost resulting from a spill. Local response organizations and agencies have developed mechanisms for identifying shorelines requiring treatment, establishing treatment priorities, monitoring the effectiveness and impacts of treatment, and for resolving problems as the treatment progresses.

The Northwest Area Committee has developed a manual and a series of matrices as tools for shoreline countermeasure response. The shoreline countermeasures matrices and manual will be included as a technical appendix to the Northwest Area Contingency Plan.

Each section of the manual has been adapted to the specific environments, priorities, and treatment methods appropriate to the planning area. These elements provide the information needed to select cleanup methods for specific combinations of shoreline and oil types. Local information on shoreline types (discussed in Chapter 2 of the Northwest Area Contingency Plan) can be obtained from

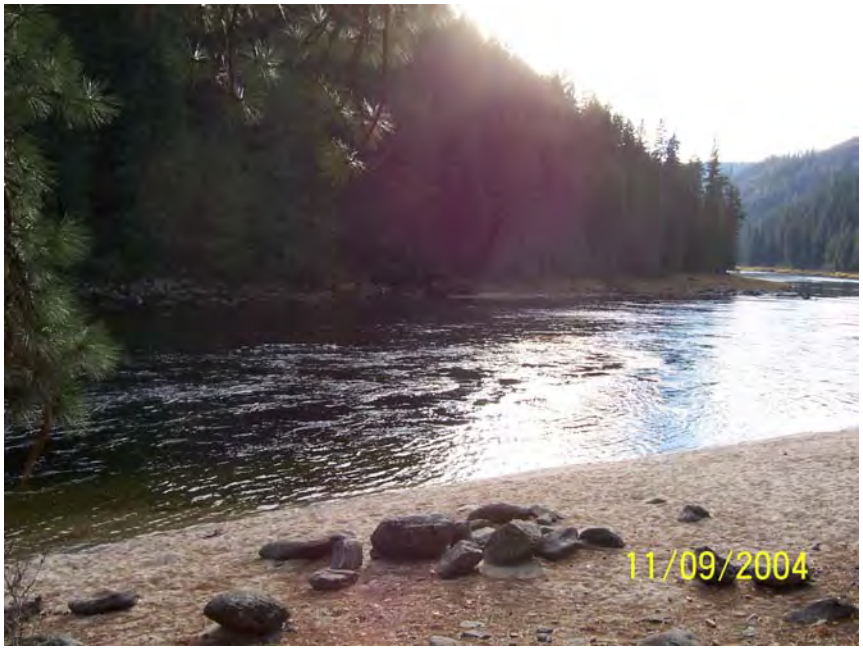
Environmental Sensitivity Index (ESI) atlases prepared by NOAA for northern and southern Puget Sound, the Washington and Oregon coast, and the Columbia River.

The NW Area Contingency Plan can be obtained from the internet at http://www.rrt10nwac.com/nwacp_document.htm.



Shoreline Type 1: Exposed rock shores and vertical, hard man-made structures.

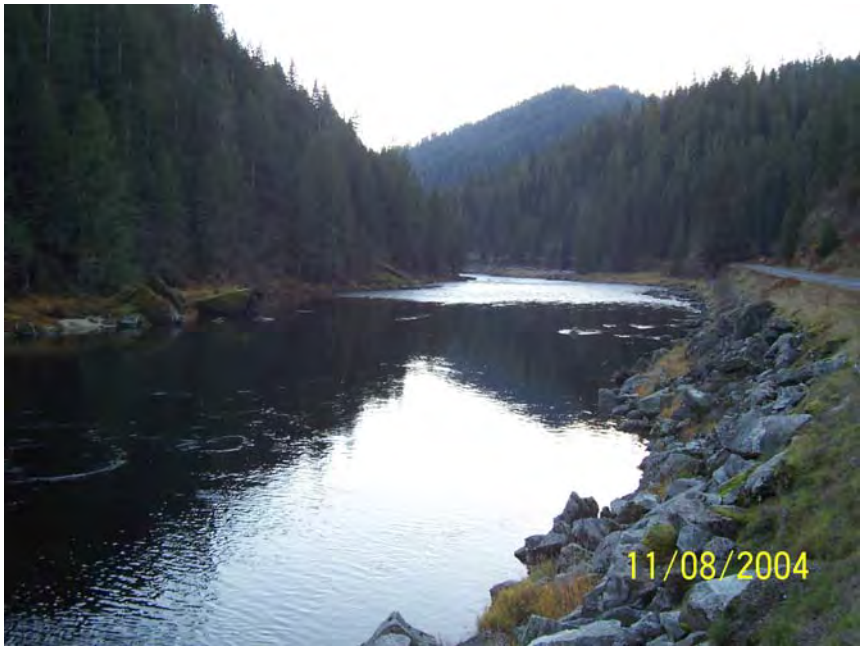
Shoreline Type 3: Fine to medium grained sand beaches and steep unvegetated river banks.



Shoreline Type 4: Coarse grained sand beaches.

Shoreline Type 5: Mixed sand and gravel beaches, including artificial fill containing a range of grain size and material.

Shoreline Type 6B: Gravel beaches – cobbles to boulders.



Shoreline Type 6C: Exposed rip-rap.

Shoreline Type 8A: Sheltered vertical rock shores and vertical hard man-made structures (e.g., docks, bulkheads).

5.3.1 Shoreline Countermeasures Matrices

Table 5-1. Very Light Oil (Jet fuels, Gasoline)

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

SHORELINE TYPES CODES

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

SHORELINE TYPES

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

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

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

Table 5-2. Light Oil (Diesel, No 2 Fuel Oils, Light Crudes)

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

SHORELINE TYPES CODES

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

SHORELINE TYPES

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

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

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

Table 5-3. Medium Oil (Most Crude Oils & Some Heavily Weathered Light Crudes)

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

SHORELINE TYPES CODES

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

SHORELINE TYPES

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

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

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

Table 5-4. Crude Oils, Intermediate Fuel Oils, Bunker C & Heavily Weathered Medium Crudes)

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

SHORELINE TYPES CODES

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

SHORELINE TYPES

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

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

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

Section 6: Sensitive Resource/Wildlife Flight Restriction Information

6. Sensitive Resource/Wildlife Flight Restriction Information

6.1 Overview

The Clearwater/Lochsa River subbasin affords a wide variety of aquatic, riparian, and upland habitats. These varied habitats support a complex diversity of wildlife species, including large and small mammals, passerine birds, raptors, upland birds, waterfowl and wading birds, reptiles, and amphibians. Some species are resident throughout the year; others are migratory either within the subbasin or, in many cases, seasonally migrate outside the subbasin. Populations of certain species are very tenuous and their future presence in the subbasin will require improved information and decisive management actions. Many wildlife species found in the subbasin are classified as threatened, endangered, sensitive, or of special concern under the federal Endangered Species Act or under Idaho Administrative Rules.

6.2 Fish

This section addresses fish use in the mainstem Clearwater River from its confluence with the Snake River near Lewiston, Idaho; the South Fork of the Clearwater River upstream to Harpster, Idaho; and the Lochsa River from its confluence with the Clearwater River upstream to Lolo Pass. The construction of the Dworshak Dam blocked anadromous fish passage to all but the lower 1.9 miles of the North Fork of the Clearwater River. The North Fork of the Clearwater River is not addressed in this section. Information included in this section is summarized from the Clearwater Subbasin Plan (**http://www.nwcouncil.org/fw/subbasinplanning/clearwater/plan/Default.htm**), prepared by Ecovista, Nez Perce Wildlife Division, and the Washington State University Center for Environmental Education in November 2003.

Anadromous fish present in the Clearwater River subbasin include spring and fall chinook salmon, coho salmon, summer steelhead, and Pacific lamprey. Resident bull trout and westslope cutthroat trout are also addressed in this section. **Table 6-1** provides a summary of each fish's lifecycle.

6.2.1 Spring Chinook Salmon

Spring chinook salmon historically spawned in the Clearwater River subbasin prior to 1900, when construction of the Lewiston Dam caused these runs to cease. Based on habitat models, it is theorized that the most substantial production of spring Chinook salmon likely occurred in the Lolo and Potlatch drainages. Reintroduction of naturalized populations has occurred in portions of Lolo Creek and mainstem/tributary reaches of the Lochsa, Selway, and South Fork Clearwater rivers.

Current distribution of spring chinook in the Clearwater subbasin includes the Lolo Creek drainages and all major drainages above the confluence of the Middle and South Forks of the Clearwater River. The lower Clearwater is used as a migration corridor. Spring chinook are absent from much of the Lochsa River drainage, but are found in Pete King Creek and Fish Creek, in addition to most tributaries above (and including) Warm Springs Creek.

Spring chinook bound for the Clearwater subbasin currently enter the Columbia River during April and May, reaching the Clearwater River between April and June. Spawning occurs in the smaller tributary rivers and headwater streams in August and September. Eggs typically hatch in December with their emergence from the spawning gravel completed by April.

Spring chinook typically remain in freshwater for one year, migrating towards the ocean in the spring of their second year from March through June, with a majority of them smolting in April and May. Prior to this outmigration, the juveniles migrate downstream from the upper rearing areas seeking winter refuge.

6.2.2 Fall Chinook Salmon

Fall chinook salmon also historically spawned in the Clearwater River subbasin prior to construction of the Lewiston Dam. Reintroduction efforts began within the subbasin in 1960, with approximately 6.7 million fall chinook salmon planted in the Clearwater River between 1960 and 1967. Aerial fall chinook redd surveys have been conducted annually since 1988 and in 2000 over 170 redds were observed in the Clearwater subbasin. Alternatively in both 1990 and 1991, only 4 redds were observed in the subbasin, all within the mainstem of the Clearwater River. Fall chinook occurring in the Clearwater subbasin are considered part of the Snake River Evolutionarily Significant Unit (ESU) as defined by the Endangered Species Act (ESA) and are listed as threatened.

Table 6.1. Life cycles of selected fish species in the Clearwater/Lochsa River

Fish Species/ Month	January	February	March	April	May	June	July	August	September	October	November	December
Spring chinook (*Oncorhynchus tshawytscha*)	Emerge from gravel: Juveniles in system for 1 to 2 years.	Emerge from gravel: Juveniles in system for 1 to 2 years.	Emerge from gravel: Juveniles in system for 1 to 2 years.	Adults enter to spawn. Juveniles in system for 1 to 2 years.	Adults enter to spawn. Juveniles in system for 1 to 2 years.	Adults enter to spawn. Juveniles in system for 1 to 2 years.	Adults in the system. Juveniles in system for 1 to 2 years.	Adults in the system. Juveniles in system for 1 to 2 years.	Adults in the system. Juveniles in system for 1 to 2 years. Eggs in gravel.	Juveniles in system for 1 to 2 years. Eggs in gravel.	Juveniles in system for 1 to 2 years. Eggs in gravel.	Juveniles in system for 1 to 2 years. Emerge from gravel.
Fall chinook (*Oncorhynchus tshawytscha*)	Adults in the system. Eggs in gravel. Juveniles in system for 1 to 2 years.	Eggs in gravel. Juveniles in system for 1 to 2 years.	Eggs in gravel. Juveniles in system for 1 to 2 years.	Emerge from gravel: Juveniles in system for 1 to 2 years.	Emerge from gravel: Juveniles in system for 1 to 2 years.	Juveniles in system for 1 to 2 years.	Juveniles in system for 1 to 2 years.	Adults enter to spawn. Juveniles in system for 1 to 2 years.	Adults in the system. Juveniles in system for 1 to 2 years.	Adults in the system. Eggs in gravel. Juveniles in system for 1 to 2 years.	Adults in the system. Eggs in gravel. Juveniles in system for 1 to 2 years.	Adults in the system. Eggs in gravel. Juveniles in system for 1 to 2 years.
Coho (*Oncorhynchus kisutch*)	Eggs in gravel. Juveniles in system for 1 to 2 years.	Eggs in gravel. Juveniles in system for 1 to 2 years.	Juveniles first emerge and are in system for 1 to 2 years.	Juveniles first emerge and are in system for 1 to 2 years.	Juveniles first emerge and are in system for 1 to 2 years.	Juveniles first emerge and are in system for 1 to 2 years.	Juveniles in system for 1 to 2 years.	Adults enter to spawn. Juveniles in system for 1 to 2 years.	Adults enter to spawn. Juveniles in system for 1 to 2 years.	Adults enter to spawn. Eggs in gravel.	Adults enter to spawn. Eggs in gravel. Juveniles in system for 1 to 2 years.	Adults enter to spawn. Eggs in gravel. Juveniles in system for 1 to 2 years.
Summer steelhead (*Oncorhynchus mykiss*)	Adults overwinter in system. Juveniles in the system for approximately 2 years.	Adults overwinter in system. Juveniles in the system for approximately 2 years.	Adults overwinter in system. Juveniles in the system for approximately 2 years. Eggs in gravel.	Adults overwinter in system. Juveniles in the system for approximately 2 years. Eggs in gravel.	Adults overwinter in system. Juveniles in the system for approximately 2 years. Eggs in gravel.	Adults overwinter in system. Juveniles in the system for approximately 2 years. Eggs in gravel.	Eggs in the gravel. Juveniles in the system for approximately 2 years.	Adults enter to spawn, overwinter in system. Juveniles in the system for approximately 2 years.	Adults enter to spawn, overwinter in system. Juveniles in the system for approximately 2 years.	Adults enter to spawn, overwinter in system. Juveniles in the system for approximately 2 years.	Adults enter to spawn, overwinter in system. Juveniles in the system for approximately 2 years.	Adults overwinter in system. Juveniles in the system for approximately 2 years.
Bull trout (*Salvelinus confluentus*)	Adult and juvenile life forms resident in the system year-round. Eggs in gravel.	Adult and juvenile life forms resident in the system year-round. Eggs in gravel.	Adult and juvenile life forms resident in the system year-round. Eggs in gravel.	Adult and juvenile life forms resident in the system year-round. Eggs in gravel.	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round. Spawning occurs in tributaries.	Adult and juvenile life forms resident in the system year-round. Spawning occurs in tributaries.	Adult and juvenile life forms resident in the system year-round. Spawning occurs in tributaries. Eggs in gravel.	Adult and juvenile life forms resident in the system year-round. Spawning occurs in tributaries. Eggs in gravel.
Westslope cutthroat trout (*Oncorhynchus clarki lewisi*)	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.	Adults spawning. Eggs in gravel. Adult and juvenile life forms resident in the system year-round.	Adults spawning. Eggs in gravel. Adult and juvenile life forms resident in the system year-round.	Eggs in gravel. Fry emerge from gravel. Adult and juvenile life forms resident in the system year-round.	Fry emerge from gravel. Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.

Shaded areas indicate likely period that eggs can be expected in spawning areas identified in maps in Section 4.

Fish Species/ Month	January	February	March	April	May	June	July	August	September	October	November	December
Pacfic lamprey (*Lampetra tridentata*)	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.	Adults migrate into system to spawn. Young hatch 2-3 weeks after egg laying and reside in the sediments for 4 to 6 years before emerging as adults and outmigrating to the ocean.	Adults migrate into system to spawn. Young hatch 2-3 weeks after egg laying and reside in the sediments for 4 to 6 years before emerging as adults and outmigrating to the ocean.	Adults migrate into system to spawn. Young hatch 2-3 weeks after egg laying and reside in the sediments for 4 to 6 years before emerging as adults and outmigrating to the ocean.	Adults migrate into system to spawn. Young hatch 2-3 weeks after egg laying and reside in the sediments for 4 to 6 years before emerging as adults and outmigrating to the ocean.	Adult and juvenile life forms resident in the system year-round.	Adult and juvenile life forms resident in the system year-round.

Shaded areas indicate likely period that eggs can be expected in spawning areas.

Fall chinook salmon begin their spawning migrations into the Columbia River in August and September and arrive in the Clearwater subbasin between September and December. The majority of fall chinook spawning occurs in the lower Clearwater River, below the confluence with the North Fork of the Clearwater River. Redd surveys have identified some limited spawning above this confluence, in the North Fork Clearwater and South Fork Clearwater.

Fall chinook generally emerge from the gravel in April and May and reside in freshwater for one to two years, with many residing for two years. Juvenile fall chinook typically out-migrate June through August.

6.2.3 Summer Steelhead

Summer run steelhead trout occur in the Clearwater subbasin and exist as both A-run and B-run types. Summer run steelhead within the system are listed as threatened under the ESA as part of the Snake River ESU. A-run steelhead are known to utilize the lower Clearwater River, including the Middle Fork and lower South Fork Clearwater rivers, whereas B-run steelhead occupy the Lochsa River, Selway, and upper South Fork Clearwater River. B-run summer steelhead were historically found in the North Fork Clearwater River, prior to construction of the Dworshak Dam. A-run steelhead typically spend one year in saltwater. Alternatively, B-run steelhead spend between one and three years in saltwater and are typically 75-100mm larger than A-run fish.

Historically wild summer steelhead occupied all the major drainages and a majority of the tributaries in the Clearwater subbasin. Run estimates as high as 40,000 to 60,000 fish have been recorded and Clearwater River steelhead were reported to make up a large component of the historic Snake River steelhead runs. The upper half of the South Fork Clearwater River and the North Fork Clearwater River provided substantial high-quality habitat and subsequently maintained strong populations of summer run steelhead.

Currently summer run steelhead are widely distributed throughout the subbasin, excluding those habitats above the Dworshak Dam. The Lochsa and the Selway River B-runs and the lower Clearwater tributaries A-run are the only remaining runs with limited or no hatchery influence, in addition to the genetically distinct North Fork B-run. The remaining portions of the Clearwater subbasin are heavily influenced by hatchery steelhead produced at the Dworshak National Fish Hatchery from North Fork B-run stock.

Wild A-run summer run steelhead are known to occur in the lower mainstem tributaries, South Fork tributaries up to Butcher Creek, and Maggie Creek in the Middle Fork, the Potlatch river, East Fork Potlach River, Big Canyon Creek, Cottonwood Creek, Lapwai Creek, Mission Creek, Bedrock Creek, and Jack Creek.

Summer steelhead begin their migration into the Columbia River between May and October, arriving at the Clearwater River between September and November, remaining in large pools of the mainstem Clearwater and Snake Rivers throughout the winter. A-run steelhead spawning occurs between February and early May, with the fry emerging from the gravel in mid-April through May. B-run steelhead spawning occurs mid-March through early June, with emergence of the fry from the gravel in June and July. After rearing in freshwater for two years, the juvenile steelhead out-migrate from March through May.

6.2.4 Coho Salmon

Coho salmon historically occurred throughout the Clearwater subbasin; however, poor passage facilities at the Lewiston Dam, constructed in 1927, are generally accepted as the cause the extirpation of coho runs in the subbasin. Efforts made by the Idaho Department of Fish and Game to reintroduce coho to the Clearwater River were abandoned in 1968, after six years of production, due to poor returns.

The Nez Perce Tribe began reintroducing coho salmon to the Clearwater subbasin in 1995 using broodstock from National Fish Hatcheries in Oregon. Eggs, fry, parr, and smolts have been planted in tributaries to the mainstem Clearwater River and South Fork Clearwater River. Stocking has also occurred at least once at the Potlach River, Lapwai Creek, Mission Creek, Quartz Creek, Cottonwood Creek, Big Canyon Creek, Orofino Creek, Lolo Creek, and Meadow Creek on the Selway River.

Coho salmon begin their migration into the Columbia River in July and August, typically arriving in the Clearwater subbasin in September and October. Spawning occurs in October through December. Fry emerge from the gravel between March and April, with the juveniles rearing in freshwater for one to two years before out-migrating towards the ocean in April and May.

6.2.5 Pacific Lamprey

It is generally thought that Pacific Lamprey were historically present in all streams accessible to salmon and steelhead, including those in the Clearwater subbasin. Pacific lamprey abundance throughout the Columbia River subbasin has decreased significantly in recent years and the US Fish and Wildlife Service lists them as a species of concern. They are listed as critically imperiled in Idaho by the Idaho Department of Fish and Game.

Currently Pacific Lamprey occur in the mainstem Clearwater River, larger tributaries such as Potlatch and Lolo Creeks, and the Lochsa River. They have also been observed within the South Fork Clearwater River and the Selway River, but have not been observed in the North Fork Clearwater River above Dworshak Dam.

Adult Pacific Lamprey arrive between May and September, and spawning occurs in March and April of the following year. Eggs hatch within 2-3 weeks, when the ammocoetes burrow into the substrate and remain for approximately five to seven years before migrating back to the ocean as adults.

6.2.6 Westslope Cutthroat Trout

Westslope cutthroat trout historically occupied the headwaters and tributaries of the lower Clearwater River, Lolo Creek, South Fork Clearwater River, North Fork Clearwater River, and Potlatch Creek.

Currently, westslope cutthroat trout are abundant throughout most of the Clearwater subbasin, except for the lower Clearwater River. There are strong populations in the Lochsa River, upper North Fork Clearwater, and the upper and lower Selway Rivers. Westslope cutthroat trout are absent from the tributaries of the lower Clearwater River, except for a few rare sightings. Westslope cutthroat trout are listed as a federal and State of Idaho species of concern.

Westslope cutthroat trout occur in resident, fluvial, and adfluvial life forms within the Clearwater subbasin. Spawning typically occurs in April and May, with the fry emerging in June and July. Westslope cutthroat generally mature between 4 and 7 years, with fish in some areas spawning for three or four years.

6.2.7 Redband Trout

Redband trout, the inland variant of rainbow trout (both *Oncorhynchus mykiss*), are indigenous to the lower Clearwater River subbasin. Redband trout were historically found throughout the mainstem and tributaries.

Little is known about the current distribution of redband trout in the Clearwater subbasin. According to the Conservation Strategy for the Interior Redband (Oncorhynchus mykiss subsp.), only the North Fork Clearwater River upstream of Dworshak Dam is considered to have Redband populations (Interior Redband Conservation Team 2016).

6.2.8 Bull Trout

Bull trout were historically found throughout the Clearwater River subbasin, but few records of their distribution and abundance were recorded. Bull trout are currently listed as a threatened species under the federal Endangered Species Act. The current distribution of bull trout populations in the Clearwater subbasin includes most of the large river and tributary systems throughout the subbasin, including the Lochsa River.

Both fluvial and resident bull trout populations occur throughout the Clearwater subbasin. There is one suspected adfluvial population of bull trout, which is associated with Fish Lake in the upper North Fork Clearwater River.

Adult upstream migration takes place with the onset of maturity, which is generally between 5 and 8 years. Bull trout typically spawn between September through late December, with the peak spawning occurring in September and October.

The coterminous United States population of the bull trout (*Salvelinus confluentus*) was listed as threatened on November 1, 1999 (USFWS 1999, 64 FR 58910-58933). The threatened bull trout occurs within this GRP area and is located within the South Fork Clearwater and Lochsa Rivers within the Mid-Columbia Bull Trout Recovery Unit. Bull trout are char native to the Pacific Northwest and western Canada. Bull trout are a cold-water fish of relatively pristine stream and lake habitats in western North America. The life history of bull trout may be one of the most complex of any Pacific salmonid. Bull trout typically spawn from late July to December, with peak spawning in September for most interior populations. The period of egg

incubation to emergence of fry from their spawning gravels may take up to 210 days (7 months). Juvenile migratory bull trout rear one to four years in their natal stream before migrating either to a river, lake/reservoir, or nearshore marine area to mature, Resident and migratory forms or mixed migratory forms may all be found together, and either form may give rise to offspring exhibiting either resident or migratory behaviors.

The mainstream Clearwater River and Middle Fork Clearwater River still provides essential foraging, migratory, and overwintering habitat and connectivity between core areas. Both adult and subadult bull trout utilize the Clearwater and Middle Fork Clearwater Rivers and various tributaries primarily as foraging, migratory, rearing, and overwintering habitat. Bull trout are distributed throughout most of the large rivers and associated tributary systems within the Clearwater River core areas and exhibit adfluvial, fluvial, and resident life history patterns, Fluvial and resident bull trout are the predominant life history forms known to occur within each core area.

Bull Trout Presence in The South Fork Clearwater River Core Area

Fluvial and resident bull trout are the predominant life history forms known to occur within the South Fork Clearwater River core area. Bull trout are currently known to use spawning/rearing habitat in five stream complexes within the South Fork Clearwater (i.e., local populations). These local populations include Red River Complex, crooked River Complex, Newsome Creek complex, Ten-mile Creek complex, and Johns Creek complex. The mainstream South Fork Clearwater River provides subadult and adult rearing habitat and FMO habitat for bull trout (CBBTTAT 1998a). It is also essential for connectivity of local populations within the core area to bull trout from other core areas within the recovery unit. Bull trout use the lower reaches of some tributaries of the South Fork of the Clearwater River as essential habitat for thermal refuge during high water temperatures in summer.

Bull Trout Presence in Lochsa River Core Area

The Lochsa River provides important foraging, migrating, and overwintering habitat for the local populations within the core area, and connectivity to bull trout populations in other core areas of the Clear River basin. Bull trout are currently known to use SR habitat in 17 streams or stream complexes within the Lochsa River drainage (i.e., local populations). Bull trout use the lower reaches of multiple tributaries of the Lochsa River as important habitat for thermal refuge during high water temperatures in summer. Adult and subadult rearing is known to occur in the Lochsa River, lower Crooked Fork, Colt Killed, Walton, Warm Springs, Fish, Hungary, Weir, Post Office, Parachute, Doe, Cool-water, Fire, and Split Creeks (USFS 1999b, CBBTTAT 1998c). The Lochsa River core area has connectivity to the Clearwater River shared FMO and other Clearwater River core areas. Approximately 60 percent of the cire area is within designated wilderness and roadless areas. The main stem Lochsa River is designated as a wild and scenic river, and as such is protected from alterations to maintain its free-flowing and scenic characteristics.

6.2.9 Western Pearlshell Mussell

Historically, this freshwater mussel, the Western Pearlshell Mussell (*Margaritifera falcata*), occurred from “Southern Alaska to central California and eastward to western Montana, western Wyoming, and northern Utah” (Taylor 1981). The Idaho historical range includes sites in the Snake, Coeur d’Alene, Lost, and Salmon River drainages (Frest and Johannes 1997, Frest 1999). Populations are thought to persist in northern Idaho in the Coeur d’Alene, St. Joe, and St. Maries Rivers. In central Idaho, populations are thought to persist in north Idaho in the Pahsimeroi, Lost, Lower Salmon, and Little Salmon rivers and in Hells Canyon. In south Idaho, populations are thought to be extant in the upper tributaries of the Snake River, including the Blackfoot River (Frest and Johannes 1997, Frest 1999). However, there is no current and detailed distributional information within these river systems. According to Frest (1999) the areas occupied, the number of sites occupied, and population sizes have decreased.

ESA lists species of concern or species or species of the greatest conservation needs, rakings with an ‘T’ for those species designated under a trinominal rank indicator, which denotes the global status of infraspecific species. The Western Pearlshell Mussel ranks as a T1 and T2 species. T1 ranked species are critically imperiled because of extreme rarity of because of some factor of its biology makes it especially vulnerable to extinction (typically 5 or fewer occurrences). T2 ranked species are impaired because of rarity or because other factors demonstrably make it very vulnerable to extinction (typically 6 to 20 occurrences).

Populations are sensitive to changes in water quality; livestock, agricultural runoff, housing or industrial development, and mining are potential causes of degraded water quality. Small dam construction and extensive diversions may also impact aquatic habitats. The loss of appropriate host fish populations is also a threat (Frest 1999).

Western pearlshell populations occur in cold, clear streams and rivers, often in reaches having fast current and coarse substrate. This species is intolerant of heavy nutrient loads, siltation, and water pollution (Frest 1999). Larval western pearlshells are fish parasites that attach to the fins or gills of host fish. The host species include Chinook salmon, rainbow trout, brown trout, brook trout, and speckled dace (Frest 1999).

6.2.10 White Sturgeon

While sturgeon may occur in the lower reaches of the Clearwater River, it is rare.

6.3 Wildlife

The Clearwater subbasin includes a diverse array of wildlife species, including Endangered Species Act ESA) listed species and Species of Greatest Conservation Need (SGCN). Canada lynx has been observed in the Clearwater subbasin and is listed as threatened under the ESA. Wolverine has also been observed and has been proposed for listing under the ESA. ESA lists species of concern or species or species of the greatest conservation needs, rakings with an 'S' for those species designated under a state ranked indicator, denotes rank based on status within Idaho. S1 ranked species are critically imperiled because of extreme rarity of because of some factor of its biology makes it especially vulnerable to extinction (typically 5 or fewer occurrences). S2 ranked species are impaired because of rarity or because other factors demonstrably make it very vulnerable to extinction (typically 6 to 20 occurrences). The Clearwater subbasin includes numerous SGCN wildlife species. The following is a list of S1 and S2 ranked wildlife SGCN's that have been observed in the Clearwater subbasin; bobolink, fisher, mountain quail, and Western toad. Shorebirds, waterfowl, and raptors are covered separately in section 6.5 as they are the wildlife species most likely to be affected in the case of an oil spill.

6.4 Marine Mammals

N/A.

6.5 Shorebirds, Waterfowl, and Raptors

The Clearwater subbasin includes multiple shorebirds, waterfowl, and raptor species. Bald eagles and osprey are the raptors commonly associated with the Clearwater and Lochsa rivers. Numerous shorebirds and migratory waterfowl are observed within the Clearwater subbasin, these include the following list of S1 and S2 ranked SGCN's; Harlequin duck, Caspian tern, common loon, ring-billed gull, trumpeter swan, and Western grebe.

6.5.1 Harlequin Duck

Harlequin ducks are known to winter in the rocky surf zones along the northern Pacific Ocean and migrate to Idaho to breed in the summer. These ducks generally nest on the ground near mountain streams and are generally located in western red cedar-western hemlock forest associations between 900 and 3,600 feet in elevation. The average clutch size is approximately 5 eggs.

Harlequin ducks are uncommon summer residents of Idaho and surveys conducted in 1987 and 1990 concluded that over 70 percent of the Idaho harlequin duck population is located in the Lochsa and Priest rivers.

6.6 Aquatic Invasive Species (AIS)

Invasive species are non-invasive species that disrupt healthy ecosystem functions from the bottom up, causing a chain reaction which leaves nothing unaffected. Aquatic invasive plants such as Eurasian watermilfoil crowd out, displace, or otherwise harm native species and alter ecosystem dynamics. The cost of controlling and managing invasive species in Idaho is millions of dollars per year. The Idaho Invasive Species Strategic Plan 2017-2021 focuses on three goals:

1. Prevent the introduction of new species to Idaho,
2. Limit the spread of existing populations of invasive species populations in Idaho,
3. Abate ecological and economic threats that result from invasive species populations in Idaho.

6.6.1 Prevention of AIS Migration

Equipment for containment, clean-up, and removal of soiled aquatic plants could spread the distribution of unwanted plants and should minimize the likelihood of moving AIS. Implementing the following habits into response and clean-up is critical in stopping the introduction and spread of AIS in Idaho.

1. CLEAN – Before leaving any waterbody, always inspect equipment (boats, boom, skimmers, trailers, ect.) for visible plants and animals. Remove this material on site. Carefully check places that are still damp. Dispose of the removed material in a trash receptacle or on high, dry ground where there is no danger of it washing into a waterbody.
2. DRAIN – Eliminate water from all equipment, including motors, live wells, ballast tanks, boat hulls, waders, and boots.
3. DRY – Clean and dry anything that came in contact with water (boats, equipment, clothing, ect.)

Below are aquatic invasive plants known to occur within the Clearwater and Lochsa River watersheds that have been designated as noxious by Idaho state law.

The below species consist of AIS Species of Concern within the Lochsa and Clearwater River Basin.

6.6.2 Brazilian Elodea

The Brazilian Elodea (*Egeria densa*) is categorized in Idaho under the Early Detection Rapid Response (EDRR) management strategy. Meaning weeds shall be eradicated during the same growing season as identified. Brazilian elodea is a very bushy plant with dense whorls of bright green leaves (when growing in shaded conditions, the leaves may be widely spaced). Typically has four leaves per whorl (arranged around the stem). Although it has flowers, Brazilian Elodea plants in the United States are all male plants. It does not produce any seed, but spreads very quickly by forming fragments that root in new locations, Brazilian elodea forms dense mats that choke out native aquatic plants. These mats hinder recreational activities such as swimming, fishing, and water skiing. Brazilian elodea restricts water movement and traps sediment.
Because this plant can spread by fragmentation (just like Eurasian Watermilfoil) it can move quickly from one water source to the next on boats of trailers. Since most plants are males, the primary methods of spreading is by fragmentation by boats and other water users.

6.6.3 Eurasian Watermilfoil

Eurasian Watermilfoil (*Myriophyllum spicatum*) is a submerged perennial aquatic plant that is highly invasive and colonizes a variety of habitats including reservoirs, lakes, ponds, low-energy streams and rivers, and brackish waters from estuaries and bays. It adversely impacts aquatic ecosystems by filling the water column and forming dense canopies that shade out native aquatic vegetation. Eurasian watermilfoil is adaptable, able to survive in a variety of environmental conditions. It grows in still to flowing waters, can tolerate relatively high salinities, can tolerate a wide range of pH levels, grows rooted in water depths from 1 to 10 meters, can survive under ice, Because Eurasian watermilfoil elongates from shoots started in the fall and is tolerant of low water temperatures, it can begin spring growth earlier than other aquatic plants, and grow quickly to the surface to form dense canopies, overtopping and shading out surrounding vegetation. This species regenerates readily from plant fragments which are easily transported to uninfested water bodies on boats and boat trailers is able to displace native aquatic vegetation within a few growing seasons (ISDA 2008).
Management strategy is for control in Idaho. Meaning reduce or eliminate new or expanding weed populations. Because Eurasian watermilfoil is so highly invasive, one of the goals identified in the 2008 Idaho Statewide Strategic Plan is to contain Eurasian watermilfoil so that it does not spread beyond the area it currently covers in water bodies where it does occur.

6.7 Archeological Sites

6.7.1 General Site Locations

The Clearwater/Lochsa River basin contains numerous sites of historic cultural importance both to the Nez Perce Tribe and the Idaho State Historic Preservation Office. This document will not locate sites specifically.

6.7.2 Seasonal Sensitivity

There are no known seasonal differences in sensitivity to cultural resources in the basin.

6.7.3 Recommendations

It is recommended that a representative of the Idaho State Historic Preservation Office and the Cultural Resources Program of the Nez Perce Tribe be notified before cleanup of a spill commences. They should provide monitors to be present during cleanup operations.

6.7.4 Procedures for the Finding of Human Skeletal Remains

Any human remains, burial sites, or burial-related materials that are discovered during construction will be treated with respect at all times.

- If the Monitor or any member of the construction work force believes that he or she has encountered human skeletal remains, all work will be stopped immediately and the Incident Commander notified.

- The Incident Commander will be responsible for taking appropriate steps to protect the discovery. At a minimum, the immediate area of discovery will be flagged, and vehicles and equipment will not be permitted to traverse the discovery site. In no case will additional excavation be undertaken prior to consultation, and no exposed human remains will be left unattended.

- The Incident Commander or their representative will immediately contact the Idaho State Historic Preservation Office (SHPO); the Director of the Cultural Resource Program of the Nez Perce Tribe; and either the Nez Perce, Lewis, Clearwater, or Idaho County Medical Examiner. The Medical Examiner will determine whether the discovery is a crime scene or human burial.

- If the remains are determined to be Native American and not to be connected with criminal activity, the Idaho State Archaeologist and Incident Command will confer on a treatment plan for the remains.

- If the remains are determined to be non-Native American or connected with criminal activity, the Medical Examiner will take charge.

6.7.5 Procedures for the Discovery of Cultural Resources

- If the Monitor or any member of the construction work force believes that he or she has encountered cultural resources, all work will stop and the Incident Commander will be notified immediately. The area of work stoppage will be adequate to provide for the security, protection, and integrity of the materials. Prehistoric cultural resources may include:

  - Lithic debitage (stone chips and other tool-making byproducts)
  - Flaked or ground stone tools
  - Exotic rocks and minerals
  - Concentrations of organically stained sediments, charcoal, or ash
  - Fire-modified rock
  - Bone (burned, modified, or in association with other bone, artifacts, or features)
  - Shell.

  Historic (i.e., over 50 years old) cultural material may include:

  - Bottles or other glass
  - Cans
  - Ceramics
  - Milled wood, brick, concrete, metal, or other building material.

- If the Monitor believes that the discovery is a cultural resource, the Incident Commander will take appropriate steps to protect the discovery site. At a minimum, the immediate area of the discovery site will be flagged and vehicles and

equipment will not be permitted to enter the discovery site. Work in the immediate area will not resume until treatment of the discovery has been completed.

- The Incident Commander or their representative will contact the Tribal Cultural Program Director and the Idaho State Archaeologist and they will arrange for the discovery to be evaluated by a professional archaeologist. The archaeologist will determine whether the discovery is potentially eligible for listing on the National Register of Historic Places (NRHP). Criteria and integrity requirements for listing on the NRHP (36 CFR 60.4) will provide the standards for identification and evaluation of significance of cultural material.

- The archaeologist will contact the Tribal Cultural Resource Program Director and the Idaho State Archaeologist to seek consultation regarding the National Register eligibility of the discovery. If the Tribal Department Manager and SHPO determine that the discovery is eligible, they will consult with Incident Command to determine appropriate treatment of the discovery.

If adverse project affects to an eligible site cannot be avoided, a treatment plan will be developed and implemented. The Secretary of the Interior's *Standards for Archaeological Documentation* will apply, including provisions for a research design, reporting, and curation of recovered material and samples.

The particular data recovery measures applied to any given historic property will depend on the development of research questions and design of excavation strategies to acquire the data needed to answer those questions. Field notes, maps, plans, profiles, and photographs will document the process. The final report will follow style guidelines of the professional archaeological journal *American Antiquity*; it will synthesize the data collected and address the research questions posed.

6.8 Flight Restriction Maps

Not available at this time.

6.9 Wildlife Resource/Flight Restriction Tables

The Wildlife Resource/Flight Restriction Table details the location, protected resources, and applicable season for each flight restriction zone (no flight restriction zones are known at this time).

Table 6-8. Wildlife Resource/Flight Restriction Table
Note: No flight restriction zones are known at this time.

Sector	Specific Flight Restrictions
1	
2	
3	
4	
5	

Section 7: Logistical Information

7. Logistical Information

The following list includes information on command posts, county emergency management contacts, local support equipment, air support, boat ramps, staging areas, tribal resources, local elected officials, fire departments, wildlife rehab facilities, and fish hatcheries.

Table 7-1. Logistical Information

Subject	Name	Phone Number	Location
Command Posts	City of Lewiston	208-746-1316	215 D St. Suite B. Lewiston, ID
	City of Orofino	208-476-4725	217 1st St. Orofino, ID
	City of Kamiah	208-935-2672	507 Main St. Kamiah, ID
	City of Kooskia	208-926-4684	26 Main St. Kooskia, ID
	Powell Ranger Station	208-942-3113	192 Powell Rd. Lolo, ID
County Emergency Management Office	Idaho County	208-983-3074	
	Lewis County	208-937-2380	
	Clearwater County	208-476-4064	
	Nez Perce County	208-799-3084	
Local Support Equipment	WRI Environmental	406-207-2027	Missoula, MT
	US Forest Service	208-983-1950	Clearwater Region
	Idaho State Police District 2	208-209-8730	Lewiston, ID
	US Army Corps of Engineers Environmental Response	509-527-7121	Walla Walla, WA
	Clean Harbors Environmental Services	509-766-3290	Moses Lake, WA
	NRC Environmental	503-283-1150	Portland, OR
	NOAA Hydrology/Weather	509-244-0537	Spokane, WA
Air Support	Life Flight Network	208-743-1124	Lewiston, ID

Boat Ramps	Steelhead Park		US 95 311.76
	Upper Hog Island		US 95 305.03
	Gibbs Eddy		US 12 16.2
	Cherry Lane		US 12 20.91
	Lenore Rest Area		US 12 27.66
	Rhett's Park		US 12 28.42
	Harper's Bend		US 12 33.81
	Milepost 34.65		US 12 34.65
	Pink House River Access		US 12 39.01
	Ahsahka		US 12 40.79
	Zan's Access		US 12 49.29
	Five Mile		US 12 54.35
	Longcamp Access		US 12 61.16
	Kamiah Boat Ramp		US 12 66.75
	Button Beach		US 12 71.81
	Kooskia City Park		SH 13 25.45
	Kooskia Boat Ramp		SH 13 26.24
	East Kooskia		US 12 74.54
	Pete King Creek		US 12 99.04
	Knife Edge		US 12 108.32
	Milepost 110		US 12 110
	Fish Creek River Access		US 12 120.22
	9 Mile River Access		US 12 129.52
	White Pine River Access		US 12 138.44
Staging Areas	Pink House River Access		US 12 39.01
	MP 106.8		US 12 106.83
	Split Creek Pack Bridge		US 12 111.46
	Fish Creek River Access		US 12 120.22
	North Wilderness Gateway		US 12 122.13
	Below Warm Springs Creek		US 12 151.04
Tribal Resources	Emergency Response Team	208-621-3760	
	Cultural Resources Program	208-843-7313	
	Department of Fisheries	208-843-7320 ext 1	

Local Elected Officials	Mayor of Kamiah	208-935-2672	
	Mayor of Kooskia	208-926-4684	
	Mayor of Lewiston (2016-2019)	208-791-3180	
	Mayor of Orofino	208-476-4725	
Fire Departments	Kamiah Fire Dept.	208-935-0935	
	Kooskia Fire Dept.	208-926-4684	
	Lewiston Fire Dept.	208-743-3554	
	Orofino Fire Dept.	208-476-4725	
Wildlife Rehab Facilities	Idaho Fish and Game	208-799-5010	Clearwater Region
	US Fish and Wildlife Services	208-378-5243	Central Idaho
Fish Hatcheries	Dworshak National Fish Hatchery	208-476-4591	Orofino, ID
	Clearwater Fish Hatchery	208-476-3331	Ahsahka, ID
Local Water Intakes	Kamiah (Stew Briant)	208-935-0319	Kamiah, ID
	Orofino (Rick Laam)	208-476-4725	Orofino, ID
	Riverside Water/Sewer	208-476-6313	Riverside, ID
	Lewiston (Brian Lacy)	208-816-1285 c 208-746-1316 o	Lewiston, ID
	Ahsahka	208-476-4350	Ahsahka, ID

Appendix A, B, C & D

Appendix A: Protection Techniques

Table A-1. Summary of Protection Techniques

Protection Techniques	Description	Primary Logistical Requirements	Limitations
ONSHORE			
Geotextiles	A roll of geotextile, plastic sheeting, or other impermeable material is spread along the bottom of the supra-tidal zone and fastened to the underlying logs or stakes placed in the ground.	• Geotextile - 3 m wide rolls • Personnel - 5 • Misc. - stakes or tie-down cord	• Low sloped shoreline • High spring tides • Large storms
Sorbent Barriers	A barrier is constructed by installing two parallel lines of stakes across a channel, fastening wire mesh to the stakes and filling the space between with loose sorbents.	Per 30 meters of barrier • Wire mesh - 70 m x 2 m • Stakes - 20 • Sorbents - 30 m^2 • Personnel - 2 • Misc. - fasteners, support lines, additional stakes, etc.	• Waves > 25 cm • Currents > 0.5 m/s
Inlet Dams	A dam is constructed across the channel using local soil to exclude oil from entering channel.	• Loader - 1 • Personnel - equipment operator and 1 worker or several workers w/shovels	• Waves > 25 cm • Freshwater outflow
NEARSHORE			
Containment Booming	Boom is deployed at the source of the spill. The spill source will determine the strategy necessary to contain and remove spilled material. The objective is to stop any future material from entering river.	For 150 meters Slick: • Boom - 280 m • Boats -2 • Personnel - boat crews and 4 boom tenders • Misc. - tow lines, drogues, connectors, etc.	• High winds • Swells > 2 m • Breaking waves > 50 cm • Currents > 1.0 m/s
Exclusion Booming	Boom is deployed across or around sensitive areas and anchored in place. Approaching oil is deflected or contained by boom.	Per 300 meters of Boom • Boats - 1 • Personnel - boat crew and 3 boom tenders • Misc.- 6 anchors, anchor line, buoys, etc.	• Currents > 0.5 m/s • Breaking waves > 50 cm • Water depth > 20 m
Deflection Booming	Boom is deployed from the shoreline away from the approaching slick and anchored or held in place with a workboat. Oil is deflected away from shoreline.	Single Boom, 0.75 m/s current • Boom - 60 m • Boats - 1 • Personnel - boat crew + 3 • Misc. - 3 anchors, line, buoys, recovery unit	• Currents > 1.0 m/s • Breaking waves > 50 cm
Collection Booming	Boom is deployed from the shoreline at an angle towards the approaching slick and anchored or held in place with a workboat. Oil is diverted towards the shoreline for recovery.	Single Boom, 0.75 m/s current • Boom - 60 m • boats - 1 • Personnel - boat crew + 3 • Misc. - 3 anchors, line, buoys, recovery unit	• Currents > 1.0 m/s • Breaking waves > 50 cm

Protection Techniques	Description	Primary Logistical Requirements	Limitations
Skimming	Self-propelled skimmers work back and forth along the leading edge of a windrow to recover the oil. Booms may be deployed from the front of a skimmer in a "V" configuration to increase sweep width. Portable skimmers are placed within containment booms in the area of heaviest oil concentration.	Self-propelled (None) Towed • Boom - 200 m • Boats - 2 • Personnel - boat crews and 4 boom tenders • Misc. - towlines, bridles, connectors, etc. Portable • Hoses - 30 m discharge • Oil storage - 2000 liters	• High winds • Breaking waves > 50 cm • Currents > 1.0 m/s

Source is R. Miller of Clean Sound Cooperative.

Table A-2. Fast Water Booming Techniques: Current Chip Log and Maximum Boom Deflection Angle

The table uses the time for floating debris to drift 100 feet. This is accurately determined by anchoring a line with two floating buoy markers attached at a spacing 100 feet apart. Floating debris is then thrown into the water approximately 20 feet upstream of the first buoy marker. Determine the time it takes the debris to transit the distance between the two marker buoys in seconds. This assumes that the minimum escape velocity under a boom perpendicular to the current (90 degrees) is 1.2 feet per second. The table provides an estimate of the length of boom required for deflecting oil at a specified angle for a 110-foot profile (perpendicular length) to the current. It also provides an estimate of the number of anchors or shoreline tiebacks required for that length of boom assuming anchor points are required every 50 feet.

Knot = 1.6 mile/hr or 6,080 ft/hr or 1.7 ft/sec

Time to Drift 100 Feet (seconds)	Velocity (ft/sec)	Max. Boom Deflection Angle (degrees)	Boom for 100 Foot Profile to Current (feet)	Anchors if Placed Every 50 Feet (number)
6	16.7	4.0	1,429	30
8	12.5	5.4	1,071	22
10	10.0	6.7	857	18
12	8.3	8.0	714	15
14	7.1	9.4	612	13
17	5.9	11.4	504	11
20	5.0	13.5	429	10
24	4.2	16.3	357	8
30	3.3	20.5	286	7
40	2.5	27.8	214	5
60	1.7	44.4	143	4
>86	<1.2	90.0	100	3

Table A-3. Current Drag Force on One-Foot Boom Profile to Current

The major force exerted on a boom is caused by the water drag on the skirt. Wave forces can increase the drag factor by a factor of two to three depending upon the wave height, period, and loading dynamics. Wind force is less than current and waves bit is also a factor. In high current situations, drag is sometimes increased by water piling upon the boom, causing some submergence and increased drag forces, often resulting in mooring failure. In this situation, the 100-foot section of 4 X 6 diversion boom (4-inch floatation and 6-inch draft) could take the hydrodynamic load. A replacement section 50 feet long was able to withstand the reduced forces with submerging.

The effects of current velocity and boom draft on boom drag force can be seen in the table. Drag increased with draft in a linear fashion while current increased drag more dramatically, to the square of the velocity.

Velocity (ft/sec)	Boom Drag Force (pounds)			
	Draft 0.5 Feet	Draft 1.0 Feet	Draft 1.5 Feet	Draft 2.0 Feet
0.8	0.7	1.3	2.0	2.7
1.7	2.7	5.3	8.0	10.7
2.5	6.0	12.0	18.0	24.0
3.4	10.7	21.3	32.0	42.6
4.2	16.7	33.3	50.0	66.6
5.1	24.0	48.0	72.0	95.9
5.9	32.6	65.3	97.9	130.6
6.8	42.6	85.3	127.9	170.6
7.6	54.0	107.9	161.9	215.9
8.4	66.6	133.3	199.9	266.5
9.3	80.6	161.2	241.8	322.5
10.1	95.9	191.9	287.8	383.8
11.0	112.6	225.2	337.8	450.4
11.8	130.6	261.2	391.8	522.3
12.7	149.9	299.8	449.7	599.6
13.5	170.6	341.1	511.7	682.2

Table A-4. Approximate Safe Working Loads/Tensile Strength of New Rope

Rope Diameter (inches)	Manila No. 1 (3-strand) (pounds)	Nylon (3-strand) (pounds)	Polyester (3-strand) (pounds)
5/16	200 / 1,000	500 / 2,500	500 / 2,500
3/8	270 / 1,350	700 / 3,500	700 / 3,500
7/16		1,140 / 5,700	
1/2	530 / 2,650	1,250 / 6,250	1,200 / 6,000
5/8	880 / 4,400	2,100 / 10,500	1,950 / 9,750
3/4	1,080 / 5,400	2,750 / 5,400	2,300 / 11,500

Towing load can be significant when a boom is anchored on one end and pulled against the current. Boats must have sufficient horsepower and be properly rigged to tow. Lines must be capable of withstanding the forces, and the boom must have a tension member capable of high loads. If the boom is extended behind the tow boat and pulled free in the current, there is only the frictional drag along the boom. Because this drag is a function of the boat speed, proper motor size becomes a function of boom size and length, boat size, and water velocity. Although free towing drag is low, when one end of the boom is anchored to the shore, a small boat may be incapable of positioning the boom because of the high current drag exerted on the boom. The boom must be able to withstand the forces. The tension member must not become detached from the boom due to differential expansion.

Attempting to moor a boom in a straight line across a current (90 degrees) is not recommended. The result is a sag in the boom that will trap free floating oil at a point inaccessible to the shore. In swift currents, the resulting forces on moorings can cause large lines of break and present possible safety hazards. The current can be so swift that the boom may tend to dip and become completely or partially submerged. If this happens, the boom's position should be adjusted. The total force on the mooring points will be a combination of the forces caused by current, wind, and waves.

Boom positioning is an important point. The first step is to decide where the boom should be located. It is likely that the boom would be on an angle to the current; therefore, the prime concern becomes the location of the upstream end. If the selected upstream location is inaccessible, a spot further upstream can be used for access and the boat and boom allowed to drift to the selected mooring site. The boom can be secured to trees, stakes, anchors, or other solid objects. Do not attach boom to vehicles of any type or size.

Table A-5. Simulation Results for Diesel Spill Release During the Dry Season, Low Water Year

MP of Release	City of Kamiah Intake (MP 66)			Riverside/Orofino Intakes (MP 40)			City of Lewiston Intake (MP 1)		
	Min. Vol. for > MCL (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)
70	420	2.35	2.1	1160	22.1	3.4	2570	47.4	3.8
80	520	11.3	2.6	1410	31.1	3.6	3010	56	4
90	770	20.6	3.2	1650	40.3	4	3540	64.9	4.2
100	970	31.3	3.4	1990	50.7	4	4130	75	4.6
110	1070	42.4	3.8	2140	61.7	4.4	4500	85.5	4.4
120	1200	53.3	3.8	2360	72.3	4.4	4950	95.6	4.6
130	1360	63.8	4	2650	82.5	4.6	5490	105.2	4.8
140	1570	76	4.4	2990	94.3	4.6	6170	116.3	4.8
150	1840	87.8	4.6	3440	105.7	4.8	5880	127.1	5

Table A-6. Simulation Results for Diesel Spill Release During the Dry Season, Average Water Year

MP of Release	City of Kamiah Intake (MP 66)			Riverside/Orofino Intakes (MP 40)			City of Lewiston Intake (MP 1)		
	Min. Vol. for > MCL (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)
70	530	2.2	2.2	1460	21	3.2	3160	44.5	3.6
80	650	10.7	2.4	1750	29.1	3.4	3670	52.6	3.8
90	960	19.5	3	2040	37.9	3.8	4270	61.1	4
100	1210	29.4	3.6	2430	47.8	4	4950	70.6	4.2
110	1320	39.9	3.6	2600	58	4	5310	80.4	4.2
120	1470	50.1	3.8	2840	68	4.2	5810	89.9	4.4
130	1650	60.5	4	3160	78.1	4.4	6410	99.5	4.6
140	1880	71.65	4	3540	88.9	4.4	7140	109.7	4.6
150	2190	83.1	4.2	4030	100	4.6	7400	120.1	4.6

Table A-7. Simulation Results for Diesel Spill Release During the Dry Season, High Water Year

MP of release	City of Kamiah Intake (MP 66)			Riverside/Orofino Intakes (MP 40)			City of Lewiston Intake (MP 1)		
	Min. Vol. for > MCL (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)
70	490	2.3	2	1340	21.2	3.2	2920	45.5	3.4
80	600	10.9	2.4	1610	29.8	3.4	3400	53.8	3.6
90	880	19.9	3	1880	38.8	3.6	4000	62.4	4
100	1110	30.1	3.4	2250	48.8	4	4580	72.2	4
110	1210	40.8	3.6	2410	59.3	4	5000	82.2	4.4
120	1360	51.2	3.8	2640	69.5	4.2	5430	91.9	4.4
130	1530	61.9	3.8	2950	79.8	4.4	6090	101.7	4.4
140	1750	73.2	4	3310	90.8	4.4	6750	112.1	4.4
150	2040	84.9	4.4	3780	102.1	4.6	6890	122.8	4.6

Table A-8. Simulation Results for Diesel Spill Release During the Transition Season, Low Water Year

MP of Release	City of Kamiah Intake (MP 66)			Riverside/Orofino Intakes (MP 40)			City of Lewiston Intake (MP 1)		
	Min. Vol. for > MCL (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)
70	300	2.2	2.2	840	20.1	3.2	1840	42.6	3.6
80	660	10.3	2.4	1730	27.9	3.6	3570	50.3	4
90	950	18.5	3.2	2000	36.1	3.8	4500	58.4	4.2
100	1190	28.2	3.6	2380	45.3	4	4760	67.5	4.4
110	1290	38.2	3.8	2520	55.5	4.2	5100	76.9	4.6
120	1430	47.9	4	2730	65	4.4	5490	85.9	4.6
130	1590	57.9	4.2	3030	74.6	4.4	6090	95.1	4.8
140	1810	68.5	4.4	3350	85	4.6	6660	104.8	4.8
150	2080	79.5	4.4	3780	95.6	4.8	7460	114.8	4.8

Table A-9. Simulation Results for Diesel Spill Release During the Transition Season, Average Water Year

MP of Release	City of Kamiah Intake (MP 66)			Riverside/Orofino Intakes (MP 40)			City of Lewiston Intake (MP 1)		
	Min. Vol. for > MCL (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)
70	635	2.1	2	1660	18.4	3	3440	39	3.2
80	770	9.3	2.4	1960	25.6	3.2	3930	46	3.4
90	1100	17	2.8	2240	33.1	3.4	4500	53.4	3.8
100	1360	25.8	3.4	2630	41.8	3.6	5100	61.8	3.8
110	1450	35	3.4	2760	50.8	3.8	5430	70.3	4
120	1590	43.9	3.4	2950	59.5	4	5810	78.6	4
130	1740	53	3.6	3220	68.3	4	6320	87	4.2
140	1950	62.7	3.8	3540	77.7	4.2	6840	95.9	4.2
150	2220	72.7	4	3930	87.4	4.2	7570	105	4.2

Table A-10. Simulation Results for Diesel Spill Release During the Transition Season, High Water Year

MP of Release	City of Kamiah Intake (MP 66)			Riverside/Orofino Intakes (MP 40)			City of Lewiston Intake (MP 1)		
	Min. Vol. for > MCL (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)
70	920	2	2	2400	17.6	3.2	4950	37.4	3.6
80	1110	8.8	2.6	2840	24.5	3.4	5610	44.2	3.8
90	1580	16.2	3.2	3220	31.8	3.8	6410	51.2	4
100	1950	24.7	3.4	3750	40.1	4	7240	59.3	4.4
110	2080	33.5	3.6	3930	48.7	4.2	7690	67.5	4.4
120	2270	42.1	4	4200	57.1	4.4	8190	75.5	4.4
130	2470	50.8	4	4540	65.6	4.4	8770	83.5	4.6
140	2760	60.2	4.2	4950	74.6	4.4	9610	92.1	4.6
150	3120	69.8	4.4	5490	83.9	4.6	10410	100.9	4.6

Table A-11. Simulation Results for Diesel Spill Release During the Wet Season, Low Water Year

MP of Release	City of Kamiah Intake (MP 66)			Riverside/Orofino Intakes (MP 40)			City of Lewiston Intake (MP 1)		
	Min. Vol. for > MCL (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)
70	1910	1.5	2	4850	14.5	2.8	9430	31.2	3
80	2280	7.4	2.2	5610	20.3	3.2	10630	36.9	3.4
90	3220	13.5	2.8	6320	26.5	3.4	11900	42.7	3.4
100	3870	20.4	3.2	7240	33.3	3.8	13150	49.6	3.6
110	4030	28.1	3.2	7350	40.7	3.6	13880	56.5	3.8
120	4310	35.1	3.6	7690	45.9	5.8	14280	63.1	3.8
130	4620	42.1	3.6	8060	54.4	4	15150	69.5	4
140	5050	50.2	3.6	8770	62.3	4	16120	77	4
150	5610	58.5	4	9430	70.3	4	17240	84.5	4

Table A-12. Simulation Results for Diesel Spill Release During the Wet Season, Average Water Year

MP of Release	City of Kamiah Intake (MP 66)			Riverside/Orofino Intakes (MP 40)			City of Lewiston Intake (MP 1)		
	Min. Vol. for > MCL (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)
70	2230	1.4	2	5610	13.7	2.8	10860	29.5	3
80	2650	7.1	2	6490	19.4	2.8	12190	35	3
90	3730	12.8	2.6	7240	25.1	3	13510	40.6	3.2
100	4460	19.5	2.8	8190	31.7	3.4	15150	47.1	3.2
110	4620	26.6	3	8330	38.6	3.4	15620	53.5	3.4
120	4900	33.4	3.2	8620	45.2	3.4	16120	59.8	3.4
130	5200	39.9	3.2	9090	51.6	3.6	17240	65.9	3.4
140	5680	47.6	3.4	9800	59.1	3.6	17850	73	3.6
150	6250	55.5	3.6	10630	66.7	3.6	19230	80.2	3.6

Table A-13. Simulation Results for Diesel Spill Release During the Wet Season, High Water Year

MP of Release	City of Kamiah Intake (MP 66)			Riverside/Orofino Intakes (MP 40)			City of Lewiston Intake (MP 1)		
	Min. Vol. for > MCL (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)	Min. Vol. (gal)	First Arrival (hrs)	Time Before Testing (hrs)
70	2600	1.4	1.8	6490	13	2.6	12500	27.8	2.6
80	3080	6.5	2.2	7460	18.2	2.8	13880	32.9	3
90	4310	12	2.6	8190	23.6	3	15150	38.1	3
100	5100	18.3	2.8	9250	29.9	3.2	16660	44.3	3.4
110	5260	25	3	9430	36.3	3.4	17240	50.3	3.2
120	5550	31.3	3	9800	42.5	3.4	17850	56.2	3.4
130	5880	37.5	3	10200	48.5	3.4	18510	61.9	3.4
140	6320	44.8	3.2	10860	55.5	3.6	20000	68.6	3.4
150	6940	52.2	3.4	11620	62.7	3.6	20830	75.3	3.6

Technical Workshop on Oil Spills
Clearwater and Lochsa Watersheds
Lewiston Community Development Offices
2nd floor large conference room
215 D Street, Lewiston, ID
June 14-15, 2016

Objective of Workshop:
Generate consensus based cleanup guidance for responders to reference after the initial response to an oil spill. This includes cleaning up contaminated soil, managing contaminated groundwater, and ensuring that all stakeholders are appropriately represented through the end of the cleanup.

June 14: What actions enable the most rapid ecological recovery?

0800	Opening, Introductions, Workshop Objectives	Kevin Brackney, NPT Josie Clark, EPA
0830	Case Studies: *City Service Valcon, Hunt Oil, High Noon*	Greg Weigel, EPA
0900	"Net Environmental Benefit" philosophy Lamprey: exploring their critical role Group Discussion: Identification of resources at risk Which are vulnerable to oil spill and response actions?	Josie Clark, EPA Tod Sween, NPT
1000	BREAK	
1015	Group Discussion of Cleanup Methods After brief overview of specific cleanup method, group discussion of pros/cons/considerations for each • Monitored Natural Attenuation – *Josie* • Intrusive Excavation - *Greg* • Recovery Wells – *Greg* • Flushing – *Josie* • Bioenhancement – *Kevin* • Chemical Oxidation – *Brad* • Interception Trench – *Greg* • Shoreline Permeable Reactive Barrier - *Brad* (*include LUNCH break when appropriate*)	All
1530	Group Discussion and Task: Create flowchart identifying decision points and triggers for selection of cleanup methods. Identify gaps for future work.	All
1645	Next steps and Closing Comments	Josie Clark, EPA

June 15: How do stakeholders engage in cleanup decisions?

0800	Roles and Responsibilities throughout a response • At each stage, determine who is responding, with what resources, and what priorities/authorities. <u>Scenario 1:</u> remote, difficult logistics, upstream of NP reservation <u>Scenario 2:</u> less remote, within NP reservation	Facilitator: Greg Weigel, EPA
1000	How Clean is Clean? • How are endpoints determined? • Does federal, tribal and state authority affect endpoints? • Who has a say in final cleanup decisions?	Facilitator: Josie Clark, EPA
1130	Next Steps and Closing Comments	

Remediation Option	Pros	Cons	Considerations
Monitored Natural Attenuation *Anticipated Duration of Contamination: Minimum 1 year of quarterly sampling – may be up to 5+ yrs as necessary to confirm sufficient attenuation trend.*	Maintains existing ecosystem structure. Allows natural processes to degrade oil. Only operation required is periodic sampling and monitoring.	Potential exposure to chronic low levels (dissolved phase) of hydrocarbon contamination. Released oil will not be recovered. Requires ongoing monitoring/sampling.	How long of a monitoring period/frequency is needed? Need a trigger level/point for re-evaluation of cleanup if MNA is not working; not meeting the objectives within a certain timeframe. Appropriate when NEBA indicates that alternative options are potentially more damaging to ecosystems and species and there is not an active discharge or sheen to waterway.
Source removal - excavation of contaminated soil/rock beyond initial excavation of contaminated soils that can be removed easily (e.g. including road matrix, shoreline or to deeper depths) *Likely Duration of Operations: 0 – 6 months* *Anticipated Duration of Contamination : 0 – 6 months*	Removes oil contamination in soil and road matrix.	Does not remove oil from fractured bedrock. Need for engineering controls to minimize increase of turbidity into river. Rebuilt ecosystem (e.g. river bank and riprap) may not perfectly match existing habitat. May require highway restriction and lane closure, extensive heavy equipment and large site footprint. May require phases; one lane excavated/replaced at a time. Requires significant soil disposal.	Must consider impacts to transportation commerce, local residents, traffic safety. Use applicable Idaho screening level for groundwater protection – used for long-term cleanup. May require Clean Water Act 404 permit (use of Nationwide Permit #20). Road Removal: Only possible when road corridor is wide enough to do safely. Must maintain vehicle passage.
Install Recovery Wells *Duration of Operations: 0-2 yrs (yield dependent)* *Anticipated Duration of Contamination: Ideally oil will be recovered within 0-2 yrs, residual (dissolved phase) oil may remain.*	Low impact on ecosystems.	Placement of wells may be limited by available space and geology. Liquid storage areas may require larger site footprint. Requires ongoing operation, maintenance, and monitoring/sampling. Anticipate a low yield of oil from road matrix due to spreading if only skimming oil. May need to pump down groundwater to create a cone of depression to enhance recovery, requiring management of large volume contaminated water.	If recovering from fractured bedrock, requires large interconnected fissures to be effective. Recommend consulting geologist. In cases where road matrix is contaminated, but can't be excavated, consider installing recovery wells between the road and the stream. Need a trigger level/point for re-evaluation of cleanup if recovery wells are not working; not meeting the objectives within a certain timeframe.

		Residual dissolved phase contamination will likely remain. Requires sufficient access for equipment and area for recovery wells between the spill and river.	Mobil oil is the only fraction that is potentially recoverable. Residual saturation cannot be removed hydraulically and pumping should cease when oil recovery ceases.
Interception Trench *Duration of Operations: 0-2 yrs (yield dependent)* *Anticipated Duration of Contamination: 0-2 yrs*	If effective, no surface water impact.	Can't use in areas with steep or rocky (riprap) slopes. Requires regular monitoring/sampling and maintenance. Must be able to regularly recover oil in trench – vacuum truck, skimmer or sorbents. Must have understanding of preferential pathway and identified seep location. Requires sufficient access for equipment and area for the trench between the spill and river.	May be installed at toe of road bed or near shoreline. Need a trigger level/point for re-evaluation of cleanup if interceptor trench is not working; not meeting objectives within a certain timeframe.
The following remediation techniques involve introducing a liquid into the subsurface as a means to remove contamination. In fractured bedrock, it is challenging to have liquid track the same path twice. All technologies that depend on inputting liquid from behind the spill may or may not connect with subsurface oil contamination, and it will be impossible to determine if all subsurface oil is removed.			
Inject diluted aqueous soil amendments (fertilizer) behind oil to enhance microbial action *Duration of Operations: 0-2 months* *Anticipated duration of Contamination: 2+ yrs*	Maintains existing ecosystem, has potential to destroy some or all oil in place. Only operation required is periodic reinjection, sampling and monitoring.	Relies on existing microbial population and ability of subsurface to replenish oxygen. Break down rates likely limited in fractured granite due to low organic content. Will likely take years. Possible release of fertilizer into river. Reinjection may be necessary. Requires ongoing monitoring/sampling	Best to implement before excavated oily soil has been backfilled. Need a trigger level/point for re-evaluation of cleanup if injection is not working; not meeting objectives within a certain timeframe. **The constituents and concentrations need to be scientifically determined on a case by case basis** using specialists specifically trained in the field of bioremediation. Be cautious of over-dosing and causing downstream algal blooms.

Inject oxidizing chemicals behind oil to force redox of TPH *Duration of Operations: 0-3 yrs* *Anticipated duration of Contamination: 3 yrs (residue will remain)*	Maintains existing ecosystem, has potential to destroy some or all oil in place. Large volumes of waste material are not usually generated.	Requires careful detailed site characterization, screening, and feasibility testing. Will oxidize all organic material encountered. Oxidizing agent must contact oil to be effective. May require additional chemical catalysts or heat source. Failure to account for subsurface heterogeneities or preferential flow paths can cause an uneven distribution of the oxidant, resulting in pockets of untreated contaminants. Oxidant introduction may mobilize fuel contaminants. Micro-fractures within the bedrock can become clogged or congested. Some oxidants cause strong reactions. VOCs may be generated that can be released. Reinjection may be necessary. Requires ongoing monitoring/sampling Unreacted oxidizer could pose threat to aquatic life if it migrates to surface water.	Oxidation of all organic material encountered. This will impact microbial life in soil and potentially release into river. Requires oxidant delivery system that adequately distributes oxidant throughout the target treatment zone. Need a trigger level/point for re-evaluation of cleanup if injection is not working; not meeting objectives within a certain timeframe.

Introduction and Purpose

This Annex to the Clearwater/Lochsa River Geographic Response Plan (GRP) is intended to be used to guide responders during an oil spill response and outlines best practices for a spill on State Highway 12 adjacent to the Lochsa or the Clearwater Rivers. The term oil encompasses all fuel, crude oil, refined hydrocarbons, and vegetable oils. This document focuses primarily on the initial phases of a response but also provides information during the cleanup and monitoring phases. This document is organized according to those three response phases.

This document was prepared as a result of a two day workshop that was conducted in Lewiston, Idaho on June 14 and 15, 2016. Participants at the workshop included Idaho Regional Response Team 6 from Lewiston the; state responders such as Idaho Department of Environmental Quality (IDEQ), Idaho Fish and Game (IDFG), Idaho Department of Emergency Management (IOEM), Idaho Department of Water Resources (IWR), Idaho Department of Lands (IDL), Idaho State Police (ISP), Idaho Transportation Department (ITD); tribal members and staff from the Nez Perce Tribe; and federal members such as United States Forest Service (USFS), US Fish and Wildlife Service (USFWS), and United States Environmental Protection Agency (EPA).

Initial Emergency Response – First 24 Hours

Agency Roles

Incident Command:

- ISP – will act as Incident Commander unless someone from another law enforcement or fire-fighting agency is on-scene with higher professional rank. The first person to respond will likely be a Trooper from the Powell Ranger Station.

Supporting Agencies:

- Local Firefighters, generally Idaho Regional Response Team 6 from Lewiston.
- Nez Perce Tribal Hazardous Environmental Response Team (HERT).
- If a spill is above Mile Post 82 there is a requirement to notify USFS if the spill occurs within ¼ mile of the river corridor for protection of the Wild & Scenic River. They may send a representative. Notification to USFS should go to:
    - Forest River Manager (vacant as of 11/2016)
    - Lochsa District Ranger (Brandon Knapton as of 11/2016)
    - Forest River, Wilderness, Trails, Recreation Program Manager (Carol Hennessey as of 11/2016)

First Responder On-Scene Milestones

Source Control

First responders should assess the best possible alternatives to control the source of the spill with the objective of minimizing continued spread of the oil (including fuel). This can include but is not limited to patching a tanker, constructing earthen berms, putting out boom and collecting pooled oil.

First responders should also obtain the hauler and insurance company information and contacts as soon as possible. The hauler/insurance company needs to be involved up front as the responsible party. They need to identify their response plan, and provide information on the types of response resources available and the schedule for their arrival on-scene. This is key to knowing what support is necessary from the State and/or EPA for the response (emergency, cleanup and monitoring).

Downstream Protection & Containment

For downstream protection of the waterway and containment of spilled material, the best management practice (BMP) is to refer to Section 4 of the Clearwater/Lochsa GRP for access points and boom strategies, and Section 6 for many resources at risk. Please note that not all resources at risk are noted in the GRP. Figure 3-1 in the GRP is an overview map of the Clearwater/Lochsa River system showing the sector divisions discussed in Section 4.

Use of the State Bridge Call System

Initial Bridge Call

The initial emergency response phase would begin with a Bridge Call initiated by Idaho State Comms and would include local first responders, IOEM, IDEQ, and USFS if above Mile Post 82. There is no standard list of agencies that are requested on the initial Bridge Call. The purpose of this initial call is to activate local resources to the scene of the incident and provide a rapid assessment of the incident. For spills in the Lochsa and Clearwater watersheds, it is critical to rapidly mobilize heavy equipment capable of vacuuming pooled oil and excavating and hauling oily soil. The Bridge Call does not serve as notification to EPA and other trustee agencies. EPA does not require notification if the spill is not in the river or a threat to the river. Communications in the Lochsa/Clearwater River corridor are difficult even with repeaters and satellite, and on scene responders may have to drive downstream to obtain a signal. Cell services is spotty upstream of mile post 48. There are emergency call boxes in the upper reaches of the river at Fish Creek MP 120, Saddle Camp MP 140 and a Chainup Area between MP 165 and MP 172.

Follow-on Bridge Calls

A secondary call should be scheduled as soon possible after the initial Bridge Call, ideally within 1 to 2 hours. The secondary and subsequent calls should be used to request additional resources as they are deemed necessary, and engage trustee and regulatory agencies as appropriate. The Bridge Call system may also serve to assist with downstream notifications. These follow-on calls should be used to assess and begin to manage resources at risk. State Comm will have contact information for trustee agencies.

Organization	**Area of Expertise**
Nez Perce Tribe	Natural and cultural resources, lamprey
US Forest Service	Protection of Wild and Scenic River values
ID State Historic Preservation Officer (SHPO)	Historical sites
ID Water Resources	Private surface water diversions, private drinking water wells
ID Dept. of Environmental Quality	Public drinking water intakes and wells, surface water impairment, contaminated sites
ID Transportation Department	Road impacts and traffic management
ID Fish and Game, US Fish and Wildlife Service	Fisheries, wildlife management areas, threatened and endangered species

ID Parks and Recreation & City and County	Parks and recreation areas
US Fish and Wildlife Service	Bull trout, wildlife
National Marine Fisheries Service	Steelhead trout, salmonids
Bureau of Reclamation	Dams, water flow, canals
Natural Resource Conservation Services	Wetlands

Contact should be made with appropriate state and federal trustees to determine how to mitigate damage to these resources. Follow-on Bridge Calls will also be used to discuss future remediation efforts and determine when and how to transition the response to the cleanup and monitoring phases. In addition, follow-on Bridge Calls will be used to discuss continuity of on-site personnel and the transfer of information as personnel and agencies become engaged or demobilize from the response.

Applicable Permits

Although the response may still be in its initial phase, permits may be required by various state and federal agencies to conduct remediation work at or near the scene of the incident. Follow-on Bridge Calls will be used to assist in the initial determination of needed permits and to begin preparing the necessary paperwork to obtain permits in a timely manner.

Cleanup Phase

Agency Participation and Roles

At this phase of the response, many of the first responders may have completed their work and begun preparations to demobilize from the response.

The following are some of the agencies that may be involved in the cleanup phase of the response and their roles and responsibilities:

Unified Command:

- **EPA** has authority to direct the response, authorize funds for their contractors to respond to the scene, and authority to direct the Responsible Party and their contractors. The preference of EPA is to work in Unified Command as outline in the Northwest Area Contingency Plan (NWACP).
- A **Nez Perce Tribal Incident Commander** has authority to make decisions on the reservation and contribute to decisions that impact treaty protected resources in the Clearwater River Watershed. The designation of a Nez Perce Tribal On-Scene Coordinator requires writing a letter requesting authorization from the Tribal Chairman.
- **IOEM Director** has the authority to appoint a State On-Scene Coordinator who would participate in Unified Command.
- **Responsible Party** will provide a representative to Unified Command.

Supporting Agencies:

- **Idaho Department of Environmental Quality (IDEQ)** will provide input to the State incident lead (as designated by IOEM) and EPA. If requested, they will also participate in the incident Environmental Unit.

- **US Forest Service (USFS)** will provide input to the EPA representative, and will defer to EPA to ensure the response is protective of their resources. USFS does not intend to participate in Unified Command. USFS has a shared responsibility with the Nez Perce Tribe to protect traditional use/cultural and outstanding remarkable values on the Wild and Scenic River per the comprehensive river management plan under the Wild and Scenic Rivers Act.
- **National Oceanic and Atmospheric Administration (NOAA)** and **United States Fish and Wildlife Service (USFWS)** would also be involved for federal ESA consultation and would provide input to the EPA representative in Unified Command.
- **Idaho Department of Transportation (ITD)** district manager would be involved in the cleanup decision making process as almost all potential cleanup options impact the highway in this area. The IDT decision maker would be a different than the person that may be present and involved during the emergency response phase which would likely be an operations manager.
- **Corps of Engineers (Corps)** may be involved. During a spill response, alterations to the stream bed would be conducted under Nationwide Permit 20 authorizing activities required for cleanup of oil releases in waters of the US and the use of temporary structures for spill response training exercises.
- **Idaho Department of Water Resources (IDWR)**. A permit is required for temporary water rights to draw water from the river for any reason.
- **Nez Perce Tribe** (NPT) could be a supporting agency, if not in Unified Command.
- **Idaho Department of Lands (IDL)** has authority over bed, banks and river for the State.

Critical Field Activities

During the cleanup and monitoring phases of the response, there are critical field activities that should be considered. The following is a discussion of some of the critical field activities.

Manage Resources at Risk

Resources at risk that were identified during the initial response may not be the only resources at risk for which there is concern. Trustee agencies should be continuously engaged in the response to assist responders in managing identified resources which may also aid in avoiding an ESA "take". It is also important to engage trustee agencies during excavation activities in order to manage culturally sensitive areas. Much of the Lochsa/Clearwater banks are steep and many of the flat areas where staging of equipment or excavation activities may occur are likely to have cultural importance.

Portions of the Clearwater River and Lochsa River are designated as a federal wild and scenic river system. The designated areas are: The Middle Fork Clearwater River from the town of Kooskia upstream to the town of Lowell. The Lochsa River from its confluence with the Selway River at Lowell (forming the Middle Fork) upstream to the Powell Ranger Station. The Selway River from Lowell upstream to its origin. This includes a total of 185 river miles consisting of 54 miles of Wild River and 131 mile of recreational river. Water quality in a wild and scenic river must be maintained at the level at which it was designated (see the discussion of Beneficial Use below).

The Lochsa and Clearwater Rivers are known spawning grounds for salmonid species. IDEQ has developed guidance on the location and timing of salmonid species in Idaho Rivers. This document also provides guidance on the identification of spawning grounds. The document can be found here http://www.deq.idaho.gov/media/1117405/geography-timing-salmonid-spawning-report-0414.pdf.

Source Control

Initial source control is critical due to the logistical difficulty of cleanup operations in this area. Source control includes any measure which minimizes the spread of oil. Options include constructing earthen dikes, building underflow dams, plugging leaks in tankers, and pumping pooled oil before it soaks into the soil.

Source Removal

To the extent possible, heavily contaminated soils and substrate in the ditch should be removed using dig and haul. This will required coordination with ITD as it will require a traffic control plan. Once accessible oiled soils have been excavated, a quick assessment of residual oil is required to determine the need for further action. Further action may include excavating under the road, or installing an interception trench, recovery wells or monitoring wells. The extent of excavation as well as the ability to remove contaminated road bed will depend on the exact site of the spill. One lane of traffic must be open at all times in a manner that meets current ITD safety requirements. Some amount of shoulder or floodplain will be required for an interception trench, recovery wells or monitoring wells. If none of these conditions exist, and there is significant subsurface contamination, responders may have to resort to collecting oil as it seeps from the bank into the channel. Note that complete source removal during the emergency phase is likely not practical.

Cleanup Options

There are numerous methods that may be employed in cleanup of the spilled material. A matrix of potential cleanup options with a brief description of the option, considerations for employing the option, and the advantages and disadvantages is included at the end of this document. Please note, this is not intended to be an exhaustive listing of potential cleanup options. It attempts to address common cleanup options that may be viable for subsurface contamination in the Clearwater and Lochsa River systems. Refer to Section 5 of the Clearwater/Lochsa GRP for shoreline cleanup options. These may be required if significant oil is released into the river.

Cleanup Considerations

Responders will need to consider type of material spilled, quantity of material spilled, net environmental benefit, safety and seasonal concerns/issues:

- Impact of cleanup versus impact of spill
- Seasonal variation of ground water flow/depths
- Seasonal variation of surface water flow
- Physical hazards present
- Winter/cold hazards
- Fast water
- Type of embankment

Potentially Applicable Cleanup Criteria

The criteria to which the spill and impacted areas should be cleaned must be established. This should be a coordinated discussion with Unified Command and natural and cultural resource trustees. Within Unified Command, each representative is responsible for representing the concerns and authority of other agencies at their jurisdictional level. If Unified Command does not represent all jurisdictions and/or cannot come to consensus on cleanup endpoints, the EPA On Scene Coordinator shall determine the

cleanup endpoints in consultation with the Nez Perce Tribe and/or IDEQ. The decision shall take into account existing cleanup levels. The following sections discuss some of the potential cleanup criteria to be considered.

Idaho Water Quality Standards

Water quality standards contain criteria to protect Idaho's surface water—streams, rivers, lakes, and reservoirs. Idaho water quality standards (see IDAPA 58.01.02) protect public health and welfare, enhance the quality of water, and meet the requirements of the Clean Water Act which states that water quality standards:

- Provide water quality for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water (fishable/swimmable conditions), where attainable.
- Consider the use and value of state waters for public water supplies, propagation of fish and wildlife, recreation, agricultural and industrial purposes, and navigation.

IDEQ Water Quality Standards can be found here
http://adminrules.idaho.gov/rules/current/58/0102.pdf

Of note to this rule are

Section 200 – Water Quality Criteria
Section 210 – Specific numeric standards for some petroleum constituents
Section 800 – Hazardous and Deleterious Materials Storage,
Section 850 – Hazardous Materials Spills,
Section 851 – Petroleum Release Reporting, Investigation, and Confirmation, and
Section 852 – Petroleum Release Response and Corrective Action

Beneficial Use

Idaho's Water Quality Standards designate beneficial uses to water bodies.

Beneficial uses of the Lochsa and Clearwater Rivers are:

- Clearwater River Subbasin (Hydrologic Unit Code 17060306) cold water aquatic life, salmonid spawning, primary and secondary contact recreation, agricultural water supply, and domestic water supply.
- Clearwater River, North Fork (Lower) Subbasin (Hydrologic Unit Code 17060308) salmonid spawning, cold water aquatic life, and primary and secondary contact recreation.
- Clearwater River, North Fork (Upper) Subbasin (Hydrologic Unit Code 17060307) cold water aquatic life and salmonid spawning (federal Bull Trout protection).
- Lochsa River Subbasin (Hydrologic Unit Code 17060303) cold water aquatic life and salmonid spawning.

Additional information on each of these subbasins may be found here: http://www.deq.idaho.gov/water-quality/surface-water/tmdls/table-of-sbas-tmdls/

Risk-Based Corrective Action Levels

In addition to the Water Quality Standards, petroleum releases are also subject to IDAPA 58.01.24, "Standards and Procedures for Application of Risk Based Corrective Action at Petroleum Release Sites." These rules establish standards and procedures to determine whether and what risk-based corrective action measures should be applied to property subject to assessment and cleanup requirements under IDAPA 58.01.02, Sections 851 and 852. Residential use screening levels are identified for soil, ground water and soil vapor. Comparison of the maximum media-specific petroleum contaminant concentrations to the residential use screening levels identified in 58.01.24.800.02 (Table 2) allows a determination of the need for further action, subject to other DEQ regulatory obligations.

IDEQ Standards and Procedures for Application of Risk Based Corrective Action at Petroleum Release Sites can be found here https://adminrules.idaho.gov/rules/current/58/0124.pdf

IDEQ has developed a risk evaluation manual for petroleum releases which outlines the determination of risk-based corrective action levels for petroleum releases. The document begins with a general description of the steps in the risk evaluation process, which is then followed by detailed implementation information for each step. Information in the appendices include default exposure factors, fate and transport parameter values, physical and chemical properties, and toxicity values, the application of natural attenuation, and the estimation of exposure point concentrations. The final appendix of the document includes a suggested boilerplate for a Quality Assurance Project Plan. This document can be found here https://www.deq.idaho.gov/media/878259-idaho-risk-evaluation-manual-for-petroleum-releases-0812.pdf

Idaho Ground Water Quality Rule

Ground water quality standards (see IDAPA 58.01.11) establish minimum requirements to protect ground water quality. The policy of the state of Idaho is to prevent contamination of ground water from all regulated and nonregulated sources of contamination to the maximum extent practical.

IDEQ Ground Water Quality Rule can be found here
https://adminrules.idaho.gov/rules/current/58/0111.pdf

Of note to this rule are:

Section 200 – Ground Water Quality Standards
Section 400 – Ground Water Contamination

Cleanup Plan Development

A cleanup plan should be developed by the responsible party and submitted to IDEQ and/or the Nez Perce Tribe and EPA for review and approval to ensure that all considerations are managed. EPA will coordinate with the natural and cultural resource trustees. Upon agency approval, the responsible party should implement the Cleanup Plan. At a minimum, it should include:

- Defining the extent of contamination (if practicable)
- Cleanup technology (ies) to be implemented
- Resources at risk
- Required cleanup thresholds (endpoints) for each impacted media, including defining the compliance points for each impacted media

- Lead agency and roles and responsibilities of supporting agencies (determined by agencies/tribe and provided to the responsible party)
- Sampling Quality Assurance Project Plan (template available in *Idaho Risk Evaluation Manual for Petroleum Releases*

Monitoring Phase

Environmental monitoring documents that efforts to cleanup the spill have been effective. This is required to ensure long term cumulative impacts to the environment are minimized for future protection of resources at risk.

Monitoring Plan Development

A monitoring plan should be developed by the responsible party and submitted to IDEQ and/or the Nez Perce Tribe and EPA for review and approval. Achievement of the cleanup plan threshold(s) will be determined through monitoring of the contaminant and environmental impacts. Upon agency approval, the responsible party should implement the Monitoring Plan. The monitoring scheme should be built to answer these questions of whether the cleanup endpoints have been achieved.

At a minimum, the Monitoring Plan should define:

- Where is the compliance point?
    - At the surface water/groundwater interface? In the stream channel? Is it a single point, or a defined dilution zone?
- What are the cleanup endpoints and monitoring thresholds?
- Frequency and timing of monitoring
    - To determine average concentrations, sampling should be conducted at regular intervals. This is appropriate for cleanup endpoints based on chronic effects.
    - To determine worst case (maximum) concentrations, sampling should be conducted when groundwater is flowing into the stream (a gaining stream), rather than when the surface water is recharging groundwater. This is appropriate for cleanup requirements based on acute toxicity.
- What is the duration of the monitoring phase?
    - A set duration to determine the effectiveness of the implemented cleanup within a specific timeframe
    - Defined triggers based on meeting certain objectives that would reduce or end monitoring efforts
    - Defined triggers that would result in re-evaluation of cleanup techniques and identification of additional cleanup alternatives being implemented; essentially determination that the cleanup is not working
- What happens if monitoring thresholds and cleanup endpoints are not reached or continue to be exceeded?
- Which agencies are involved in overseeing the monitoring plan and what is their role?
- Which agencies have a role in deciding to close out the monitoring phase, thus closing the cleanup?

Appendix C: Geographic Response Plan Contributors Local Representatives

Local Representatives

City of Kooskia

Mr. Mark Anderson

Industry and Response Contractors

Whitewater Rescue Institute, Inc

Herrera Environmental Consultants, Inc.

Weston Solutions, Inc.

Clearwater Environmental Products

National Response Corporation (NRC)

Clean Rivers Cooperative, Inc.

Northwest Archaeological Associates, Inc.

Federal Representatives

United States Environmental Protection Agency

Mr. Stephen Ball

Ms. Josie Clark

Mr. Eric Vanderboom

Mr. Earl Liverman

Mr. Michael Szerlog

Mr. Greg Weigel

Ms. Beth Sheldrake

United States Department of the Interior

Ms. Heather Berg

United States Fish and Wildlife Service

Ms. Janna Brimmer

State Representatives

Idaho Department of Environmental Quality Mr. Mark Dietrich

Mr. Nicolas Hiebert

Mr. Dana Harper

Idaho Bureau of Disaster Services

Ms. Deborah Ruppe

Idaho Department of Transportation Idaho State Police

Tribal Representatives

Nez Perce Tribe

Mr. Ken Clark
Ms. Judy Goodson
208-843-7368

Appendix D: Geographic Response Plan Comments/Corrections/Suggestions

If you have any questions regarding this document or find any errors with this document, please notify one of the following agencies:

- Environmental Protection Agency Region 10
- Idaho State Department of Environmental Quality, Waste Management & Remediation Division
- North-Central Idaho (Lewiston) Department of Environmental Quality Regional Office

You can use the tear out suggestion form or contact an agency using one of the following:

Phone Numbers:

Environmental Protection Agency
Idaho State Dept. of Environmental Quality North-Central Idaho (Lewiston) DEQ Regional Office
208-799-4370

Internet Address:

Environmental Protection Agency
Idaho State Dept. of Environmental Quality Northwest Area Committee

www.state.id.us/deq/index.htm
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Clearwater/Lochsa River Geographic Response Plan

Geographic Response Plan

Comments/Corrections/Suggestions

Directions: (Make a copy of this before you fill in so you have extra forms.)

Fill in your name, address, agency, and phone number. Fill in the blanks regarding the location of information in the plan being commented on. Make comments in the space provided. Add extra sheets as necessary. Fold in thirds so the address label is visible and tape closed (don't staple).

Name:_____ Title:_____ Agency: _____

Address: _____

City: _____ State/Province:_____ Zip/Postal Code: _____

Phone: (____) _____

Page Number: _____

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

Comments:_____

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