SCREENING ACTION PLAN for SURFACE WATER DIVERSIONS

Pend Oreille Watershed (WRIA 62)

January 2010

Washington Department of Fish and Wildlife

Cover photo: Unscreened surface water diversion on Calispell Creek (Site ID No. 1520042)

Summary

In 2009, the Washington Department of Fish and Wildlife (WDFW) received a grant from Washington's Salmon Recovery Funding Board (SRFB) to inventory and assess surface water diversions in eight subbasins within Pend Oreille Water Resource Inventory Area (WRIA) 62.

Utilizing the protocols described in WDFW's Fish Passage Barrier and Surface Water Diversion Screening Assessment and Prioritization Manual (2009), a two-person WDFW crew conducted the inventory between June and October 2009. The assessment focused on those portions of fish bearing streams within the target subbasins that occur on privately owned land. Landowners were contacted requesting permission to access. If permission was denied, the parcel was not surveyed. Less than 10 percent of landowners denied access.

Approximately 84 miles of Pend Oreille River shoreline and 74 miles of tributary streams were inventoried. A total of 207 features were assessed, including culverts, bridges, dams, natural barriers, diversions, and other obstructions to fish or flow. Of these features, 155 were surface water diversions. Most diversions assessed were screened to prevent debris from entering the diversion/pump. However, only two were found to meet Washington State screening requirements to protect fish. State law (Chapters 77.57.070 and 77.57.010 RCW) requires that all surface water diversions be screened to prevent fish from being drawn into the diversions where they are at risk for injury and mortality.

Findings from this project will allow WDFW and other local entities to work cooperatively with water users to achieve voluntary compliance with current state fish screening biological protection criteria.

Figure 1. Unscreened diversion on East Fork Smalle Creek (Site No. 1520106)

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Introduction

Surface water diversions are common instream features in agricultural and rural areas where water is used for irrigation and domestic purposes. Throughout Washington State, water is also diverted for hydropower, industrial, recreational, residential, municipal, and hatchery uses. State law (Chapter 77.57.070 RCW and Chapter 77.57.010 RCW) requires that all surface water diversions be screened to prevent fish from being drawn into the diversions where they are at risk for injury and mortality. Surface water diversions are often screened to keep debris out, but not to protect fish (Fig. 2). Additionally, many diversions are unscreened.

Figure 2. Diversion screened to keep debris out, but not fish.

The Washington Department of Ecology (Ecology) Water Rights Tracking System lists 1,178 surface water certificates, claims, and permits for streams, reservoirs, and lakes in the Pend Oreille Water Resource Inventory Area (WRIA) 62 (Fig. 2). Each of these surface water diversions, plus other unlisted illegal diversions, has the potential to impact fish if not properly screened. In WRIA 62, inadequately screened diversions threaten survival of bull trout, a species listed as "threatened" under the Endangered Species Act, westslope cutthrout trout, a U.S. Fish and Wildlife Service "species of concern", and other native salmonids, by increasing the occurrence of entrainment of adults, juveniles, and fry out of the stream channel, lake, or reservoir.

Between 2001-2007 the Pend Oreille Conservation District (POCD) conducted fish passage barrier and surface water diversion inventories (Pend Oreille Barrier Inventory, SRFB No. 01-1306; Priest Basin Barrier Assessment, SRFB No. 04-1480), however not all WRIA 62 subbasins/streams were assessed. The POCD assessments focused on culvert barriers, identifying very few surface water diversions.

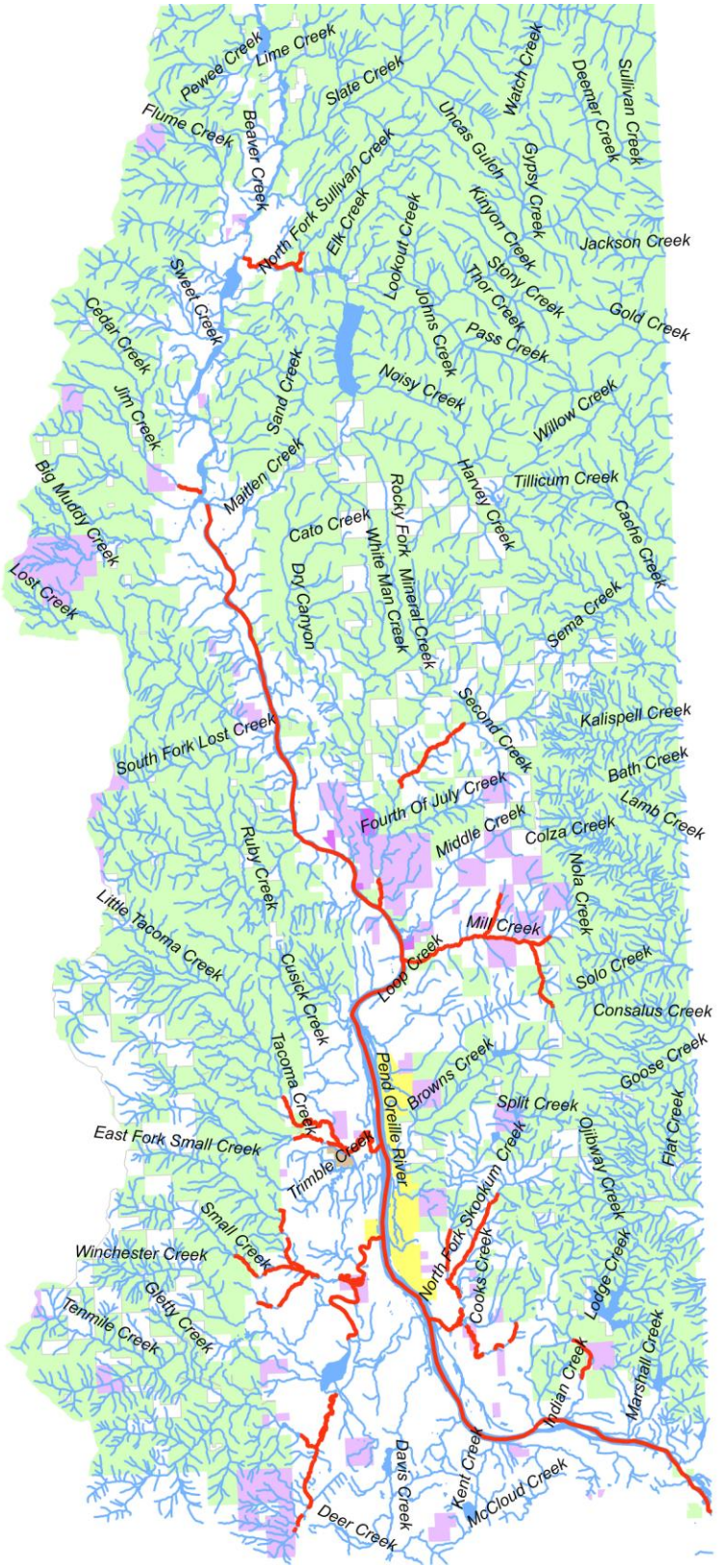
This project located and assessed surface water diversions in eight WRIA 62 subbasins (Mill, LeClerc, Calispell, Tacoma, Cedar, Indian, Skookum, and Sullivan) and portions of the Box Canyon Reservoir (Fig. 3) that were either not surveyed by the POCD or had known data gaps. Other instream structures, such as culverts, bridges, and waterfalls, encountered during the inventory were also assessed if not previously inventoried during the POCD 2001-07 barrier assessment work. This report provides a compilation of all diversion data from both assessments and a prioritization of screening actions for all known diversions in WRIA 62.

Findings from this project will allow Washington Department of Fish and Wildlife (WDFW) and other local entities to work cooperatively with water users to achieve voluntary compliance with current state and federal fish screening biological protection criteria. It is anticipated that the Pend Oreille Salmonid Recovery Team will use this data to update the Pend Oreille Lead Entity strategy (POSRT 2007) as well.

Fig. 3

Study Area

WDFW assessment only



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Legend

- Assessment Area
- Stream/River

Land Manager

- Private
- Kalispell Indian Reservation
- US Fish and Wildlife Service
- US Forest Service
- Washington State Department of Fish and Wildlife
- Washington State Department of Natural Resources

Pend Oreille
Water Resource Inventory Area (WRIA) 62

WDFW received funding for this project from Washington's Salmon Recovery Funding Board (SRFB; Project No. 08-1976), with in-kind support from the Pend Oreille Public Utility District No. 1 and WDFW Habitat Program.

Methods

This assessment focused on those portions of fish bearing streams within the target basins (Calispell, Cedar, Indian, Leclerc, Mill, Skookum, Sullivan, and Tacoma) that are on privately-owned property (Fig. 3). The survey area often extended beyond private to federal and state-owned land when it was determined that there could possibly be stream diversions present. Using Pend Oreille County parcel data, letters were sent to each landowner requesting permission to access. If permission was denied, the parcel was not surveyed. Owners of 395 parcels were contacted with 91% percent granting permission.

This assessment utilized the protocols described in WDFW's Fish Passage Barrier and Surface Water Diversion Screening Assessment and Prioritization Manual (2009; http://wdfw.wa.gov/hab/engineer/fishbarr.htm). These methods have been widely used since the late 1990's throughout the state by WDFW, tribes, local governments, SRFB, regional fisheries enhancement groups, and others.

WDFW utilized a two-person crew to conduct the inventory from early June through mid-October 2009. Crew members were trained in assessment methodology by WDFW Technical Application Division staff. When requested, landowners were contacted regarding specific survey date and time for their property and several landowners accompanied the crew during the survey.

Results

Approximately 84 miles of Pend Oreille River shoreline and 73 miles of tributary streams were inventoried. A total of 207 features were assessed, including culverts, bridges, dams, natural barriers, diversions, and other obstructions to fish or flow. Of these features, 155 were either gravity or pump diversions (Table 1).

Most diversions assessed were screened to prevent debris from entering the diversion/pump (Fig. 2). However, only two were found to meet Washington State screening requirements to protect fish (Chapters 77.57.10; 77.57.040; 77.57.060; and, 77.57.070 RCW). These two screens were installed through a cooperative project between a landowner in the Leclerc subbasin and WDFW in 2007. Three other diversions, which were not assessed during this inventory, located in the Indian subbasin, have also recently been properly screened through a cooperative project between the landowners and the POCD. A summary of Washington's screening and design requirements for water diversions can be found in Appendix D.

A preliminary review by WDFW of Ecology's Water Rights Tracking System found water rights (certificates or claims) associated with approximately 23% of known diversions in WRIA 62. At this time, we are unable to verify if these are valid water rights.

Table 1: Streams surveyed and features assessed (WDFW assessment only)

Stream name	Miles surveyed	Total features assessed	Diversions assessed	Comments
Calispell, mainstem	7	13	6	
Calispell, SF and NF	8	2	0	
Cedar	1	2	0	
Harvey	2	2	0	
Indian	2	1	0	
Leclerc, mainstem	1	3	2	
Leclerc, EB	4	6	3	
Leclerc, WB	NA	5	1	Road-based survey only
Mill (incl. Wanless, Nola)	11	7	1	
Pend Oreille River	84	109	109	Newport downstream to Ruby - both banks; Ruby downstream to Ione bridge - right bank only
Skookum, mainstem	5	11	12	
Skookum, NF	4	3	1	
Skookum, SF	3	5	2	
Smalle (incl, EF, SF)	11	13	4	
Sullivan (incl. NF)	4	4	0	
Tacoma, mainstem	8	12	8	
Tacoma, SF	2	9	5	
Total tributary	*73*	*98*	*45*	
Total Pend Oreille River	*84*	*109*	*109*	
Assessment Total	**157**	**207**	**154**	

The Screening Priority Index (SPI) Model (WDFW 2009 – Appendix C) was used to develop the following prioritized lists of screening projects in WRIA 62. Design flow is the critical variable used to assess the relative impact (between diversions) on fish mortality/injury and to estimate project cost. Construction and operation/maintenance costs are directly proportional to design flow. The greater the flow, the higher likelihood fish will be entrained in the diversion. SPI numbers were calculated for most diversions documented during this assessment as well as those documented during the POCD assessments, when possible.

Granite Subbasin - Lead Entity Area Priority HIGH #1

The Granite subbasin was not surveyed as part of this assessment. The Washington portion of this subbasin is almost entirely National Forest System land. While this subbasin was part of the POCD Priest Basin Barrier Assessment, no diversions were found during the assessment. Bull trout and resident westslope cutthroat trout occur in the subbasin.

Hughes Fork Subbasin - Lead Entity Area Priority HIGH #2

The Hughes Fork subbasin was not surveyed as part of this assessment. The Washington portion of this subbasin is almost entirely National Forest System land. While this subbasin was part of the POCD Priest Basin Barrier Assessment, no diversions were found during the asssessment. Bull trout and resident westslope cutthroat trout occur in the subbasin.

Salmo Subbasin- Lead Entity Area Priority HIGH #3

The Salmo subbasin was not surveyed as part of this assessment or those conducted by the POCD. The Washington portion of this subbasin is entirely within designated Wilderness Area managed by the Colville National Forest. No diversions are known to exist in the subbasin. Bull trout and resident westslope cutthroat trout occur in the subbasin.

Cedar Subbasin - Lead Entity Area Priority HIGH #4

Approximately one mile of stream was surveyed in the Cedar subbasin (Fig. 4). No surface water diversions are known to exist in this subbasin based on this assessment and previous work by the POCD. Access was denied to a small portion of Cedar Creek in Section 25 (T 38N, R 42E), so it is unknown if diversion is occurring in this area. Many of the private parcels associated with Cedar Creek are located within the city limits of the Town of Ione and are serviced by city water. There is also very little agricultural activity in the subbasin. These factors probably limit the amount of surface water diverted from Cedar Creek. Bull trout and resident westslope cutthroat trout occur in the subbasin.

Slate Subbasin - Lead Entity Area Priority HIGH #5

The Slate subbasin was not surveyed as part of this assessment or those conducted by the POCD. The Washington portion of this subbasin is almost entirely National Forest System land. No diversions are known to exist in the subbasin. Bull trout and resident westslope cutthroat trout occur in the subbasin.

Cedar Subbasin

Figure 4

Lead Entity Priority Area = HIGH #4

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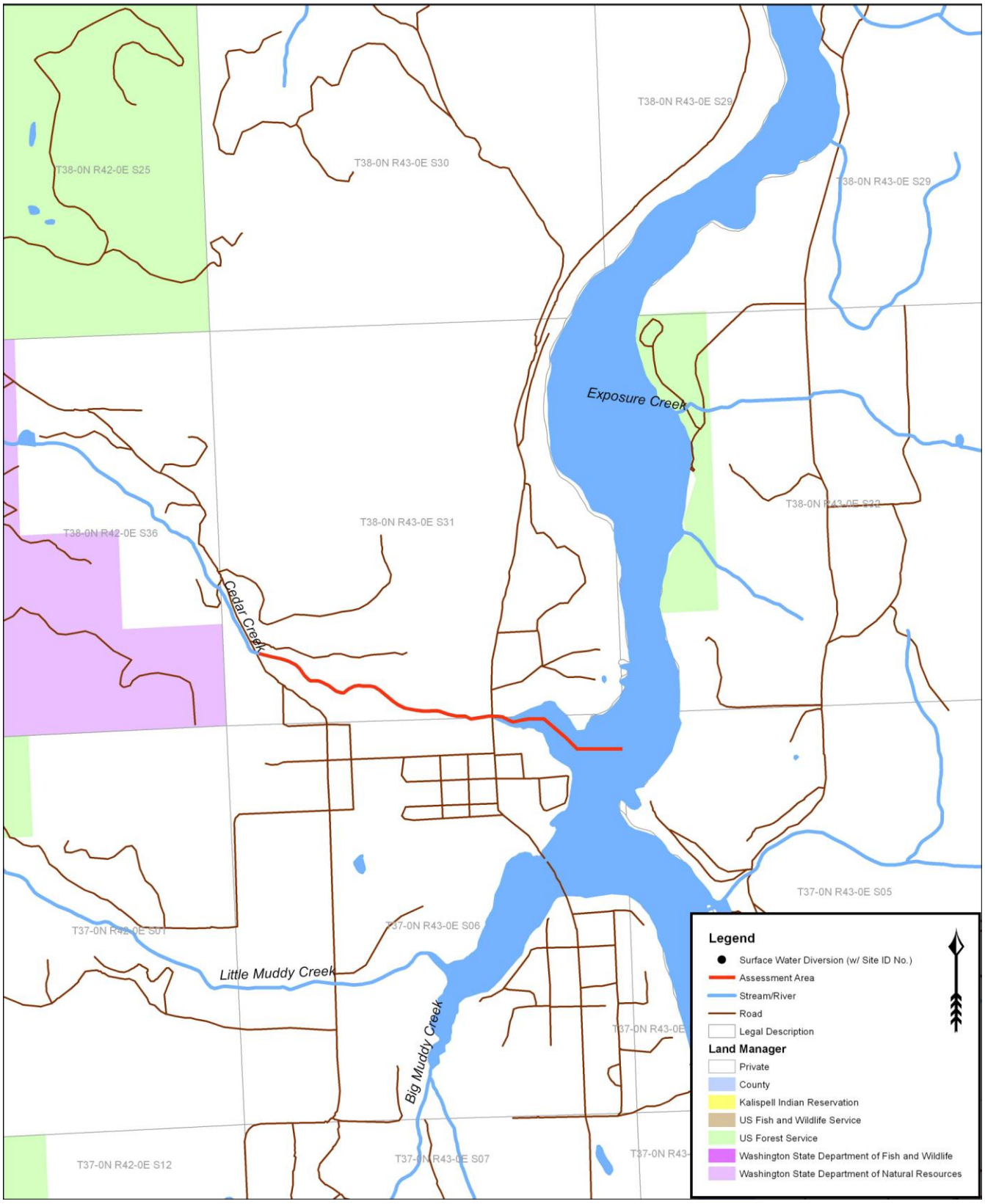

LeClerc Subbasin - Lead Entity Area Priority HIGH #6

Approximately five miles of stream was surveyed in the Leclerc subbasin (Fig. 5). Six surface water diversions were assessed by WDFW, two on Leclerc Creek, three on East Branch Leclerc Creek, and one of West Branch Leclerc Creek. There is little to no agricultural or residential development in the LeClerc subbasin. It appears that all diversions that have been identified are associated with lawn and garden use. In 2007, two active water diversions, one on West Branch LeClerc Creek and one on East Branch LeClerc Creek, were screened through a cooperative project between WDFW and a private landowner (funded by SRFB No. 07-1781). Bull trout and resident westslope cutthroat trout occur in the subbasin.

Table 2: Surface Water Diversions in the Leclerc Subbasin

Priority	Site ID[1]	Stream	Diversion Type	Estimated flow (gpm)	Estimated cost ($ thousand)	SPI
1	1520300	Leclerc, WB	Gravity	480	**Done** SRFB 07-1781	3.68
2	1520299	Leclerc, EB	Pump	160	**Done** SRFB 07-1781	3.33
3	1520025	Leclerc, EB	Pump	35	<1	2.51
3	1520026	Leclerc, EB	Pump	35	<1	2.51
4	1520033	Leclerc	Pump	25	<1	2.32
5	1520030	Leclerc	Pump	14	<1	2.01

Detailed information regarding each diversion can be found in Appendix A.

[1] Site ID 152XXXX were assessed by WDFW; Site ID 129XXXX were assessed by POCD

LeClerc Subbasin

Figure 5

Lead Entity Priority Area = HIGH #6

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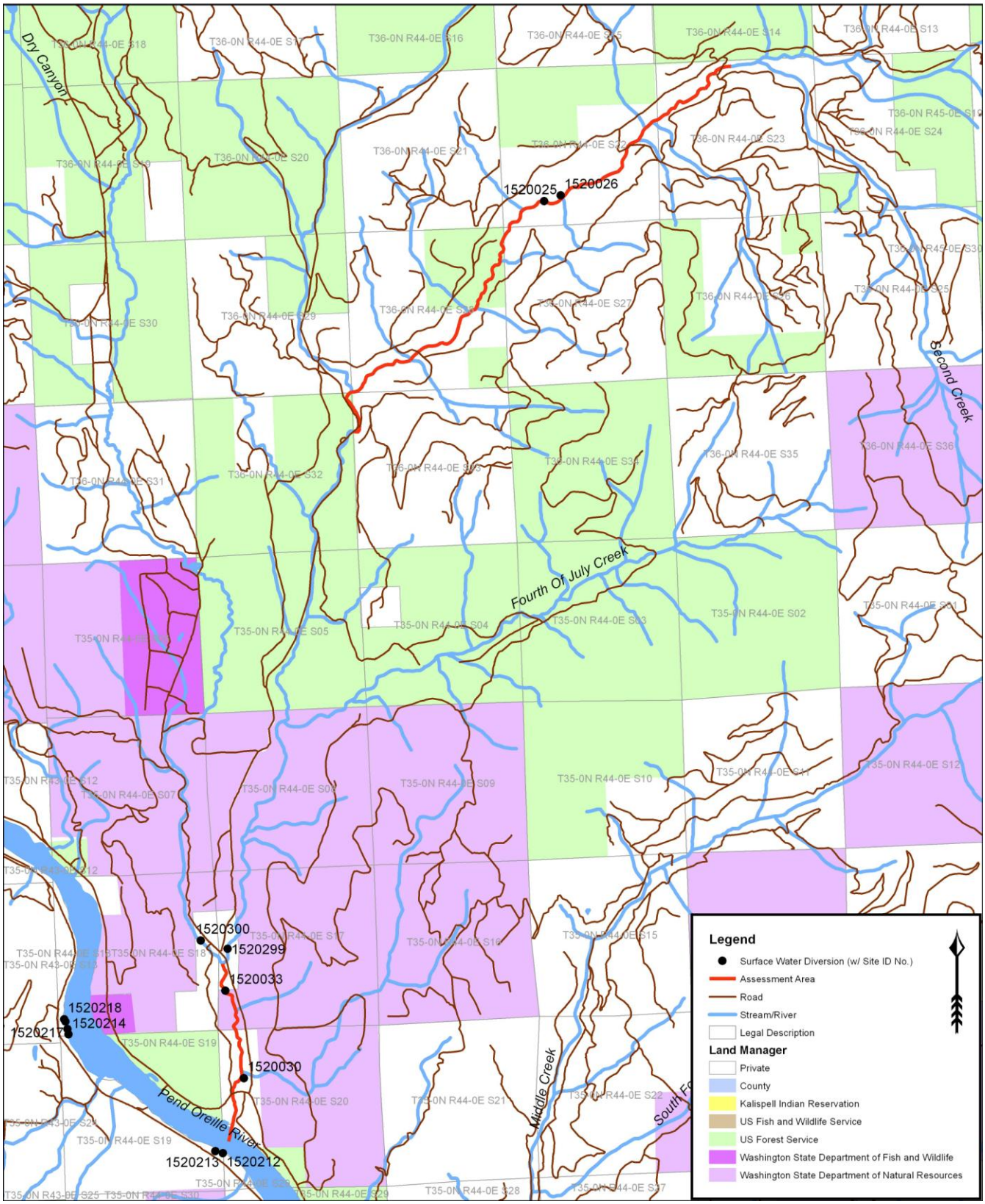

Sullivan Subbasin - Lead Entity Area Priority HIGH #7

Approximately six miles of stream was surveyed in the Sullivan subbasin (Fig. 6). No surface water diversions are known to exist in this subbasin based on this assessment and previous work by the POCD. An unscreened/inadequately screened suction dredge was located downstream of the confluence with North Fork Sullivan Creek. The dredge was either abandoned or inactive at the time of survey. There is little to no agricultural activity in the Sullivan subbasin and most private property is located in the lower stream reaches where water is supplied by the Town of Metaline Falls. Private inholdings within the Colville National Forest upstream of Mill Pond Dam were not surveyed; there is the potential for additional unidentified water diversions in this location. Bull trout and resident westslope cutthroat trout occur in the subbasin.

Indian Subbasin - Lead Entity Area Priority HIGH #8

Approximately two miles of stream were surveyed in the Indian subbasin (Fig. 7), but no surface water diversions were found by WDFW. Three diversions were identified previously in Indian Creek by the POCD, all of which have been screened to meet compliance regulations. All three projects were funded by the SRFB (No. 04-1373). Another diversion/dam is believed to be present in NE ¼ of Section 20 (T 32N, R 45E), however access to this private parcel was denied for both this and the POCD assessment. The Kalispel Tribe filed a compliant with WDFW regarding the diversion, but no action has been taken to date. Contact with the landowner and investigation of this diversion is a high priority. Bull trout and resident westslope cutthroat trout occur in the subbasin.

Table 3: Surface Water Diversions in the Indian Subbasin

Priority	Site ID[1]	Stream	Diversion Type	Estimated flow (gpm)	Estimated cost ($ thousand)	SPI
1	Investigate reported diversion in NE ¼, Section 20, T 32 N, R 45E					
2	1290064	Indian	Gravity	263	**Done** SRFB 04-1373	3.17
3	1290063	Indian	Gravity	112.2	**Done** SRFB 04-1373	2.56
4	1290062	Indian	Gravity	44.88	**Done** SRFB 04-1373	2.04

Upper West Branch Priest River Subbasin - Lead Entity Area Priority HIGH #9

This subbasin was not surveyed as part of this assessment, but was included in the POCD's Priest Basin Barrier Assessment. No diversions were found. It is unknown if bull tout are currently present in the subbasin; westslope cutthroat trout are present.

[1] Site ID 152XXXX were assessed by WDFW; Site ID 129XXXX were assessed by POCD

Sullivan Subbasin

Figure 6

Lead Entity Priority Area = HIGH #7

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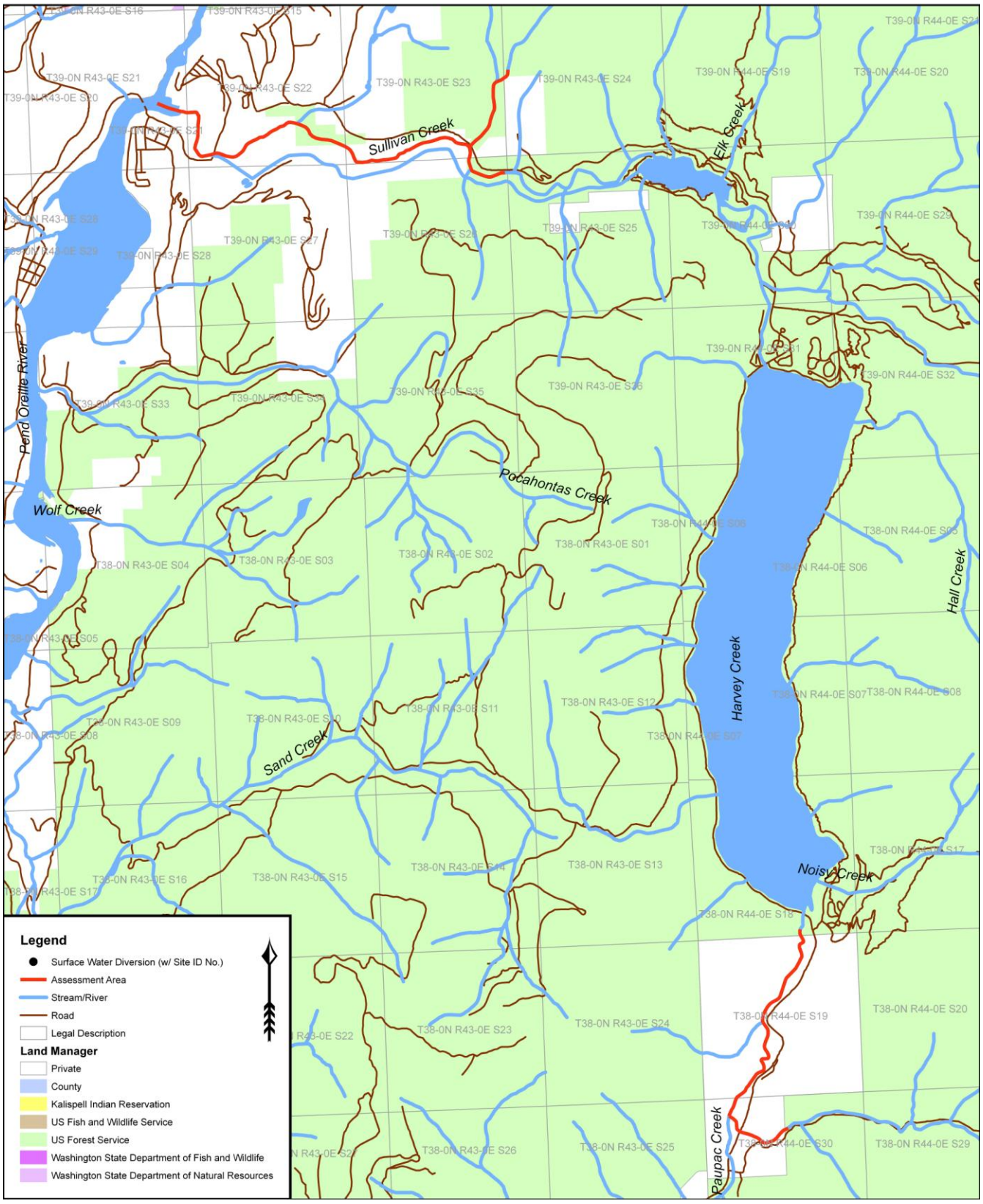

Indian Subbasin

Figure 7

Lead Entity Priority Area = HIGH #8

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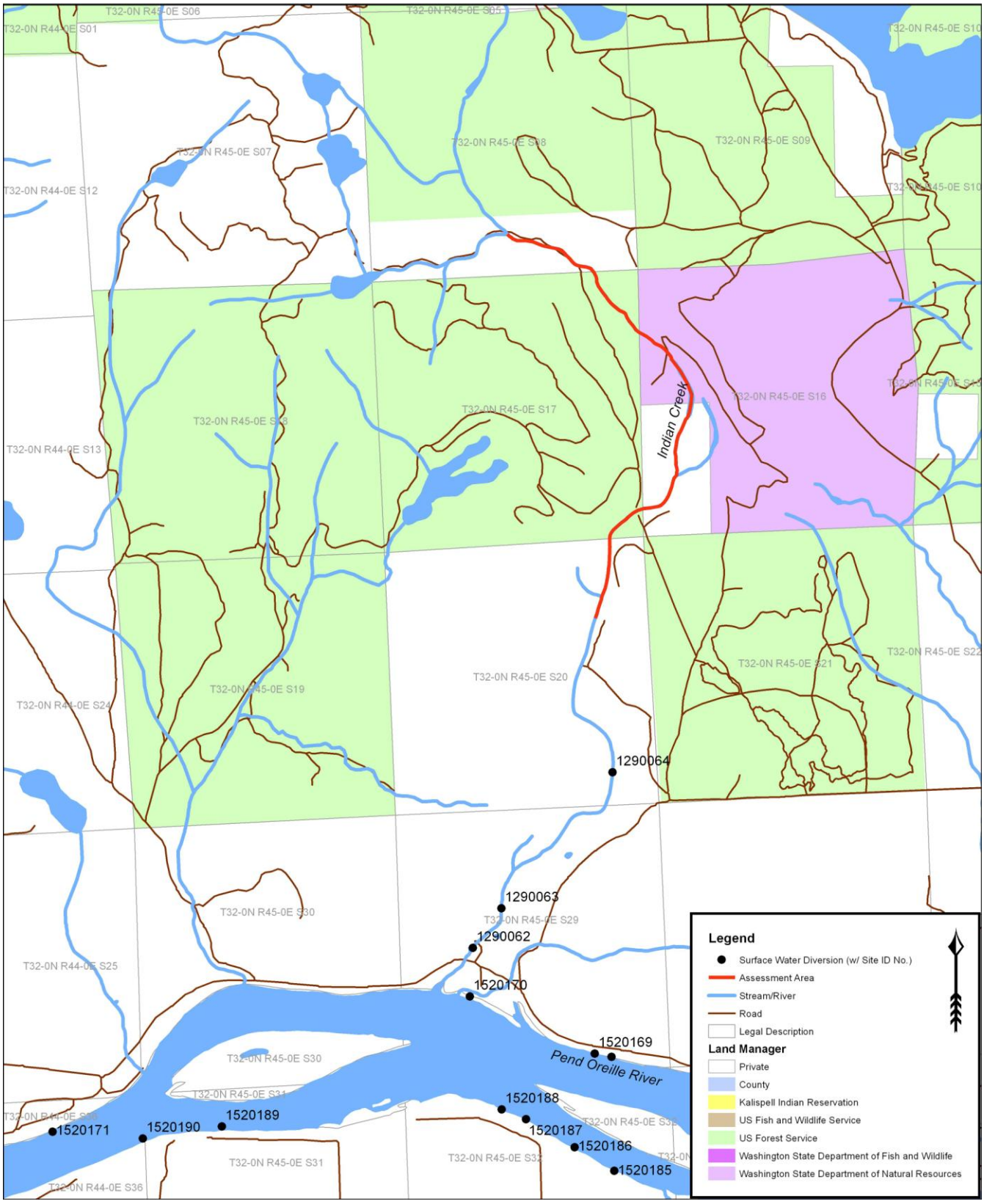

Mill Subbasin - Lead Entity Area Priority HIGH #10

Approximately 11 miles of stream were surveyed in the Mill subbasin (Fig. 8). Survey area was more extensive in this subbasin to cover gaps in fish passage barrier inventory data as well as to identify surface water diversions. One surface water diversion was assessed by WDFW on Mill Creek. Another possible diversion is located just downstream of Site No. 1520010. A rock/timber dam and conveyance material are present, but it does not appear that the diversion is active at this time. Most of the private ownership within the Mill subbasin is by large forest landowners such as Stimson Lumber Company and Idaho Forest Group (Riley). The exception is a few small parcels near the mouth of Mill Creek. Bull trout and resident westslope cutthroat trout occur in the subbasin.

Table 4: Surface Water Diversions in the Mill Subbasin

Priority	Site ID[1]	Stream	Diversion Type	Estimated flow (gpm)	Estimated cost ($ thousand)	SPI
1	1520010	Mill	Gravity	1071	**Funded** USFWS/POCD	4.51

Detailed information regarding the diversion can be found in Appendix A.

Kalispell Subbasin - Lead Entity Area Priority HIGH #11

The Kalispell subbasin was not surveyed as part of this assessment. The Washington portion of this subbasin is almost entirely National Forest System Land. While this subbasin was part of the POCD Priest Basin Barrier Assessment, no diversions were found to exist in the subbasin. It is unknown if bull tout are currently present in the subbasin; westslope cutthroat trout are present.

Cee Cee Ah Subbasin - Lead Entity Area Priority MEDIUM #1

This subbasin was not surveyed during this assessment or that done by the POCD. It is unlikely that diversions are present in this subbasin as ownership is either by the Kalispel Tribe, Forest Service, or large forest landowners (e.g., Stimson Lumber Co.). It is unknown if bull tout are currently present in the subbasin; westslope cutthroat trout are present.

[1] Site ID 152XXXX were assessed by WDFW; Site ID 129XXXX were assessed by POCD

Mill Subbasin

Figure 8

Lead Entity Priority Area = HIGH #10

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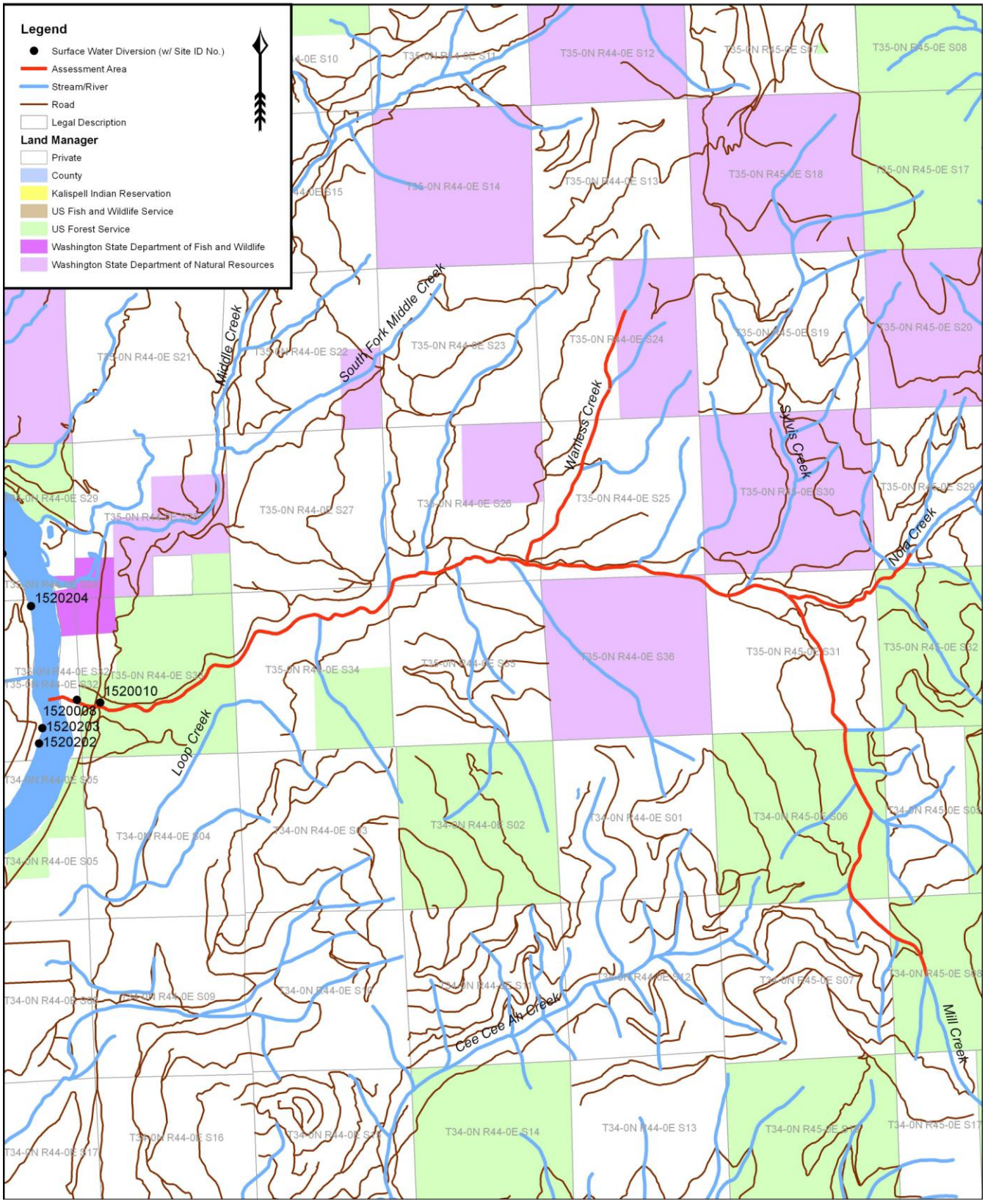

Tacoma Subbasin - Lead Entity Area Priority MEDIUM #2

Approximately 10 miles of stream were surveyed in the Tacoma subbasin (Fig. 9). Thirteen surface water diversions were assessed by WDFW, eight on Tacoma Creek and five on South Fork Tacoma Creek. There is considerable agricultural development in the lower reaches of Tacoma and South Fork Tacoma Creek. Several diversions have been identified. A diversion dam (associated with Site ID No. 1520054), located in Section 35 (T 34N, R 43E) on Tacoma Creek, was recently removed through a cooperative project between the Pend Oreille PUD and landowner. It is unknown if bull tout are currently present in the subbasin; westslope cutthroat trout are present.

Table 5: Surface Water Diversions in the Tacoma Subbasin

Priority	Site ID[1]	Stream	Diversion Type	Estimated flow (gpm)	Estimated cost ($ thousand)	SPI
1	1520070	Tacoma, SF	Gravity	460	>5	3.65
2	1520085	Tacoma, SF	Pump	35	<1	2.51
2	1520060	Tacoma	Pump	35	<1	2.51
2	1520062	Tacoma	Pump	35	<1	2.51
2	1520063	Tacoma	Pump	35	<1	2.51
2	1520066	Tacoma	Pump	35	<1	2.51
2	1520068	Tacoma	Pump	35	<1	2.51
3	1520071	Tacoma, SF	Pump	25	<1	2.32
3	1520073	Tacoma, SF	Pump	25	<1	2.32
4	1520083	Tacoma, SF	Pump	14	<1	2.01
4	1520067	Tacoma	Pump	14	<1	2.01
5	1520054	Tacoma	Pump	40	<1	1.98
6	1520059	Tacoma	Pump	10	<1	1.85

Detailed information regarding each diversion can be found in Appendix A.

[1] Site ID 152XXXX were assessed by WDFW; Site ID 129XXXX were assessed by POCD

Tacoma Subbasin

Figure 9

Lead Entity Priority Area = MEDIUM #2

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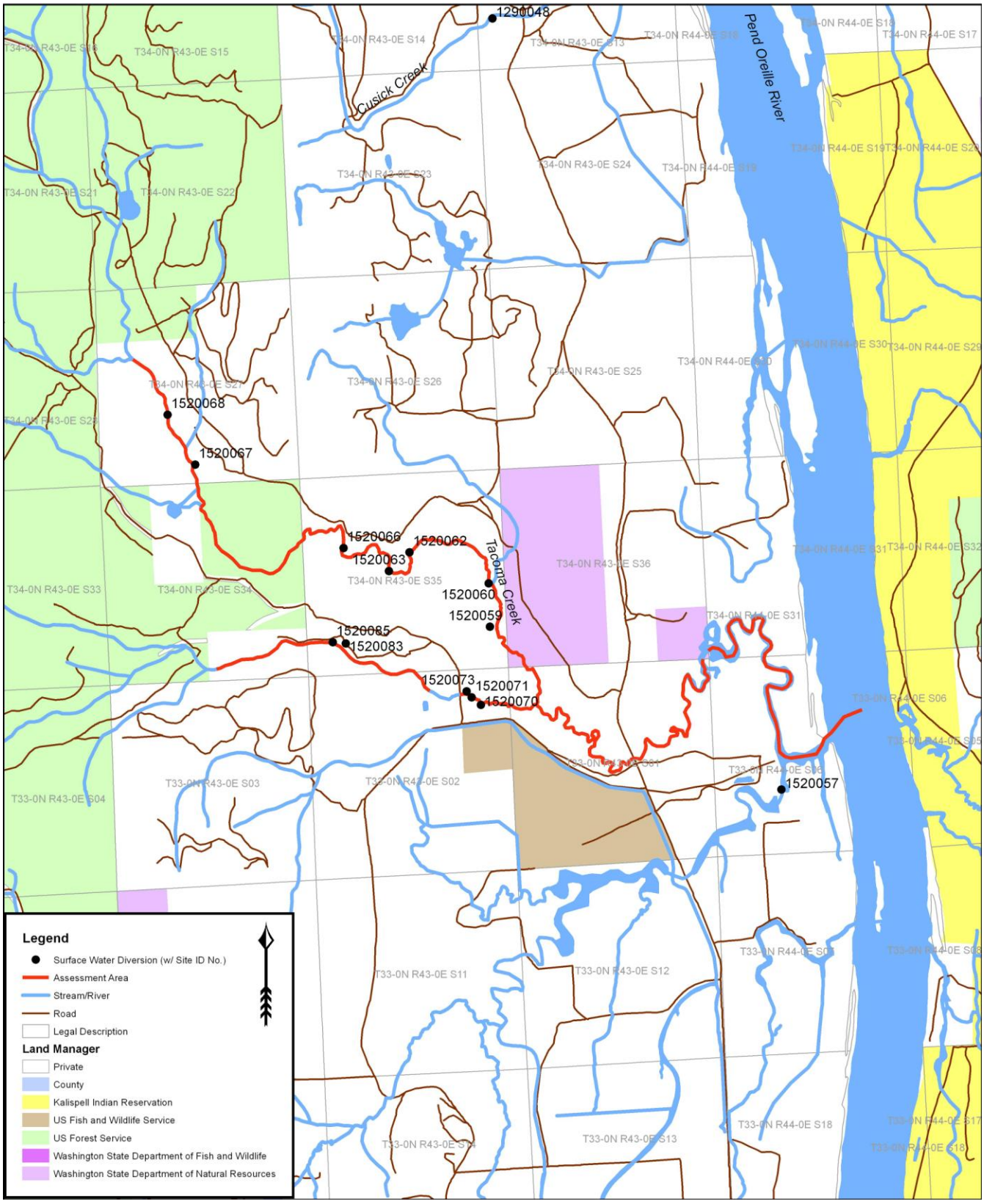

Calispell Subbasin - Lead Entity Area Priority MEDIUM #3

Approximately 26 miles of stream was surveyed in the Calispell subbasin (Fig. 10). Eleven surface water diversions were assessed by WDFW, seven on Calispell Creek, three on Smalle Creek, and one on East Fork Smalle Creek. Previous surveys by the POCD located two additional diversions, one in East Fork Smalle Creek and one Winchester Creek. Winchester Creek was not inventoried by WDFW. There is considerable agricultural development in the Calispell subbasin. Several large diversions have been identified that have the potential to impact fish. Bull trout are currently not present in the subbasin due to a fish passage barrier near the mouth of Calipsell Creek (i.e., Calispell Pumps – Pend Oreille PUD). Westslope cutthroat trout are known to be present in the subbasin.

Table 6: Surface Water Diversions in the Calispell Subbasin

Priority	Site ID[1]	Stream	Diversion Type	Estimated flow (gpm)	Estimated cost ($ thousand)	SPI
1	1520040[2]	Calispell	Gravity	2525	>5	3.77
2	1520045	Calispell	Gravity	2425	>5	3.74
3	1520042	Calispell	Gravity	2357	>5	3.71
4	1520047	Calispell	Gravity	1100	>5	3.07
5	1520114	Smalle	Gravity	310	>5	2.23
6	1520043	Calispell	Pump	65	1-5	1.80
6	1520106	Smalle, EF	Pump	40-65	1-5	1.80
7	1520044	Calispell	Pump	35	<1	1.70
8	1520127	Smalle	Pump	40	<1	1.48
Unk	1290136	Smalle, EF	Gravity	Unknown	>5	Unk
Unk	1290134	Winchester	Gravity	Unknown	>5	Unk
Unk	1520108	Smalle	Pump	Unknown	Unknown	Unk

Detailed information regarding each diversion can be found in Appendix A.

[1] Site ID 152XXXX were assessed by WDFW; Site ID 129XXXX were assessed by POCD
[2] This Site is a one-way (outflow) flapper gate; it is unknown if fish can be entrained during operation

Calispell Subbasin

Figure 10-1

Lead Entity Priority Area = MEDIUM #3

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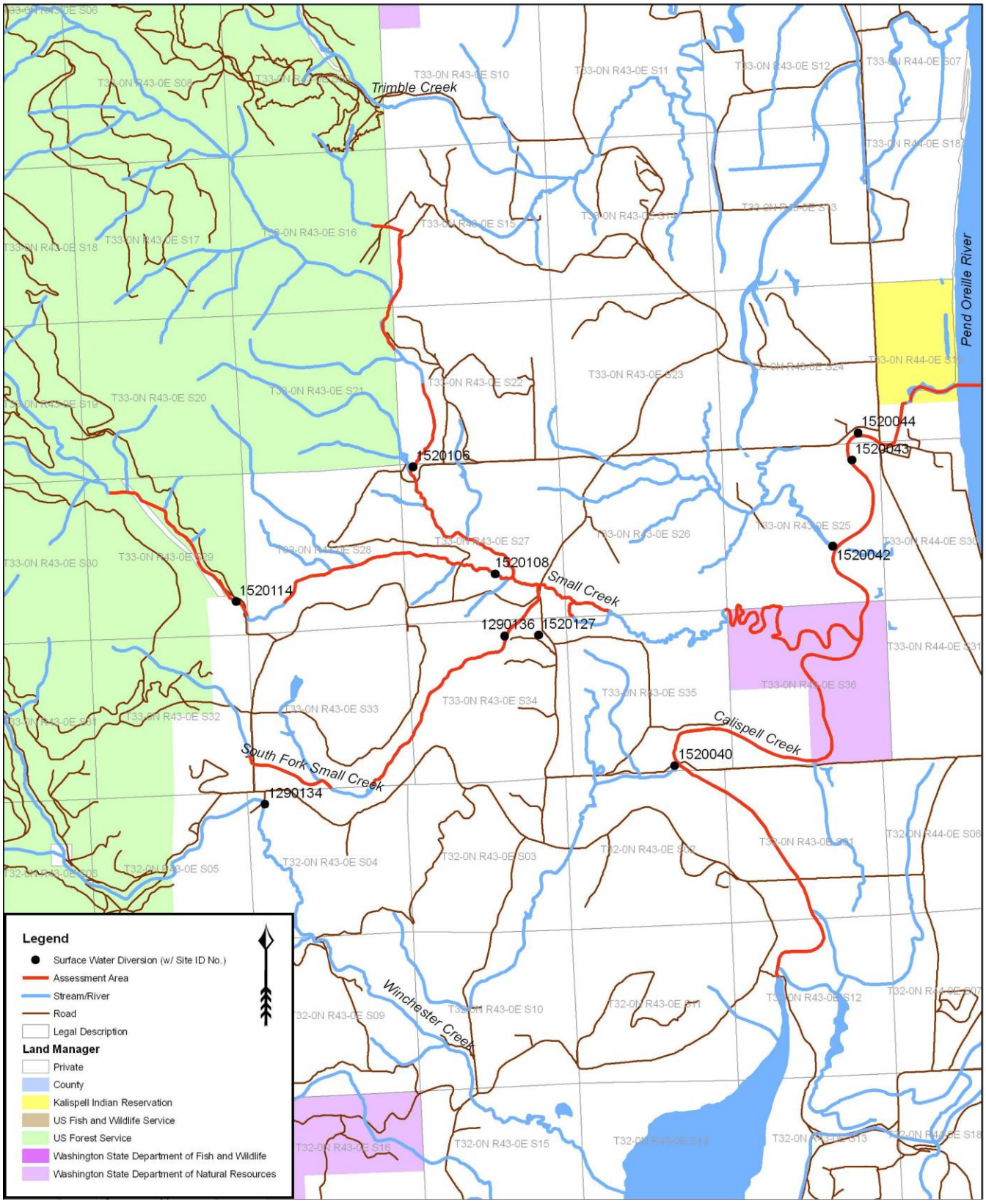

Calispell Subbasin

Figure 10-2

Lead Entity Priority Area = MEDIUM #3

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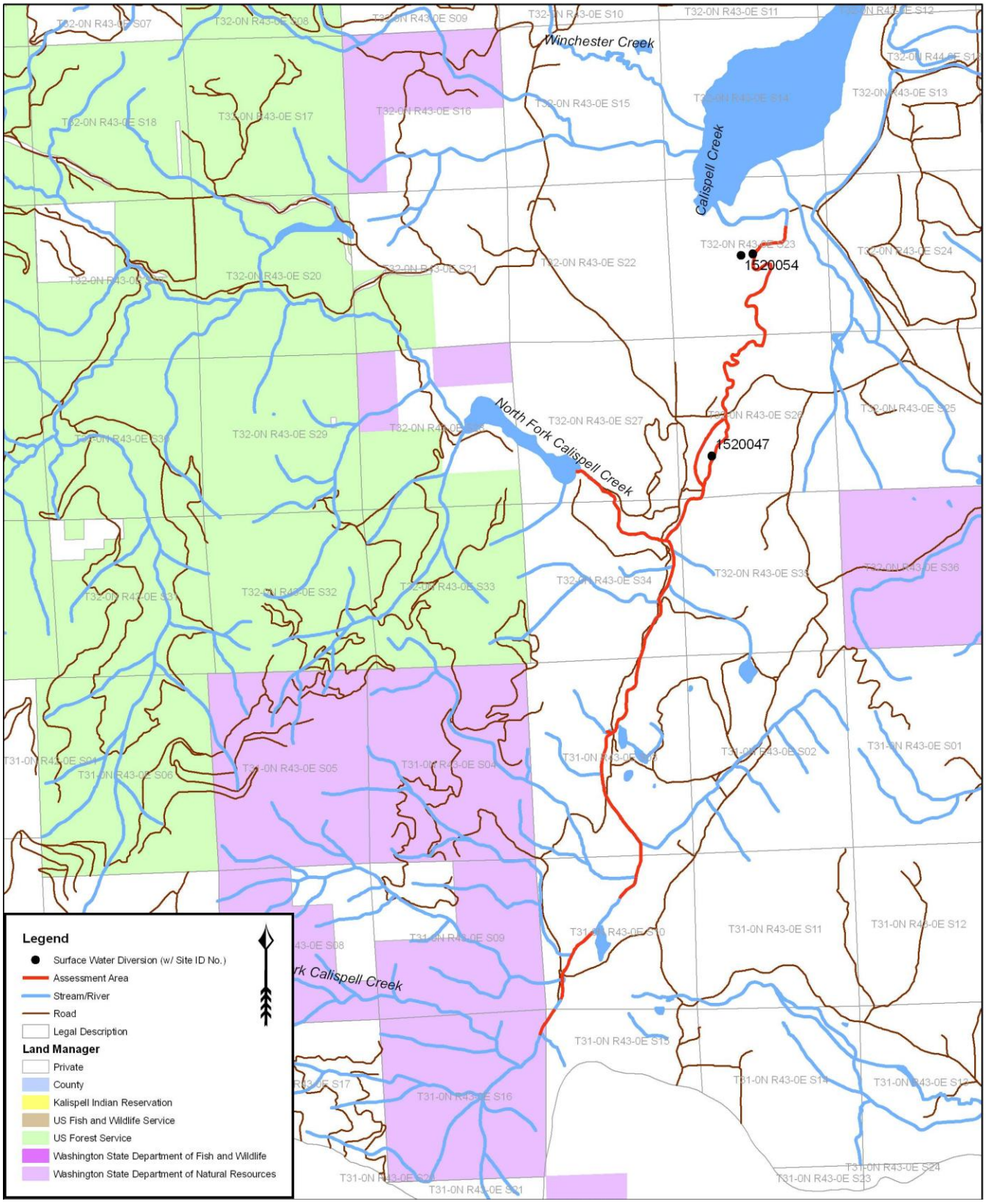

Ruby Subbasin - Lead Entity Area Priority MEDIUM #4

The Ruby subbasin was not included in this assessment or those done by the POCD. There is very little private property in the subbasin. The likelihood of diversions being present is low, however the area should be assessed in the future to confirm this assumption. It is unknown if bull tout occur in the subbasin; westslope cutthroat trout are present.

Skookum Subbasin - Lead Entity Area Priority LOW

Approximately 12 miles of stream were surveyed in the Skookum subbasin (Fig. 11). Thirteen surface water diversions were assessed by WDFW, ten on Skookum Creek, one on North Fork Skookum Creek, and two on South Fork Skookum Creek. Previous surveys by the POCD located three additional diversions on Skookum Creek . WDFW re-evaluated Site No. 1290083 and collected more detailed information on the diversion (Appendix A). There is substantial agricultural and rural development in the Skookum subbasin. Several diversions, including dams, ditches, and pumps have been identified. Several diversions were also assessed in Skookum Slough (see Table 9). Bull trout are currently not present in the subbasin; westslope cutthroat trout are present.

Table 7: Surface Water Diversions in the Skookum Subbasin

Priority	Site ID[1]	Stream	Diversion Type	Estimated flow (gpm)	Estimated cost ($ thousand)	SPI
1	1520278	Skookum	Gravity	750	>5	2.79
2	1290053	Skookum	Pump	160	<1	2.49
3	1290083	Skookum	Gravity	437	>5	2.43
4	1520285	Skookum	Pump	65	1-5	1.80
5	1520266	Skookum	Pump	40	<1	1.76
5	1520275	Skookum, NF	Pump	40	<1	1.76
6	1520140	Skookum	Pump	35	<1	1.70
6	1520273	Skookum	Pump	35	<1	1.70
7	1520269	Skookum	Pump	25	<1	1.57
7	1520145	Skookum, SF	Pump	25	<1	1.57
8	1520286	Skookum	Gravity	49	>5	1.41
9	1520142	Skookum	Pump	14	<1	1.36
9	1520274	Skookum	Pump	14	<1	1.36
Unk	1520147	Skookum, SF	Gravity	Unknown	>5	Unk
Unk	1290068	Skookum	Pump	Unknown	Unknown	Unk
Unk	1520282	Skookum	Gravity	Unknown	>5	Unk

Detailed information regarding each diversion can be found in Appendix A.

[1] Site ID 152XXXX were assessed by WDFW; Site ID 129XXXX were assessed by POCD

Skookum Subbasin

Figure 11

Lead Entity Priority Area = LOW

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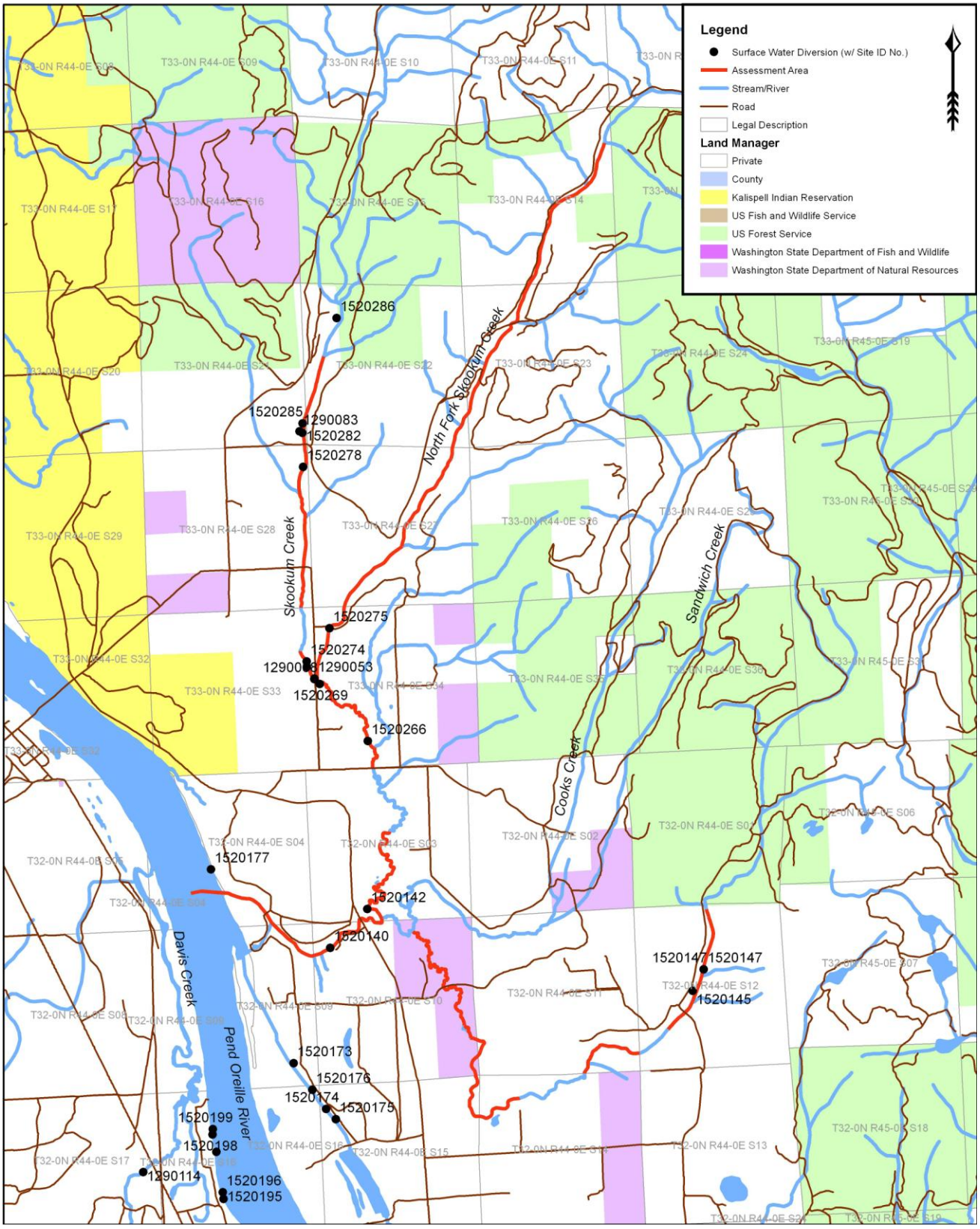


Other Subbasins - Lead Entity Area Priority LOW or UNRANKED

The following is a list of other diversions which were identified by the POCD. This list is not prioritized. All sites are located in low priority or unranked subbasins and maps and detailed reports are not provided. This information can be requested from WDFW.

Table 8: Surface Water Diversions in other subbasins

Priority	Site ID[1]	Stream	Diversion Type	Estimated flow (gpm)	Estimated cost ($ thousand)	SPI
Unk	1290115	Davis	Pump	160	<1	2.10
Unk	1290104	Kent	Gravity	40	Unknown	1.34
Unk	1290048	Cusick	Gravity	0.33	>5	0.40
Unk	1290088	Bracket	Pump	Unknown	Unknown	Unk
Unk	1290114	Davis	Gravity	Unknown	Unknown	Unk
Unk	1290116	Davis	Pump	Unknown	Unknown	Unk
Unk	1290117	Davis	Pump	Unknown	Unknown	Unk
Unk	1290096	Kent	Gravity	Unknown	Unknown	Unk
Unk	1290100	Kent	Pump	Unknown	Unknown	Unk
Unk	1290106	Kent, tributary	Pump	Unknown	Unknown	Unk

[1] Site ID 152XXXX were assessed by WDFW; Site ID 129XXXX were assessed by POCD

Pend Oreille River, mainstem - Lead Entity Area Priority UNRANKED

Approximately 84 miles of the Pend Oreille River mainstem was surveyed. Survey area included both banks of the river from Newport to Ruby and the right bank only from Ruby to the Ione bridge (Figs. 12-19). The entire river was not inventoried due to time and equipment constraints. One-hundred and nine surface water diversions were assessed, with the largest concentration in the Blueside area. There is substantial residential development along the shoreline of the Pend Oreille River. The Pend Oreille River is used by bull trout as a migration corridor to spawning habitat in tributaries. Westslope cutthroat trout are found in the Pend Oreille River, but at very low densities.

Table 9: Surface Water Diversions along the Pend Oreille River

Priority	Site ID[1]	Stream	Diversion Type	Estimated flow (gpm)	Estimated cost ($ thousand)	SPI
1	1520195	Pend Oreille	Pump	180	<1	1.11
2	1520167	Pend Oreille	Pump	90	1-5	0.93
3	1520169	Pend Oreille	Pump	65	1-5	0.86
3	1520200	Pend Oreille	Pump	65	1-5	0.86
3	1520210	Pend Oreille	Pump	65	1-5	0.86
4	1520155	Pend Oreille	Pump	40	<1	0.84
4	1520156	Pend Oreille	Pump	40	<1	0.84
4	1520158	Pend Oreille	Pump	40	<1	0.84
4	1520159	Pend Oreille	Pump	40	<1	0.84
4	1520160	Pend Oreille	Pump	40	<1	0.84
4	1520163	Pend Oreille	Pump	40	<1	0.84
4	1520166	Pend Oreille	Pump	40	<1	0.84
4	1520171	Pend Oreille	Pump	40	<1	0.84
4	1520177	Pend Oreille	Pump	40	<1	0.84
4	1520178	Pend Oreille	Pump	40	<1	0.84
4	1520179	Pend Oreille	Pump	40	<1	0.84
4	1520180	Pend Oreille	Pump	40	<1	0.84
4	1520182	Pend Oreille	Pump	40	<1	0.84
4	1520186	Pend Oreille	Pump	40	<1	0.84
4	1520188	Pend Oreille	Pump	40	<1	0.84
4	1520191	Pend Oreille	Pump	40	<1	0.84
4	1520192	Pend Oreille	Pump	40	<1	0.84
4	1520194	Pend Oreille	Pump	40	<1	0.84
4	1520196	Pend Oreille	Pump	40	<1	0.84
4	1520198	Pend Oreille	Pump	40	<1	0.84
4	1520199	Pend Oreille	Pump	40	<1	0.84
4	1520208	Pend Oreille	Pump	40	<1	0.84
4	1520209	Pend Oreille	Pump	40	<1	0.84
4	1520214	Pend Oreille	Pump	40	<1	0.84
4	1520220	Pend Oreille	Pump	40	<1	0.84

[1] Site ID 152XXXX were assessed by WDFW; Site ID 129XXXX were assessed by POCD

Priority	Site ID[1]	Stream	Diversion Type	Estimated flow (gpm)	Estimated cost ($ thousand)	SPI
4	1520221	Pend Oreille	Pump	40	<1	0.84
4	1520222	Pend Oreille	Pump	40	<1	0.84
4	1520223	Pend Oreille	Pump	40	<1	0.84
4	1520225	Pend Oreille	Pump	40	<1	0.84
4	1520231	Pend Oreille	Pump	40	<1	0.84
4	1520234	Pend Oreille	Pump	40	<1	0.84
4	1520237	Pend Oreille	Pump	40	<1	0.84
4	1520238	Pend Oreille	Pump	40	<1	0.84
4	1520239	Pend Oreille	Pump	40	<1	0.84
4	1520247	Pend Oreille	Pump	40	<1	0.84
4	1520248	Pend Oreille	Pump	40	<1	0.84
4	1520250	Pend Oreille	Pump	40	<1	0.84
4	1520251	Pend Oreille	Pump	40	<1	0.84
4	1520252	Pend Oreille	Pump	40	<1	0.84
4	1520253	Pend Oreille	Pump	40	<1	0.84
4	1520254	Pend Oreille	Pump	40	<1	0.84
4	1520255	Pend Oreille	Pump	40	<1	0.84
4	1520257	Pend Oreille	Pump	40	<1	0.84
4	1520263	Pend Oreille	Pump	40	<1	0.84
4	1520264	Pend Oreille	Pump	40	<1	0.84
4	1520265	Pend Oreille	Pump	40	<1	0.84
4	1520173	Skookum Sl	Pump	40	<1	0.84
4	1520174	Skookum Sl	Pump	40	<1	0.84
4	1520175	Skookum Sl	Pump	40	<1	0.84
4	1520176	Skookum Sl	Pump	40	<1	0.84
5	1520172	Skookum Sl	Pump	35	<1	0.81
5	1520157	Pend Oreille	Pump	35	<1	0.81
5	1520161	Pend Oreille	Pump	35	<1	0.81
5	1520162	Pend Oreille	Pump	35	<1	0.81
5	1520164	Pend Oreille	Pump	35	<1	0.81
5	1520165	Pend Oreille	Pump	35	<1	0.81
5	1520181	Pend Oreille	Pump	35	<1	0.81
5	1520187	Pend Oreille	Pump	35	<1	0.81
5	1520189	Pend Oreille	Pump	35	<1	0.81
5	1520190	Pend Oreille	Pump	35	<1	0.81
5	1520193	Pend Oreille	Pump	35	<1	0.81
5	1520197	Pend Oreille	Pump	35	<1	0.81
5	1520202	Pend Oreille	Pump	35	<1	0.81
5	1520204	Pend Oreille	Pump	35	<1	0.81
5	1520205	Pend Oreille	Pump	35	<1	0.81
5	1520206	Pend Oreille	Pump	35	<1	0.81
5	1520207	Pend Oreille	Pump	35	<1	0.81
5	1520217	Pend Oreille	Pump	35	<1	0.81

[1] Site ID 152XXXX were assessed by WDFW; Site ID 129XXXX were assessed by POCD

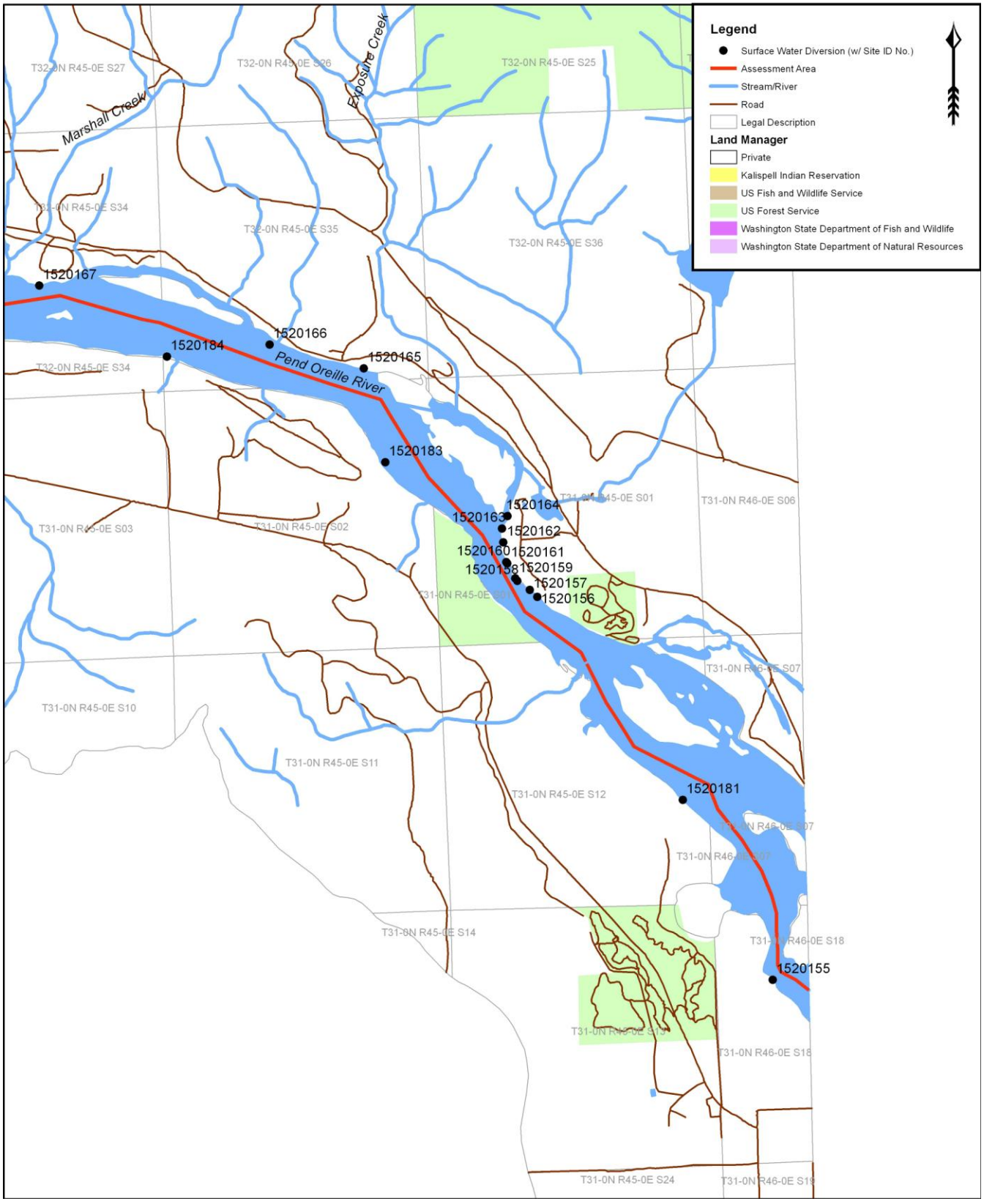
Priority	Site ID[1]	Stream	Diversion Type	Estimated flow (gpm)	Estimated cost ($ thousand)	SPI
5	1520229	Pend Oreille	Pump	35	<1	0.81
5	1520233	Pend Oreille	Pump	35	<1	0.81
5	1520235	Pend Oreille	Pump	35	<1	0.81
5	1520236	Pend Oreille	Pump	35	<1	0.81
5	1520241	Pend Oreille	Pump	35	<1	0.81
5	1520242	Pend Oreille	Pump	35	<1	0.81
5	1520259	Pend Oreille	Pump	35	<1	0.81
5	1520260	Pend Oreille	Pump	35	<1	0.81
6	1520168	Pend Oreille	Pump	25	<1	0.75
6	1520201	Pend Oreille	Pump	25	<1	0.75
6	1520203	Pend Oreille	Pump	25	<1	0.75
6	1520211	Pend Oreille	Pump	25	<1	0.75
6	1520212	Pend Oreille	Pump	25	<1	0.75
6	1520215	Pend Oreille	Pump	25	<1	0.75
6	1520216	Pend Oreille	Pump	25	<1	0.75
6	1520218	Pend Oreille	Pump	25	<1	0.75
6	1520219	Pend Oreille	Pump	25	<1	0.75
6	1520227	Pend Oreille	Pump	25	<1	0.75
6	1520230	Pend Oreille	Pump	25	<1	0.75
6	1520240	Pend Oreille	Pump	25	<1	0.75
6	1520243	Pend Oreille	Pump	25	<1	0.75
6	1520244	Pend Oreille	Pump	25	<1	0.75
6	1520246	Pend Oreille	Pump	25	<1	0.75
6	1520249	Pend Oreille	Pump	25	<1	0.75
6	1520256	Pend Oreille	Pump	25	<1	0.75
6	1520261	Pend Oreille	Pump	25	<1	0.75
6	1520262	Pend Oreille	Pump	25	<1	0.75
7	1520183	Pend Oreille	Pump	14	<1	0.65
7	1520184	Pend Oreille	Pump	14	<1	0.65
7	1520228	Pend Oreille	Pump	14	<1	0.65
7	1520245	Pend Oreille	Pump	14	<1	0.65
Unk	1520170	Pend Oreille	Pump	Unknown	Unknown	Unk
Unk	1520185	Pend Oreille	Pump	Unknown	Unknown	Unk
Unk	1520213	Pend Oreille	Pump	Unknown	Unknown	Unk
Unk	1520232	Pend Oreille	Pump	Unknown	Unknown	Unk

[1] Site ID 152XXXX were assessed by WDFW; Site ID 129XXXX were assessed by POCD

Pend Oreille River - Newport to Marshall Crk

Lead Entity Priority Area = UNRANKED

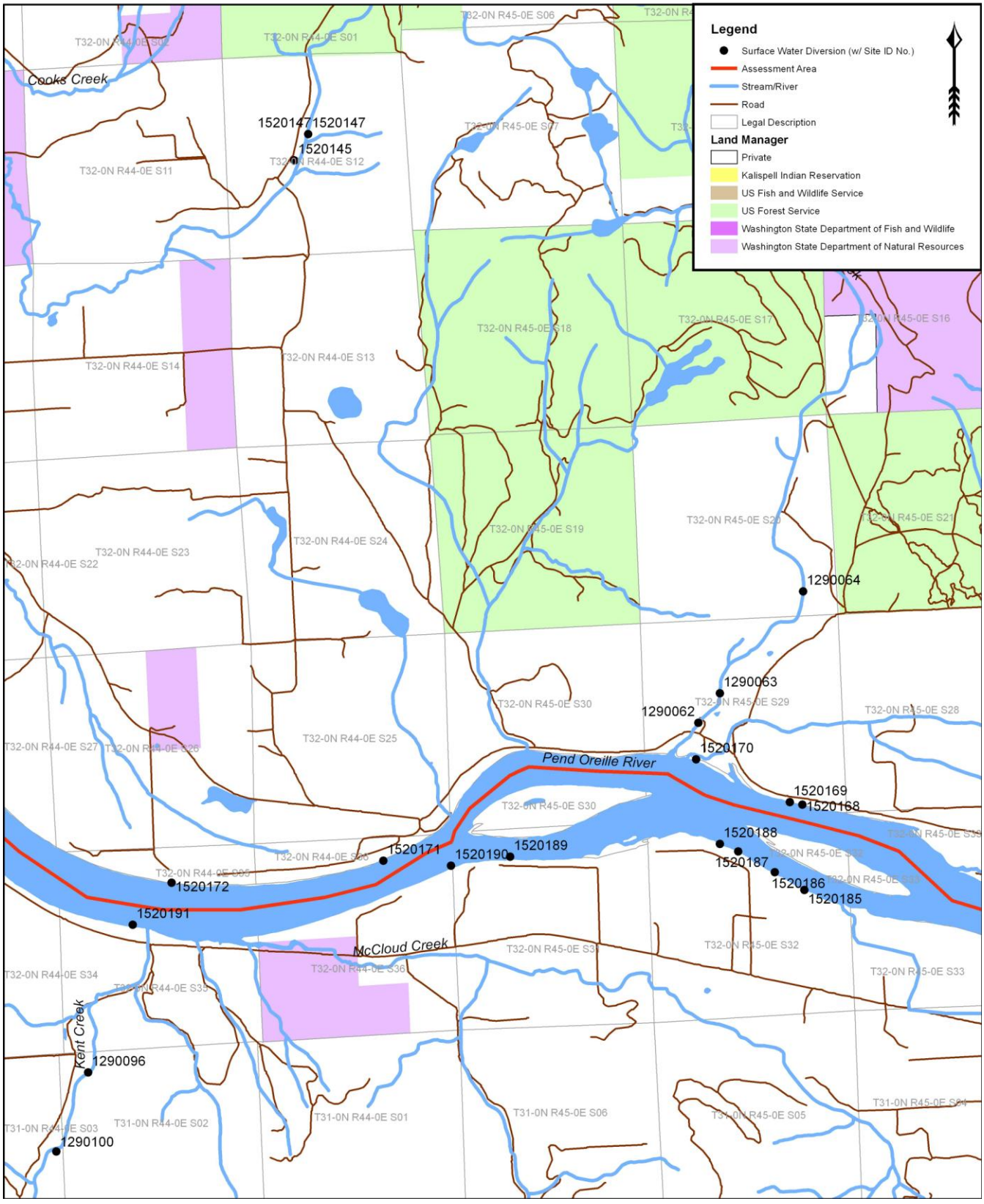
Figure 12 1:30,000



Pend Oreille River - Marshall Crk to Kent Crk

Lead Entity Priority Area = UNRANKED

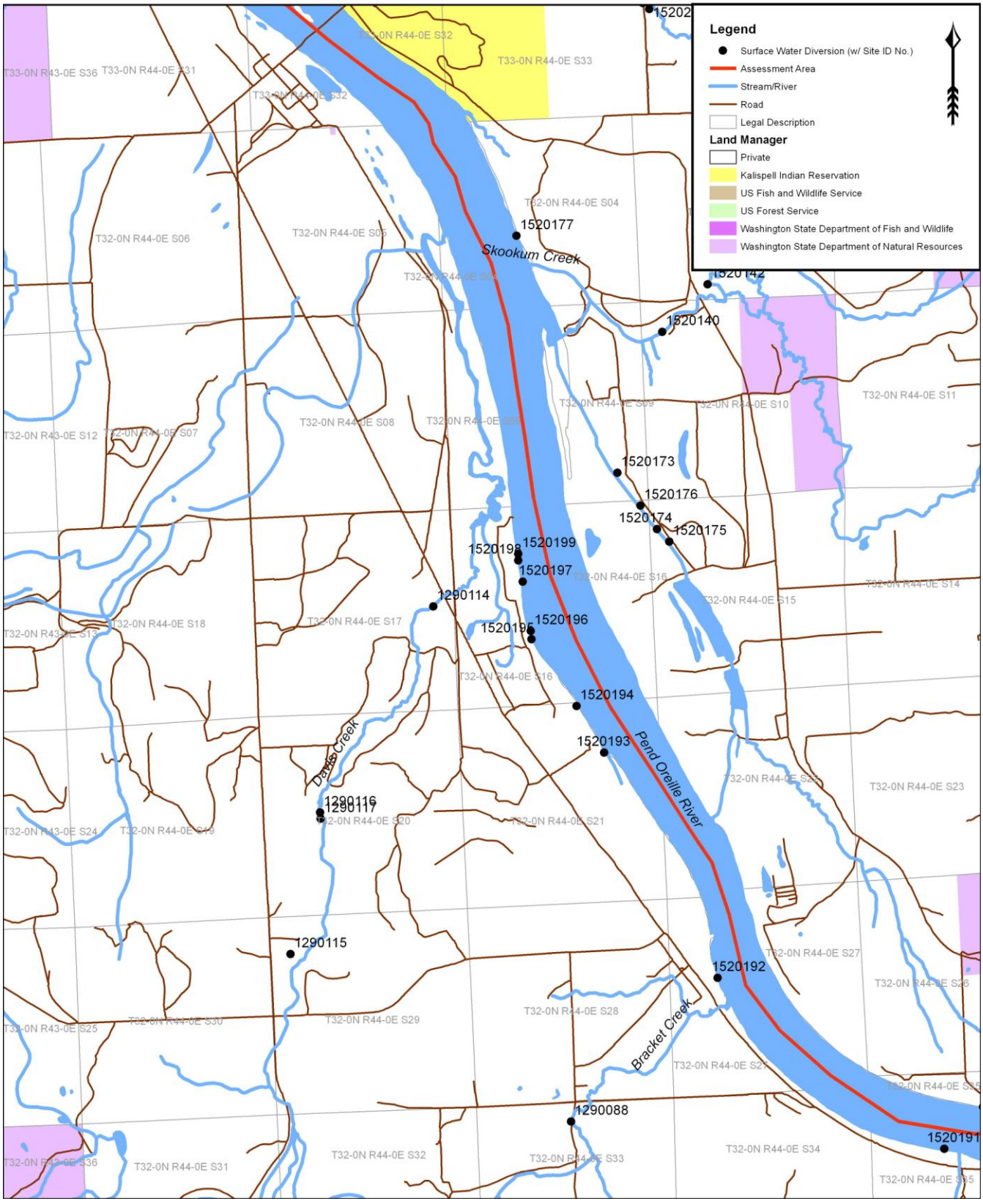
Figure 13 1:40,000



Pend Oreille River - Kent Crk to Usk

Lead Entity Priority Area = UNRANKED

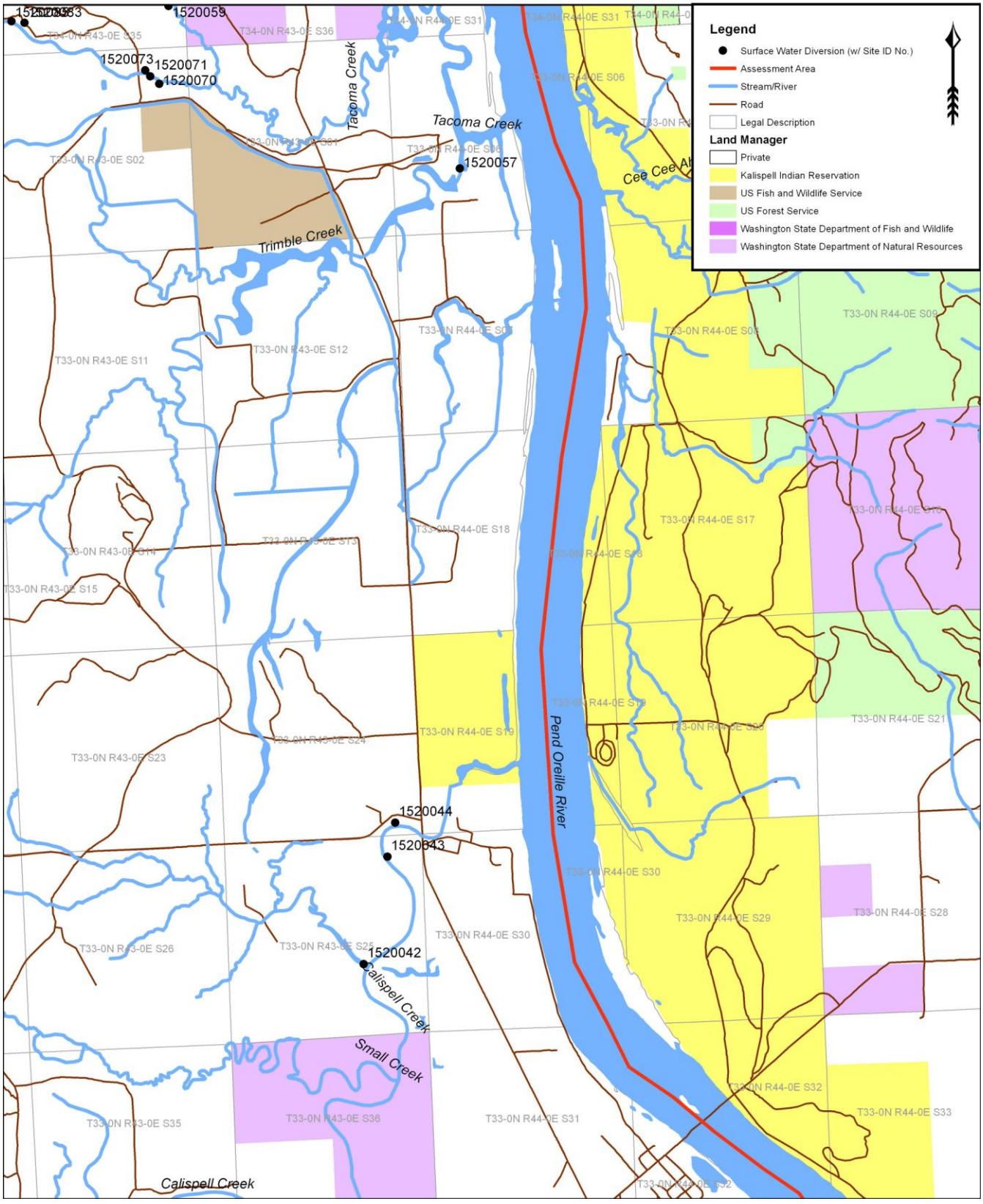
Figure 14 1:40,000



Pend Oreille River - Usk to Tacoma Crk

Lead Entity Priority Area = UNRANKED

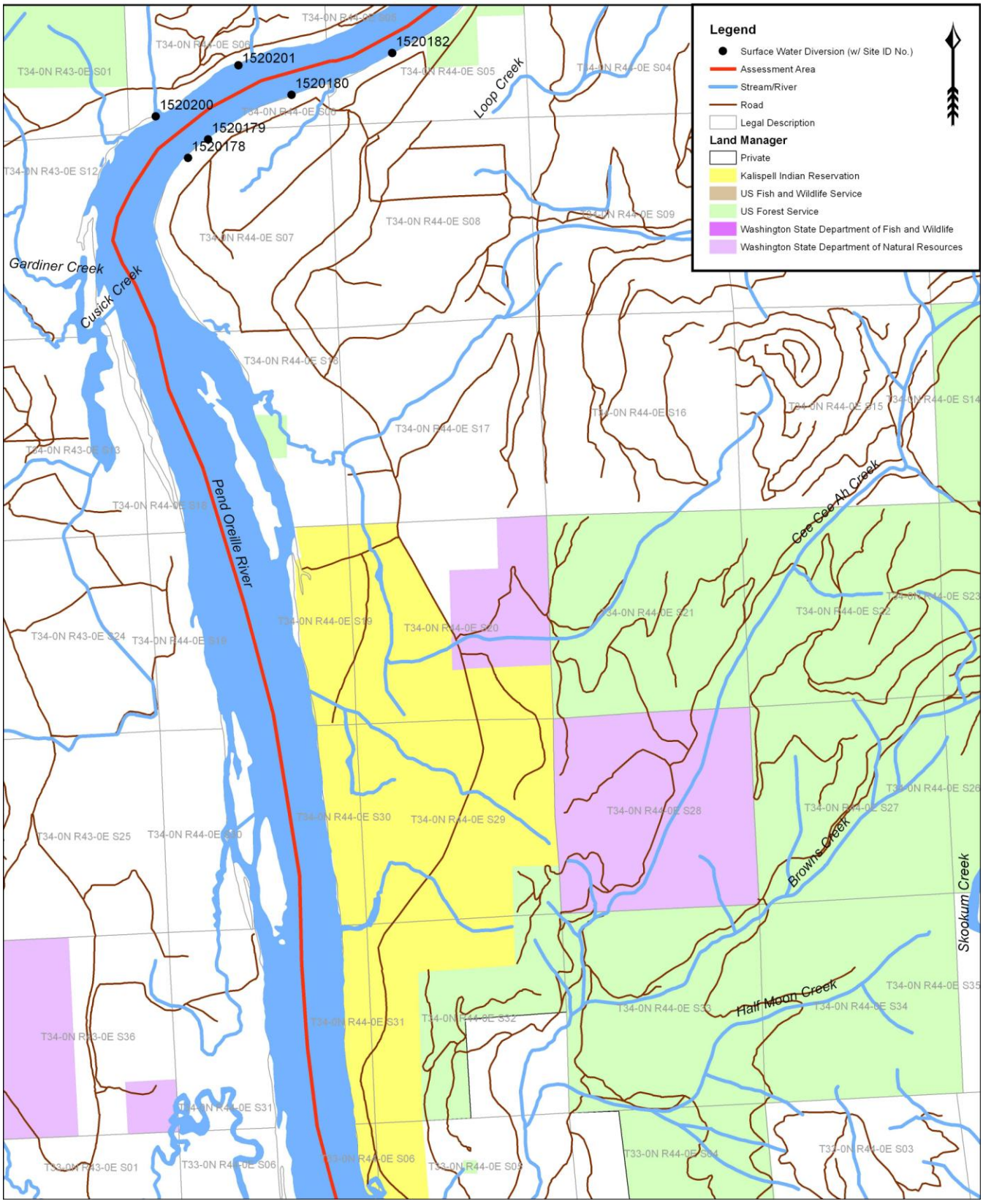
Figure 15 1:40,000



Pend Oreille River -Tacoma Crk to Riverside

Lead Entity Priority Area = UNRANKED

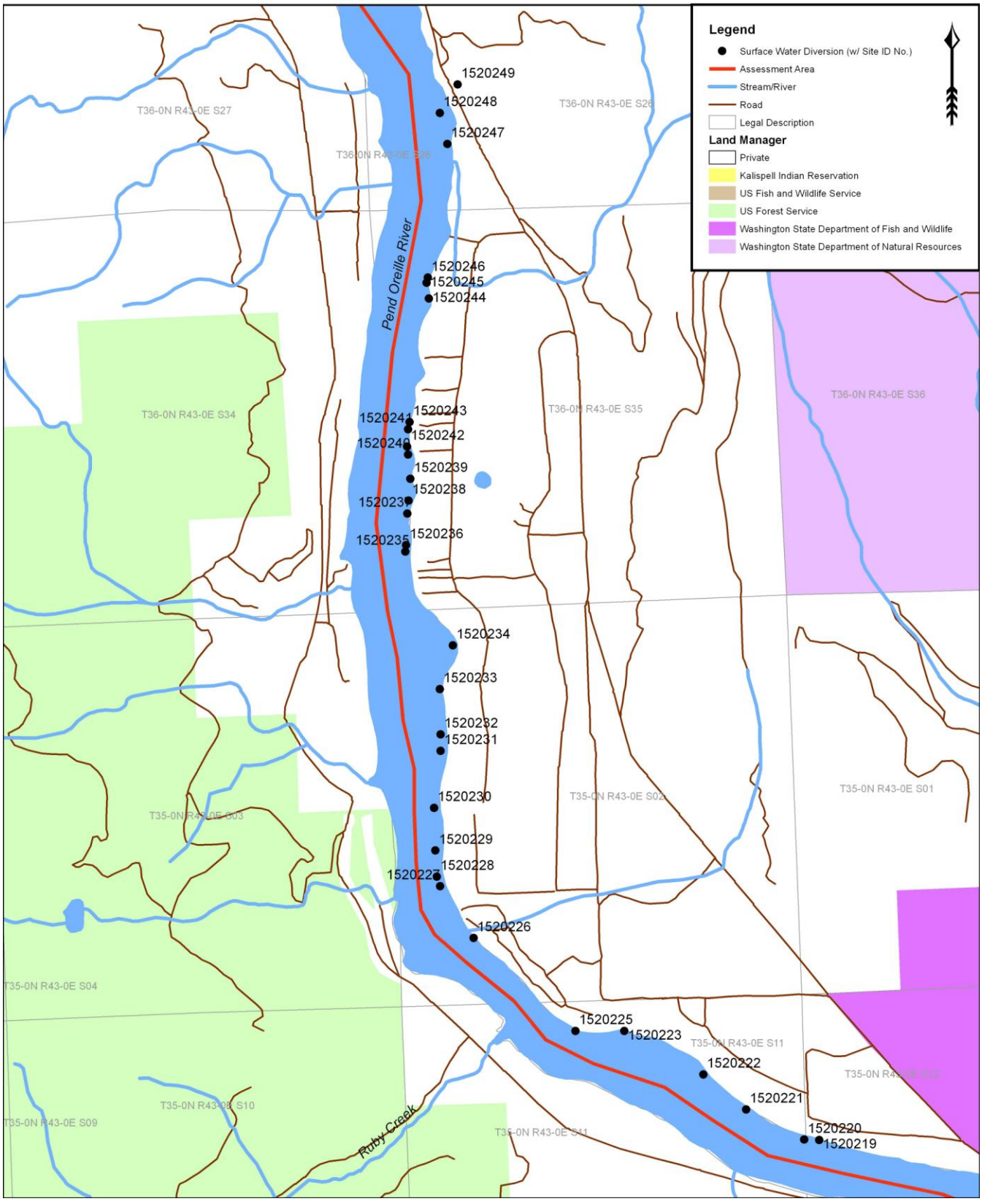
Figure 16 1:40,000



Pend Oreille River - Blueside Area

Lead Entity Priority Area = UNRANKED

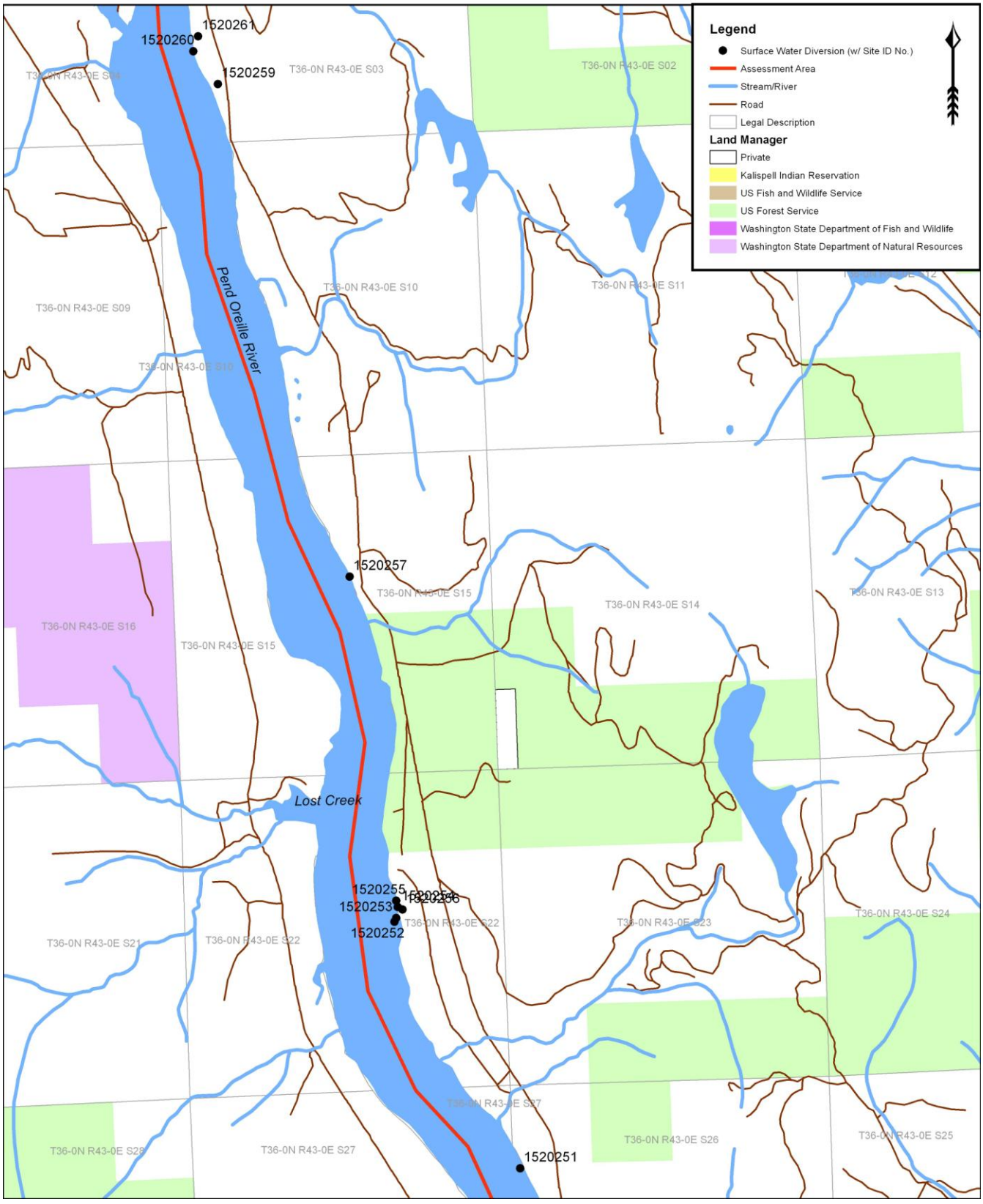
Figure 17 1:20,000



Pend Oreille River - Blueside to Tiger Slough

Lead Entity Priority Area = UNRANKED

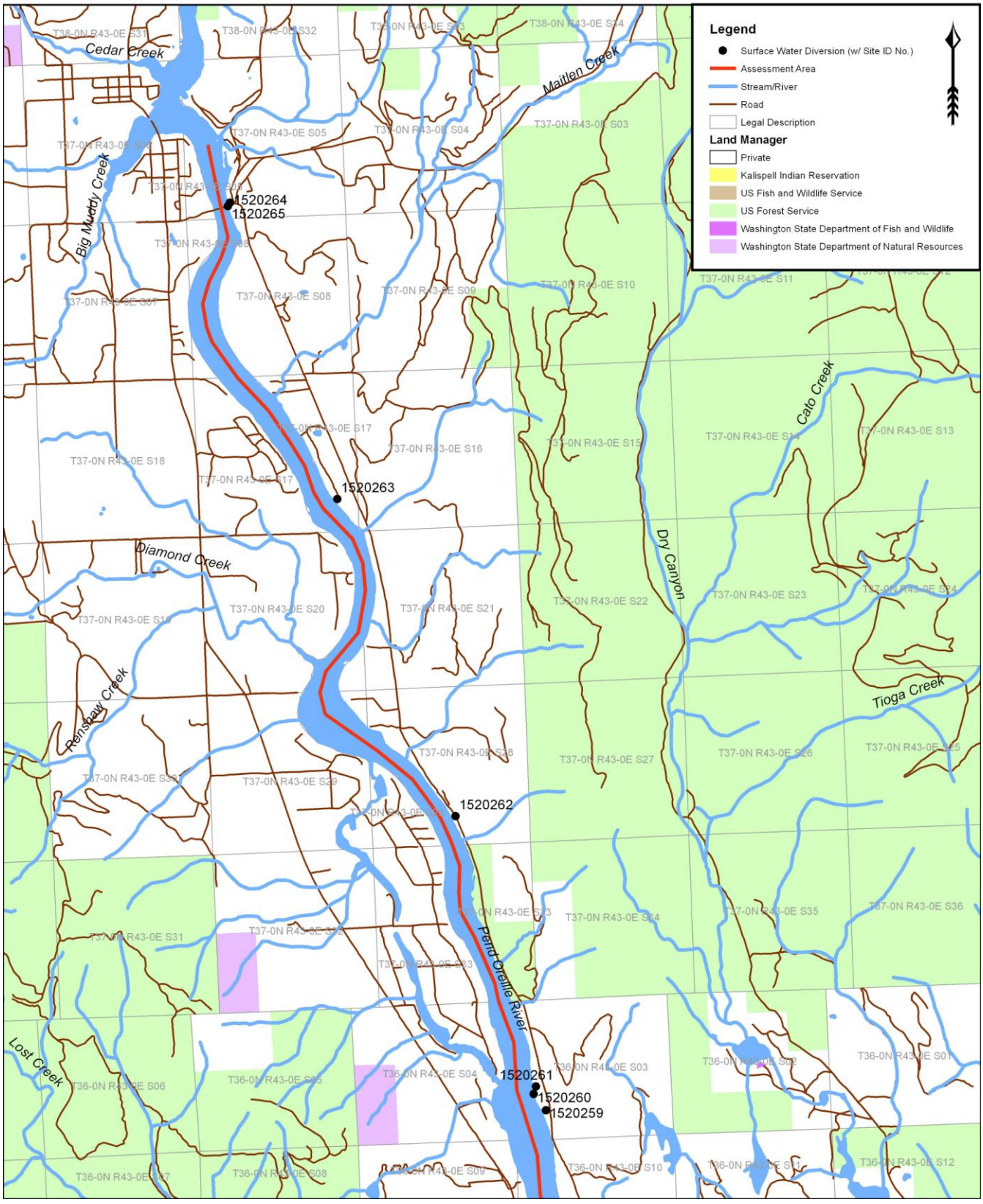
Figure 18 1:25,000



Pend Oreille River - Tiger Slough to Ione

Lead Entity Priority Area = UNRANKED

Figure 19 1:50,000



Screening Action Plan

Washington State law (Chapter 77.57.070 RCW and Chapter 77.57.010 RCW) requires that all surface water diversions be screened to prevent fish from being drawn into the diversions where they are at risk for injury and mortality. To achieve compliance with state screening regulations, several steps must be taken in addition to identifying and prioritizing potential screening projects:

1. Identify landowners who are interested in voluntarily screening their diversion(s)
2. Determine which of these landowners have water rights (claim, certificate, or permit) associated with their diversion. Each diversion screening project will require a Hydraulic Project Approval (HPA) issued by WDFW. WDFW can not grant a HPA for a project that does not have a valid associated water right, claim, or certificate. WDFW will need confirmation of the water right from the Washington Department of Ecology (Ecology) prior to issuing the HPA.
3. Work with the identified landowners and Department of Ecology to resolve any issues associated with water use, such as quantity, type and place of use, etc.
4. Identify funding for project design and construction
5. Apply for and receive permits (general this will just be a HPA)
6. Construction and screen installation
7. Develop screen maintenance plan with landowner that can be incorporated into a perpetual agriculture HPA which will allow for on-going maintenance of the screen.
8. Monitor compliance with screening regulations and maintenance agreements

Literature Cited

Washington Department of Fish and Wildlife (WDFW). 2009. Fish Passage and Surface Water Diversion Screening Assessment and Prioritization Manual. Washington Department of Fish and Wildlife. Olympia, Washington.

Pend Oreille Salmonid Recovery Team (POSRT). 2007. Strategy for protection and improvement of native salmonids in the Pend Oreille Water Resource Inventory Area (WRIA) 62.

APPENDIX A

Diversion Data by Site ID No.

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1290053**				
Latitude:	**48.31769**	Stream:	**Skookum Cr**	WRIA:	**62.0786**
Longitude:	**-117.23936**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Garringer	Review Date:	10/13/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	No	Diversion Dam:	No	Point of Diversion:	RB
				Location:	Lagoon

Flow

Intake Pipe Outside Diameter (in):	4.00	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	160			SPI Total:	2.25
Flow Derivation:	Calculated				

Diversion Comments

Open PVC pipe on bottom of beaver pond. Appears connected to pump house.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1290068**				
Latitude:	**48.31765**	Stream:	**Skookum Cr**	WRIA:	**62.0786**
Longitude:	**-117.23936**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Pend Oreille Conservation District		
Field Crew:	Albrecht;Bruninga;Zupich	Review Date:	06/14/2004

Diversion

Type:	Pump	Headgate:	Unknown	Access By:	Vehicle
Screened:	No	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	-99.99 (Pump Only)	Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9 (Gravity Only)	Power Meter No:	
Flow (gpm):	-999.99	SPI Total:	
Flow Derivation:			

Diversion Comments

In creek runs into pumphouse; pump not evaluated.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1290083**				
Latitude:	**48.3398**	Stream:	**Skookum Cr**	WRIA:	**62.0786**
Longitude:	**-117.23996**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Pend Oreille Conservation District		
Field Crew:	Albrecht;Bruninga;Zupich	Review Date:	06/14/2004

Diversion

Type:	Gravity	Headgate:	Yes	Access By:	Foot
Screened:	No	Diversion Dam:	Yes	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	-99.99 (Pump Only)	Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9 (Gravity Only)	Power Meter No:	
Flow (gpm):	-999.99	SPI Total:	
Flow Derivation:			

Diversion Comments

Very old diversion ditch, starts at dam and wooden flume in creek then flows into open ditch along Best Chance Rd. It appears to cross under Best Chance Rd and feed a stock watering pond. No measurements taken on ditch. Access denied.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1290134**				
Latitude:	**48.3077**	Stream:	**Winchester Cr**	WRIA:	**62.0666**
Longitude:	**-117.39031**	Trib To:	**Calispell Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Pend Oreille Conservation District		
Field Crew:	Hellie;Zupich	Review Date:	08/19/2003

Diversion

Type:	Gravity	Headgate:	No	Access By:	Foot
Screened:	Unknown	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	-99.99 (Pump Only)	Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9 (Gravity Only)	Power Meter No:	
Flow (gpm):	-999.99	SPI Total:	
Flow Derivation:			

Diversion Comments

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

No Image Available

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1290136**				
Latitude:	**48.32217**	Stream:	**SF Smalle Cr**	WRIA:	**62.0631**
Longitude:	**-117.35666**	Trib To:	**Smalle Cr**	Fish Use Potential:	**Unknown**

Data Source

Organization:	Pend Oreille Conservation District		
Field Crew:	Hellie;Zupich	Review Date:	08/19/2003

Diversion

Type:	Gravity	Headgate:	No	Access By:	Foot
Screened:	Unknown	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	-99.99 (Pump Only)	Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9 (Gravity Only)	Power Meter No:	
Flow (gpm):	-999.99	SPI Total:	
Flow Derivation:			

Diversion Comments

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

No Image Available

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520010**				
Latitude:	**48.48916**	Stream:	**Mill Cr**	WRIA:	**62**
Longitude:	**-117.25909**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	06/16/2009

Diversion

Type:	Gravity	Headgate:	No	Access By:	Foot
Screened:	No	Diversion Dam:	No	Point of Diversion:	RB
				Location:	

Flow

Intake Pipe Outside Diameter (in):	-99.99	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	3.1	(Gravity Only)		Power Meter No:	
Flow (gpm):	1071			SPI Total:	4.51
Flow Derivation:	Calculated				

Diversion Comments

partially naturally dammed to divert water.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520025**				
Latitude:	**48.60191**	Stream:	**EB LeClerc Cr**	WRIA:	**62**
Longitude:	**-117.23434**	Trib To:	**LeClerc Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	06/23/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Vehicle
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.50	(Pump Only)	Water Right ID No:		
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:		
Flow (gpm):	35		SPI Total:	2.51	
Flow Derivation:	Calculated				

Diversion Comments

0.5 HP pump used

Screen

Screen Type:	Cone
Screen Material:	Slotted PVC
Mesh Size (in):	0.75
Diameter (ft):	-99.99
Height (ft):	0.01
Length (ft):	0.08
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	No

Screen Comments

Screen size does not meet compliance requirements. 1/2 hp pump.

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520026**				
Latitude:	**48.60237**	Stream:	**EB LeClerc Cr**	WRIA:	**62**
Longitude:	**-117.23203**	Trib To:	**LeClerc Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	06/23/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.50	(Pump Only)	Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:	
Flow (gpm):	35		SPI Total:	2.51
Flow Derivation:	Calculated			

Diversion Comments

submersible deep well pump- 0.5 HP

Screen

Screen Type:	Cylinder
Screen Material:	Slotted PVC
Mesh Size (in):	0.25
Diameter (ft):	-99.99
Height (ft):	0.08
Length (ft):	0.04
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	No

Screen Comments

Mesh size too large to meet compliance requirements.

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520030**				
Latitude:	**48.52327**	Stream:	**LeClerc Cr**	WRIA:	**62**
Longitude:	**-117.28038**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	06/24/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.00	(Pump Only)	Water Right ID No:		
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:		
Flow (gpm):	14		SPI Total:	2.01	
Flow Derivation:	Calculated				

Diversion Comments

5-gallon bucket with wire mesh screen covering holes which are ~1" diameter. Inside bucket there is 1" black tube with wire mesh as well.

Screen

Screen Type:	Cylinder
Screen Material:	Wire Mesh
Mesh Size (in):	0.06
Diameter (ft):	0.40
Height (ft):	0.95
Length (ft):	-99.99
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	No

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520033**				
Latitude:	**48.5313**	Stream:	**LeClerc Cr**	WRIA:	**62**
Longitude:	**-117.28243**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	06/24/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Unknown	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.25	(Pump Only)	Water Right ID No:		
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:		
Flow (gpm):	25		SPI Total:	2.32	
Flow Derivation:	Calculated				

Diversion Comments

psuedo trash rack made of chain. Link box in stream above tubing to deflect large debris, weighted down by rocks. Did not feel any opening or hole where wire frame connected to tubing. Intake pipe submerged with large rocks piled on top, did not move.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520040**				
Latitude:	**48.30973**	Stream:	**Calispell Cr**	WRIA:	**62**
Longitude:	**-117.33416**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	07/08/2009

Diversion

Type:	Gravity	Headgate:	Yes	Access By:	Vehicle
Screened:	No	Diversion Dam:	No	Point of Diversion:	RB
				Location:	

Flow

Intake Pipe Outside Diameter (in):	37.01	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	7.5	(Gravity Only)		Power Meter No:	
Flow (gpm):	2525			SPI Total:	3.77
Flow Derivation:	Calculated				

Diversion Comments

Steel flap headgate is in 'closed' position. Diversion pipe diameter is 37 inches. It is unknown if fish are diverted out of stream when headgate is open. Operation is outlfow only.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520042**				
Latitude:	**48.32913**	Stream:	**Calispell Cr**	WRIA:	**62**
Longitude:	**-117.3114**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	07/08/2009

Diversion

Type:	Gravity	Headgate:	Yes	Access By:	Vehicle
Screened:	No	Diversion Dam:	No	Point of Diversion:	LB
				Location:	

Flow

Intake Pipe Outside Diameter (in):	35.83	(Pump Only)	Water Right ID No:		
Diversion Channel Area (sq ft):	7	(Gravity Only)	Power Meter No:	40265091	
Flow (gpm):	2357		SPI Total:	3.71	
Flow Derivation:	Calculated				

Diversion Comments

Headgate is up. Local landowner commented to WDFW that this system is no longer in use.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520043**				
Latitude:	**48.3369**	Stream:	**Calispell Cr**	WRIA:	**62**
Longitude:	**-117.30832**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	07/08/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Vehicle
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	2.40	(Pump Only)	Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:	
Flow (gpm):	65		SPI Total:	1.80
Flow Derivation:	Calculated			

Diversion Comments

needs maintenance. Not satisfactory. 5 HP pump. Chicken wire wrapped around end of intake pipe and intake pipe is inside a checken wire of 1" mesh crate/box. Another crate is beside it though is contains nothing. A dead fish is in the intake crate.

Screen

Screen Type:	Box
Screen Material:	Wire Mesh
Mesh Size (in):	2
Diameter (ft):	-99.99
Height (ft):	-99.99
Length (ft):	-99.99
Area (sq ft):	-999.99
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520044**				
Latitude:	**48.33936**	Stream:	**Calispell Cr**	WRIA:	**62**
Longitude:	**-117.30733**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	07/08/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	LB
				Location:	Offshore

Flow

Intake Pipe Outside Diameter (in):	1.50	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	35			SPI Total:	1.70
Flow Derivation:	Calculated				

Diversion Comments

condition of screem is ok.

Screen

Screen Type:	Cylinder
Screen Material:	Perforated Plate
Mesh Size (in):	0.94
Diameter (ft):	-99.99
Height (ft):	0.02
Length (ft):	0.10
Area (sq ft):	0.22
Condition:	OK
Compliant (WDFW Criteria):	Yes

Screen Comments

Screen mesh meets 3/32" criteria for compliance.

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520045**				
Latitude:	**48.25953**	Stream:	**Calispell Cr**	WRIA:	**62**
Longitude:	**-117.33736**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	07/13/2009

Diversion

Type:	Gravity	Headgate:	No	Access By:	Foot
Screened:	No	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	-99.99	(Pump Only)	Water Right ID No:		
Diversion Channel Area (sq ft):	7.2	(Gravity Only)	Power Meter No:		
Flow (gpm):	2425		SPI Total:	3.74	
Flow Derivation:	Calculated				

Diversion Comments

Not sure if this is a diversion. Need to revisit and follow to source.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck YES

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520047**				
Latitude:	**48.24129**	Stream:	**Calispell Cr**	WRIA:	**62**
Longitude:	**-117.34404**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	07/14/2009

Diversion

Type:	Gravity	Headgate:	No	Access By:	Foot
Screened:	No	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	12.60	(Pump Only)	Water Right ID No:		
Diversion Channel Area (sq ft):	0.9	(Gravity Only)	Power Meter No:		
Flow (gpm):	1100		SPI Total:	3.07	
Flow Derivation:	Calculated				

Diversion Comments

Outlet buried. Drains to a dip in ground covered with wooden board. Erosion in bank. Intake pipe is .12 m above water surface and 3.2 m into creek.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520054**				
Latitude:	**48.25942**	Stream:	**Tacoma Cr**	WRIA:	**62**
Longitude:	**-117.33901**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thuering	Review Date:	07/29/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	No	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	2.00	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	40			SPI Total:	1.98
Flow Derivation:	Calculated				

Diversion Comments

There is an inactive diversion dam located just upstream of diversion. Spring/valve set-up, but no screen. 3" bolts to keep debris out.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520059**				
Latitude:	**48.39958**	Stream:	**Tacoma Cr**	WRIA:	**62**
Longitude:	**-117.32851**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	07/30/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	RB
				Location:	Offshore

Flow

Intake Pipe Outside Diameter (in):	1.25	(Pump Only)	Water Right ID No:		
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:		
Flow (gpm):	10		SPI Total:	1.85	
Flow Derivation:	Other				

Diversion Comments

Two footbridges (one old and underneath new) w/ submersible pump (10 gpm, 3/4 hp) hanging from new bridge with metal chains.

Screen

Screen Type:	Cylinder
Screen Material:	Plastic Mesh
Mesh Size (in):	0.125
Diameter (ft):	0.17
Height (ft):	0.29
Length (ft):	-99.99
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	No

Screen Comments

Mesh size is too big to meet compliance specs.

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520060**				
Latitude:	**48.40276**	Stream:	**Tacoma Cr**	WRIA:	**62**
Longitude:	**-117.32845**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	07/30/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.50	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	35			SPI Total:	2.51
Flow Derivation:	Calculated				

Diversion Comments

Screen

Screen Type:	Cylinder
Screen Material:	Perforated Plate
Mesh Size (in):	0.0625
Diameter (ft):	-99.99
Height (ft):	0.25
Length (ft):	0.17
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	No

Screen Comments

Mesh size is too small to meet compliance regs of 3/32". Pump is 1/2 hp.

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520062**				
Latitude:	**48.4052438**	Stream:	**Tacoma Cr**	WRIA:	**62**
Longitude:	**-117.33699205**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	08/03/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	No	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.38	(Pump Only)	Water Right ID No:		
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:		
Flow (gpm):	35		SPI Total:	2.51	
Flow Derivation:	Calculated				

Diversion Comments

1/2 hp pump; no intake pipe in water at time of survey

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520063**				
Latitude:	**48.40392952**	Stream:	**Tacoma Cr**	WRIA:	**62**
Longitude:	**-117.33930982**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	08/03/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.50	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	35			SPI Total:	2.51
Flow Derivation:	Calculated				

Diversion Comments

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520066**				
Latitude:	**48.40574261**	Stream:	**Tacoma Cr**	WRIA:	**62**
Longitude:	**-117.34417182**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	08/03/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	ORV
Screened:	No	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.88	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	35			SPI Total:	2.51
Flow Derivation:	Calculated				

Diversion Comments

Open end PVC pipe put in stream when water is needed. Pumped by hand. Not currently in use.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520067**				
Latitude:	**48.41225375**	Stream:	**Tacoma Cr**	WRIA:	**62**
Longitude:	**-117.36003784**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	08/03/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Unknown	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.00	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	14			SPI Total:	2.01
Flow Derivation:	Calculated				

Diversion Comments

Couldn't find end of pipe in water. Black hose coming out of stream bank into creek.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520068**				
Latitude:	**48.41597725**	Stream:	**Tacoma Cr**	WRIA:	**62**
Longitude:	**-117.36283748**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	08/03/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.62	(Pump Only)	Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:	
Flow (gpm):	35		SPI Total:	2.51
Flow Derivation:	Calculated			

Diversion Comments

Screen

Screen Type:	Cone
Screen Material:	Perforated Plate
Mesh Size (in):	0.125
Diameter (ft):	-99.99
Height (ft):	0.25
Length (ft):	0.16
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	No

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520070**				
Latitude:	**48.39392153**	Stream:	**SF Tacoma Cr**	WRIA:	**62**
Longitude:	**-117.32985084**	Trib To:	**Tacoma Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	08/05/2009

Diversion

Type:	Gravity	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	8.50	(Pump Only)	Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:	
Flow (gpm):	460		SPI Total:	3.65
Flow Derivation:	Calculated			

Diversion Comments

Screen

Screen Type:	Other
Screen Material:	Other
Mesh Size (in):	0.125
Diameter (ft):	0.85
Height (ft):	1.67
Length (ft):	-99.99
Area (sq ft):	-999.99
Condition:	MN
Compliant (WDFW Criteria):	No

Screen Comments

Screen present, but not in place. Pipe 8" above water surface. A secondary 1" screen present as well.

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520071**				
Latitude:	**48.39449778**	Stream:	**SF Tacoma Cr**	WRIA:	**62**
Longitude:	**-117.33081643**	Trib To:	**Tacoma Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	08/04/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.25	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	25			SPI Total:	2.32
Flow Derivation:	Calculated				

Diversion Comments

Screen

Screen Type:	Cylinder
Screen Material:	Other
Mesh Size (in):	0.25
Diameter (ft):	1.30
Height (ft):	-99.99
Length (ft):	1.60
Area (sq ft):	-999.99
Condition:	
Compliant (WDFW Criteria):	No

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520073**				
Latitude:	**48.39494538**	Stream:	**SF Tacoma Cr**	WRIA:	**62**
Longitude:	**-117.33133846**	Trib To:	**Tacoma Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	08/04/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.25	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	25			SPI Total:	2.32
Flow Derivation:	Calculated				

Diversion Comments

Screen

Screen Type:	Cone
Screen Material:	Perforated Plate
Mesh Size (in):	0.0125
Diameter (ft):	0.12
Height (ft):	-99.99
Length (ft):	0.23
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	No

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520083**				
Latitude:	**48.39877859**	Stream:	**SF Tacoma Cr**	WRIA:	**62**
Longitude:	**-117.34434181**	Trib To:	**Tacoma Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Garringer;Thueringer	Review Date:	08/06/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Vehicle
Screened:	Unknown	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.00	(Pump Only)	Water Right ID No:		
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:		
Flow (gpm):	14		SPI Total:	2.01	
Flow Derivation:	Calculated				

Diversion Comments

Couldn't access end of pipe, big rock over it.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520085**				
Latitude:	**48.3989137**	Stream:	**SF Tacoma Cr**	WRIA:	**62**
Longitude:	**-117.34575877**	Trib To:	**Tacoma Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Garriner;Thueringer	Review Date:	08/06/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.50	(Pump Only)	Water Right ID No:		
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:		
Flow (gpm):	35		SPI Total:	2.51	
Flow Derivation:	Calculated				

Diversion Comments

1/2 hp pump

Screen

Screen Type:	Cone
Screen Material:	Perforated Plate
Mesh Size (in):	0.0625
Diameter (ft):	0.19
Height (ft):	0.27
Length (ft):	-99.99
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	No

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520106**				
Latitude:	**48.33789244**	Stream:	**EF Smalle Cr**	WRIA:	**62**
Longitude:	**-117.36828689**	Trib To:	**Smalle Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	08/19/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	No	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	2.50	(Pump Only)	Water Right ID No:		
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:	55124378	
Flow (gpm):	65		SPI Total:	1.80	
Flow Derivation:	Calculated				

Diversion Comments

Pump was sucking hard. Large wooden box with pump equipement. Pump was running. Diversion active.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520108**				
Latitude:	**48.32784455**	Stream:	**Smalle Cr**	WRIA:	**62**
Longitude:	**-117.35765562**	Trib To:	**Calispell Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	08/24/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	No	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	-99.99 (Pump Only)	Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9 (Gravity Only)	Power Meter No:	
Flow (gpm):	-999.99	SPI Total:	
Flow Derivation:			

Diversion Comments

Water diverted out of stream to stagnant pool. There is an old wooden box with power supply and spicket. There is no structure in creek itself.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520114**				
Latitude:	**48.3262535**	Stream:	**Smalle Cr**	WRIA:	**62**
Longitude:	**-117.3931415**	Trib To:	**Calispell Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Thueringer	Review Date:	08/25/2009

Diversion

Type:	Gravity	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	Yes	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	13.00	(Pump Only)	Water Right ID No:	
Diversion Channel Area (sq ft):	0.2	(Gravity Only)	Power Meter No:	
Flow (gpm):	310		SPI Total:	2.23
Flow Derivation:	Calculated			

Diversion Comments

Screen

Screen Type:	Box
Screen Material:	Wire Mesh
Mesh Size (in):	0.5
Diameter (ft):	-99.99
Height (ft):	1.80
Length (ft):	1.70
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	No

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520127**				
Latitude:	**48.32212323**	Stream:	**SF Smalle Cr**	WRIA:	**62**
Longitude:	**-117.35206313**	Trib To:	**Smalle Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Garringer	Review Date:	08/27/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	2.00	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	40			SPI Total:	1.48
Flow Derivation:	Calculated				

Diversion Comments

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520140**				
Latitude:	**48.29360808**	Stream:	**Skookum Cr**	WRIA:	**62**
Longitude:	**-117.23870929**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Garringer	Review Date:	09/22/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.50	(Pump Only)	Water Right ID No:		
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:		
Flow (gpm):	35		SPI Total:	1.70	
Flow Derivation:	Calculated				

Diversion Comments

Screen

Screen Type:	Cylinder
Screen Material:	Wire Mesh
Mesh Size (in):	0.0625
Diameter (ft):	0.16
Height (ft):	-99.99
Length (ft):	0.03
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	No

Screen Comments

Window screen securely wrapped inside, hardware cloth on outside with 5/8" holes.

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520142**				
Latitude:	**48.29695188**	Stream:	**Skookum Cr**	WRIA:	**62**
Longitude:	**-117.23354504**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Garringer	Review Date:	09/23/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.12	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	14			SPI Total:	1.36
Flow Derivation:	Calculated				

Diversion Comments

Screen

Screen Type:	Other
Screen Material:	Profile Bar
Mesh Size (in):	0.375
Diameter (ft):	-99.99
Height (ft):	0.15
Length (ft):	-99.99
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	No

Screen Comments

5 gallong bucket with 3/8" holes; profile bar is the actual intake

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520145**				
Latitude:	**48.28843921**	Stream:	**SF Skookum Cr**	WRIA:	**62**
Longitude:	**-117.19052274**	Trib To:	**Skookum Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Garringer	Review Date:	09/29/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Unknown	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.62	(Pump Only)	Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:	
Flow (gpm):	25		SPI Total:	1.57
Flow Derivation:	Calculated			

Diversion Comments

Pipe buried in creek. Opening buried. Comes out of bank. Not currently in use. Landowner said it was like that when they bought the place. Landowner said that old wash water was pumped out into creek.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520147**				
Latitude:	**48.29030058**	Stream:	**SF Skookum Cr**	WRIA:	**62**
Longitude:	**-117.18891266**	Trib To:	**Skookum Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Garringer	Review Date:	09/29/2009

Diversion

Type:	Gravity	Headgate:	No	Access By:	Foot
Screened:	Unknown	Diversion Dam:	Yes	Point of Diversion:	RB
				Location:	

Flow

Intake Pipe Outside Diameter (in):	-99.99	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	-999.99			SPI Total:	
Flow Derivation:					

Diversion Comments

Unable to measure; landowner denied permission while crew on site.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck YES

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520266**				
Latitude:	**48.31192916**	Stream:	**Skookum Cr**	WRIA:	**62**
Longitude:	**-117.2325387**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Garringer	Review Date:	10/13/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.75	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	40			SPI Total:	1.76
Flow Derivation:	Calculated				

Diversion Comments

Screen

Screen Type:	Cone
Screen Material:	Perforated Plate
Mesh Size (in):	0.125
Diameter (ft):	0.15
Height (ft):	-99.99
Length (ft):	0.25
Area (sq ft):	-999.99
Condition:	
Compliant (WDFW Criteria):	No

Screen Comments

Possible old pump house on site, but collapsed in creek. Pipe still in water.

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520269**				
Latitude:	**48.31720574**	Stream:	**Skookum Cr**	WRIA:	**62**
Longitude:	**-117.23867493**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Garringer	Review Date:	10/13/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.25	(Pump Only)	Water Right ID No:		
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:		
Flow (gpm):	25		SPI Total:	1.57	
Flow Derivation:	Calculated				

Diversion Comments

Black tubing soming off grassy bank; blue pump

Screen

Screen Type:	Cone
Screen Material:	Perforated Plate
Mesh Size (in):	0.125
Diameter (ft):	-99.99
Height (ft):	0.25
Length (ft):	-99.99
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	No

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520273**				
Latitude:	**48.31876335**	Stream:	**Skookum Cr**	WRIA:	**62**
Longitude:	**-117.24029808**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Garringer	Review Date:	10/13/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.50	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	35			SPI Total:	1.70
Flow Derivation:	Calculated				

Diversion Comments

There is a pump house on site. There are tears in the screen.

Screen

Screen Type:	Cylinder
Screen Material:	Wire Mesh
Mesh Size (in):	0.016
Diameter (ft):	0.38
Height (ft):	-99.99
Length (ft):	1.80
Area (sq ft):	-999.99
Condition:	MN
Compliant (WDFW Criteria):	No

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520274**				
Latitude:	**48.31925319**	Stream:	**Skookum Cr**	WRIA:	**62**
Longitude:	**-117.240284**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Garringer	Review Date:	10/13/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.00	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	14			SPI Total:	1.36
Flow Derivation:	Calculated				

Diversion Comments

Screen

Screen Type:	Cylinder
Screen Material:	Perforated Plate
Mesh Size (in):	0.125
Diameter (ft):	0.15
Height (ft):	0.21
Length (ft):	-99.99
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	No

Screen Comments

Metal pipe bent up out of water. Not actively diverting.

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520275**				
Latitude:	**48.32212592**	Stream:	**NF Skookum Cr**	WRIA:	**62**
Longitude:	**-117.23704549**	Trib To:	**Skookum Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Garringer	Review Date:	10/14/2009

Diversion

Type:	Pump	Headgate:	No	Access By:	Foot
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	1.75	(Pump Only)		Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)		Power Meter No:	
Flow (gpm):	40			SPI Total:	1.76
Flow Derivation:	Calculated				

Diversion Comments

Blue fexi-tube wth black stripes.

Screen

Screen Type:	Cone
Screen Material:	Perforated Plate
Mesh Size (in):	0.125
Diameter (ft):	0.16
Height (ft):	-99.99
Length (ft):	0.25
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	No

No Image Available

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520278**				
Latitude:	**48.33663658**	Stream:	**Skookum Cr**	WRIA:	**62**
Longitude:	**-117.23968235**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Garringer	Review Date:	10/15/2009

Diversion

Type:	Gravity	Headgate:	No	Access By:	Foot
Screened:	No	Diversion Dam:	Yes	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	9.00	(Pump Only)	Water Right ID No:		
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:	7C324LA5AA	
Flow (gpm):	750		SPI Total:	2.79	
Flow Derivation:	Calculated				

Diversion Comments

There is a trash rack present that measures 1.5 ft high by 3 ft wide with 2.5" mesh. Rack not sealed around intake. Channel splits w/ 1/2 of flow going into diversion channel on RB (with 1/2 of this going into pump house and 1/2 to 9.5 in "fish bypass"

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520282**				
Latitude:	**48.3396539**	Stream:	**Skookum Cr**	WRIA:	**62**
Longitude:	**-117.23959451**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Garringer	Review Date:	10/19/2009

Diversion

Type:	Gravity	Headgate:	No	Access By:	Foot
Screened:	Unknown	Diversion Dam:	No	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	-99.99 (Pump Only)	Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9 (Gravity Only)	Power Meter No:	
Flow (gpm):	-999.99	SPI Total:	
Flow Derivation:			

Diversion Comments

Intake unknown; filling a small pond. Diversion is underground.

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520285**				
Latitude:	**48.34051254**	Stream:	**Skookum Cr**	WRIA:	**62**
Longitude:	**-117.23952879**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Garringer	Review Date:	10/19/2009

Diversion

Type:	Pump	Headgate:		Access By:	Foot
Screened:	Yes	Diversion Dam:		Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	2.50	(Pump Only)	Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9	(Gravity Only)	Power Meter No:	
Flow (gpm):	65		SPI Total:	1.80
Flow Derivation:	Calculated			

Diversion Comments

Screen

Screen Type:	Cone
Screen Material:	Slotted PVC
Mesh Size (in):	0.875
Diameter (ft):	0.16
Height (ft):	-99.99
Length (ft):	0.16
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	No

Screen Comments

Diversion not hooked to anything.

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520286**				
Latitude:	**48.34978678**	Stream:	**Skookum Cr**	WRIA:	**62**
Longitude:	**-117.23439001**	Trib To:	**Pend Oreille R**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Baker;Garringer	Review Date:	10/19/2009

Diversion

Type:	Gravity	Headgate:	Yes	Access By:	Foot
Screened:	No	Diversion Dam:	Yes	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	-99.99 (Pump Only)	Water Right ID No:	
Diversion Channel Area (sq ft):	0.1 (Gravity Only)	Power Meter No:	
Flow (gpm):	49	SPI Total:	1.41
Flow Derivation:	Calculated		

Diversion Comments

Sandbags, rocks, and boards; ditch diversion

Screen

Screen Type:	
Screen Material:	
Mesh Size (in):	
Diameter (ft):	
Height (ft):	
Length (ft):	
Area (sq ft):	
Condition:	
Compliant (WDFW Criteria):	

Screen Comments

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520299**				
Latitude:	**48.53509**	Stream:	**EB Leclerc Cr**	WRIA:	**62**
Longitude:	**-117.281898**	Trib To:	**Leclerc Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Dotts	Review Date:	06/30/2007

Diversion

Type:	Pump	Headgate:	No	Access By:	Vehicle
Screened:	Yes	Diversion Dam:	No	Point of Diversion:	RB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	-99.99 (Pump Only)	Water Right ID No:	
Diversion Channel Area (sq ft):	-99.9 (Gravity Only)	Power Meter No:	
Flow (gpm):	160	SPI Total:	3.33
Flow Derivation:	Water Right		

Diversion Comments

Screen was installed in 2007; funded by SRFB grant.

Screen

Screen Type:	Cylinder
Screen Material:	Perforated Plate
Mesh Size (in):	0.0938
Diameter (ft):	-99.99
Height (ft):	-99.99
Length (ft):	-99.99
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	Yes

Screen Comments

Screen istalled by WDFW Yakima Screen Shop as part of a SRFB-funded project.

Recheck

WDFW Fish Passage and Diversion Screening Inventory Database

Surface Water Diversion Assessment Report

Site ID:	**1520300**				
Latitude:	**48.535946**	Stream:	**WB Leclerc Cr**	WRIA:	**62**
Longitude:	**-117.28552**	Trib To:	**Leclerc Cr**	Fish Use Potential:	**Yes**

Data Source

Organization:	Washington Department of Fish and Wildlife		
Field Crew:	Dotts	Review Date:	06/30/2007

Diversion

Type:	Gravity	Headgate:	Yes	Access By:	Vehicle
Screened:	Yes	Diversion Dam:	Yes	Point of Diversion:	LB
				Location:	River Bank

Flow

Intake Pipe Outside Diameter (in):	-99.99	(Pump Only)	Water Right ID No:		
Diversion Channel Area (sq ft):	1.4	(Gravity Only)	Power Meter No:		
Flow (gpm):	480		SPI Total:	3.68	
Flow Derivation:	Water Right				

Diversion Comments

Diversion screened with SRFB grant in 2007.

Screen

Screen Type:	1 Track Flat
Screen Material:	Perforated Plate
Mesh Size (in):	0.0938
Diameter (ft):	-99.99
Height (ft):	-99.99
Length (ft):	-99.99
Area (sq ft):	-999.99
Condition:	OK
Compliant (WDFW Criteria):	Yes

Screen Comments

Screen constructed and installed by WDFW Yakima Screen Shop in 2007.

Recheck

APPENDIX B

WRIA-wide Screening Priority

Priority	Site ID[1]	Stream	Diversion Type	Estimated flow (gpm)	Estimated cost ($ thousand)	SPI
1	1520010	Mill	Gravity	1071	**Funded** USFWS/POCD	4.51
2	1520040	Calispell	Gravity	2525	>5	3.77
3	1520045	Calispell	Gravity	2425	>5	3.74
4	1520042	Calispell	Gravity	2357	>5	3.71
5	1520300	Leclerc, WB	Gravity	480	**Done** SRFB 07-1781	3.68
6	1520070	Tacoma, SF	Gravity	460	>5	3.65
7	1520299	Leclerc, EB	Pump	160	**Done** SRFB 07-1781	3.33
8	1290064	Indian	Gravity	263	**Done** SRFB 04-1373	3.17
9	1520047	Calispell	Gravity	1100	>5	3.07
10	1520278	Skookum	Gravity	750	>5	2.79
11	1290063	Indian	Gravity	112.2	**Done** SRFB 04-1373	2.56
12	1520060	Tacoma	Pump	35	<1	2.51
12	1520085	Tacoma, SF	Pump	35	<1	2.51
12	1520025	Leclerc, EB	Pump	35	<1	2.51
12	1520026	Leclerc, EB	Pump	35	<1	2.51
12	1520062	Tacoma	Pump	35	<1	2.51
12	1520063	Tacoma	Pump	35	<1	2.51
12	1520066	Tacoma	Pump	35	<1	2.51
12	1520068	Tacoma	Pump	35	<1	2.51
13	1290053	Skookum	Pump	160	<1	2.49
14	1520283	Skookum	Gravity	437	>5	2.43
15	1520071	Tacoma, SF	Pump	25	<1	2.32
15	1520073	Tacoma, SF	Pump	25	<1	2.32
15	1520033	Leclerc	Pump	25	<1	2.32
15	1520114	Smalle	Gravity	310	>5	2.23
16	1290115	Davis	Pump	160	<1	2.10
17	1290062	Indian	Gravity	44.88	**Done** SRFB 04-1373	2.04
18	1520030	Leclerc	Pump	14	<1	2.01
18	1520083	Tacoma, SF	Pump	14	<1	2.01
18	1520067	Tacoma	Pump	14	<1	2.01
19	1520054	Tacoma	Pump	40	<1	1.98
20	1520059	Tacoma	Pump	10	<1	1.85
21	1520285	Skookum	Pump	65	1-5	1.80

[1] Site ID 152XXXX were assessed by WDFW; Site ID 129XXXX were assessed by POCD

Priority	Site ID[1]	Stream	Diversion Type	Estimated flow (gpm)	Estimated cost ($ thousand)	SPI
21	1520106	Smalle, EF	Pump	40-65	1-5	1.80
21	1520043	Calispell	Pump	65	1-5	1.80
22	1520266	Skookum	Pump	40	<1	1.76
22	1520275	Skookum, NF	Pump	40	<1	1.76
23	1520273	Skookum	Pump	35	<1	1.70
23	1520044	Calispell	Pump	35	<1	1.70
23	1520140	Skookum	Pump	35	<1	1.70
24	1520269	Skookum	Pump	25	<1	1.57
24	1520145	Skookum, SF	Pump	25	<1	1.57
25	1520127	Smalle	Pump	40	<1	1.48
26	1520286	Skookum	Gravity	49	>5	1.41
27	1520142	Skookum	Pump	14	<1	1.36
27	1520274	Skookum	Pump	14	<1	1.36
28	1290104	Kent	Gravity	40	Unknown	1.34
29	1520195	Pend Oreille	Pump	180	<1	1.11
30	1520167	Pend Oreille	Pump	90	1-5	0.93
31	1520169	Pend Oreille	Pump	65	1-5	0.86
31	1520200	Pend Oreille	Pump	65	1-5	0.86
31	1520210	Pend Oreille	Pump	65	1-5	0.86
32	1520155	Pend Oreille	Pump	40	<1	0.84
32	1520156	Pend Oreille	Pump	40	<1	0.84
32	1520158	Pend Oreille	Pump	40	<1	0.84
32	1520159	Pend Oreille	Pump	40	<1	0.84
32	1520160	Pend Oreille	Pump	40	<1	0.84
32	1520163	Pend Oreille	Pump	40	<1	0.84
32	1520166	Pend Oreille	Pump	40	<1	0.84
32	1520171	Pend Oreille	Pump	40	<1	0.84
32	1520177	Pend Oreille	Pump	40	<1	0.84
32	1520178	Pend Oreille	Pump	40	<1	0.84
32	1520179	Pend Oreille	Pump	40	<1	0.84
32	1520180	Pend Oreille	Pump	40	<1	0.84
32	1520182	Pend Oreille	Pump	40	<1	0.84
32	1520186	Pend Oreille	Pump	40	<1	0.84
32	1520188	Pend Oreille	Pump	40	<1	0.84
32	1520191	Pend Oreille	Pump	40	<1	0.84
32	1520192	Pend Oreille	Pump	40	<1	0.84
32	1520194	Pend Oreille	Pump	40	<1	0.84
32	1520196	Pend Oreille	Pump	40	<1	0.84
32	1520198	Pend Oreille	Pump	40	<1	0.84
32	1520199	Pend Oreille	Pump	40	<1	0.84
32	1520208	Pend Oreille	Pump	40	<1	0.84
32	1520209	Pend Oreille	Pump	40	<1	0.84
32	1520214	Pend Oreille	Pump	40	<1	0.84

[1] Site ID 152XXXX were assessed by WDFW; Site ID 129XXXX were assessed by POCD

Priority	Site ID[1]	Stream	Diversion Type	Estimated flow (gpm)	Estimated cost ($ thousand)	SPI
32	1520220	Pend Oreille	Pump	40	<1	0.84
32	1520221	Pend Oreille	Pump	40	<1	0.84
32	1520222	Pend Oreille	Pump	40	<1	0.84
32	1520223	Pend Oreille	Pump	40	<1	0.84
32	1520225	Pend Oreille	Pump	40	<1	0.84
32	1520231	Pend Oreille	Pump	40	<1	0.84
32	1520234	Pend Oreille	Pump	40	<1	0.84
32	1520237	Pend Oreille	Pump	40	<1	0.84
32	1520238	Pend Oreille	Pump	40	<1	0.84
32	1520239	Pend Oreille	Pump	40	<1	0.84
32	1520247	Pend Oreille	Pump	40	<1	0.84
32	1520248	Pend Oreille	Pump	40	<1	0.84
32	1520250	Pend Oreille	Pump	40	<1	0.84
32	1520251	Pend Oreille	Pump	40	<1	0.84
32	1520252	Pend Oreille	Pump	40	<1	0.84
32	1520253	Pend Oreille	Pump	40	<1	0.84
32	1520254	Pend Oreille	Pump	40	<1	0.84
32	1520255	Pend Oreille	Pump	40	<1	0.84
32	1520257	Pend Oreille	Pump	40	<1	0.84
32	1520263	Pend Oreille	Pump	40	<1	0.84
32	1520264	Pend Oreille	Pump	40	<1	0.84
32	1520265	Pend Oreille	Pump	40	<1	0.84
32	1520173	Skookum Sl	Pump	40	<1	0.84
32	1520174	Skookum Sl	Pump	40	<1	0.84
32	1520175	Skookum Sl	Pump	40	<1	0.84
32	1520176	Skookum Sl	Pump	40	<1	0.84
33	1520157	Pend Oreille	Pump	35	<1	0.81
33	1520161	Pend Oreille	Pump	35	<1	0.81
33	1520162	Pend Oreille	Pump	35	<1	0.81
33	1520164	Pend Oreille	Pump	35	<1	0.81
33	1520165	Pend Oreille	Pump	35	<1	0.81
33	1520181	Pend Oreille	Pump	35	<1	0.81
33	1520187	Pend Oreille	Pump	35	<1	0.81
33	1520189	Pend Oreille	Pump	35	<1	0.81
33	1520190	Pend Oreille	Pump	35	<1	0.81
33	1520193	Pend Oreille	Pump	35	<1	0.81
33	1520197	Pend Oreille	Pump	35	<1	0.81
33	1520202	Pend Oreille	Pump	35	<1	0.81
33	1520204	Pend Oreille	Pump	35	<1	0.81
33	1520205	Pend Oreille	Pump	35	<1	0.81
33	1520206	Pend Oreille	Pump	35	<1	0.81
33	1520207	Pend Oreille	Pump	35	<1	0.81
33	1520217	Pend Oreille	Pump	35	<1	0.81

[1] Site ID 152XXXX were assessed by WDFW; Site ID 129XXXX were assessed by POCD

Priority	Site ID[1]	Stream	Diversion Type	Estimated flow (gpm)	Estimated cost ($ thousand)	SPI
33	1520229	Pend Oreille	Pump	35	<1	0.81
33	1520233	Pend Oreille	Pump	35	<1	0.81
33	1520235	Pend Oreille	Pump	35	<1	0.81
33	1520236	Pend Oreille	Pump	35	<1	0.81
33	1520241	Pend Oreille	Pump	35	<1	0.81
33	1520242	Pend Oreille	Pump	35	<1	0.81
33	1520259	Pend Oreille	Pump	35	<1	0.81
33	1520260	Pend Oreille	Pump	35	<1	0.81
33	1520172	Skookum Sl	Pump	35	<1	0.81
34	1520168	Pend Oreille	Pump	25	<1	0.75
34	1520201	Pend Oreille	Pump	25	<1	0.75
34	1520203	Pend Oreille	Pump	25	<1	0.75
34	1520211	Pend Oreille	Pump	25	<1	0.75
34	1520212	Pend Oreille	Pump	25	<1	0.75
34	1520215	Pend Oreille	Pump	25	<1	0.75
34	1520216	Pend Oreille	Pump	25	<1	0.75
34	1520218	Pend Oreille	Pump	25	<1	0.75
34	1520219	Pend Oreille	Pump	25	<1	0.75
34	1520227	Pend Oreille	Pump	25	<1	0.75
34	1520230	Pend Oreille	Pump	25	<1	0.75
34	1520240	Pend Oreille	Pump	25	<1	0.75
34	1520243	Pend Oreille	Pump	25	<1	0.75
34	1520244	Pend Oreille	Pump	25	<1	0.75
34	1520246	Pend Oreille	Pump	25	<1	0.75
34	1520249	Pend Oreille	Pump	25	<1	0.75
34	1520256	Pend Oreille	Pump	25	<1	0.75
34	1520261	Pend Oreille	Pump	25	<1	0.75
34	1520262	Pend Oreille	Pump	25	<1	0.75
35	1520183	Pend Oreille	Pump	14	<1	0.65
35	1520184	Pend Oreille	Pump	14	<1	0.65
35	1520228	Pend Oreille	Pump	14	<1	0.65
35	1520245	Pend Oreille	Pump	14	<1	0.65
36	1290048	Cusick	Gravity	0.33	>5	0.40
Unk	1520282	Skookum	Gravity	Unknown	>5	Unk
Unk	1520147	Skookum, SF	Gravity	Unknown	>5	Unk
Unk	1520108	Smalle	Pump	Unknown	Unknown	Unk
Unk	1520057	Trimble	Pump	Unknown	>5	Unk
Unk	1290088	Bracket	Pump	Unknown	Unknown	Unk
Unk	1290114	Davis	Gravity	Unknown	Unknown	Unk
Unk	1290116	Davis	Pump	Unknown	Unknown	Unk
Unk	1290117	Davis	Pump	Unknown	Unknown	Unk
Unk	1290096	Kent	Gravity	Unknown	Unknown	Unk
Unk	1290100	Kent	Pump	Unknown	Unknown	Unk

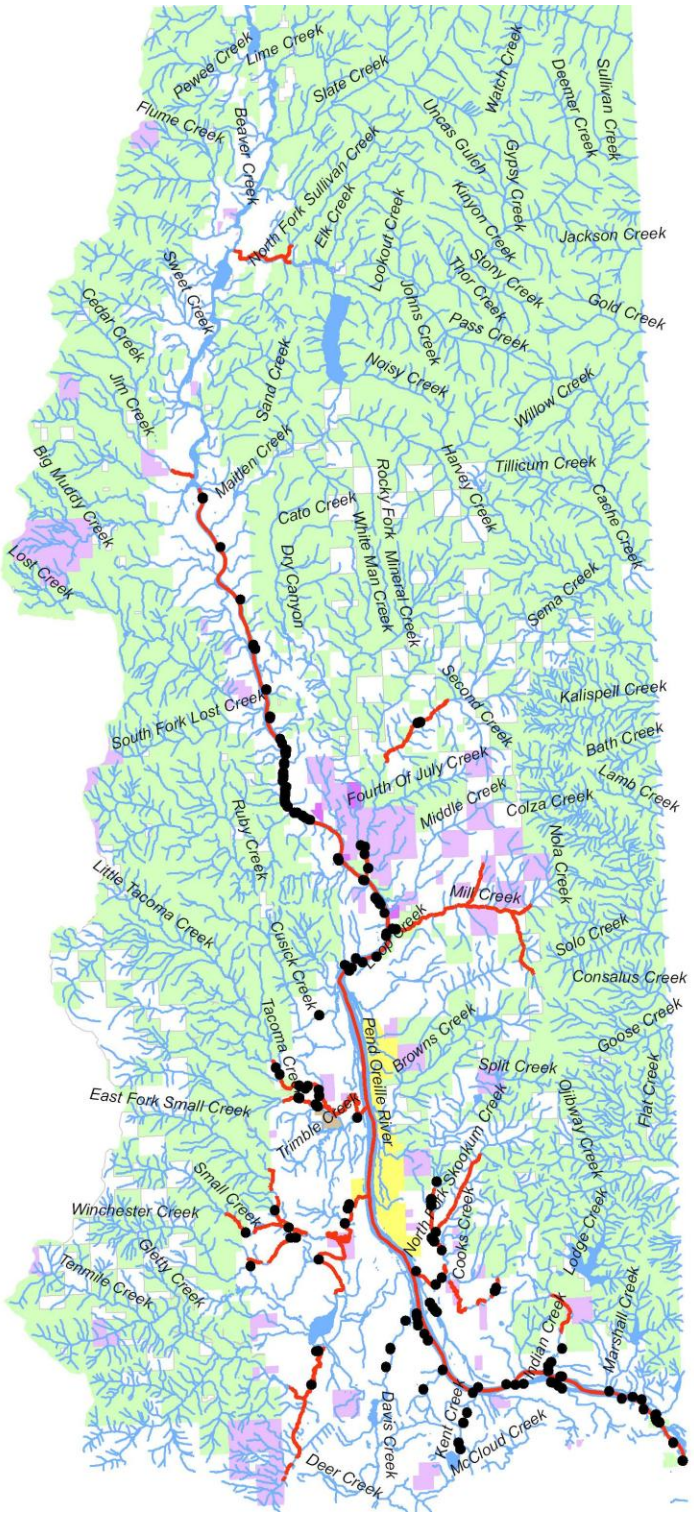
[1] Site ID 152XXXX were assessed by WDFW; Site ID 129XXXX were assessed by POCD

Priority	Site ID[1]	Stream	Diversion Type	Estimated flow (gpm)	Estimated cost ($ thousand)	SPI
Unk	1290106	Kent, tributary	Pump	Unknown	Unknown	Unk
Unk	1520170	Pend Oreille	Pump	Unknown	Unknown	Unk
Unk	1520185	Pend Oreille	Pump	Unknown	Unknown	Unk
Unk	1520213	Pend Oreille	Pump	Unknown	Unknown	Unk
Unk	1520232	Pend Oreille	Pump	Unknown	Unknown	Unk
Unk	1290068	Skookum	Pump	Unknown	Unknown	Unk
Unk	1290083	Skookum	Gravity	Unknown	Unknown	Unk
Unk	1290136	Smalle, EF	Gravity	Unknown	>5	Unk
Unk	1290134	Winchester	Gravity	Unknown	>5	Unk

[1] Site ID 152XXXX were assessed by WDFW; Site ID 129XXXX were assessed by POCD

Figure B-1

Surface Water Diversions in WRIA 62



1:350,000

Legend

- Surface Water Diversion
- Assessment Area
- Stream/River

Land Manager

- Private
- Kalispell Indian Reservation
- US Fish and Wildlife Service
- US Forest Service
- Washington State Department of Fish and Wildlife
- Washington State Department of Natural Resources

Pend Oreille
Water Resource Inventory Area (WRIA) 62

APPENDIX C

Screening Priority Index Model

Adapted from WDFW 2009

The SPI for each unscreened or ineffectively screened diversion was calculated as follows:

$$SPI_{\text{all species}} = \sum \sqrt[4]{[(QP) \times MDC]}$$

Where:

SPI = Screening Priority Index

- Relative project benefit considering cost
- The SPI is the sum ($_{\text{all species}}$) of individual SPI values, one of which is calculated for each species present in the stream (e.g., $SPI_{\text{bull trout}}$ is added to $SPI_{\text{resident trout}}$ to obtain $SPI_{\text{all species}}$).

Q = Flow in gallons per minute (gpm)

- Flow through the diversion is used as a surrogate for the number of adult equivalent salmonids potentially killed by an unscreened diversion
- For this assessment flow was generally determined in one of two ways:
  - For pump diversions, estimated based on pipe diameter per WDFW 2009:

Pipe size (inches)	Estimated flow (gpm)
1	14
1.25	25
1.5	35
2	40
2.5	65
3	90
4	160
5	180
6	280
8	460
10	750
12	1100

- For gravity diversions, flow was estimated by multiplying channel area of diversion by an average velocity of 0.75 ft/sec (which is based on velocities measured statewide by WDFW crews in a number of diversion channels). The result, in ft^3/sec, was multiplied by 499 to obtain gpm.

P = Annual adult equivalent production potential per m^2

- Estimated number of adult salmonids that can potentially be produced by each m^2 of habitat annually. Used as a surrogate for the probability of an individual fish of a given species encountering a diversion.
- The values (adults/m^2) are species specific: bull trout = 0.0007, resident trout = 0.04

M = Mobility Modifier

- Gives greater weight to projects that increase productivity of species that are highly mobile
- For WRIA 62, a mobility modifier of "2" was used for bull trout when it was known that fluvial or adfluvial life histories were likely to use a given stream. For streams where only resident trout are known to occur, a mobility modifier of "1" was used. The following mobility modifiers were used for the following streams and their tributaries:

Calispell Creek = 1
Cedar Creek = 2
Harvey Creek = 1
Indian Creek = 2
LeClerc Creek = 2
Mill Creek = 2
Pend Oreille River = 2
Skookum Creek = 1
Sullivan Creek = 2
Tacoma Creek = 2

D = Species Condition Modifier

- Gives greater weight to less healthy species as estimated by best available information. A species condition modifier of "3" was used for bull trout, which is listed a threatened under ESA; a "2" for streams where westslope cutthroat trout are present; and, a "1" where only non-native brook trout are present.

C = Cost modifier

- Representation of projected cost of project; gives greater weight to less costly projects
  - 3 = incremental funds needed $\leq$ $1,000
  - 2 = incremental funds needed between $1,000 and $5,000
  - 1 = incremental funds needed > $5,000

APPENDIX D

Screening Requirements for Water Diversions

Washington State Laws RCW 77.57.10 and 77.57.040 require that ALL diversions from waters of the state be screened to protect fish.

These laws and the following design criteria are essential for the protection of fish at surface water diversions. Fish drawn into hydropower, irrigation, water supply, and other diversions are usually lost from the fish resources of the state of Washington.

The following criteria are based on the philosophy of physically excluding fish from being entrained in water diverted without becoming impinged on the diversion screen. The approach velocity and screen mesh opening criteria are based upon the swimming stamina of emergent size fry in low water temperature conditions. It is recognized that there may be locations at which design for these conditions may not be warranted. Unless conclusive data from studies acceptable to Washington Department of Fish and Wildlife indicate otherwise, it is assumed that these extreme conditions exist at some time of the year at all screen sites.

Additional criteria may be required for unique situations, large facilities or intakes within marine waters.

I. Screen Location and Orientation

a. Fish screens in rivers and streams shall be constructed within the flowing stream at the point of diversion and parallel to the stream flow. The screen face shall be continuous with the adjacent bankline. A smooth transition between the screen and backline shall be provided to prevent eddies in front, upstream and downstream of the screen. Where it can be thoroughly demonstrated that flow characteristics or site conditions make construction or operation of fish screens at the diversion entrance impractical, the screen(s) may be installed in the canal downstream of the diversion.
b. Diversion intakes in lakes and reservoirs shall be located offshore in deep water to minimize the exposure of juvenile fish to the screen. Salmon and trout fry generally inhabit shallow water areas near shore.
c. Screens constructed in canals and ditches shall be located as close as practical to the diversion. They shall be oriented so the angle between the face of the screen and the approaching flow is no more than 45º. All screens constructed downstream of the diversion shall be provided with an efficient bypass system.

II. Approach Velocity

a. The approach velocity is defined as the component of the local water velocity vector perpendicular to the face of the screen. Juvenile fish must be able to swim at a speed equal or greater than the approach velocity for an extended length of time to avoid impingement on the screen. The following approach velocity criteria

are maximum velocities that shall not be exceeded anywhere on the face of the screen. A maximum approach velocity of 0.4 feet per second (ft/sec) is allowed.

b. The approach velocity is calculated based on the gross screen area not the net open area of the screen mesh.
c. The intake structure and/or fish screen shall be designed to assure that the diverted flow is uniformly distributed through the screen so the maximum approach velocity is not exceeded.

III. Minimum Screen Area

The minimum required screen area is determined by dividing the maximum diverted flow by the maximum allowable approach velocity. To find the screen area in ft^2, divide the diverted flow in cubic feet per second (450 gpm = 1.0 cfs) by the approach velocity (0.4 ft/sec):

$$\text{Minimum screen area} = \frac{\text{Diverted flow (cfs)}}{\text{Approach velocity (ft/sec)}}$$

The minimum required screen area must be submerged during lowest stream flows and may not include any area that is blocked by screen guides or structural members.

Diversions less than or equal to 180 gpm (0.4 cfs) require a minimum submerged screen area of 1.0 ft^2, which is the smallest practical screening device.

IV. Sweeping Velocity

The sweeping velocity is defined as the component of the water velocity vector parallel to and immediately upstream of the screen surface. The sweeping velocity shall equal or exceed the maximum allowable approach velocity. The sweeping velocity requirement is satisfied by a combination of proper orientation (angle of screen 45º to the approaching flow) of the screen relative to the approaching flow and adequate bypass flow.

V. Screen Mesh Size, Shape, and Type of Material

Screen openings may be round, square, rectangular, or any combination thereof, provided structural integrity and cleaning operations are not impaired.

Screen mesh criteria is based on the assumption that steelhead and/or resident trout fry are ubiquitous in the State of Washington and will be present at all diversion sites.

Following are the maximum screen openings allowable for emergent salmonid fry. The maximum opening applies to the entire screen structure including the screen mesh, guides, and seals. The profile bar criteria is applied to the narrow dimension of the rectangular slots or mesh.

Woven Wire Mesh	Profile Bar	Perforated Plate
0.087 inch	1.75 mm	0.094 inch
(6-14 mesh)	(0.069 inch)	(3/32 inch)

The allowable woven wire mesh openings is the greatest open space distance between mesh wires. An example allowable mesh specifications is provided; there are other standard

allowable openings available. The mesh specification gives that number of mesh openings per lineal inch followed by the gauge of the wires. For example, 6-14 mesh has six mesh openings per inch of screen. It is constructed with 6, 14-gauge (0.080 inch diameter) wires per inch.

The profile bar openings are the maximum allowable space between bars. The allowable perforated plate openings are the diameter of circular perforations. Perforated slots are treated as profile bars.

Screens may be constructed of any durable material; woven, welded, or perforated. The screen material must be resistant to corrosion and ultraviolet damage.

For longevity and durability, minimum wire diameter for woven mesh shall be 0.060 inch (18 gauge) on fixed panel screens, where they are not subjected to impact of debris. Minimum wire diameter for woven mesh shall be 0.080 inch (14 gauge) for rotary drum screens, traveling belt screens, and in areas where there is a potential for damage from floating debris or cleaning operations.

VI. Bypass

All screens constructed downstream of the diversion shall be provided with an efficient bypass system to rapidly collect juvenile fish and safely transport them back to the stream. The downstream end of the screen shall terminate at the entrance to the by pass system. It is the water diversion owner's responsibility to obtain necessary water rights to operate the fish bypass; failure to do so may be considered failure to meet state screening law requirements.

VII. Cleaning

Fish screens shall be cleaned as frequently as necessary to prevent obstruction of flow and violation of the approach velocity criterion. Automatic cleaning devices will be required on large screen facilities.

Additional detailed information is available explaining the background and justification of these criteria and showing standard detail of flow distributors, acceptable bypass designs, and screen areas required for various flow by contacting the Washington Department of Fish and Wildlife.