

**Nez Perce Tribe Chinook Salmon and Steelhead  
Adult Escapement and Spawning Ground  
2006 Summary Report**



© 1995 Nez Perce Tribe

Prepared by:

Adult Technical Team

Nez Perce Tribe  
Department of Fisheries Resources Management  
Fisheries Research Division  
Lapwai, ID 83540

January 2007

**Nez Perce Tribe Chinook Salmon and Steelhead  
Adult Escapement and Spawning Ground  
2006 Summary Report**

Prepared by:

Adult Technical Team

Nez Perce Tribe  
Department of Fisheries Resources Management  
Fisheries Research Division  
Lapwai, ID 83540

**This document should be cited as follows:**

Adult Technical Team. 2007. Nez Perce Tribe chinook salmon and steelhead adult escapement and spawning ground 2006 summary report. Nez Perce Tribe Department of Fisheries Resources Management, Fisheries Research Division. Lapwai, ID

## **INTRODUCTION**

This document summarizes adult spring, summer, and fall chinook salmon and steelhead population estimates and spawning ground survey information collected on streams surveyed by the Nez Perce Tribe Department of Fisheries Resources Management (DFRM) during 2006. The purpose of this document is to provide resource assessment information to co-managers on a timely basis. Data collection is conducted under multiple contracts with specific project objectives and study designs. Methods have been standardized to assure accurate characterization of basic performance measures. Final data and a complete description of project specific methods will be contained in project specific annual reports.

Adult spring and summer chinook salmon escapement estimates are presented from six streams where adult monitoring sites are located. Adult steelhead escapement information is presented from two streams located in the Imnaha River subbasin. Spring, summer, and fall chinook salmon redd count and carcass data is presented from multiple streams surveyed in the Clearwater River, Salmon River, Grande Ronde River, and Imnaha River subbasins. Index area (trend), extensive area, and supplemental area redd count information is presented.

## **DESCRIPTION OF STUDY AREA**

Study streams surveyed in the Clearwater River, Salmon River, Grande Ronde River, and Imnaha River subbasins are presented in Appendix Figures 1-3. Individual streams surveyed and locations of surveyed areas are presented below.

Adult spring chinook salmon escapement is monitored at three sites in the Clearwater River subbasin located in north central Idaho; two picket weirs are operated in Lolo Creek (rkm 21 and rkm 51), a tributary to the Clearwater River (Appendix Figure 4) and one in Newsome Creek (rkm 0), a tributary to the South Fork Clearwater River (Appendix Figure 5). In addition to escapement monitoring, the three weirs are operated to collect broodstock for the Nez Perce Tribal Hatchery (NPTH) program. To supplement broodstock collection, the adult fish ladder at the NPTH site (Appendix Figure 1) is also operated to collect adult spring chinook salmon and fall chinook salmon.

Multiple stream locations were sampled within the Clearwater River subbasin during spring chinook salmon spawning ground surveys by three different projects within the DFRM Research Division. The streams monitored for the NPTH spring Chinook Monitoring and Evaluation (M&E) project are Lolo Creek, Yoosa Creek, Musselshell Creek, and Eldorado Creek (Appendix Figure 4), Newsome Creek (Appendix Figure 5), Mill Creek (Appendix Figure 1), Meadow Creek in the Selway River (Appendix Figure 6), and the lower Selway River (Appendix Figure 1). The Salmon Supplementation Studies in Idaho Rivers (ISS) project studied two streams in the Clearwater River subbasin; Fishing Creek and Legendary Bear Creek (Appendix Figure 7). Both streams are tributaries to the Lochsa River. The NPTH M&E project conducted aerial fall chinook salmon redd count surveys in the Clearwater River subbasin in the mainstem Clearwater River, lower Potlatch River, North Fork Clearwater River, Middle Fork Clearwater River, and lower sections of the South Fork Clearwater River and Selway River (Appendix Figure 8).

Adult spring and summer chinook salmon escapement is monitored at three sites within the South Fork Salmon River; the Secesh River, Lake Creek and in Johnson Creek. All three streams are located in west central Idaho (Appendix Figures 9 and 10) and are tributaries to the South Fork Salmon River.

The Chinook Salmon Adult Abundance Monitoring project uses a dual frequency identification sonar (DIDSON) monitoring site in the Secesh River at rkm 30, to quantify wild adult salmon escapement. An adult salmon underwater video monitoring site is also located in Lake Creek (Appendix Figure 9) approximately 100 m upstream from the mouth of Lake Creek as part of this project. The Johnson Creek Artificial Propagation and Enhancement project (JCAPE) employs a temporary picket style weir, located in Johnson Creek located at rkm 8.2 (Appendix Figure 10), to assess adult abundance to tributary and for the collection of broodstock for the supplementation program.

Multiple stream locations were sampled within the Salmon River subbasin for chinook salmon spawning ground surveys. The ISS project studied three streams within the Salmon River drainage; the Secesh River which is a tributary of the South Fork Salmon River and Lake Creek which is a tributary of the Secesh River, and Slate Creek, a tributary of the mainstem Salmon River (Appendix Figures 9 and 11). The JCAPE project conducted multiple pass ground index area and extensive area redd count surveys in Johnson Creek and one of its tributaries (Burntlog Creek) (Appendix Figure 10). The Lower Snake River Compensation Plan (LSRCP) monitoring and evaluation project conducted multiple pass surveys in the upper mainstem South Fork Salmon River. Four sections were surveyed and are the South Fork Salmon weir to Dime Creek, Dime Creek to an unknown tributary above Roaring Creek, Poverty Flat, and Lodgepole Campground to Phoebe Creek (Appendix Figure 12). In the Middle Fork Salmon River multiple pass surveys were conducted on Big Creek. Two sections were surveyed and are Smith Creek to Logan Creek (supplemental) and Logan Creek to Jacobs Ladder Creek (index) (Appendix Figure 13). The NPTH M&E project conducted aerial fall chinook salmon redd count surveys in the mainstem Salmon River from the mouth up to French Creek (Appendix Figure 14).

Adult spring and summer chinook salmon escapement was monitored at one site in the Lostine River. The Grande Ronde Supplementation: Lostine River Monitoring and Evaluation project employed a panel weir, located in the Lostine River at rkm 1.4 (Appendix Figure 15), to quantify adult salmon escapement to the tributary and for collection of broodstock for the supplementation program.

Multiple adult spring and summer chinook salmon redd count surveys were conducted within the Grande Ronde River subbasin in the Lostine River. The Grande Ronde Supplementation: Lostine River Monitoring and Evaluation project conducted index area and extensive area surveys from the confluence of the Lostine River upstream to Lapover Meadows (near French Creek) in eleven different sections (Appendix Figure 15). The NPTH M&E project collected aerial fall chinook salmon redd count survey information in the mainstem Grande Ronde River from the mouth up to rkm 52.7 (Wildcat Creek Bridge) just past the town of Troy. In 2006, the survey area was extended up the Grande Ronde River to the Wallowa River, the lower Wallowa River to the mouth of the Minam River, and the lower Wenaha River from the mouth to rkm 17.5 (Appendix Figure 16).

The NPTH M&E project conducted aerial fall chinook salmon redd count surveys in the mainstem Imnaha River from the mouth up to rkm 19.5 at the town of Imnaha (Appendix Figure 16). The LSRCP project monitored adult steelhead escapement in two tributaries in the lower Imnaha River (Cow Creek and Lightning Creek) (Appendix Figure 3).

Table 1. Spring/summer chinook, fall chinook, and steelhead adults trapped, broodstock collected, estimated escapement and percent hatchery fish above weirs, and total tributary escapement for streams monitored by the Nez Perce Tribe during 2006 (N/A = Not available, data still being analyzed). Total tributary escapement is escapement to the entire stream prior to broodstock take, and expanded for redds located below weirs.

Stream	Number Trapped	Number Kept for Broodstock	Estimated Escapement Above Weir (95% C.I.)	Percent Hatchery Above Weir	Total Tributary Escapement
<b><u>Spring Chinook Salmon</u></b>					
Clearwater River					
Lolo Creek	117	101 <sup>1</sup>	34 (N/A)	26.5	135
Newsome Cr.	79	76 <sup>2</sup>	3 (N/A)	0.0	94
NPTH Ladder	51	36	N/A	N/A	N/A
Salmon River					
Johnson Cr.	187	60	113 (census)	63.7	245
Secesh River	-	-	N/A	-	N/A
Lake Creek	-	-	N/A	-	N/A
Grande Ronde R.					
Lostine River	534	137	474 (422-526)	55.8	692
<b><u>Fall Chinook Salmon</u></b>					
Clearwater River					
NPTH Ladder	138	138	-	-	-
<b><u>Steelhead</u></b>					
Imnaha River					
Lightning Cr.	44	N/A	53 (42-63)	5.0	N/A
Cow Cr.	14	N/A	17 (11-23)	16.0	N/A

<sup>1</sup> Twenty five males and 1 female kept for broodstock that were surplus to hatchery needs were outplanted into Lolo Creek, above the upper weir, on August 29, 2006.

<sup>2</sup> Eight males kept for broodstock that were surplus to hatchery needs were outplanted into Newsome Creek, above the weir, on August 29, 2006.

Table 2. Adult spring and summer chinook salmon escapement to Lolo Creek, Newsome Creek, Johnson Creek, Secesh River, Lake Creek, and the Lostine River from 2002 to 2006 (N/A = Not available, data still being analyzed). Escapement information is total tributary escapement to the entire stream prior to broodstock take.

Year	Lolo Creek	Newsome Creek	Johnson Creek	Secesh River	Lake Creek	Lostine River
2002	603	244	1,268	1,086	409	963
2003	672	466	871	1,176	481	1,093
2004	583	164	403	965	408	1,556
2005	178	67	223	349	140	966
2006	135	94	245	N/A	N/A	692

Table 3. Adult spring chinook salmon and fall chinook salmon swim-in returns to the Nez Perce Tribe Hatchery (NPTH) ladder from 2002 to 2006 (N/A = data not available).

Year	Spring Chinook <sup>1</sup>	Fall Chinook
2002	N/A	N/A
2003	N/A	181
2004	87	724
2005	12	167
2006	51	138

<sup>1</sup> Outplanted adults were not marked, thus total return numbers may be high.

Table 4. Adult steelhead escapement to Lightning Creek and Cow Creek in the Imnaha River subbasin from 2002 to 2006. Escapement information is total escapement above the weir site.

Year	Lightning Creek	Cow Creek
2002	232	64
2003	220	104
2004	119	128
2005	70	88
2006	53	17

Table 5. Spring/summer chinook salmon spawning ground index area and extensive area redd count surveys conducted by the Nez Perce Tribe Department of Fisheries Resources Management during 2006 (NS = not surveyed). Redd counts are ground counts unless otherwise noted.

Subbasin	Stream	Index Area Redd Count	Extensive Area Redd Count	Total Number of Redds	
Clearwater River	Lolo Creek (excluding trib.'s)	8	1 <sup>1</sup>	9	
	Yoosa Creek	0	0	0	
	Musselshell Creek	-	0	0	
	Eldorado Creek	0	0	0	
	Newsome Creek	4	0	4	
	Mill Creek	-	0	0	
	SF Clearwater River	5	14 <sup>2</sup>	NS	
	Meadow Creek (SF Clearwater)	-	0	0	
	Meadow Creek (Selway)	52 <sup>3</sup>	NS	52	
	Lower Selway River	-	14 <sup>1,2</sup>	NS	
	Fishing Creek (Squaw Cr) <sup>4</sup>	7	-	7	
	Legendary Bear Creek (Papoose Cr)	8	0	8	
	Salmon River	Slate Creek	3	0	3
		Secesh River (excluding trib.'s)	20	5	25
Lake Creek		37	2	39	
Summit Creek		0	9	9	
Grouse Creek		0	2	2	
South Fork Salmon River		-	274 <sup>5</sup>	NS	
Johnson Creek (excluding trib.'s)		23	13	36	
Burnt Log Creek		0	2	2	
Big Creek	12	3 <sup>2</sup>	NS		
Grande Ronde River	Lostine River	61	50	111	

<sup>1</sup> Aerial survey.

<sup>2</sup> Does not represent comprehensive coverage of entire spawning distribution.

<sup>3</sup> Ground and aerial survey.

<sup>4</sup> Index area represents all available salmon spawning habitat.

<sup>5</sup> Supplemental surveys to collect natural/hatchery composition below the South Fork Salmon weir.

Table 6. Fall chinook salmon spawning ground redd count surveys conducted by the Nez Perce Tribe Department of Fisheries Resources Management during 2006. Redd counts are aerial counts unless otherwise noted.

Subbasin	Stream	Total Number of Redds
Clearwater River <sup>1</sup>	Clearwater River – mainstem below North Fork Clearwater River	251
	Clearwater River – mainstem above North Fork Clearwater River	6
	North Fork Clearwater River	0
	South Fork Clearwater River	0
	Selway River	0
	Potlatch River	0
	Middle Fork Clearwater River	0
Salmon River <sup>2</sup>	Salmon River – mainstem	9
Grande Ronde River <sup>3</sup>	Grande Ronde River - mainstem	41
	Wallowa River	0
	Wenaha River	1
Imnaha River <sup>3</sup>	Imnaha River – mainstem	36

<sup>1</sup>Surveys not completed after October 30<sup>th</sup>, 2006 due to weather and turbid conditions.

<sup>2</sup>Surveys not completed after November 17<sup>th</sup> due to adverse weather conditions.

Includes five new redds observed at mouth by USFWS and IPC staff on 12/4/06.

<sup>3</sup>Not a total redd count because of turbid conditions and ice on last survey.

Table 7. Spring/summer chinook salmon spawning ground survey carcass recovery information collected by the Nez Perce Tribe Department of Fisheries Resources Management during 2006 (NS = not surveyed).

Subbasin	Stream	Number of Carcasses	Total Hatchery Composition (%)	Out of Population Strays <sup>1</sup> (%)
Clearwater River	Lolo Creek <sup>2</sup>	6	16.7	0
	Yoosa Creek	0	0	0
	Musselshell Creek	0	0	0
	Eldorado Creek	1	0	0
	Newsome Creek <sup>2</sup>	3 <sup>3</sup>	66.7	66.7
	Mill Creek	0	0	0
	SF Clearwater River	0	0	0
	Meadow Creek (SF Clearwater)	0	0	0
	Meadow Creek (Selway)	25 <sup>4</sup>	100	96
	Lower Selway River	0	0	0
	Fishing Creek (Squaw Cr) <sup>2</sup>	2	50	50
	Legendary Bear Creek (Papoose Cr) <sup>2</sup>	15	53.3	46.6
	Salmon River	Slate Creek	1	0
Secesh River (excluding trib.'s) <sup>2</sup>		33	6	6
Lake Creek <sup>2</sup>		30	6.7	6.7
Summit Creek <sup>2</sup>		7	0	0
Grouse Creek <sup>2</sup>		1	0	0
South Fork Salmon River		105	47.2	0
Johnson Creek (excluding trib.'s)		60	56.7	1.7
Burnt Log Creek		1	100	0
Grande Ronde R.	Big Creek	4	50	50
	Lostine River <sup>2</sup>	91	67	NA

<sup>1</sup> Defined as the percentage of all hatchery fish which strayed into the study stream from out of the population. Includes out-of-population within the major population group (MPG) strays, out-of-MPG strays from within the Evolutionary Significant Unit (ESU), and out-of-ESU strays.

<sup>2</sup> Hatchery percentages calculated by including unknown origin fish in carcass total.

<sup>3</sup> Two of the 3 carcasses recovered were surplus Rapid River Hatchery adult outplants.

<sup>4</sup> Twenty one carcasses were surplus Dworshak National Fish Hatchery adult outplants, three carcasses were adipose clipped strays, and one carcass was a Meadow Creek supplementation fish.

Table 8. Fall chinook salmon spawning ground survey carcass recovery information collected by the Nez Perce Tribe Department of Fisheries Resources Management during 2006 (NS = not surveyed).

Subbasin	Stream	Number of Carcasses	Total Hatchery Composition (%)	Out of Population Strays <sup>1</sup> (%)
Clearwater River <sup>2</sup>	Clearwater River – mainstem	69	65.1	3.2
	Clearwater River – above North Fork	3	33.3	0
	South Fork Clearwater	0	0	0
	North Fork Clearwater	0	0	0
	Lower Selway River	0	0	0
	Potlatch River	0	0	0
	Middle Fork Clearwater River	0	0	0
Salmon River	Salmon River – mainstem	NS	NS	NS
Grande Ronde R.	Grande Ronde River – mainstem	NS	NS	NS
	Wallowa River	NS	NS	NS
	Wenaha River	NS	NS	NS
Imnaha River	Imnaha River – mainstem	NS	NS	NS

<sup>1</sup>Defined as the percentage of all hatchery fish which strayed into the study stream from out of the population. Includes out-of-population within the major population group (MPG) strays, out-of-MPG strays from within the Evolutionary Significant Unit (ESU), and out-of-ESU strays.

<sup>2</sup>High water events and turbid conditions hindered carcass recovery.

Table 9. Number of spring and summer chinook salmon redds observed by date, stream section, and total number of redds counted in each stream section during spawning ground surveys in 2006. All redd counts are ground counts unless otherwise noted.

Subbasin and Stream	Date	Number of New Redds	Total Redds Counted in Section
<b>Clearwater River</b>			
Lolo Creek - Pheasant Camp to mouth of Yoosa Creek (18.3 km)	8/28-29/06	2	8
	9/6-7/06	5	
	9/18/06	1	
Lolo Creek (Upper) - mouth of Yoosa Creek to Slide (1.0 km)	9/18/06	0	0
Lolo Creek (Rock Creek) - mouth of Rock Creek to Pheasant Camp (6.6 km)	9/25/06	0	0
Lolo Creek (lower weir) – 1.6 km downstream of weir to Pheasant Camp (19.0 km) <sup>1</sup>	9/28/06	1	1
Yoosa Creek – mouth of Yoosa Creek to mouth of Camp Creek (4.4 km)	8/24/06	0	0
	9/06/06	0	
	9/18/06	0	
Musselshell Creek – mouth of Musselshell Creek to FS 100 road bridge (9.1 km)	9/25/06	0	0
Eldorado Creek – mouth of Eldorado Creek to old weir site (3.5 km)	8/29/06	0	0
	9/06/06	0	
	9/18/06	0	
Eldorado Creek – old weir site to Dollar Creek bridge (13.6 km)	9/19/06	0	0
Newsome Creek – mouth of Newsome Creek to Glory Hole (15.1 km)	8/31/06	0	4
	9/07/06	3	
	9/27/06	1	
Newsome Creek (Radcliff) – Glory Hole to mouth of Radcliff Creek (3.1 km)	9/27/06	0	0
Newsome (Pilot Creek) – lower 500 meters (0.5 km)	9/27/06	0	0
Newsome (Baldy Creek) – lower 400 meters (0.4 km)	9/27/06	0	0
SF Clearwater River – mouth of Leggett Creek to mouth of Newsome Creek (1.0 km)	8/31/06	1	5
	9/07/06	4	
	9/27/06	0	
SF Clearwater River – mouth of Santiam Creek to mouth of Leggett Creek (2.1 km)	9/07/06	14	14
Meadow Creek (SF Clrwtr R) – McComas Meadows (4.3 km)	9/12/06	0	0
Mill Creek (SF Clrwtr R) – mouth of Mill Creek to mouth of Markham Creek (4.8 km)	9/12/06	0	0

Table 9. (continued)

Subbasin and Stream	Date	Number of New Redds	Total Redds Counted in Section
<b>Clearwater River</b>			
Meadow Creek (Selway R) – mouth of Meadow Creek to mouth of Little Creek (6.6 km)	9/13/06	42	52
Meadow Creek (Selway R) – mouth of Meadow Creek to mouth of Rabbit Creek (4.4 km)	9/26/06	4	
Meadow Creek (Selway R) – mouth of Meadow Creek to mouth of Fourmile Creek (68.0 km) <sup>1</sup>	9/28/06	6	
Lower Selway River – mouth of Selway River to mouth of Otter Creek (37.3 km) <sup>1</sup> Creek	9/28/06	14	14
Fishing Creek (Lochsa R.) – mouth of Fishing Creek to sharp curve (3.8 km)	8/10/06	0	6
	8/23/06	3	
	9/13/06	3	
Fishing Creek (Lochsa R.) – sharp curve to 1 <sup>st</sup> culvert upstream of West Fk. (2.4 km)	8/10/06	0	1
	8/23/06	0	
	9/13/06	1	
Legendary Bear Creek (Lochsa R.) – mouth to forks (3.0 km)	8/11/06	0	8
	8/24/06	2	
	9/14/06	6	
Legendary Bear Creek (Lochsa R.) – 0.8 km up East Fk. and 3.0 km up West Fk (3.8 km)	8/11/06	0	0
	8/24/06	0	
	9/14/06	0	
<b>Salmon River</b>			
Slate Creek – USFS Boundary to mile post 6 (2.52 km)	9/20/06	0	0
Slate Creek – mile post 6 to Slide Creek (2.82 km)	9/20/06	0	0
Slate Creek – Slide Creek to North Fk. Slate Creek (2.52 km)	9/20/06	0	0
Slate Creek – North Fk. Slate Creek to Willow Creek (1.0 km)	8/15/06	0	0
	8/31/06	0	
	9/20/06	0	
Slate Creek – Willow Creek to Trough Creek (3.56 km)	8/15/06	0	1
	8/31/06	0	
	9/20/06	1	
Slate Creek – Trough Creek to Trail 329 footbridge (1.97 km)	8/15/06	0	2
	8/31/06	2	
	9/20/06	0	
Slate Creek – Trail 329 to old road 354G (1.0 km)	8/15/06	0	0
	8/31/06	0	
	9/20/06	0	

Table 9. (continued)

Subbasin and Stream	Date	Number of New Redds	Total Redds Counted in Section
<b>Salmon River</b>			
Secesh River – Alex Creek to Chinook camp ground (1.82 km)	8/14/06	0	1
	8/29/06	1	
	9/18/06	0	
Secesh River – Chinook camp ground to Long Gulch bridge (2.98 km)	8/14/06	0	3
	8/29/06	3	
	9/18/06	0	
Secesh River – Long Gulch bridge to Piah Creek (4.6 km)	8/14/06	2	16
	8/30/06	12	
	9/18/06	2	
Secesh River – Piah Creek to Grouse Creek junc. bridge (2.5 km)	8/15/06	0	5
	8/28/06	5	
	9/12/06	0	
Secesh River – Grouse Creek junc. bridge to Lake Creek (5.0 km)	8/15/06	0	0
	8/29/06	0	
	9/11/06	0	
Loon Creek (Secesh River) - Alex Creek to Grimmet Creek (6.7 km)	8/22/06	0	0
Grouse Creek (Secesh River) - Mouth upstream (3.0 km)	9/12/06	2	2
Summit Creek (Secesh River) - Mouth to Pucker point (9.0 km)	9/12/06	9	9
Lick Creek (Secesh River) - Mouth upstream (4.5 km)	9/25/06	0	0
Lake Creek (Secesh River) – Mouth to 3 mile Creek (7.0 km)	8/4/06	1	23
	8/21/06	14	
	9/6/06	8	
Lake Creek (Secesh River) – 3 mile Creek to Willow Creek (5.0 km)	8/3/06	4	14
	8/21/06	10	
	9/5/06	0	
Lake Creek (Secesh River) – Willow Creek to Corduroy junction (1.56 km)	8/3/06	0	1
	8/21/06	1	
	9/5/06	0	
Lake Creek (Secesh River) - Corduroy junction to Corduroy Creek – (3.2 km)	8/3/06	1	1
	8/21/06	0	
	9/5/06	0	
Johnson Creek – Mouth to Screw Trap (6.28 km)	7/10/06	0	4
	7/16/06	0	
	7/24/06	0	
	7/31/06	0	
	8/7/06	0	
	8/14/06	0	
	8/22/06	0	
	8/28/06	2	
	9/4/06	2	
	9/11/06	0	

Table 9. (continued)

Subbasin and Stream	Date	Number of New Redds	Total Redds Counted in Section
<b>Salmon River</b>			
Johnson Creek – Screw Trap to Adult Weir (1.91 km)	7/11/06	0	9
	7/19/06	0	
	7/25/06	0	
	8/1/06	0	
	8/8/06	0	
	8/15/06	0	
	8/21/06	0	
	8/29/06	6	
	9/5/06	3	
	9/12/06	0	
Johnson Creek – Adult Weir to Deadhorse rapids (1.56 km)	7/13/06	0	0
	7/20/06	0	
	7/27/06	0	
	8/3/06	0	
	8/9/06	0	
	8/17/06	0	
	8/24/06	0	
	8/31/06	0	
	9/7/06	0	
	9/13/06	0	
Johnson Creek – Deadhorse rapids to Moose Cr. (5.45 km)	7/10/06	0	23
	7/16/06	0	
	7/24/06	0	
	7/31/06	0	
	8/7/06	0	
	8/14/06	1	
	8/21/06	1	
	8/28/06	5	
	9/5/06	13	
	9/11/06	3	
Johnson Creek – Moose Cr to Burnt Log Cr. (6.36 km)	7/14/06	0	0
	7/21/06	0	
	7/28/06	0	
	8/4/06	0	
	8/12/06	0	
	8/18/06	0	
	8/27/06	0	
	9/1/06	0	
	9/8/06	0	
	9/13/06	0	
Johnson Creek – Old Burnt Log Trail Crossing to Landmark Bridge (6.50 km)	8/16/06	0	0
	8/30/06	0	
	9/13/06	0	
Johnson Creek – Landmark Bridge to Swamp Cr. (10.05 km)	8/16/06	0	0
	8/30/06	0	
	9/13/06	0	

Table 9. (continued)

Subbasin and Stream	Date	Number of New Redds	Total Redds Counted in Section
<b>Salmon River</b>			
Burnt Log Creek – Mouth to 1.1 km above Buck Cr. (3.32 km)	7/13/06	0	2
	7/20/06	0	
	7/27/06	0	
	8/3/06	0	
	8/8/06	0	
	8/17/06	0	
	8/24/06	0	
	8/31/06	1	
	9/6/06	1	
9/13/06	0		
South Fork Salmon River - Weir to Dime Creek (5 km)	8/15/06	1	53
	8/29/06	47	
	9/5/06	2	
	9/13/06	3	
South Fork Salmon River - Dime Creek to unnamed tributary (6.3 km)	8/15/06	0	105
	8/29/06	37	
	9/5/06	27	
	9/13/06	41	
South Fork Salmon River - Poverty Flat (1.1 km)	8/30/06	19	44
	9/6/06	20	
	9/13/06	5	
South Fork Salmon River - Lodgepole CG to Phoebe Creek (6.7 km)	8/30/06	27	72
	9/6/06	10	
	9/12/06	35	
Big Creek – Smith Creek to Logan Creek (4.7 km)	7/31/06	0	3
	8/14/06	1	
	8/28/06	2	
Big Creek – Logan Creek to Jacobs Ladder Creek (5.6 km)	7/31/06	3	12
	8/14/06	7	
	8/28/06	2	
<b>Grande Ronde River</b>			
Lostine River – Confluence to weir (1.4 km)	8/25/06	0	15
	9/1/06	9	
	9/8/06	6	
	9/19/06	0	
	9/28/06	0	
Lostine River – weir to McLain Ranch (2.9 km)	8/25/06	0	6
	9/1/06	0	
	9/8/06	4	
	9/19/06	2	
	9/28/06	0	
Lostine River – McLain Ranch to Hwy Bridge (4 km)	8/25/06	0	4
	9/1/06	0	
	9/8/06	1	
	9/19/06	3	

Table 9. (continued)

Subbasin and Stream	Date	Number of New Redds	Total Redds Counted in Section
<b>Grande Ronde River</b>			
Lostine River – Trout Farm Bridge to Westside Ditch (3.1 km)	8/25/06	0	4
	9/1/06	1	
	9//8/06	2	
	9/19/06	1	
Lostine River – Westside Ditch to Lostine River Ranch Bridge (1.9 km)	8/25/06	5	6
	9/1/06	1	
	9//8/06	0	
	9/19/06	0	
Lostine River – Lostine River Ranch Bridge to Acclimation Site (3.2 km)	8/25/06	25	35
	9/1/06	8	
	9//8/06	1	
	9/19/06	1	
Lostine River – Acclimation Site to Six Mile Bridge (1 km)	8/25/06	14	26
	9/1/06	9	
	9//8/06	3	
	9/19/06	0	
Lostine River – Six Mile Bridge to Pole Bridge (2.7 km)	8/25/06	0	0
	9/1/06	0	
	9//8/06	0	
	9/19/06	0	
Lostine River – Above Walla Walla C.G. to Williamson C.G. (4.7 km)	8/25/06	3	10
	9/1/06	7	
	9//8/06	0	
	9/19/06	0	
Lostine River – Turkey Flat to Lapover Meadows (0.5 km)	8/25/06	2	2
	9/1/06	0	
	9//8/06	0	
	9/19/06	0	
Lostine River – Lapover Meadows to Bowman Trailhead (2.1 km)	8/25/06	1	3
	9/1/06	2	
	9//8/06	0	
	9/19/06	0	

<sup>1</sup> Aerial survey.

Table 10. Number of fall chinook salmon redds observed by date, stream section, and total number of redds counted in each stream section during spawning ground surveys in 2006. All redd counts are aerial counts unless otherwise noted.

Subbasin and Stream	Date	Number of New Redds	Total Redds Counted in Section
Clearwater River <sup>1</sup>			
Mouth to North Fork (65 km)	9/25/06	1	251
	10/2/06	23	
	10/9/06	58	
	10/16/06	66	
	10/23/06	29	
	10/30/06	74	
North Fork to South Fork Clearwater (55 km)	10/16/06	4	6
	10/26/06	2	
North Fork Clearwater (2 km)	same dates as mouth to NF	0	0
South Fork Clearwater (22.4 km)	10/26/06	0	0
Middle Fork Clearwater (37 km)	10/26/06	0	0
Selway (30 km)	10/26/06	0	0
Salmon River <sup>2</sup>			
Mouth to French Creek (169 km)	10/25/06	4	9
	11/17/06	0	
	12/4/06	5	
Grande Ronde River <sup>3</sup>			
Mouth to Wildcat Creek Bridge (84.8 km)	10/10/06	0	40
	10/17/06	0	
	10/24/06	4	
	10/31/06	8	
	11/16/06	17	
	12/08/06	11	
Wildcat Creek Bridge to Wallowa R. (46.2 km)	10/30/06	1	1
	11/16/06	0	

Table 10. (continued)

Subbasin and Stream	Date	Number of New Redds	Total Redds Counted in Section
Grande Ronde River <sup>3</sup>			
Wallowa River (16 km)	11/16/06	0	0
Wenaha River (17.5 km)	10/30/06	1	1
	11/16/06	0	
Imnaha River <sup>3</sup>			
Mouth to town of Imnaha (31.4 km)	10/10/06	3	36
	10/17/06	1	
	10/24/06	4	
	10/31/06	7	
	11/16/06	13	
	12/08/06	8	

<sup>1</sup>Surveys not completed after October 30<sup>th</sup>, 2006 due to weather and turbid conditions.

<sup>2</sup>Surveys not completed after November 17<sup>th</sup> due to adverse weather conditions. Includes five new redds observed at mouth by USFWS and IPC staff on 12/4/06.

<sup>3</sup>Not a total redd count because of turbid conditions and ice on last survey.

Table 11. Total number of spring and summer chinook salmon redds, index area and extensive area, observed in Clearwater River tributary streams from 2002 to 2006. NS = not surveyed. The reader is directed to individual year annual reports for a description of stream kilometers surveyed.

Year	Lolo Creek	Newsome Creek	Mill Creek	Meadow Creek (SF Clearwater)	South Fork Clearwater <sup>1</sup>	Meadow Creek (Selway)	Lower Selway River <sup>1</sup>	Fishing Creek (Squaw Cr.)	Legendary Bear Creek (Papoose Cr.)
2002	206	52	1	5	NS	12	1	25	42
2003	69	69	3	0	16	9	6	9	21
2004	157	36	NS	0	5	70	60	21	59
2005	45	7	NS	0	4	18	2	2	8
2006	9	4	0	0	19	52	14	7	8

<sup>1</sup> Does not represent comprehensive coverage of entire spawning distribution.

Table 12. Total number of spring and summer chinook salmon redds, index area and extensive area, observed in Salmon River tributary streams and the Lostine River in the Grande Ronde River subbasin from 2002 to 2006. The reader is directed to individual year annual reports for a description of stream kilometers surveyed.

Year	Slate Creek	Secesh River	Johnson Creek	South Fork Salmon River <sup>1</sup>	Big Creek <sup>2</sup>	Lostine River
2002	33	528	309	504	95	209
2003	12	595	352	380	78	194
2004	7	395	116	715	49	189
2005	2	205	55	377	21	148
2006	3	75	36	274	15	111

<sup>1</sup> - Redd count numbers represent supplemental area counts.

<sup>2</sup> - Redd count numbers represent index area and supplemental area counts.

Table 13. Total number of fall chinook salmon redds observed in the Clearwater River and tributaries, Salmon River, Grande Ronde River, and Imnaha River from 2002 to 2006. The reader is directed to individual year annual reports for a description of stream kilometers surveyed.

Year	Clearwater River Mainstem below North Fork	Clearwater River Mainstem above North Fork	North Fork Clearwater River	South Fork Clearwater River	Middle Fork Clearwater River	Potlatch River	Lower Selway River	Salmon River Mainstem	Grande Ronde River Mainstem	Imnaha River Mainstem
2002	520	4	0	0	0	3	0	31	111	72
2003	544	19	8	0	0	1	0	18	93	43
2004	592	36	2	0	0	1	0	21	162	35
2005	433	54	0	0	0	0	0	27	129	36
2006 <sup>1</sup>	251	6	0	0	0	0	0	9	42 <sup>2</sup>	36

<sup>1</sup>Clearwater, Salmon, Grande Ronde, and Imnaha redd surveys were not a total count due to high water events and turbid conditions.

<sup>2</sup>Includes one redd observed in the Wenaha River, one redd observed in the upper Grande Ronde, and no redds in the Wallowa River (extensive areas surveyed in 2006 only).

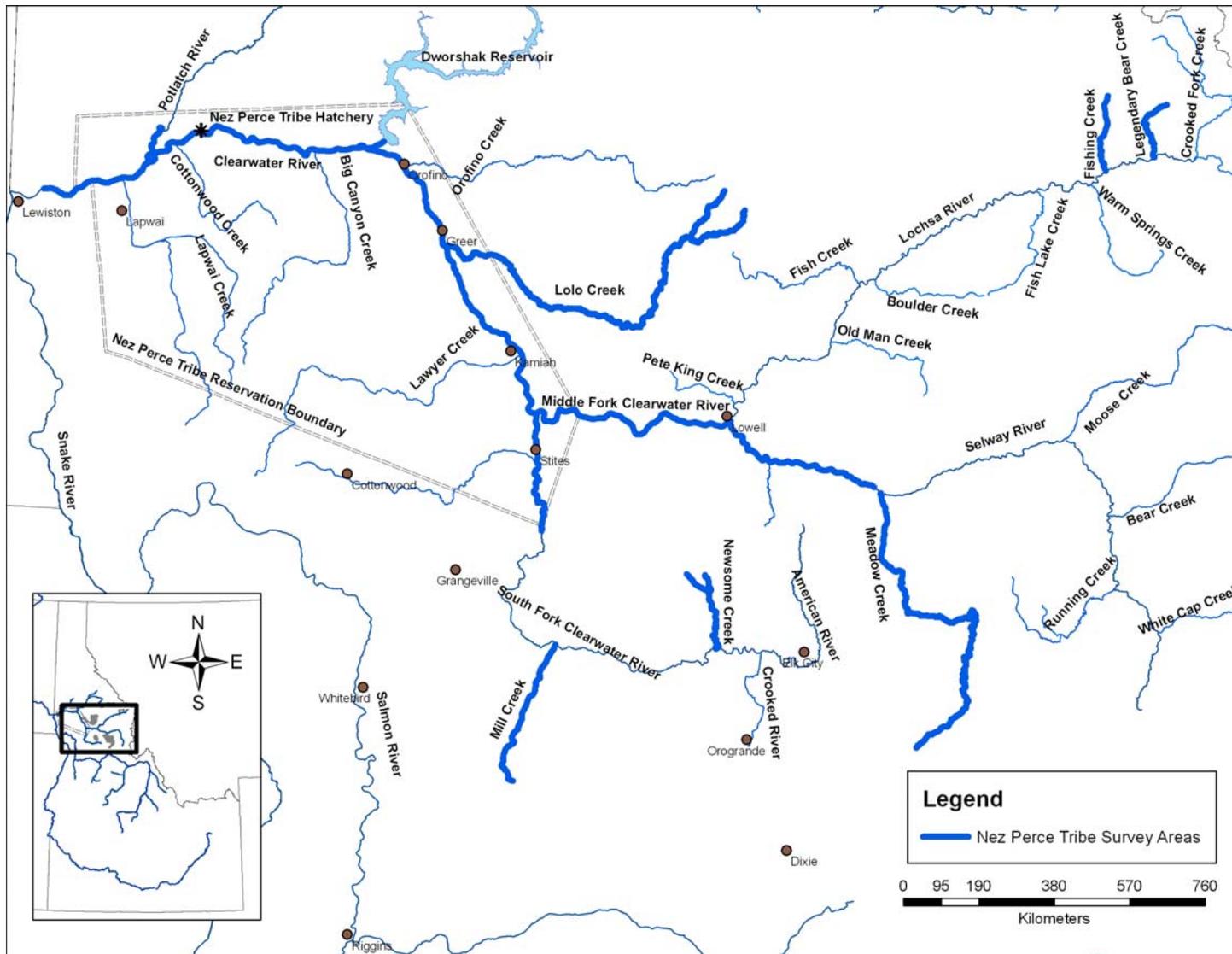
## **Appendix**

Appendix Table 14. Description of redd count index areas (trend areas) surveyed for spring/summer chinook and fall chinook salmon during 2006.

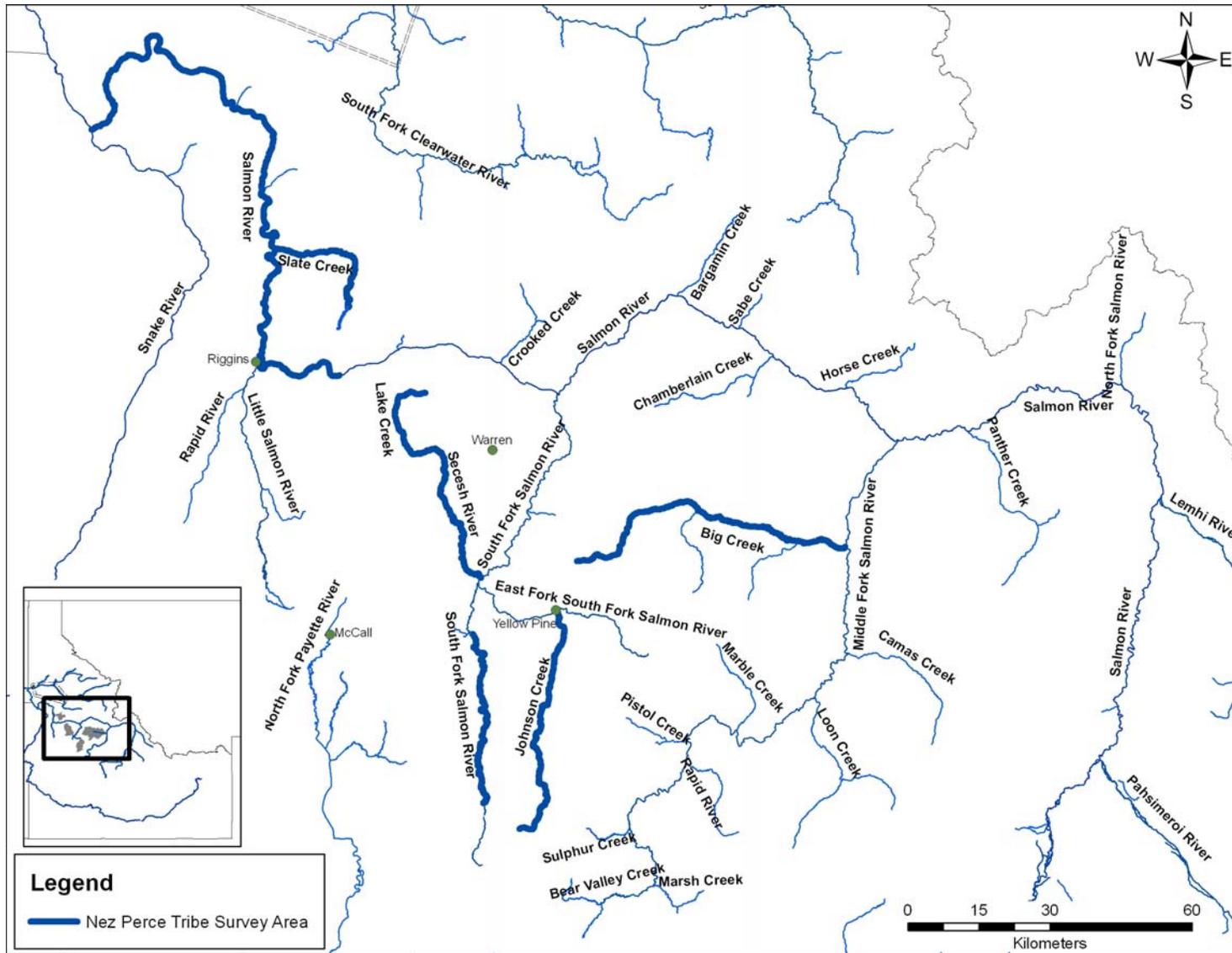
Stream	Type of Count	GPS Location & Description
Lolo Creek	Ground	Pheasant Camp sign to mouth of Yoosa Creek GPS Coordinates N 46.28882° W 115.75987° to N 46.39251° W 115.68398°
Yoosa Creek	Ground	Mouth of Yoosa to mouth of Camp Creek GPS Coordinates N 46.39251° W 115.68398° to N 46.39702° W 115.64738°
Eldorado Creek	Ground	Mouth of Eldorado Creek to old weir site GPS Coordinates N 46.29473° W 115.75077° to N 46.28572° W 115.72031°
Newsome Creek	Ground	Mouth of Newsome Creek to Glory Hole GPS Coordinates N 45.82865° W 115.61534° to N 45.92752° W 115.64008°
S.F. Clearwater River	Ground	Mouth of Leggett Creek to mouth of Newsome Creek GPS Coordinates N 45.82664° W 115.62705° to N 45.82865° W 115.61534°
Meadow Creek (Selway)	Ground	Mouth of Meadow Creek to mouth of Little Creek GPS Coordinates N 46.04537° W 115.29637° to N 45.99062° W 115.28696°
Meadow Creek (Selway)	Ground	Mouth of Meadow Creek to mouth of Rabbit Creek GPS Coordinates N 46.04537° W 115.29637° to N 46.00880° W 115.28159°
Meadow Creek (Selway)	Aerial	Mouth of Meadow Creek to Fourmile Creek GPS Coordinates N 46.04537° W 115.29637° to N 45.72618° W 115.16726°
Fishing Creek	Ground	Mouth of Fishing Creek confluence of West Fork GPS coordinates N46°29'30" W114°51'50" to N46°32'30" W114°51'55"
Legendary Bear Creek	Ground	Mouth of Legendary Bear Creek to confluence of East and West Fork GPS Coordinates N46°30'45" W114°45'58" to N46°32'5" W114°45'55"
Slate Creek	Ground	Mouth of Willow Creek to Forest Route 221 GPS coordinates N45°38'5.8" W116°6'3.1" to N45°36'15" W116°3'45"
Secesh River	Ground	Alex Creek to confluence of Pia Creek GPS coordinates N45°12'7.3" W115°45'53.2" to N45°16'1.7" W115°50'42.1"
Lake Creek	Ground	Mouth of Lake Creek to confluence of Willow Creek GPS Coordinates N45°15.231' W115°53.451' to N45°19.543' W115°56.99'
South Fork Salmon River	Ground	South Fork Salmon River weir to Dime Creek GPS Coordinates N44°39.995' W115°42.076' to N44°42.141' W115°42.006'
South Fork Salmon River	Ground	Dime Creek to Unknown tributary above Goat Creek GPS Coordinates N44°42.141' W115°42.006' to N44°44.432' W115°41.372'
South Fork Salmon River	Ground	Blackmare Creek to lower end of Poverty Flat GPS Coordinates N44°49.345' W115°42.239' to N44°50.164' W115°42.254
South Fork Salmon River	Ground	Lodgepole Campground to Phoebe Creek Bridge GPS Coordinates N44°51.903' W115°41.830' to N44°53.944' W115°42.972'
Johnson Creek	Ground	Top of Deadhorse Rapids to Mouth of Moose Creek GPS Coordinates N 44.891977° W 115.49791° to N 44.852551° W 115.509123°
Big Creek	Ground	Logan Creek to Jacobs Ladder Creek GPS Coordinates N45°7.067' W115°19.487' to N45°4.902' W115°20.339'
Clearwater River (lower)	Aerial (fall Chinook)	Potlatch Mill to North Fork Clearwater River Confluence GPS Coordinates N46.432608° W116.971406° to N46.502350° W116.329547°
Clearwater River (upper)	Aerial (fall Chinook)	North Fork Clearwater confluence to South Fork Clearwater confluence GPS Coordinates N46.502350° W116.329547° to N46.144906° W115.992267°
North Fork Clearwater R.	Aerial (fall Chinook)	Mouth of North Fork to just below Dworshak Dam GPS Coordinates N46.502350° W116.329547° to N46.511231° W116.301886°
South Fork Clearwater R.	Aerial (fall Chinook)	Mouth of South Fork Clearwater to town of Harpster GPS Coordinates N46.144906° W115.982267° to N45.985208° W115.965931°
Middle Fork Clearwater R.	Aerial (fall Chinook)	South Fork Clearwater River confluence to Selway River confluence GPS Coordinates N46.145689° W115.981936° to N46.141122° W115.597686°
Selway River	Aerial (fall Chinook)	Mouth of Selway River to Selway Falls GPS Coordinates N46.141122° W115.597686° to N46.053361° W115.308931°
Grande Ronde River	Aerial (fall Chinook)	Mouth of Grande Ronde River to Wildcat Bridge above town of Troy GPS Coordinates N46.079917° W116.980372° to N45.898842° W117.483081°
Imnaha River	Aerial (fall Chinook)	Mouth of Imnaha River to town of Imnaha GPS Coordinates N45.816897° W116.764564° to N45.559842° W116.833906°
Salmon River	Aerial (fall Chinook)	Mouth of Salmon River to French Creek above town of Riggins GPS Coordinates N45.856253° W116.793825° to N45.403617° W116.098461°

Appendix Table 15. Description of redd count extensive areas surveyed for spring/summer chinook and fall chinook salmon during 2006.

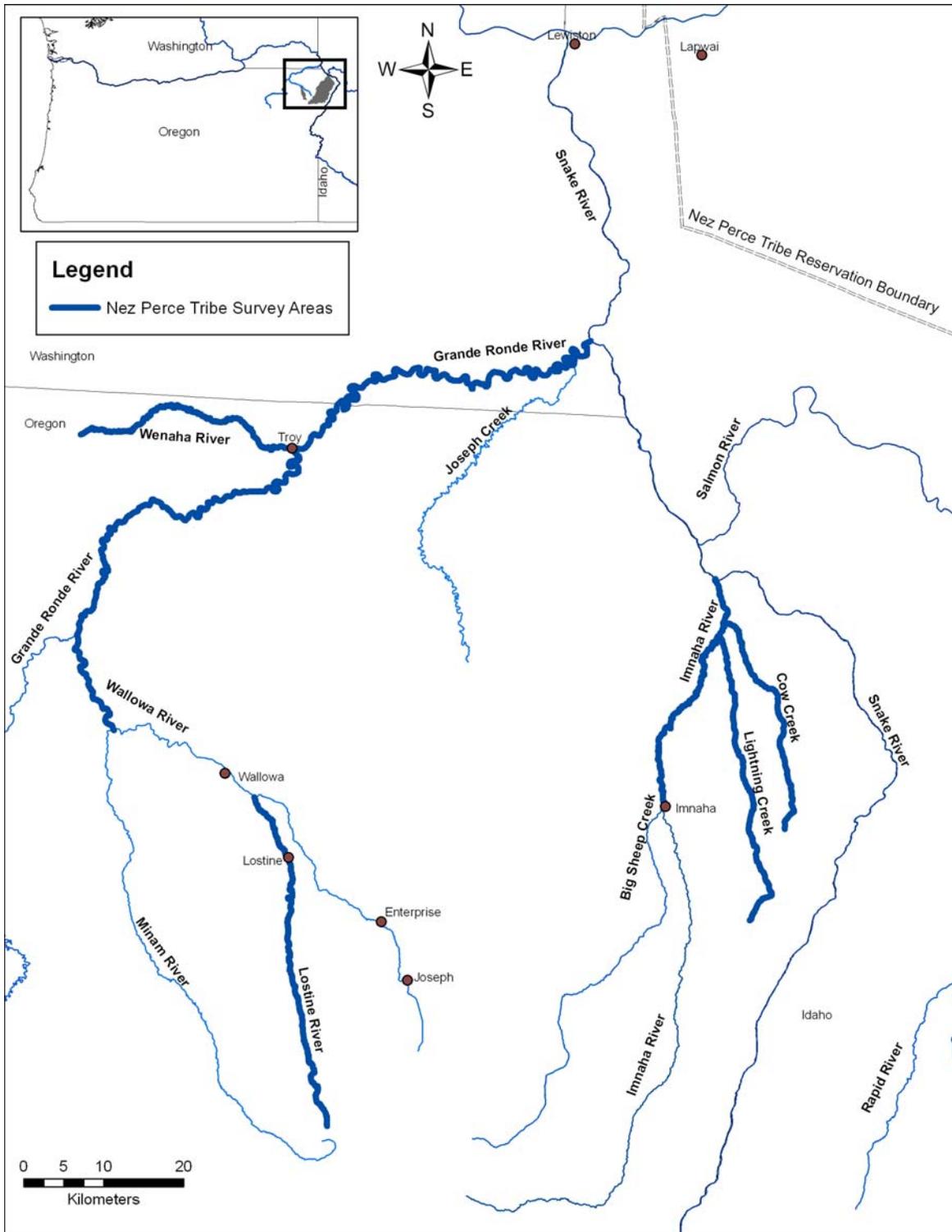
Stream	Type of Count	GPS Location & Description
Lolo / Upper	Ground	Mouth of Yoosa Creek to Slide
		GPS Coordinates N 46.39251° W 115.68398° to N 46.39899° W 115.67646°
Lolo / Rock Creek	Ground	Mouth of Rock Creek to Pheasant Camp sign
		GPS Coordinates N 46.27243° W 115.80407° to N 46.28882° W 115.75987°
Lolo / Lower Weir Site	Ground	1.6 km downstream of lower Lolo weir to Pheasant Camp
		GPS Coordinates N 46.30293° W 115.98960° to N 46.28882° W 115.75987°
Musselshell Creek	Ground	Mouth of Musselshell Creek to FS 100 road bridge
		GPS Coordinates N 46.30966° W 115.75410° to N 46.35199° W 115.75971°
Eldorado Creek	Ground	Old weir site to Dollar Creek bridge
		GPS Coordinates N 46.28572° W 115.72031° to N 46.29930° W 115.64601°
Newsome / Radcliff Creek	Ground	Glory Hole to mouth of Radcliff Creek
		GPS Coordinates N 45.92752° W 115.64008° to N 45.95367° W 115.64610°
Newsome / Pilot Creek	Ground	Lower 500 meters
		GPS Coordinates N 45.90722° W 115.63001° to N 45.90790° W 115.63541°
Newsome / Baldy Creek	Ground	Lower 400 meters
		GPS Coordinates N 45.90779° W 115.63149° to N 45.90943° W 115.63403°
S.F. Clearwater River	Ground	Mouth of Santiam Creek to mouth of Leggett Creek
		GPS Coordinates N 45.81299° W 115.63140° to N 45.82664° W 115.62705°
Meadow Cr. (S.F. Clwrtr R.)	Ground	McComas Meadows
		GPS Coordinates N 45.88533° W 115.92017° to N 45.90763° W 115.89977°
Mill Cr. (S.F. Clwrtr R.)	Ground	Mouth of Mill Creek to mouth of Markham Creek
		GPS Coordinates N 45.82892° W 115.93556° to N 45.79521° W 115.95947°
Lower Selway River	Aerial	Mouth of Selway River to mouth of Otter Creek
		GPS Coordinates N 46.14078° W 115.59725° to N 46.05077° W 115.22524°
Legendary Bear Creek	Ground	Mouth to 1.0 km up East Fork
		GPS coordinates N46°30'45" W114°45'58" to N46°32'30" W114°45'10"
Slate Creek	Ground	Forest Boundary to Junction Road 221
		GPS coordinates N45°37'51.4" W116°12'7.2" to N45°36'15" W116°3'45"
Secesh River	Ground	Grimmet Creek to confluence of Lake Creek and Summit Creek
		GPS coordinates N45°9'33.998" W115°47'60.0" to N45°15'23.1" W115°53'45.1"
Lake Creek	Ground	Mouth of Lake Creek to confluence of Corduroy Creek
		GPS coordinates N45°15'23.1" W115°53'45.1" to N45°21'58.4" W115°56'14.9"
Grouse Creek	Ground	Mouth upstream 3.0 km
		GPS coordinates N45°15'55.99" W115°49'46.8" to N45°17'35.0" W115°50'17.0"
Summit Creek	Ground	Mouth to Pucker Point
		GPS coordinates N45°15'23.1" W115°53'45.1" to N45°12'1.2" W115°57'15.3"
South Fork Salmon River	Ground	Unknown tributary above Goat Creek to ¾ mile below Goat Creek
		GPS Coordinates N44°44.432' W115°41.372' to N44°46.098' W115°41.220'
Johnson Creek / Section 1	Ground	Confluence of Johnson Creek and East Fork South Fork to NPT Screw Trap
		GPS Coordinates N 44.962469° W 115.502462° to N 44.91763° W 115.483355°
Johnson Creek / Section 2	Ground	NPT Screw Trap to NPT Adult Weir
		GPS Coordinates N 44.91763° W 115.483355° to N 44.901166° W 115.488842°
Johnson Creek / Section 3	Ground	NPT Adult Weir to top of Deadhorse Rapids
		GPS Coordinates N 44.901166° W 115.488842° to N 44.891977° W 115.49791°
Johnson Creek / Section 5	Ground	Mouth of Moose Creek to Mouth of Burnt Log
		GPS Coordinates N 44.852551° W 115.509123° to N 44.802991° W 115.518556°
Johnson Creek/Section 6	Ground	Old Burnt Log Trail Crossing to Landmark Bridge
		GPS Coordinates N 44.69737° W 115.545397° to N 44.652499° to W 115.54237°
Johnson Creek/Section 7	Ground	Landmark Bridge to Swamp Creek
		GPS Coordinates N 44.652499° to W 115.54237° to N 44.597181° to W 115.524275°
Burnt Log Creek/Section 1a	Ground	Mouth of Burnt Log Creek to 1.1 km above mouth of Buck Creek
		GPS Coordinates N 44.802991° W 115.518556° to N 44.780333° to W 115.520741°
Big Creek	Ground	Smith Creek to Logan Creek
		GPS Coordinates N45°9.146' W115°17.867' to N45°7.067' W115°19.487'
Potlatch River	Aerial (fall Chinook)	Mouth of Potlatch River to Rkm 4.5
		GPS Coordinates N46.474786° W116.767264° to N46.519608° W116.740211°
Grande Ronde River (upper)	Aerial (fall Chinook)	Wildcat Bridge above Troy to mouth of Wallowa
		GPS Coordinates N45.898842° W117.483081° to N45.7254° W117.7853556°
Wallowa River	Aerial (fall Chinook)	Mouth of Wallowa River to mouth of Minam River
		GPS Coordinates N45.7254° W117.7853556° to N45.898842° W117.483081°
Wenaha River	Aerial (fall Chinook)	Mouth of Wenaha River to River km 17.5
		GPS Coordinates N45.94529167° W117.45111944° to N45.985774° W117.611025°



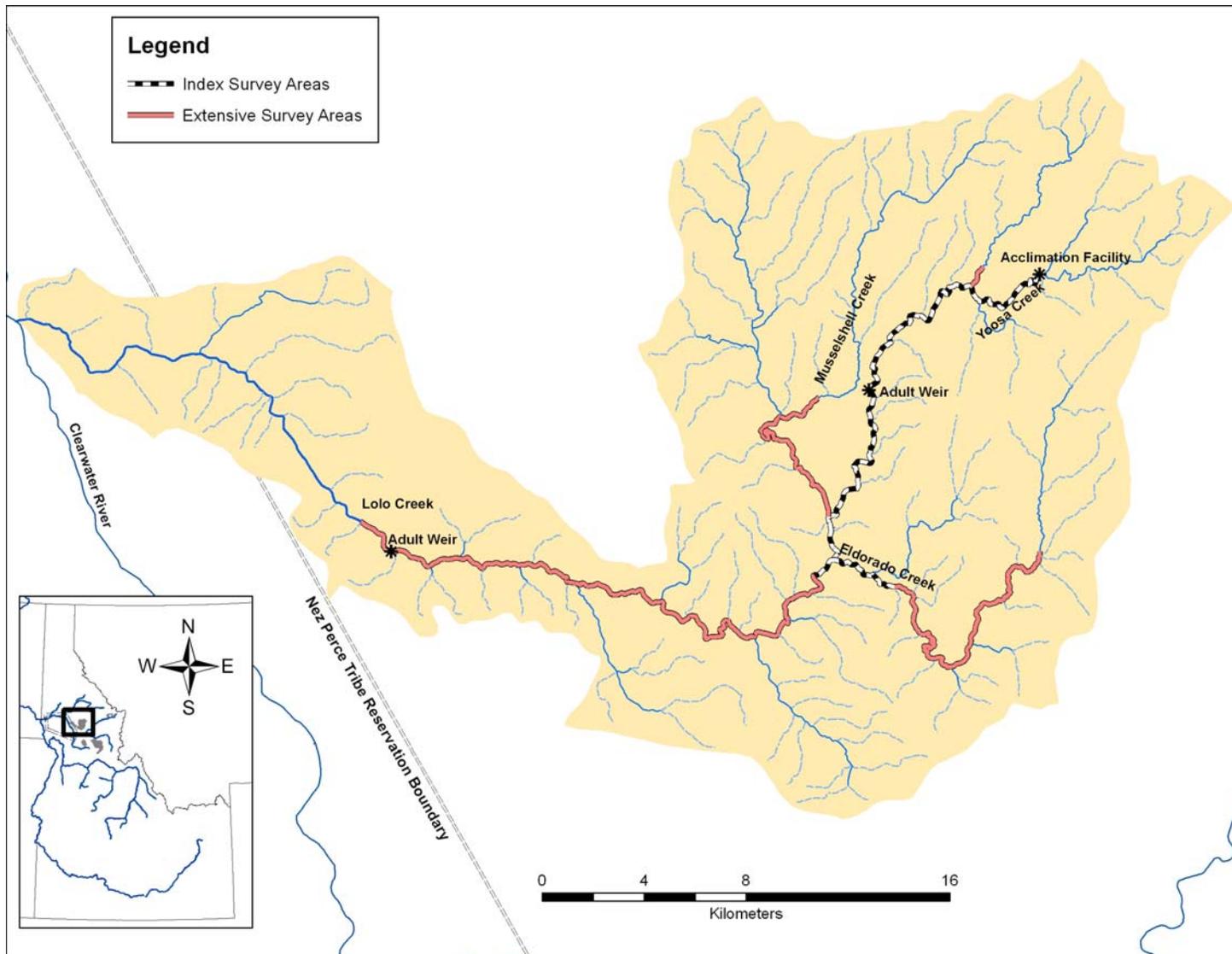
Appendix Figure 1. Overview map of research study streams indicating location within the Clearwater River subbasin. Spring and summer chinook salmon surveys occur in tributary streams, and fall chinook salmon surveys occur in mainstem river reaches.



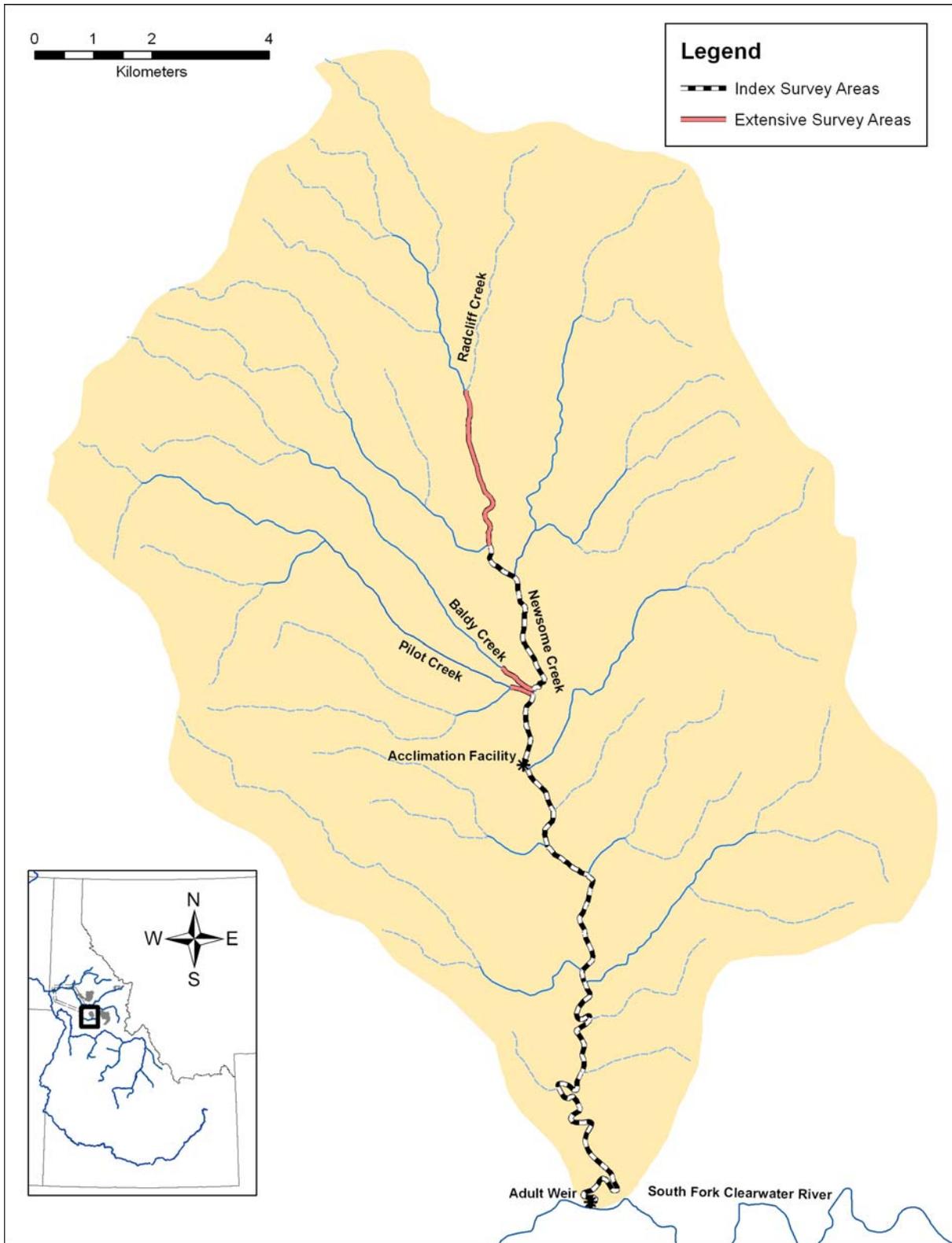
Appendix Figure 2. Overview map of research study streams indicating location within the Salmon River subbasin. Spring and summer chinook salmon surveys occur in tributary streams, and fall chinook salmon surveys occur in the lower Salmon River.



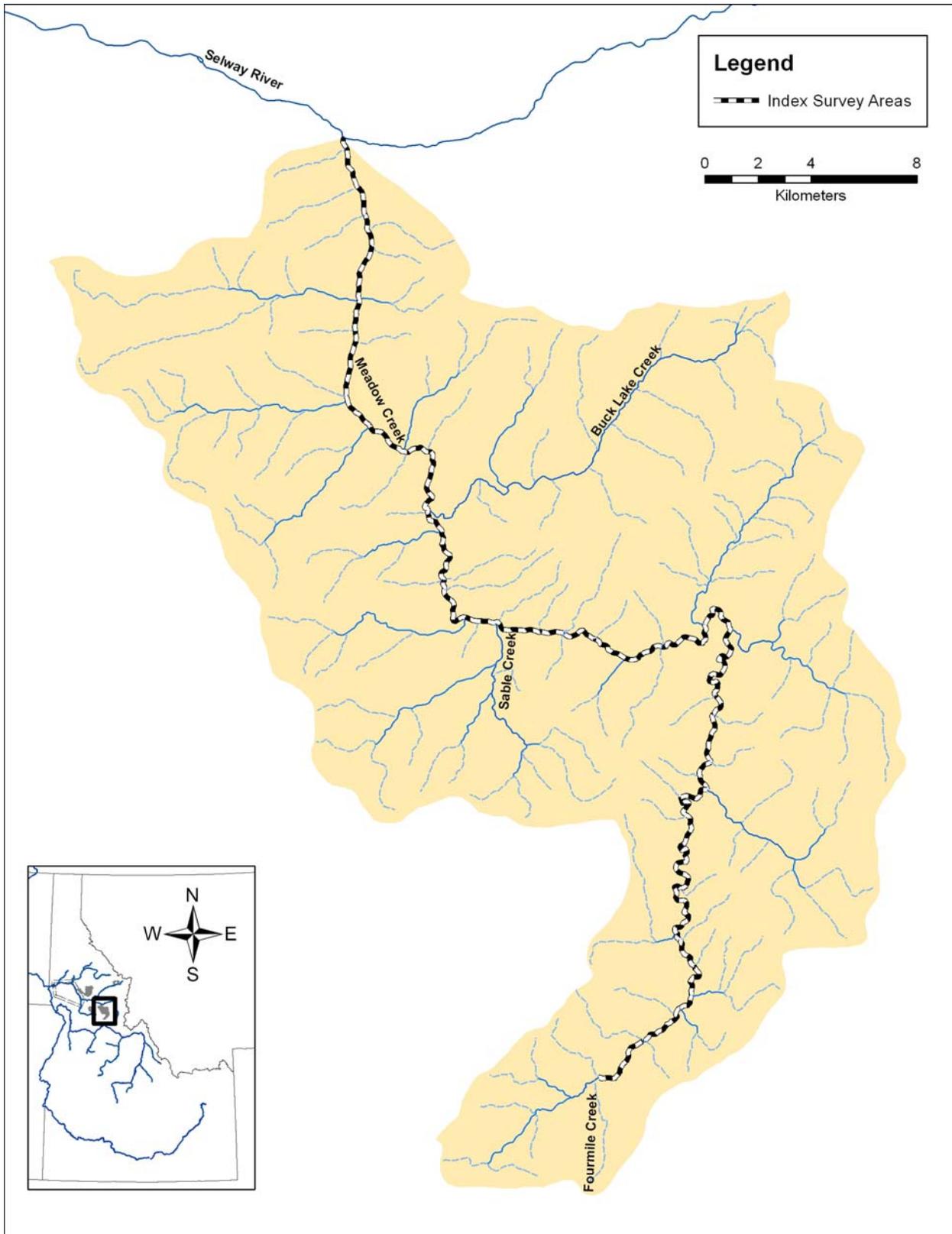
Appendix Figure 3. Overview map of research study streams indicating location within the Grande Ronde River and Imnaha River subbasin. Spring and summer chinook salmon surveys occur in tributary streams, fall chinook salmon surveys occur in lower mainstem river reaches, and steelhead escapement monitoring occurs in Cow Creek and Lightning Creek in the Imnaha River.



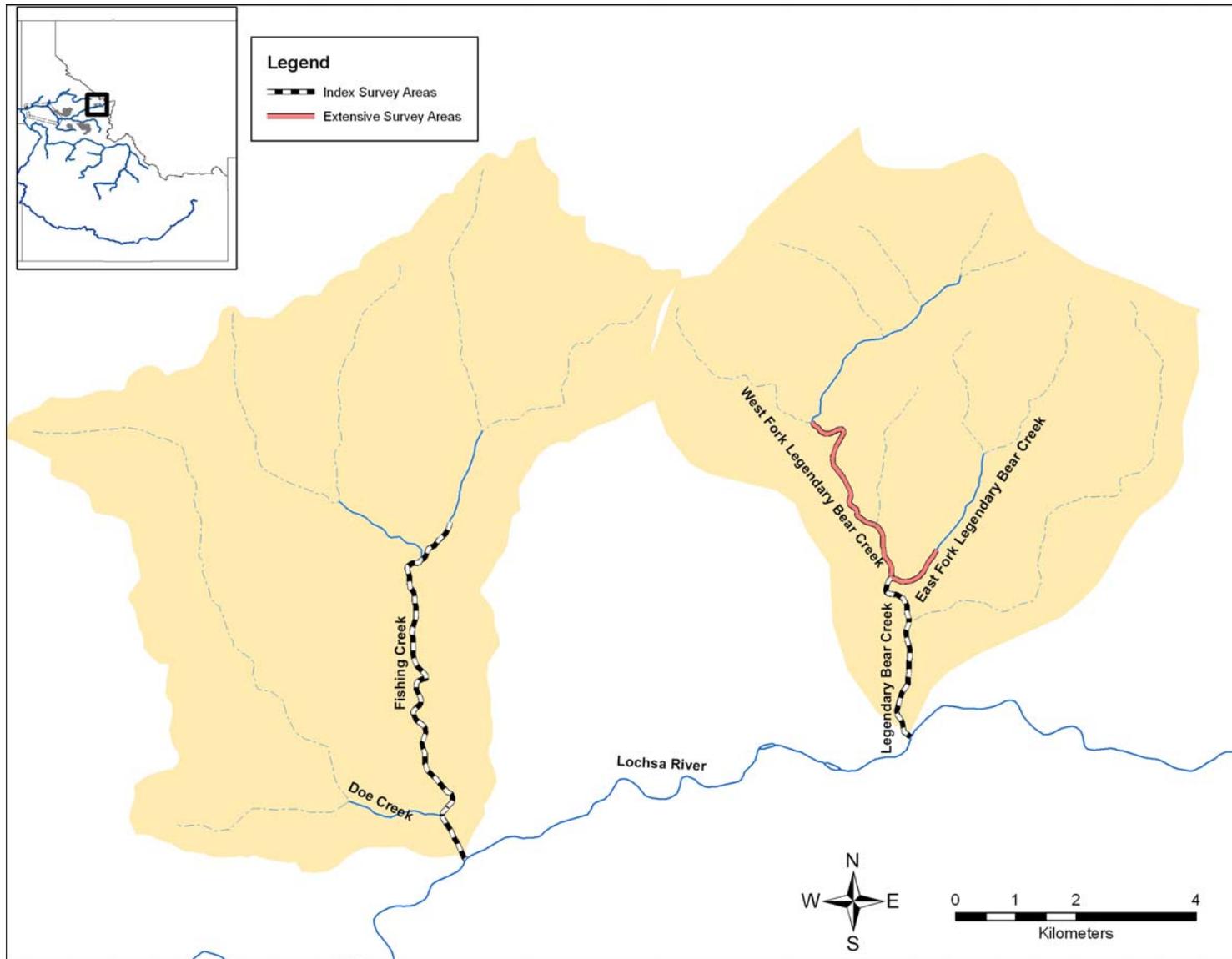
Appendix Figure 4. Tributary specific map indicating locations of index area and extensive area spring and summer chinook salmon redd count surveys, and locations of adult weirs in Lolo Creek, Yoosa Creek, Musselshell Creek, and Eldorado Creek.



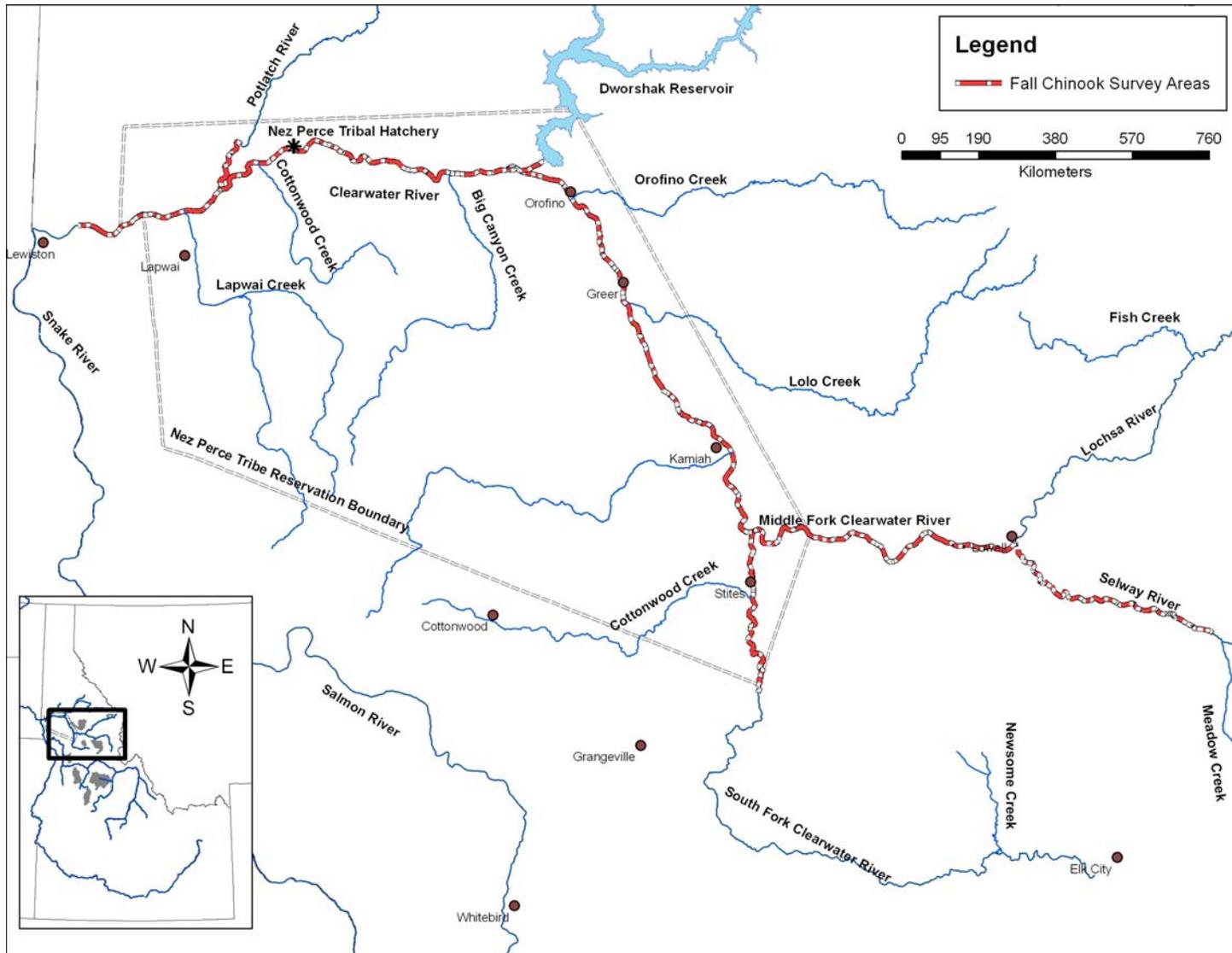
Appendix Figure 5. Tributary specific map indicating locations of index area and extensive area spring and summer chinook salmon redd count surveys, and location of the adult weir in Newsome Creek.



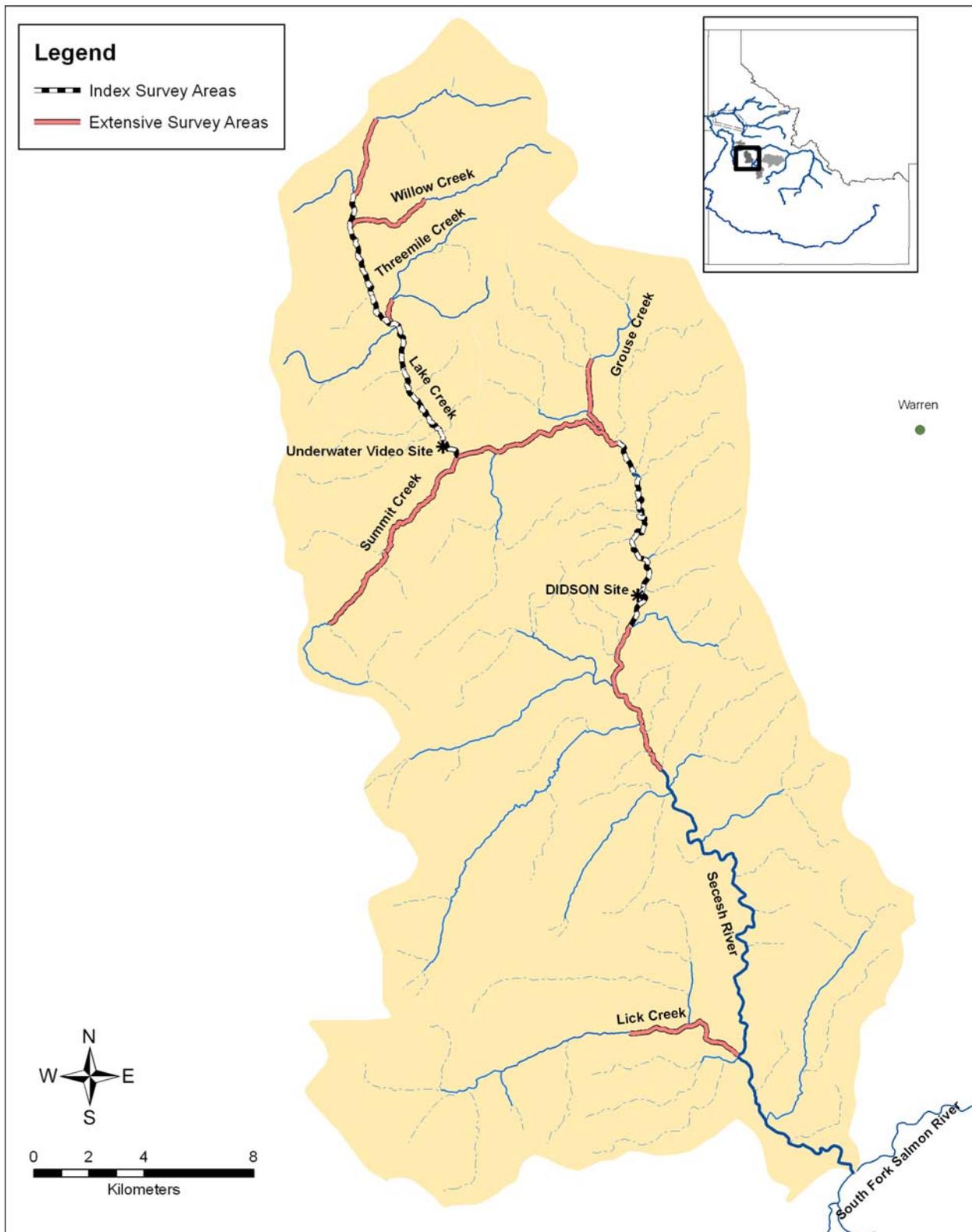
Appendix Figure 6. Tributary specific map indicating locations of index area spring and summer chinook salmon redd count surveys in Meadow Creek (Selway River).



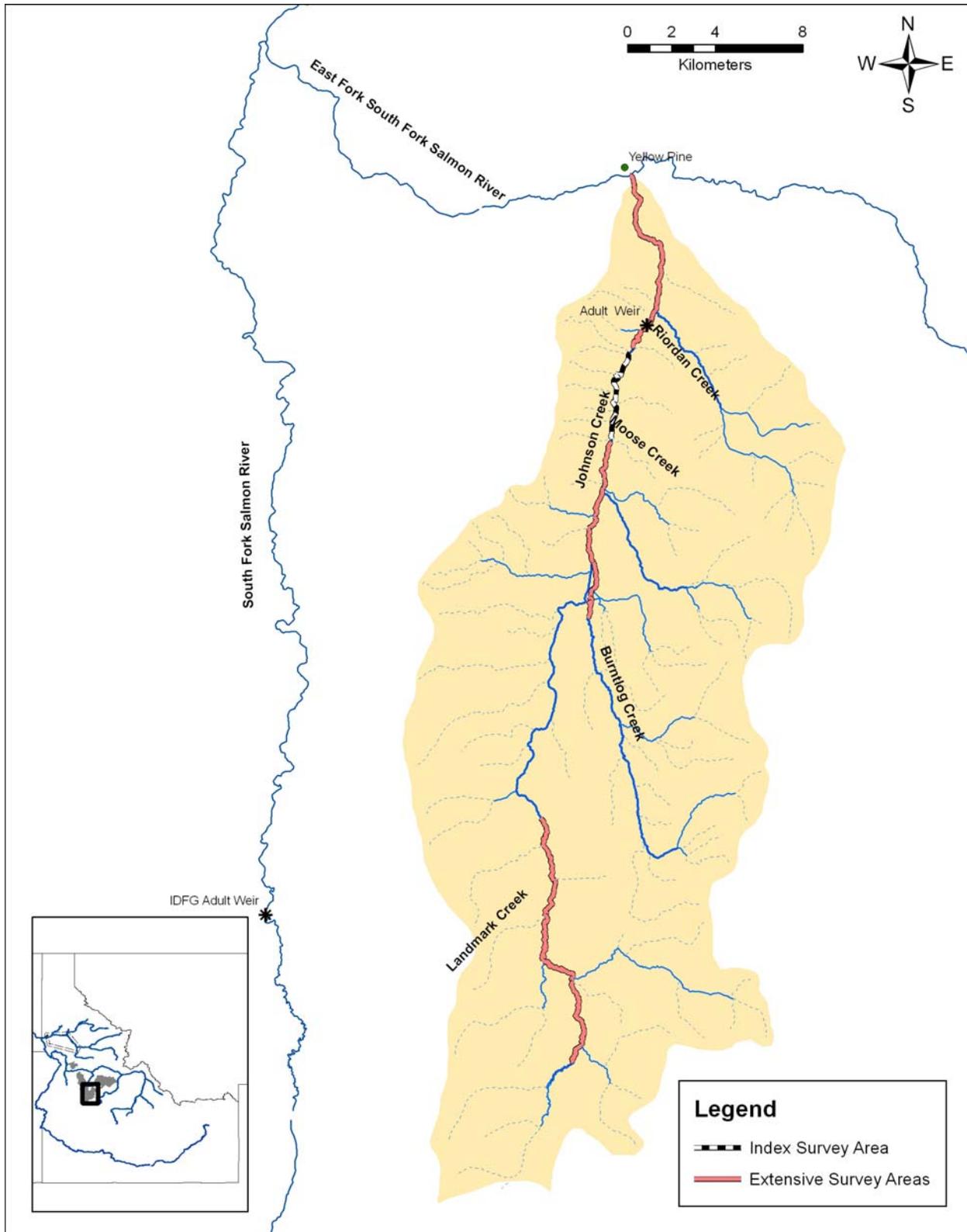
Appendix Figure 7. Tributary specific map indicating locations of index area and extensive area spring and summer chinook salmon redd count surveys in Fishing Creek and Legendary Bear Creek.



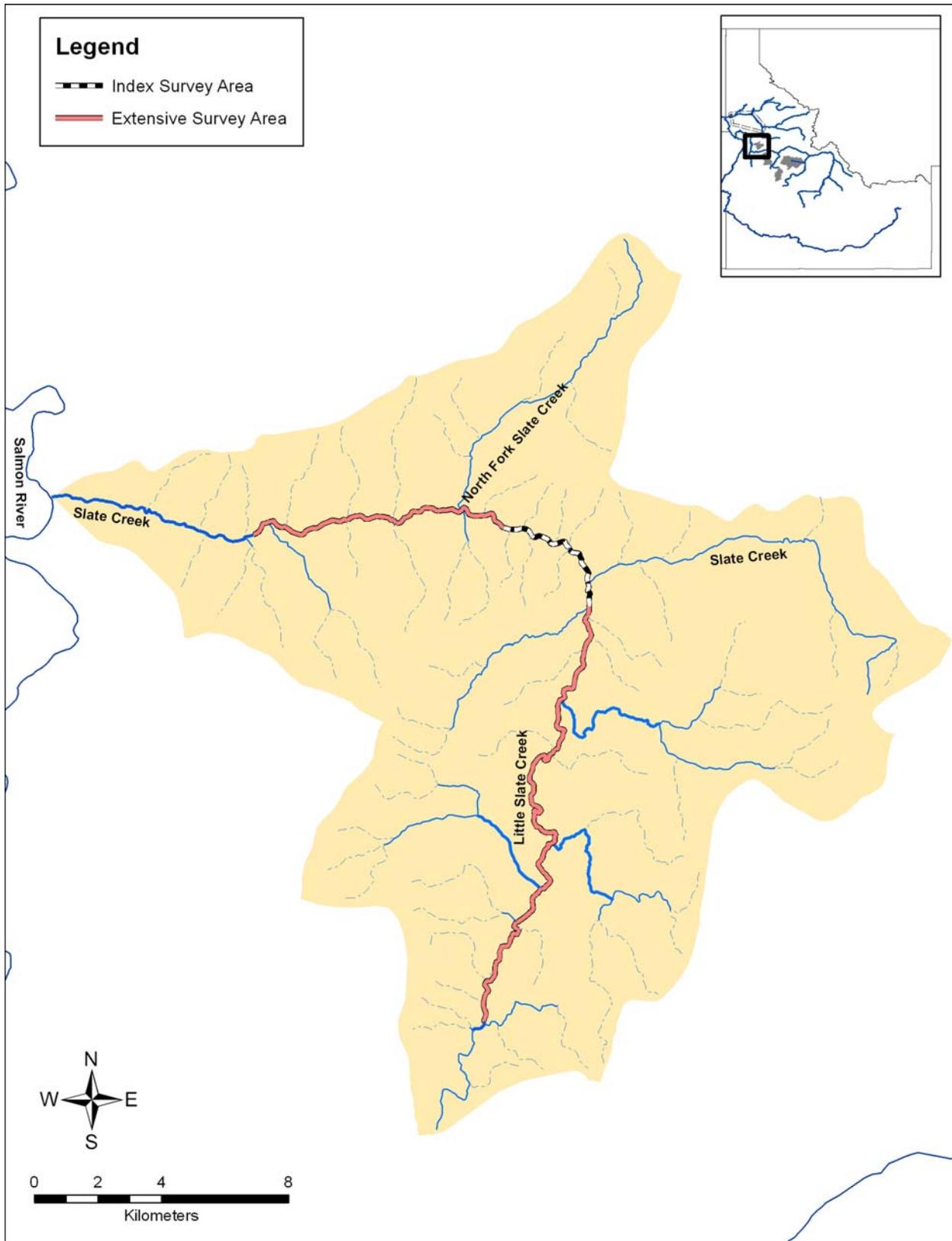
Appendix Figure 8. Tributary specific map indicating locations of fall chinook salmon redd count surveys in the mainstem Clearwater River, lower Potlatch River, North Fork Clearwater River, Middle Fork Clearwater River, and lower sections of the South Fork Clearwater River and Selway River.



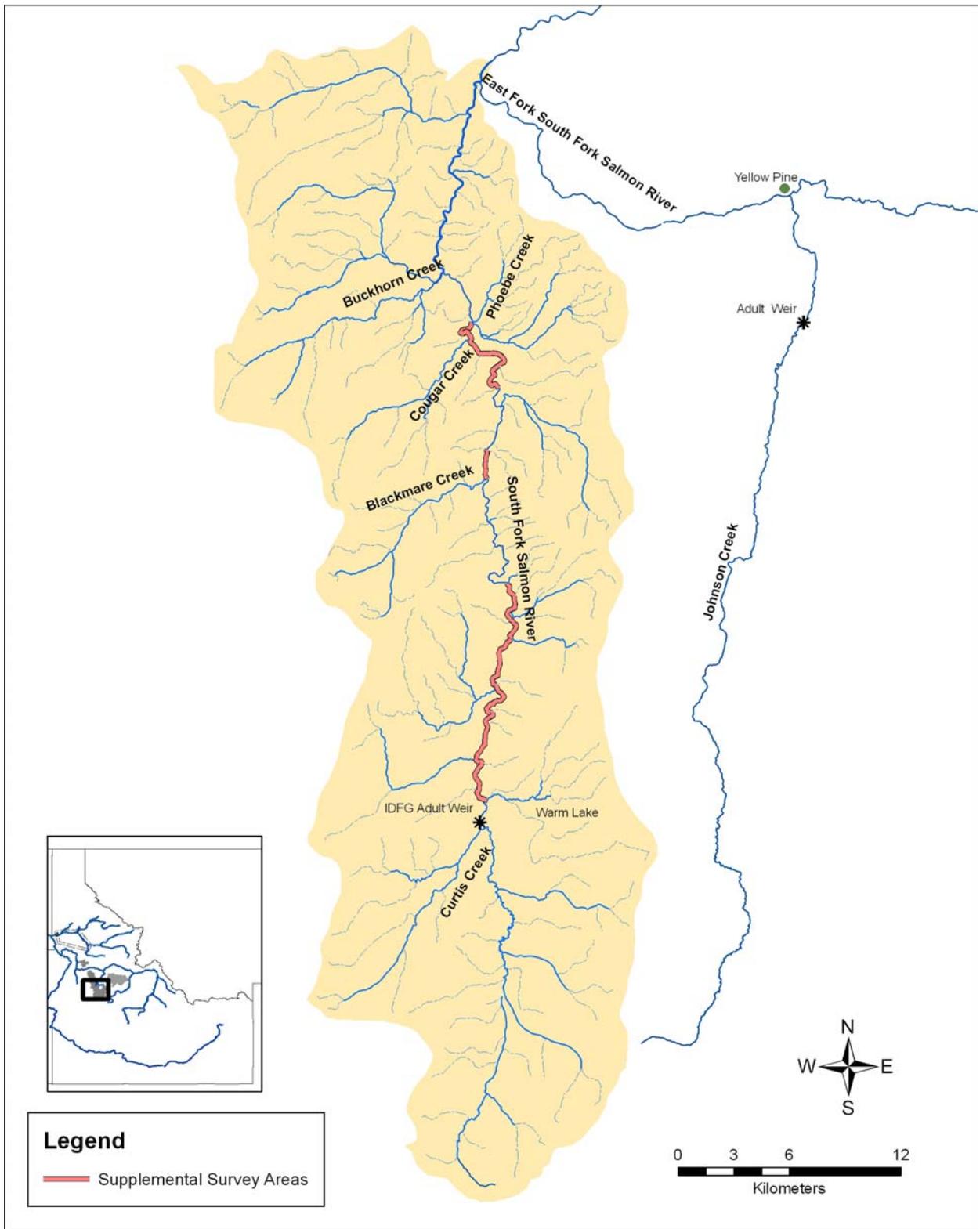
Appendix Figure 9. Tributary specific map indicating locations of index area and extensive area spring and summer chinook salmon redd count surveys, and locations of DIDSON and underwater video adult escapement monitoring sites in the Secesh River.



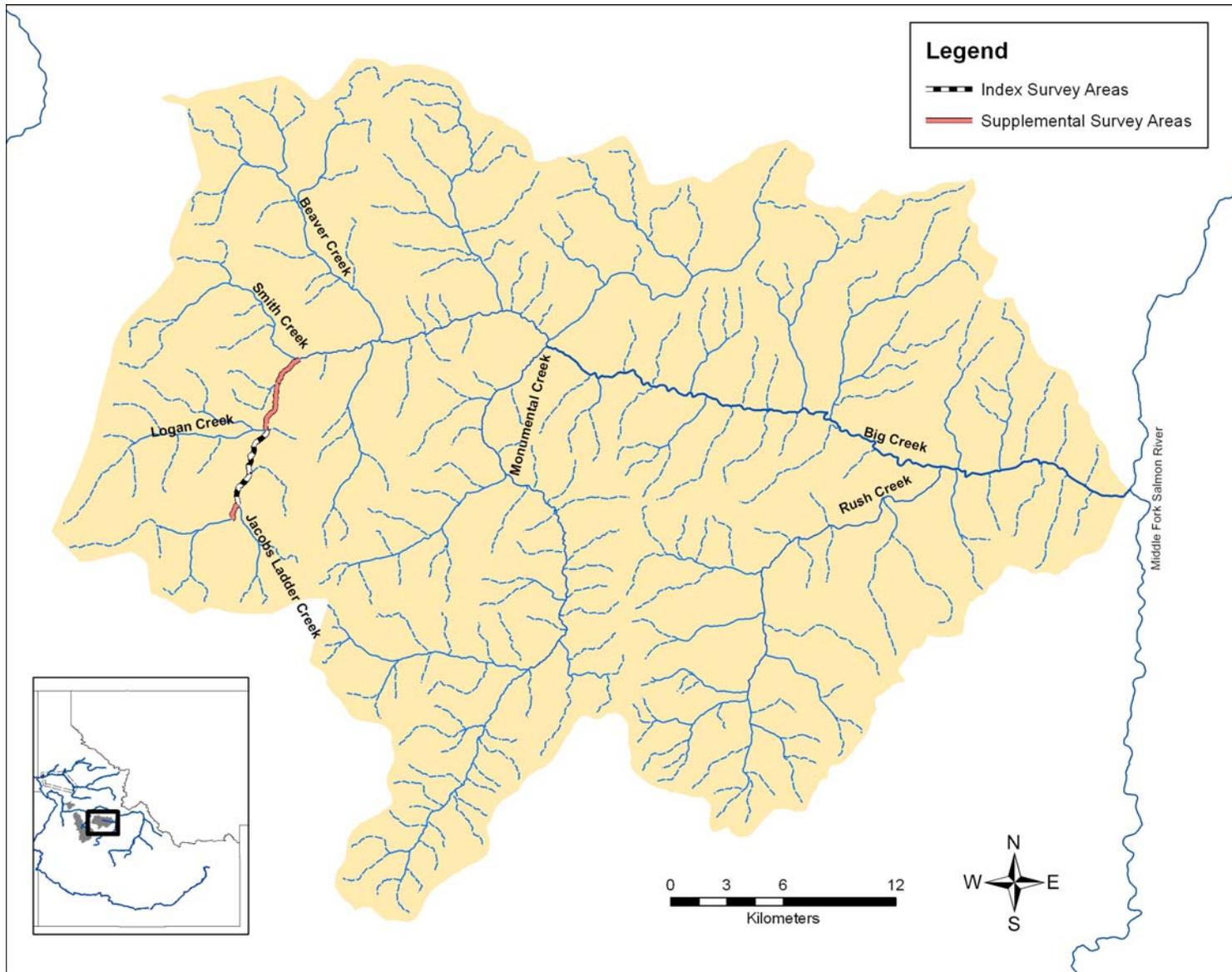
Appendix Figure 10. Tributary specific map indicating locations of index area and extensive area spring and summer chinook salmon redd count surveys, and location of the adult weir on Johnson Creek.



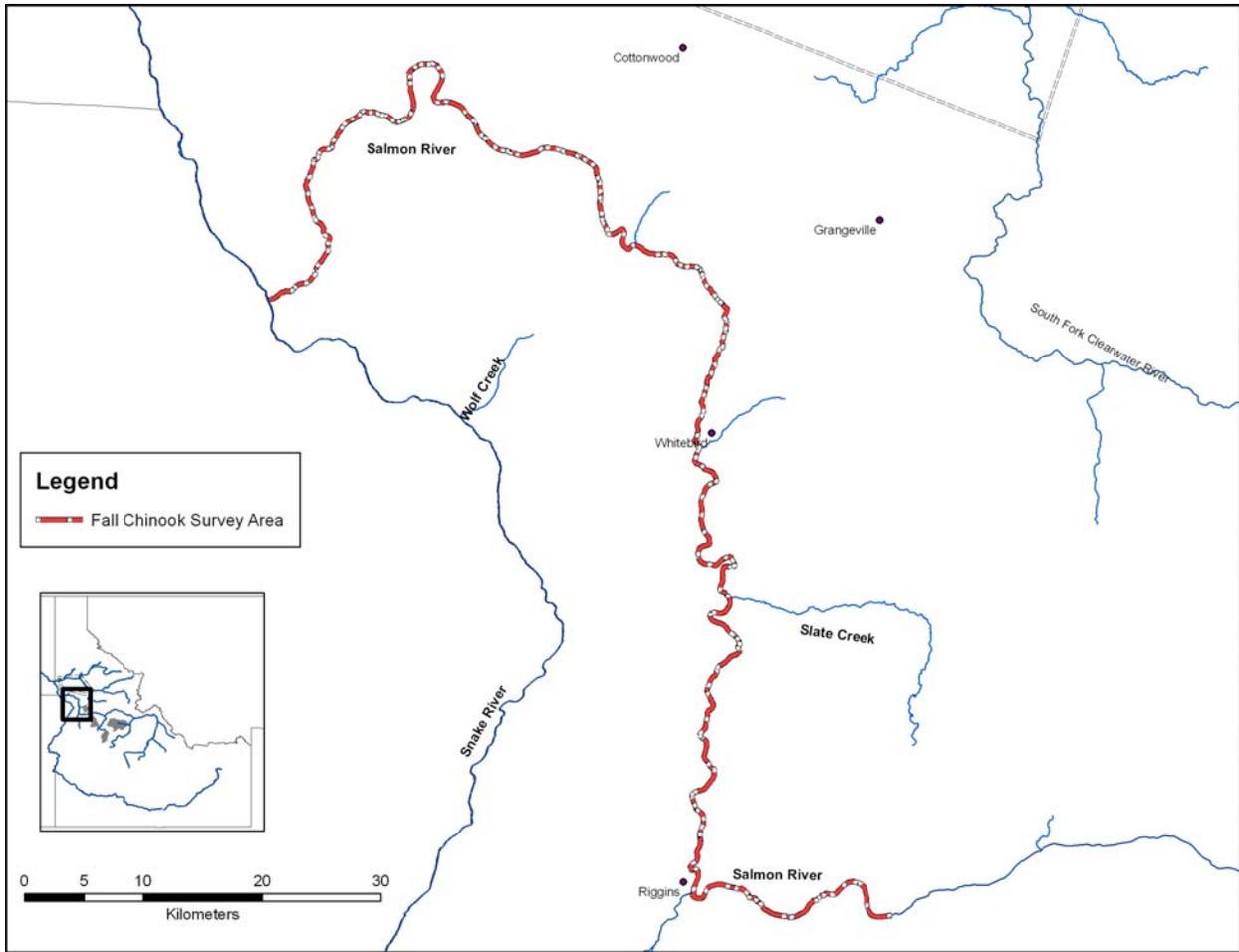
Appendix Figure 11. Tributary specific map indicating locations of index area and extensive area spring and summer chinook salmon redd count surveys in Slate Creek.



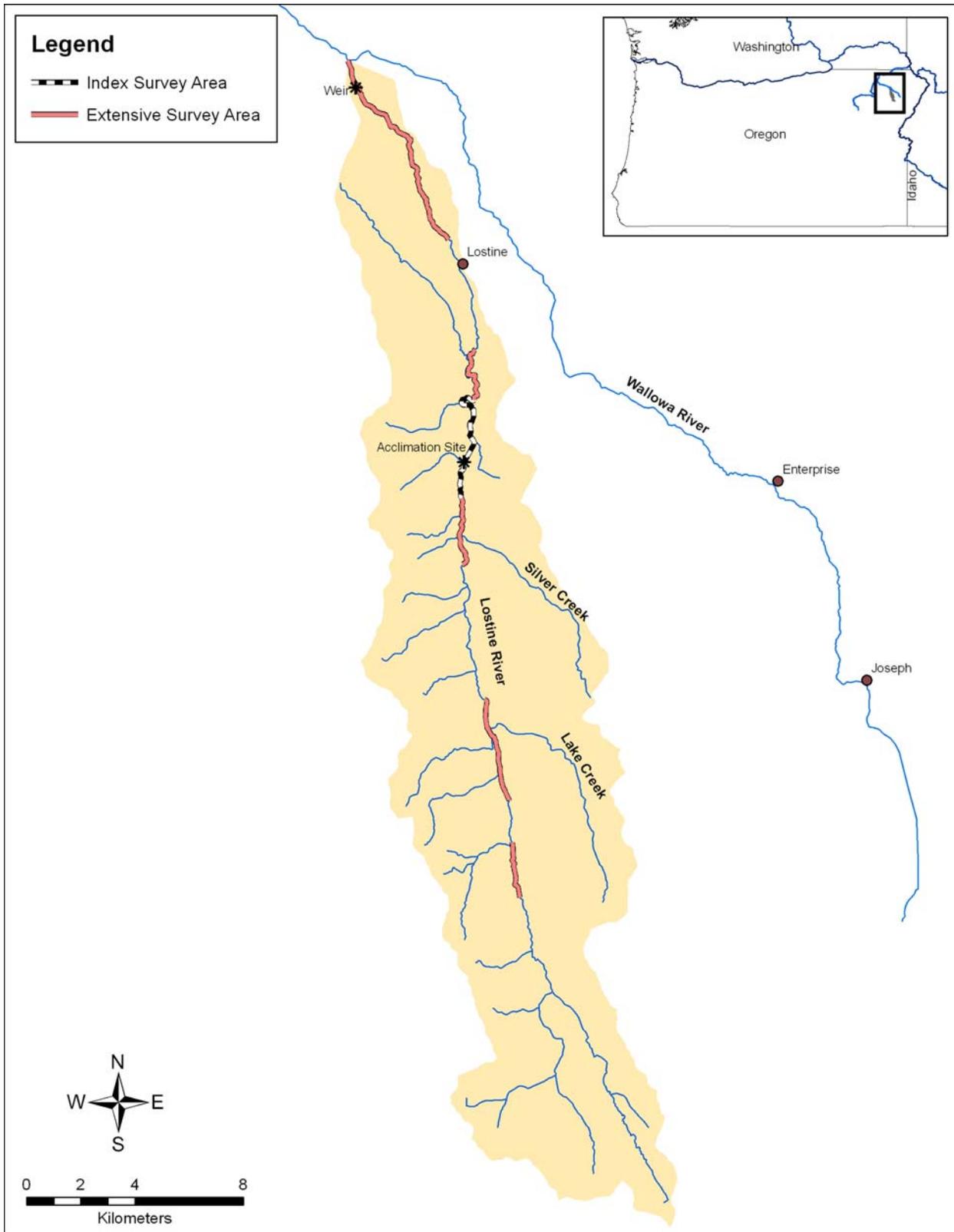
Appendix Figure 12. Tributary specific map indicating locations of supplemental area spring and summer chinook salmon redd count surveys in the upper mainstem South Fork Salmon River below the adult weir.



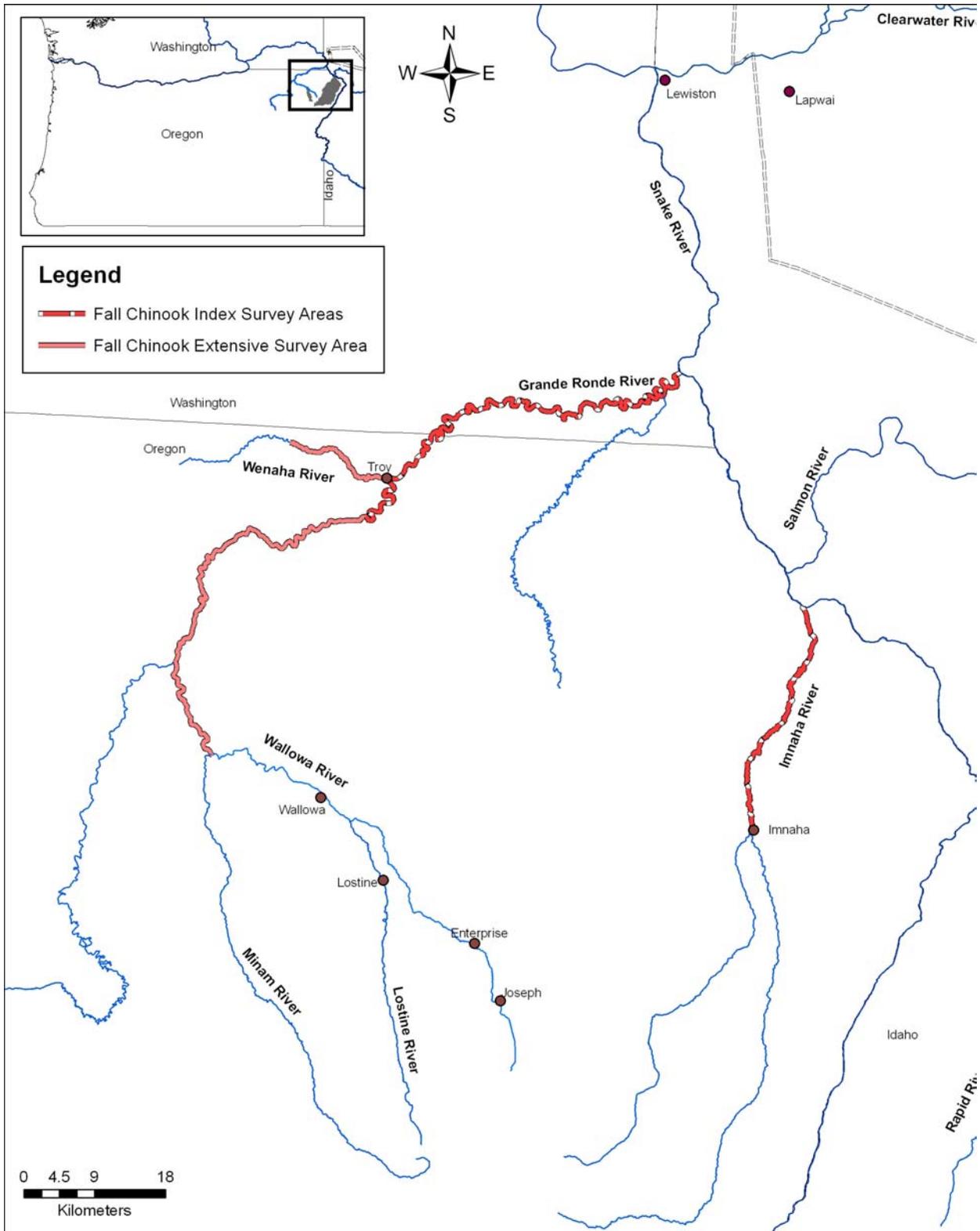
Appendix Figure 13. Tributary specific map indicating locations of index area and supplemental area spring and summer chinook salmon redd count surveys in upper Big Creek.



Appendix Figure 14. Tributary specific map indicating locations of fall chinook salmon redd count surveys in the lower mainstem Salmon River.



Appendix Figure 15. Tributary specific map indicating locations of index area and extensive area spring and summer chinook salmon redd count surveys, and the location of the adult weir in the Lostine River.



Appendix Figure 16. Tributary specific map indicating locations of fall chinook salmon redd count surveys in the lower mainstem Grande Ronde River and lower Imnaha River.