



# Nez Perce Tribe

## Department of Fisheries Resources Management



Administration • Enforcement • Habitat/Watershed • Harvest • Production • Research • Resident Fish  
RESEARCH DIVISION

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July 17, 2008

TO: Mr. Scott Marshall, Steve Yundt, LSRCP  
FR: Young/Blenden/Espinosa, Nez Perce Tribe  
CC: D. Johnson, J. Oatman, J. Hesse, J. Vogel, E. Larson, B. Johnson, D. Statler, J. Harbeck, B. Michaels, R. Zollman (NPT) T. Froscher, M. Anderson (USFWS).  
SBJT: Nez Perce Tribe LSRCP Quarterly Activity Report for April- June 2008

### Project Administration

Attended DFRM Research Project Leader Retreat May 20-21, 2008 in Riggins, Idaho.

Participated in the tour of eastern Oregon facilities with LSRCP staff on April 1-3, 2008.

LSRCP staff attended the Western Division AFS meeting in Portland and presented the poster: Espinosa, N., C. Albee, M. Blenden, W. Young and D. McCubbing. 2008. *The use of a resistivity fish counter to passively enumerate Adult Heeey (steelhead) in Lightning Creek, Imnaha River tributary, Oregon.* Poster, Western Division AFS meeting and the poster: Frenyea, K.A. and W.P. Young. 2008. *Salmonid gamete preservation in the Snake River basin; Management goals for preserving Pacific salmon diversity.*

Submitted LSRCP Hatchery Evaluations, Operations and Maintenance, and Harvest Monitoring FY 2009 Budgets and Statements of Work.

Met with Steve Yundt regarding completion of tasks outlined in the 2008 SOW and plans for the 2009 SOW on June 26, 2008.

### Field Activities and Data Collections

#### Adult Steelhead Hauling

During the April through June period Nez Perce Tribe Production Division hauled adult steelhead from Little Sheep Creek Weir to Big Sheep Creek: 698 females, 600 males for a total of 1298 total adult fish hauled (373 of which were recaptures). Little Sheep has had 65 natural females and 58 natural males released above the weir, in addition to 108 hatchery adult steelhead. For the entire trapping period (March – June) the Nez Perce Tribe Production Division hauled adult steelhead from Little Sheep Weir to Big Sheep: 708 females, 657 males for a total of 1365 total adult fish hauled (376 of which were recaptures). Little Sheep has had 69 natural females and 61 natural males released above the weir, in addition to 112 hatchery adult steelhead.

#### Adult Steelhead Trapping

The Horse Creek adult steelhead weir operated almost continually from installation on March 2 until high water and debris build-up washed it out on May 15. Persistent high water prevented reinstallation, so trapping effectively ceased on May 15. The weir passed 22 unique adult steelhead upstream; 7 natural males, 13 natural females and two hatchery males. Nineteen steelhead were passed downstream; 4 natural males, 7 natural females, 1 hatchery male and 7 hatchery females (Table 1). Only three downstream captured fish were recaptures.

Table 1. Cumulative 2008 capture summary of steelhead in Horse Creek from March 2 through May 15, 2008.

	Horse Creek (upstream)	Horse Creek (downstream)
Natural Adult Male	7	4
Natural Adult Female	13	7
Hatchery Adult Male	2	1
Hatchery Adult Female	0	7
Total Captured	22	19

Mark-recapture analysis estimated an adult steelhead population above the weir was 114 with upper and lower confidence intervals of 30 and 198, respectively (Seber, 1982). The Coefficient of variation was 36.7%, suggesting low confidence in the estimate. The large range in confidence intervals resulted from the low number of downstream recaptures. This was the first year that the weir was installed in Horse Creek. Next year we plan on looking for a better location and installing a flat panel weir better able to handle high water and debris.

#### Resistivity fish counter

The resistivity fish counter was installed in Camp Creek on approximately 1 mile above the confluence of Camp Creek and the Imnaha River and recorded fish passage until June 15. This project was subcontracted through InStream Fisheries Research Inc. to provide technical assistance, data analysis and training of the use of the equipment of a Logie 2100 C 3 channel fish counter. Data has not been analyzed at this time. We hope to compare the results of the resistivity count to annual ODFW redd counts in Camp Creek.

#### Juvenile Emigration Trapping

During the 3<sup>rd</sup> Quarter, LSRCP and SMP personnel continued operating the screw trap and tagging operations in the lower Imnaha River. The trap was fished until June 15 when the number of captures decreased. The trap was pull during periods of high water in May and June. Juvenile emigrant trapping data is uploaded to a server at the NPT Enterprise Field Office. The server went down at the end of June and was replaced. No data was lost, but it was impossible to query the server and access the data for this report. Consequently, the juvenile emigration data and results will be presented in the 4<sup>th</sup> quarterly report to LSRCP.

#### SFSR PIT tag array interrogations

A PIT tag antennae array was installed approximately 2.5 miles above the confluence of the South Fork Salmon River (SFSR) and the East Fork South Fork Salmon River in October, 2007. The array consisted of 5 flat panels installed flush with the stream bottom. Each panel is

20 feet long allowing the array to span the entire river bottom. Its main purpose was to interrogate returning adult Chinook salmon and steelhead, providing better monitoring and evaluation of returning hatchery- and natural-origin salmonids. We anticipated at least limited emigrating juvenile detections.

*Juvenile detections*

Interrogation results revealed large numbers of juvenile detections (Table 2), including 22,830 McCall Hatchery summer Chinook salmon smolts, 108 SFSR natural-origin summer Chinook salmon smolts and 23 SFSR natural-origin steelhead smolts. The McCall Hatchery Chinook detections represented approximately 44% of the PIT tags released in 2008. Significantly more would have been detected if the PIT tag reader had not stopped working for 10 days during the peak migration period.

In addition to the expected SFSR-origin fish, the array detected juveniles PIT tagged at other locations downstream of the array (labeled “unknown” in Table 2) including Chinook salmon smolts from Johnson Creek (8 hatchery and 1 natural), Big Creek (1 natural) and Rapid River Hatchery (2 hatchery). It was impossible to determine whether these fish swam over the array or were inside a predator, such as a merganser or a bull trout. However, detection history suggested that the tags were inside a predator. The Big Creek and both Rapid River fish were detected within a minute of each other, suggesting a group of mergansers flew up from the Main Salmon River and swam over the array.

The array also detected fish that were PIT tagged and released from 1999 through 2006 but had no recorded detections at down river interrogation sites (traps or dams) and could not possibly be alive. The first detection occurred on May 8 and coincided with a high water event. Over the next 2 months additional tags were detected at the array. The high water moved huge amounts of sediment over the array and likely moved tags along with the sediment load. These tags were likely shed or left by a predator, remaining in the sediment until they were moved by the high water. One example that provided evidence for the presence of shed tags was a fish tagged at Lower Granite Dam in 2000 as a smolt, detected at multiple dams in 2002 as an adult, then by the array in 2008.

Table 2. 2008 Juvenile salmonid detections at the Krassel PIT tag array through June 30.

Fish type <sup>2</sup>	Release Site <sup>1</sup>							Total
	JOHNSC	JOHTRP	KNOXB	LAKEC	RAPH	LGRRR	Other	
Hat. Chinook shed tag <sup>3</sup>			31					31
Hat. Chinook smolt			22830					22,830
Hat. Chinook unknown <sup>4</sup>	8				2			10
Nat. Chinook shed tag <sup>3</sup>		1	23	1		1	2	28
Nat. Chinook smolt			108					108
Nat. Chinook unknown <sup>4</sup>		1					1	2
Nat. Steelhead shed tag <sup>3</sup>			1					1
Nat. Steelhead smolt			23					23
Grand Total	8	2	23016	1	2	1	3	23,033

<sup>1</sup>Description of release sites: JOHNSC - Johnson Creek; JOHTRP - Johnson Creek Trap; KNOXB - Knox Bridge, SF Salmon River; LAKEC - Lake Creek; RAPH - Rapid River

Hatchery; LGRRR – Lower Granite Dam, return to river at the facility; OTHER – One SECESR (Secesh River) and one SECTRP (Secesh River trap) wild Chinook shed tag and one BIG2C (Big Creek, Middle Fork Salmon River) wild Chinook unknown.

<sup>2</sup> Fish type: Hat. – hatchery-origin; Nat. – natural-origin.

<sup>3</sup> Shed tag: PIT tag detections of fish tagged and released from 1999 through 2006.

<sup>4</sup> Unknown: PIT tag detections of juveniles tagged in 2008 from other river basins.

*Adult detections*

As of June 30, 2008, 57 adult salmonids were detected by the array, including 48 hatchery Chinook salmon, 6 wild Chinook salmon and 3 wild steelhead (Table 3). The majority of the Chinook salmon detections were from McCall Hatchery (KNOXB release). Chinook salmon tagged as juveniles at downstream locations were also detected, along with 3 tagged in 2008 as adults at Bonneville Dam. These fish were likely SFSR-origin. Two potential strays were detected, both hatchery-origin fish from Johnson Creek.

Table 3. 2008 Adult salmonid detections at the Krassel PIT tag array through June 30.

Fish type <sup>2</sup>	Release Site <sup>1</sup>							Totals
	BONAF	IHRTAL	JOHNSC	KNOXB	LGRRB	LGRRR	SNKTRP	
Hat. Chinook adult	1	3	2	33	1	7	1	48
Nat. Chinook adult	2				3	1		6
Nat. Steelhead adult					2		1	3
Grand Total	3	3	2	33	6	8	2	57

<sup>1</sup>Description of release sites: BONAF – Bonneville Dam, Adult Fish Facility, tagged in 2008 as adults; IHRTAL - Ice Harbor Dam, Release into the Tailrace; JOHNSC - Johnson Creek; KNOXB - Knox Bridge, SF Salmon River; LGRRB – Lower Granite Dam, Barge Transportation from the Facility; LGRRR - Lower Granite Dam, return to river at the facility; SNKTRP - Snake Trap.

<sup>2</sup> Fish type: Hat. – hatchery-origin; Nat. – natural-origin.

Initial results of the PIT tag array were promising. Approximately 44% of the McCall Hatchery KNOXB PIT tags were detected, and this would have been much higher had the array not stopped functioning for 10 days during the peak of juvenile migration. In addition, as of June 30 adult migration into the SFSR was just beginning, and the rate of adult detections was encouraging.

**Harvest Monitoring**

NPT harvest monitoring activities began in June and will continue through early August or until harvest quotas are met. Harvest summaries will be included in the 4<sup>th</sup> quarterly report.

**Annual Report Submittals/Progress**

Young, W. 2008. Salmonid Gamete Preservation in the Snake River Basin, 2007 Annual Report. Submitted to Bonneville Power Administration and Lower Snake River Compensation Plan.

**Future Activities**

All staff will be attending a Spawning Ground Survey workshop sponsored by the Nez Perce Tribe in Big Creek, ID on August 6 and 7, 2008.

Complete contracting for FY2009 with LSRCP Boise Office.

Conduct spawning ground surveys on the SFSR and Big Creek.

Continue PIT tag array project

Staff will assist with gamete collections for the Listed Stock Salmonid Gamete Preservation Project.

Reinstall emigrant screwtrap in lower Innaha River in late September or early October.