

NEZ PERCE HARVEST MONITORING

Annual Report

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TABLE OF CONTENTS

LIST OF TABLES	ii
LIST OF FIGURES	iii
EXECUTIVE SUMMARY	iv
ACKNOWLEDGEMENTS	vi
INTRODUCTION	1
DESCRIPTION OF THE PROJECT AREA	3
METHODS	5
Developed Harvest Monitoring Plan for Zone 6 and Snake River Tributaries.....	5
Determined Potential Run Sizes.....	7
<i>Bonneville Dam</i>	7
<i>Snake River and Tributaries</i>	8
Prepared Biological Assessments and Tribal Resource Management Plans.....	10
<i>Biological Assessments</i>	10
Columbia River Fisheries.....	10
Snake River Basin.....	11
<i>Tribal Resource Management Plans</i>	14
Grande Ronde Tribal Resource Management Plan.....	14
Imnaha River Subbasin Tribal Resource Management Plan.....	18
Conducted Fisheries and Implemented Harvest Monitoring Methodology as Planned.....	24
Disseminated Data.....	24
RESULTS AND DISCUSSION	26
REFERENCES	28
APPENDIX A	
2006 Snake River Basin Spring and Summer Chinook Sampling Plan.....	A-1
APPENDIX B	
Biological Assessment of Impacts of the Proposed Nez Perce 2006 Fisheries in the Snake River Basin.....	B-1
APPENDIX C	
Tribal Resource Management Plan-Grande Ronde River Spring Chinook Salmon Fisheries.....	C-1
APPENDIX D	
Annual Fishery Implementation Plan for Nez Perce Grande Ronde Spring Chinook Fisheries - 2006.....	D-1
APPENDIX E	
2007-2011 Nez Perce Tribal Management Plan for Snake River Spring/Summer Chinook in the Imnaha River Subbasin.....	E-1
APPENDIX F	
Nez Perce Tribe Annual Fishery Implementation Plan for Snake River Spring/Summer Chinook in the Imnaha River Subbasin - 2006.....	F-1

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1 Nez Perce Snake River Basin fishery locations for spring/summer Chinook salmon, ESA status and presence of hatchery and/or wild ESA components.....	3
2 2006 Nez Perce Tribe Snake River Basin spring/summer Chinook salmon monitoring and sampling structure and approach per fishery location.....	6
3 2006 in-season forecast of spring/summer Chinook returning to Lower Granite Dam, Snake River.....	8
4 2006 projected Snake River tributary returns of adult spring and summer Chinook.....	9
5 Snake BA projected 2006 Nez Perce harvest of spring/summer Chinook salmon by location and incidental mortality of listed stocks.....	12
6 Proposed harvest rates for marked (H) and unmarked (W) adult spring Chinook at various projected adult run sizes into Catherine and Lookingglass Creeks, upper Grande Ronde River, and Wallowa/Lostine river system.....	15
7 Distribution and management of adult Snake River spring/summer Chinook salmon returning to the Lostine River in 2006.....	17
8 Nez Perce harvest sliding scale and corresponding take levels for Imnaha River spring Chinook returns	19
9 Projected adult returns of Snake River spring/summer Chinook salmon in the Imnaha River in 2006 (revised ODFW Annual Operation Plan data).....	22
10 Distribution and management of adult Snake River spring/summer Chinook salmon returning to the Imnaha River in 2006.....	23
11 Summary of Nez Perce Tribe harvest targets and actual harvest for Snake River spring/summer Chinook salmon, 2006.....	24
12 Estimated Nez Perce harvest of salmon and steelhead during 2006 Zone 6 fisheries.....	26
13 Location specific target take limits and actual estimated take of listed Snake River spring/summer Chinook salmon by Nez Perce fishers, 2006.....	26

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1 Nez Perce Tribe Reservation and 1855 Treaty Area in Idaho, Washington and Oregon.....	4
2 Proposed harvest rates for marked (H) and unmarked (W) adult spring Chinook at various projected adult run sizes into Catherine and Lookingglass Creeks and the Lostine and upper Grande Ronde Rivers	16
3 Imnaha River Harvest Matrix for Adult Snake River Spring/Summer Chinook Salmon.....	20
4 2006 distribution of spring Chinook salmon between treaty harvest, hatchery broodstock requirement, and natural escapement or other management use.....	23

EXECUTIVE SUMMARY

The primary objective of the Nez Perce Harvest Monitoring project (NPHMP) is to develop and implement a biologically sound anadromous fish harvest and harvest monitoring program. To accomplish this during 2006, we applied a step-wise harvest planning and implementation approach to specific fisheries during the reporting period, as follows:

- Developed harvest monitoring plan for Zone 6 and Snake River tributaries.
- Determined potential run sizes.
- Prepared Biological Assessments and Tribal Management Plans.
- Conducted fisheries and implemented harvest monitoring methodology.
- Disseminated data.

FY 2006 harvest management and monitoring activities for the Nez Perce Tribe encompassed Tribal treaty fishing activities in tributaries located in southeast Washington, northeast Oregon, and a majority of central Idaho. Within this area, the Tribe has the reserved right to access 50% of the fish available for harvest. The Tribe is responsible for developing the plans necessary to insure that proposed harvest is biologically and legally sound and that it occurs in the manner designed (i.e. take numbers, locations, dates and gear types). The 2006 Snake River Basin treaty tributary fisheries were designed and conducted consistent with Nez Perce Tribal Code, the Treaty of 1855, and the established U.S. v. Oregon harvest management framework (U.S. v. Oregon Parties 2005)

The final 2006 Snake River Basin Spring and Summer Chinook Sampling Plan was completed on April 14, 2006, under subcontract with Looking Glass Consulting. Input to this plan was also provided by Columbia River Inter-Tribal Fish Commission biometrician expertise and NPHMP staff. The sampling plan guided the collection of catch data to determine Tribal fishing effort and fisher catch per hour or harvest per unit effort, which were applied to calculate estimated total catch or harvest for specific tributaries. Inseason monitoring of the catch composition of hatchery- vs. natural-origin and listed vs. unlisted fish (dependent upon existence and type of mark) was implemented so that numerical harvest guidelines and constraints could be tracked and appropriate steps taken to modify or close individual fisheries. Notably, the specific fisheries monitored and discussed in this report did not encompass all “usual and accustomed” fishing sites reserved to the Nez Perce Tribe under the Treaty of 1855.

The Technical Advisory Committee (TAC) pre-season forecast for upriver spring Chinook, defined as all spring Chinook salmon destined above Bonneville Dam plus Snake River summer Chinook, was a return of 88,400 fish to the mouth of the Columbia River. The actual return of upriver spring Chinook was 132,100 fish, or 149% of the pre-season forecast. The 2006 run of upriver spring Chinook salmon posed further challenges to fisheries management by being the latest returning run in recent history, with only 50% of the run passing Bonneville Dam as late as May 12. Treaty ceremonial and subsistence fisheries for spring Chinook occurred in Zone 6 of the Columbia River, however no commercial fishing periods were established due to the extremely late timing of the run.

The TAC 2006 pre-season run estimate for the Snake River component of upriver spring/summer Chinook salmon was 46,200 adults, including 14,600 wild adults. Actual returns were 53,000 Snake River spring/summer Chinook, including 16,700 wild fish. The actual returns for the Snake River component were about 115% of the pre-season estimate.

Based on updated adult escapement estimates, Nez Perce Tribe harvest strategies incorporated Endangered Species Act assessment and planning documents that were prepared under subcontract. Documents prepared for 2006 fisheries included a Biological Assessment of Impacts of the Proposed Nez Perce 2006 Fisheries in the Snake River Basin, a Tribal Resource Management Plan-Grande Ronde River Spring Chinook Salmon Fisheries, an Annual Fishery Implementation Plan for 2006 Nez Perce Grande Ronde Spring Chinook Fisheries, a 2006 Nez Perce Tribal Management Plan for Snake River Spring/Summer Chinook in the Imnaha River Subbasin, and an Annual Fishery Implementation Plan for 2006 Nez Perce Snake River Spring/Summer Chinook in the Imnaha River Subbasin.

Fisheries were managed and implemented within the context of the applicable Biological Assessments, Tribal Resource Management Plans, 1855 Treaty reserved fishing rights and the U.S. v. Oregon framework. In-season adult escapement data were applied to adjust harvest commensurate with actual returns, following established applicable criteria for incidental and direct take of ESA listed species, hatchery adult escapement and natural adult escapement.

Based on locations monitored, the Nez Perce Tribe harvested an estimated 1,897 spring/summer Chinook from the Snake River Basin, including 457 spring Chinook salmon from the Clearwater subbasin, 1,379 spring and summer Chinook salmon from the Salmon subbasin, 5 spring Chinook from the Grande Ronde subbasin and 56 spring Chinook from the Imnaha subbasin. Nez Perce fishers harvested an estimated 4,320 Chinook salmon, 348 coho salmon, 83 sockeye salmon, and 837 steelhead in Zone 6 in 2006. The 2006 Nez Perce fisheries for Snake River spring/summer Chinook salmon addressed ESA take criteria while providing an opportunity for substantive harvests within traditional fishing areas of the Nez Perce Tribe.

The harvest monitoring methods and approaches for 2006 were refined based on a post-season review of methods and approaches applied during the previous year's (2005) harvest monitoring efforts. The primary modifications were to the creel survey method and analyses applied to Rapid River. These modifications considered underlying assumptions on tributary fishery characteristics during periods of high tribal fishing effort. Because the project involves extensive harvest monitoring by the Nez Perce Tribe across such a broad landscape, the intent is to apply sampling methodologies and strategies that obtain the best data feasible with the resources available. During 2006, the Nez Perce Tribe continued to pursue multi-year sliding scale approaches to Tribal Resource Management Plans in the Grande Ronde and Imnaha Subbasins for more efficient and timely processing.

As in 2005, implementation of the 2006 NPHMP has demonstrated the applicability of conducting directed, managed and coordinated harvests on specific populations while assuring that hatchery and natural escapement targets are supported to meet mitigation goals and to rebuild weak stocks.

ACKNOWLEDGEMENTS

Funding for this project was provided by the Bonneville Power Administration in concert with funding provided by the US Fish and Wildlife Service Lower Snake River Compensation Program. We thank the Nez Perce Harvest Project field staff for their diligent efforts in data collection and their long hours away from home. The cooperation from Nez Perce fishers in providing harvest information is greatly appreciated. We also extend our appreciation to the Nez Perce Tribe for contract review, approval and administration.

INTRODUCTION

The primary objective of the Nez Perce Harvest Monitoring project (NPHMP) is to develop and implement a biologically sound anadromous fish harvest and harvest monitoring program.

Although the Northwest Power and Conservation Council makes no claim in its 2000 Fish and Wildlife Program (Program) to have regulatory authority over the harvest of fish and wildlife, the Program does recommend the following harvest management practices (NPPC 2000):

- manage harvest to ensure risk of imprecision and error in predicted run size does not threaten survival and recovery of naturally spawning populations
- monitor in-river fisheries (escapement, catch, and expand monitoring programs to reduce critical uncertainties)
- manage for data integration and availability
- manage harvest consistent with the protection and recovery of the naturally spawning populations.

The Program also calls for subbasin plans to deal explicitly with harvest management plans. The Clearwater, Salmon, Grande Ronde, and Tucannon Subbasin Plans all contain anadromous fish harvest management objectives. The NPHMP is an essential component to help measure progress towards meeting these objectives, particularly for spring/summer Chinook salmon *Oncorhynchus tshawytscha*. Zone 6 fisheries management and monitoring is important to the treatment of the target tributary populations as they migrate upstream.

FY 2006 tributary harvest management and monitoring activities for the Nez Perce Tribe encompassed Tribal treaty fishing activities in southeast Washington, northeast Oregon, and a majority of central Idaho. Within this area, the Tribe has the reserved right to access 50% of the fish available for harvest. The Tribe is responsible for developing the plans necessary to insure that proposed harvest is biologically and legally sound and that it occurs in the manner designed (i.e. take numbers, locations, dates and gear types). The Snake River Basin treaty tributary fisheries are expected to be conducted consistent with Nez Perce Tribal Code, the Treaty of 1855, and the established U.S. v. Oregon harvest management framework (U.S. v. Oregon Parties 2005). Notably, the specific fisheries discussed in this report do not include all Nez Perce “usual and accustomed” fishing sites reserved to the Nez Perce Tribe under the Treaty of 1855.

An added important value of harvest data derived from the project is the applicability to run reconstruction, including estimates of adult abundance, and importance for evaluating the effectiveness of supplementation. Both the 2005 Independent Scientific Advisory Board (ISAB) Report on Harvest Management of Columbia Basin Salmon and Steelhead and the 2003 ISAB Review of Salmon and Steelhead Supplementation identify harvest data as being among the essential core monitoring data needed to be monitored annually to assess production units (ISAB 2005, 2003).

A post-season evaluation of the harvest monitoring plan will again be conducted to appraise the efficacy of the sampling strategies to produce the most reliable estimates with available resources.

Project funding was jointly provided by the Bonneville Power Administration and the US Fish and Wildlife Service Lower Snake River Compensation Plan (LSRCP) to accomplish harvest management and monitoring tasks.

DESCRIPTION OF THE PROJECT AREA

The project area encompassed Zone 6 of the Lower Columbia River and six subbasins within Nez Perce 1855 Treaty Area; the mainstem Snake River, Clearwater River (ID), Salmon River (ID), Tucannon (WA), Imnaha (OR), and Grande Ronde (OR). Specific Nez Perce fisheries planned for spring/summer Chinook in these areas had the potential to affect Snake River salmon and steelhead listed under the Endangered Species Act (ESA) in hatchery-influenced and/or natural production areas within these subbasins (Table 1) (Figure 1).

Table 1. Nez Perce Snake River Basin fishery locations for spring/summer Chinook salmon, ESA status and presence of hatchery and/or wild ESA components.

Location	Subbasin	ESA status	Hatchery	Wild
Mainstem Snake River	Lower Snake River	threatened	X	X
North Fork Clearwater/Mainstem	Clearwater	not listed	n/a	n/a
Selway River	Clearwater	not listed	n/a	n/a
Clear Creek	Clearwater	not listed	n/a	n/a
South Fork Clearwater	Clearwater	not listed	n/a	n/a
Selway River	Clearwater	not listed	n/a	n/a
Lochsa River	Clearwater	not listed	n/a	n/a
Rapid River	Salmon	threatened		X
South Fork Salmon	Salmon	threatened	X	X
Imnaha River	Imnaha	threatened	X	X
Lookingglass Creek	Grande Ronde	threatened	X	X
Grande Ronde River	Grande Ronde	threatened	X	X
Tucannon River	Tucannon	threatened	X	X

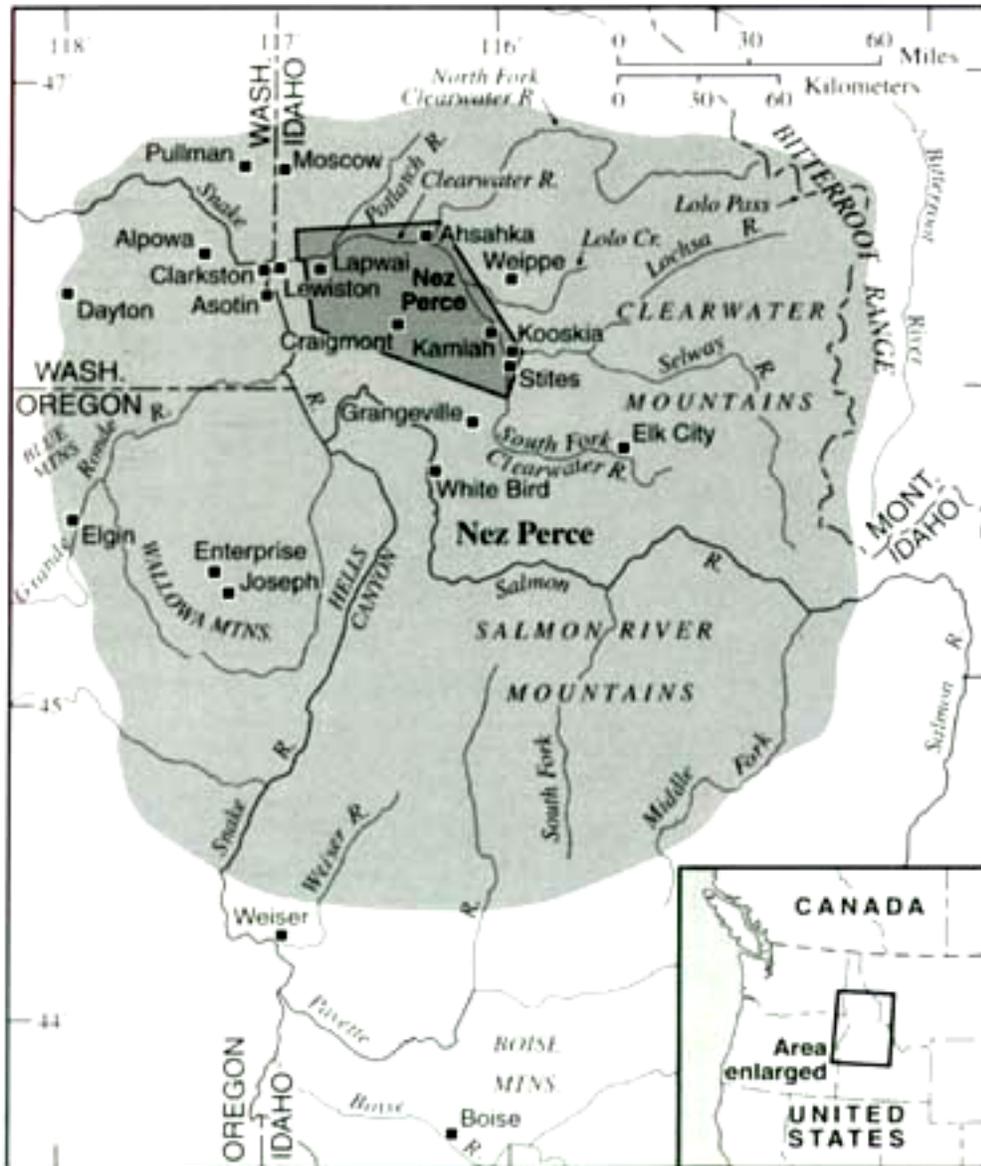


Figure 1. Nez Perce Tribe Reservation and 1855 Treaty Area in Idaho, Washington and Oregon.

METHODS

We applied a step-wise harvest planning and implementation approach for specific Chinook salmon fisheries anticipated during the reporting period, as follows:

- Developed harvest monitoring plan for Zone 6 and Snake River tributaries.
- Determined potential run sizes.
- Prepared appropriate Biological Assessments and Tribal Resource Management Plans.
- Conducted fisheries and implemented harvest monitoring methodology as planned.
- Disseminated data.

These component methodologies are discussed individually in the following subsections.

Developed Harvest Monitoring Plan for Zone 6 and Snake River Tributaries

Zone 6 (Columbia River) monitoring of Nez Perce fisher harvest of spring, summer and fall Chinook salmon and steelhead was accomplished by direct observation, landing interviews and review of completed Ceremonial and Subsistence (C&S) catch reports. Monitors were provided with detailed ceremonial or subsistence fishing locations and fish allocation criteria, pursuant to individual permits supplied by the NPT Fish and Wildlife Commission. Two monitors were stationed at Zone 6, with alternating schedules. Catch was monitored 24 hours per day every fishing day, focusing on Nez Perce Tribal fisher catch. Monitors contacted head fishers twice daily to collect species specific catch data. Staffing with field monitors possessing specific knowledge of targeted fishing areas and fishers within Zone 6 rendered this approach feasible. The Nez Perce commercial harvest was monitored primarily by direct observation and landing interviews. The Nez Perce harvest is a subset of the total treaty catch estimates produced by Yakama Indian Nation and Columbia River Inter-Tribal Fish Commission monitoring program.

The Snake River Basin monitoring plan was developed via subcontract with Looking Glass Consulting, with input from Columbia River Inter-Tribal Fish Commission (CRITFC) biometrician expertise and project staff. The final 2006 Snake River Basin Spring and Summer Chinook Sampling Plan that was completed on April 14, 2006, contains a detailed description of the methodology, and is appended in its entirety (Appendix A).

A basic consideration was to develop a statistical sampling design that would provide the best quantitative estimate of the Tribal fishery characteristics. Additionally, the ESA listing of Snake River salmon and steelhead has resulted in the Nez Perce Tribe voluntarily structuring C&S and commercial fisheries to avoid or limit catch of these protected fish.

The sampling plan guided the collection of catch data to determine Tribal fishing effort and fisher catch per hour, or harvest per unit effort. These data were applied to calculate estimated total catch or harvest for specific tributaries. Monitoring of effort and catch data were stratified by week day and weekend periods. Inseason monitoring of the catch composition of hatchery- vs. natural-origin and listed vs. unlisted fish (dependent upon occurrence and type of mark) was

implemented so that harvest guidelines and constraints could be tracked and appropriate actions taken to modify or close individual fisheries.

An abundance based harvest management approach was applied whereby the Tribal fisheries targeted 50% of the harvestable returns to the Snake River Basin, and reserved the right to increase or decrease harvest as actual returns increased or decreased relative to predicted values. Such adaptive in-season changes were consistent with tribal harvest management frameworks as described in relevant guiding documents (e.g., 2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon, Biological Assessment of Impacts of the Proposed Nez Perce 2006 Fisheries, Imnaha and Grande Ronde Tribal Resource Management Plans, and respective Fishery Implementation Plans).

The monitoring structure and sampling approach developed for specific Snake River Basin tributary locations during the 2006 spring/summer Chinook fishing period are shown in Table 2. A more detailed discussion of gear types is contained in the attached Biological Assessment of Impacts of the Proposed Nez Perce 2006 Fisheries in the Snake River Basin (Appendix B).

Table 2. 2006 Nez Perce Tribe Snake River Basin spring/summer Chinook salmon monitoring and sampling structure and approach per fishery location.

Location	Fishing Period hrs/day	No. of Samplers	Sampling Method	Gear Types
N. Fk./Mainstem Clearwater River	24	1	Creel Survey	all traditional gear types
Clear Creek*	24	2	Creel Survey	all traditional gear types
South Fork CR*	24	0-1	Inseason Interview	all traditional gear types
Selway River*	24	0-1	Inseason Interview	all traditional gear types
Lochsa River*	24	0-1	Inseason Interview	all traditional gear types
Rapid River	24	2	Creel Survey	all traditional gear types
South Fork Salmon River	24	2	Inseason Interview	all traditional gear types
Mainstem Snake River	24	0	Inseason Interview	dipnet, hoopnet, hook and line
Tucannon River	0	0	No season	all traditional gear types
Lookingglass Creek	24	0	Not Monitored	dipnet, gaff, long bow, spear, hook and line
Lostine River	24	2	Inseason Interview	dipnet, gaff, long bow, spear, hook and line
Imnaha River	24	2	Inseason Interview	dipnet, gaff, long bow, spear, hook and line

*These tributaries in the Clearwater River Subbasin may see 2-4 samplers depending on anticipated spring Chinook returns (1 for Clear Creek, 1 for North Fork CR, 2 roving monitors for South Fork CR, Selway River, and Lochsa River).

Three sampling methods (creel survey, direct interview survey, and inseason interview survey) applied are described in detail in Appendix A. For harvest estimates derived from intensive creel surveys, 95% confidence intervals were calculated.

Determined Potential Run Sizes

Bonneville Dam

Early forecasts for the Columbia River spring/summer Chinook were obtained through communication and coordination with the Technical Advisory Committee (TAC), including the CRITFC representatives. The TAC was originally established as part of the 1988 Columbia River Fish Management Plan (CRFMP) (U.S. v. Oregon Parties 1988). As stated in the CFRMP, pursuant to the September 1, 1983 Order of the United States District Court of Oregon in the case of U.S. v. Oregon:

"The purpose of this Agreement is to provide management guidelines, harvest allocation requirements, fish production measures, institutional arrangements, and substantive provisions that will better enable the Parties to protect, manage and enhance the fishery resources of the Columbia River system for the mutual benefit of present and future generations."

Under the 2005-2007 Interim Management Agreement reached in U.S. v. Oregon, the Parties agreed to new management guidelines. Upriver spring Chinook and Snake River summer Chinook are defined as those salmon species which migrate over Bonneville Dam from January 1 through June 15 of each year. Upper Columbia River summer Chinook are defined as those Chinook salmon that migrate over Bonneville Dam from June 16 through July 31 of each year.

In accordance with Schedule A: Schedule for Committee Action of the 2005-2007 Interim Management Agreement under U.S. v. Oregon, preseason run forecasts for spring/summer are reported by TAC in mid-December (Run size updates occur weekly from February through May)(U.S. v. Oregon Parties 2005). Based on technical data assembled by TAC, Nez Perce regulations are evaluated and adopted for Snake River spring and summer Chinook beginning in late April and typically concluding by the third week in June. This timeframe is prolonged due to the time required for the fishery co-managers to coordinate, compile, and ultimately produce basin-wide run projections for Snake River spring/summer Chinook. In-season modifications to run size estimates are made as needed.

The 2006 run of upriver spring Chinook salmon was the latest returning run in recent history, with only 50% of the run passing Bonneville Dam as late as May 12. The TAC pre-season forecast for upriver spring Chinook (all Chinook salmon migrating over Bonneville Dam from January 1 through June 15) was a return of 88,400 fish to the mouth of the Columbia River. The actual return of upriver spring Chinook was 132,100 fish, or 149% of the pre-season forecast. Treaty ceremonial and subsistence fisheries for spring Chinook occurred in Zone 6 of the

Columbia River. No Zone 6 commercial fishing periods were established due to the extremely late timing of the run.

The TAC 2006 pre-season run forecast for Upper Columbia summer Chinook was 49,000. The final count was 76,200.

Snake River and Tributaries

The TAC 2006 pre-season run estimate for Snake River spring/summer Chinook salmon was 46,200, consisting of 31,600 hatchery origin and 14,600 wild adults, respectively. The actual return of Snake River spring/summer Chinook to the Columbia River was 53,000, including 16,700 wild fish. The actual returns were 115% of the pre-season estimate.

Ultimate escapement to Lower Granite Dam was 22,530 adult Snake River spring Chinook and 7,058 adult summer Chinook (FPC 2007). The wild component of Snake River spring/summer Chinook returning to Lower Granite Dam (and Tucannon River) was 9,480 (Joint Columbia River Management Staff 2007).

The most current in-season TAC estimates for adult wild and hatchery origin returns to the Snake River and tributaries were applied and updated, in conjunction with additional data (i.e., hatchery juvenile releases, previous year's jack escapement, adult tag data, etc.) to derive expected returns to specific tributaries. These data were subsequently used to develop tributary specific harvest strategies, and to prepare Biological Assessments for incidental take of listed species and Tribal Resource Management Plans for direct take of listed species.

An in-season spring/summer Chinook forecast of 29,811 adults returning to Lower Granite Dam was used for the ESA Biological Assessment for proposed Nez Perce Tribe Snake River Basin fisheries (Tables 3 and 4)(Appendix B.).

Table 3. 2006 in-season forecast of spring/summer Chinook returning to Lower Granite Dam, Snake River.

Species	Hatchery origin (ad-clipped)	Hatchery origin (not ad-clipped)	Wild	Total
Spring/summer Chinook salmon	20,031	359	9,421	29,811

Table 4. 2006 projected Snake River tributary returns of adult spring and summer Chinook.

Forecasts	Spring/Summer Chinook							
Lower Granite Dam Wild	9,421							
Lower Granite Dam Hatchery	20,390							
Lower Granite Dam Total	29,811							
	Brood Stock Required	Ad- clipped Hatchery	Un- Marked Unlisted Hatch	Non Ad-C Listed	W/N	Total Un-Marked Hatchery	Total	F/N
Snake River								
Oxbow Hatchery		744	--		0		744	1/
Clearwater River								
Clearwater Wild/Natural			--		989	0	989	3/
Clearwater Hatchery	2,100	0					0	
Walton Creek (Powell)							0	
Red River							0	
Crooked River							0	
N.F. Clearwater River							0	
S.Fk Clear. (Red House Hole)						0	0	5/
Dworshak Hatchery	1,800	0			0	0	0	6/
Kooskia Hatchery		0			0	0	0	7/
Subtotal Clearwater		4,756	0		989	0	5,745	
Salmon River								
Little Salmon/Rapid River		0			21	21	21	8/
Rapid River Hatchery	2,400	5,287			0	0	5,287	9/
Lower Main Salmon		0			0	0	0	10/
Middle Main Salmon		0			217	217	217	11/
* Secesh, Johnson, EFSFSR					1,214	1,214	1,214	12/
* S. Fk. Salmon Mouth to Miners		0			107	107	107	13/
* S. Fk. Salmon Miners to Poverty		0			486	486	486	13/
* S. Fk. Salmon Poverty to Weir		0			332	332	332	13/
* S. Fk. Salmon River Weir	1,300	3,135		600	185	785	3,920	14/
S. Fk. Salmon Subtotal		3,135		600	2,324	2,924	6,059	
Middle Fork Salmon		0			2,582	2,582	2,582	15/
Panther Creek		0			0	0	0	16/
Lemhi River		0			624	624	624	17/
1 Mainstem above Lemhi						0	0	
* Pahsimeroi Hatchery	600	850	0			0	850	18/
Upper Salmon (Mid. To E. Fk.)					1,180	1,180	1,180	19/
East Fork Salmon River						0	0	20/
East Fork Rack		0				0	0	21/
Yankee Fork						0	0	22/
Valley Creek					350	350	350	23/
Main Salmon E.Fk. To Sawtooth					659	659	659	24/
Sawtooth Hatchery Weir	700	697				0	697	25/
Subtotal Salmon River					7,957			
Grande Ronde River								
Grande Ronde Subbasin		1,722		0	506	506	2,228	26/
Lookingglass Hatchery	na	0				0	0	27/
Imnaha River								
Imnaha Subbasin	na	1,670		0	377	377	2,424	28/
TOTAL								
		21,996	0		9,829	10,175	31,246	
					9,421			
		Total Hatchery		21,996				

Prepared Biological Assessments and Tribal Resource Management Plans

Biological Assessments

Columbia River Fisheries

In March, 2005, TAC completed a Biological Assessment of Incidental Impacts on Salmon Species Listed Under the Endangered Species Act in the 2005-2007 Non-Indian and Treaty Indian Fisheries in the Columbia River Basin (LeFleur 2005a). The Nez Perce Tribe is a member of TAC, and is also represented in TAC by staff of CRITFC. Because the structure and impact of Columbia River fisheries have direct bearing on Nez Perce Tribal fisheries both in Zone 6 and Snake River tributaries, implementation of the 2005-2007 Interim Agreement under U.S. v. Oregon is basic to the planning and conduct of Nez Perce Tribe fisheries. Snake River tributary fisheries are managed based on projected and actual returns of adult salmon after passing the downstream Columbia River fisheries and accounting for inter-dam upstream passage conversion losses.

Subsequent to the TAC Biological Assessment, NMFS (also known as NOAA Fisheries) issued a May 9, 2005 Biological Opinion on Impacts of Treaty Indian and Non-Indian Fisheries in the Columbia River Basin in Years 2005-2007, on Salmon and Steelhead Listed Under the Endangered Species Act, Conference on Lower Columbia Coho, and Magnuson-Stevens Act Essential Fish Habitat Consultation (NMFS 2005). The proposed Federal action considered in this Biological Opinion was NMFS' signing of the U.S. v. Oregon Interim Management Agreement for 2005-07 (Interim Agreement) and issuance of the associated Incidental Take Statement. The treaty Indian and non-Indian fisheries proposed by the Parties to the Agreement extend from January 1, 2005 to December 31, 2007, and encompass the Columbia River mainstem from its mouth upstream to the Wanapum Dam and to Lower Granite Dam on the Snake River, plus the Clearwater River in Idaho

The treaty Indian fisheries addressed in the Biological Opinion were those that would occur from January 1, 2005 through December 31, 2007 and would include:

- All mainstem Columbia River fisheries between Bonneville Dam and McNary Dam (commonly known as Zone 6)
- All mainstem Columbia River fisheries upstream of McNary Dam to Wanapum Dam (commonly known as the Hanford Reach Area)
- All fisheries within tributaries above Bonneville Dam except in the Snake River Basin
- All fall, winter, and early spring season steelhead fisheries in the Clearwater River.

A detailed description of treaty Indian fisheries considered in the Biological Opinion is contained in the Biological Assessment submitted by TAC (LeFleur 2005a, LeFleur 2005b).

NMFS determined that the level of take anticipated from the Interim Agreement is not likely to jeopardize the continued existence of ESA listed salmonid species or result in the destruction or adverse modification of designated critical habitat.

NMFS concluded that the following reasonable and prudent measures are necessary and appropriate to minimize the impacts from fisheries considered:

- The Washington Department of Fish and Wildlife (WDFW) shall monitor the passage of salmonids at Columbia River dams. The TAC shall provide necessary inseason estimates of run size.
- WDFW and the Oregon Department of Fish and Wildlife (ODFW) shall monitor the catch for recreational and commercial fisheries in Zones 1-6.
- The WDFW and the ODFW shall sample the recreational and commercial fisheries in Zones 1-6 for stock composition.
- The CRITFC and its member tribes shall monitor the catch in all tribal ceremonial and subsistence (C&S) fisheries and platform fisheries, and in commercial fisheries in cooperation with the monitoring efforts of the states.
- The CRITFC and its member tribes shall sample the Zone 6 C&S fishery sufficient for stock composition.
- The TAC shall account for the catch of each fishery as it occurs through the season and report to NMFS the results of these monitoring activities and, in particular, any anticipated or actual increases in the incidental harvest rates of listed species from those expected preseason.

Additional terms and conditions identified in the Biological Opinion that are particularly germane to the Nez Perce Tribe harvest management program are:

- Monitoring of catch in the Zone 6 fisheries by CRITFC and its member tribes shall be sufficient to provide statistically valid estimates of the catch of salmon and steelhead.
- The catch monitoring program shall be stratified to include platform, hook-and-line, and gillnet fishery components.
- The CRITFC and its member tribes shall sample the stock composition of the Zone 6 C&S fisheries at a sampling rate of 20%.
- The TAC shall account for the daily catch of each fishery through the season. If it becomes apparent inseason that any of the established harvest rate limits may be exceeded due to catch or revisions in the run-size projection, then the states and tribes shall take additional management measures to reduce the anticipated catch as needed to conform to the limits.

Snake River Basin

The June 16, 2006, Biological Assessment of Impacts of the Proposed Nez Perce 2006 Fisheries in the Snake River Basin (Snake BA) (Appendix B) was completed by the Nez Perce Tribe for the purpose of the Northern Idaho Agency- Bureau of Indian Affairs (BIA) initiating the consultation process on listed species under the Endangered Species Act for proposed treaty fisheries in the Snake River Basin. This document was prepared under subcontract by Looking Glass Consulting, and provided a description of specific Snake River Basin fisheries proposed by

the Nez Perce Tribe and an evaluation of potential affects from incidental take on species listed pursuant to the Endangered Species Act as threatened or endangered, particularly Snake River

Table 5. Snake BA projected 2006 Nez Perce harvest of spring/summer Chinook salmon by location and incidental mortality of listed stocks.

Location	Non-Listed	Listed
Mainstem Snake River	372	0
Clearwater River Salmon River	172	0
Rapid River	1,444	4
South Fork Salmon River	918	52
Total	2,906	56

spring and summer Chinook. Fishery areas addressed included the Mainstem Snake River, mainstem Clearwater River, North Fork Clearwater River, South Fork Clearwater River, Clear Creek (Clearwater), Lochsa River (Clearwater), Selway River (Clearwater), Rapid River (Salmon), and the South Fork Salmon River.

The Snake BA determined that proposed fisheries assessed would result in a total harvest of 2,906 non-listed Snake River spring/summer Chinook salmon, and incidental mortality of up to 56 listed fish (Table 5).

The assessment noted that, due to location and timing, listed sockeye salmon and fall Chinook salmon would not be present. Most Nez Perce C&S fisheries in the Snake River Basin target hatchery spring/summer Chinook and hatchery steelhead. Where wild spring/summer Chinook and steelhead would likely be present, the following actions limited the catch of listed species:

- Manage the Rapid River/Little Salmon River, mainstem Snake River and South Fork Salmon River spring and summer Chinook fisheries to target fish of hatchery origin.
- Manage spring/Chinook harvest primarily in hatchery influenced areas (sections of the Salmon River subbasin), apply harvest levels consistent with our tribal review and analysis, target fish primarily of hatchery origin, and close fisheries long before the fish spawn.
- Conduct catch monitoring and enforcement of fisheries to ensure that tribal fishers comply with tribal regulations.

Following the submission of the Snake BA on June 16, 2006, NMFS Sustainable Fisheries Division, Northwest Region, issued on July 5, 2006, a Biological Opinion on Impacts of Treaty Indian Fisheries in the Snake River Basin in 2006, on Salmon Listed Under the Endangered Species Act and Magnuson-Stevens Act Essential Fish Habitat Consultation (NMFS 2006). NMFS determined in the Biological Opinion that the level of take anticipated with the Reasonable and Prudent Alternative was not likely to jeopardize the continued existence of listed Snake River spring/summer Chinook salmon. Reasonable and Prudent Measures included:

- Manage the fisheries to minimize harvest impacts to natural-origin salmonids consistent with the proposal described in the BA.
- Conduct sufficient monitoring and enforcement activities to allow the accurate and timely enumeration of observed and estimated mortalities of supplementation hatchery-origin and natural-origin fish.
- Report estimated mortalities of supplementation hatchery-origin and natural origin fish on a weekly basis while the fisheries are open in the South Fork Salmon River.

Additional Terms and Conditions identified to implement the Reasonable and Prudent Alternative included:

- Limit harvest of Snake River spring/summer Chinook salmon to the levels described in the BA, as modified by the Biological Opinion.
[The Biological Opinion identified the take limit for natural-origin fish destined for the Poverty Flats index area at 6%, or 29 fish out of 486 predicted to return there. The Biological Opinion also identified the take limit for natural-origin fish destined to be released above the South Fork weir at 9%, or 33 fish out of 370 predicted to return there. The Biological Opinion stated that all fisheries in the South Fork Salmon River must close when these take limits are met.]
- Continuously monitor returns to Lower Granite Dam and to the South Fork Salmon River by appropriate means, and refine expected returns accordingly, because allowable impact to natural-origin Snake River spring-summer Chinook is dependent on actual return to the Poverty Flats and Stolle Meadows areas.
- Monitor catch at levels sufficient to fully describe the composition (hatchery- vs. natural origin), such that daily progress towards achieving fishery guidelines and constraints can be determined and necessary fishery management actions taken.
- Sample the fisheries for stock composition to allow a thorough post-season analysis of fishery impacts on listed species.
- Provide a postseason report to NMFS Sustainable Fisheries Division, Seattle, WA.
- Institute measures to prevent the illegal take of listed fish.
- Provide inseason catch reports to NMFS at least weekly.
- Curtail the South Fork Salmon River fishery when the guidelines for hatchery-origin and natural-origin harvest, based on projected returns, have been reached.

Tribal Resource Management Plans

Two Tribal Resource Management Plans (TRMPs), along with annual Fishery Implementation Plans (FIPs), were prepared by the Nez Perce Tribe and submitted to NMFS pursuant to ESA Tribal 4(d) rules.

Grande Ronde Tribal Resource Management Plan

A draft joint TRMP for the Grande Ronde subbasin dated July 2006 was prepared by the Nez Perce Tribe and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) (Appendix C). This TRMP is under further development through co-manager discussions with the CTUIR and Oregon Department of Fish and Wildlife (ODFW) for eventual agreement as a long-term fishery plan. The plan will encompass all potential Tribal fisheries which target listed spring Chinook salmon within the Grande Ronde River Basin. A separate plan will be developed by ODFW to cover the corresponding sport/recreational fishery. The intent of the plan is to provide a context, framework, guidelines and justification for development and implementation of annual spring Chinook harvest strategies that would not appreciably reduce the likelihood of survival and recovery of listed Snake River spring/summer Chinook salmon returning to the Grande Ronde River system. The plan assumes 50/50 harvest sharing within the basin among Tribal treaty and state spring Chinook fisheries.

Performance indicators used to assess the status of populations and the affect of the fishery included the following fish population parameters:

- number and composition (origin and age) of Chinook harvested within the basin.
- estimated fishery related incidental mortality of listed target and non-target fish in the basin.
- number and composition (origin and age) of Chinook intercepted at trapping locations and estimated on the spawning grounds within the basin.
- accuracy of pre-season run projections.
- level of Chinook angler effort within the basin.
- level of compliance with fishing regulation.

The Grande Ronde Basin once supported large runs of Chinook salmon with estimated escapements in excess of 10,000 as recently as the late 1950s (USACE 1975). Natural escapement declines in the Grande Ronde Basin have paralleled those of other Snake River tributaries. A major reason for these declines has been attributed to construction of the four lower Snake River dams. In order to offset these losses, the LSCRCP was authorized in 1976. LSCRCP compensation for the Grande Ronde Basin was to return 5,856 spring Chinook adults to the area above the four lower Snake River dam projects (Herrig 1990). This compensation goal included fish returning to hatchery racks, natural spawning areas, and fisheries. In order to meet this compensation goal, Lookingglass Hatchery (LFH) was constructed on Lookingglass Creek and became operational in 1982.

Continued declines in natural spring Chinook populations, despite LSCRCP related programs, prompted the NMFS on April 22, 1992, to list Snake River spring/summer Chinook salmon as

"threatened" under the federal Endangered Species Act. In response to the precipitous decline in population levels, Bonneville Power Administration (BPA) funded the initiation of captive broodstock programs for Catherine Creek, Lostine River, and upper Grande Ronde River stocks. Along with these captive broodstock programs, the Lookingglass Fish Hatchery converted to endemic broodstocks in order to better meet LSRCP mitigation goals.

In order to coordinate these endemic captive brood and conventional production programs, the Grande Ronde Spring Chinook Hatchery Management Plan (GRSCHMP) was developed and agreed upon by co-managers in 2002 (Zimmerman *et. al* 2002). The plan laid out juvenile production, adult disposition, and weir management details for the four Grande Ronde Basin tributaries involved with LFH production (Lostine River, Catherine Creek, Upper Grande Ronde River and Lookingglass Creek). Although detailed harvest specifics were not included in the GRSCHMP, harvest was identified as an objective for the program in all four tributaries. All of the captive brood hatchery production is externally marked with an adipose fin clip to allow for evaluation, weir management, and fisheries options.

As a result of the relatively large hatchery production compared to natural productivity, it is anticipated that fish of hatchery origin will dominate run composition as the hatchery program reaches production objectives. The Grande Ronde TRMP allows the use of harvest as a tool to assist in the management of hatchery and naturally produced spawner composition in tributary areas. Harvest as described in the TRMP would help; 1) reduce the risk of negative hatchery program effects, 2) improve the chances of meeting current hatchery program conservation and recovery objectives, 3) address harvest objectives outlined in the LSCR, 4) provide for meaningful exercise of federally protected treaty fishing rights, and 5) provide for Tribal and non-tribal fishing opportunity co-managed under the continuing jurisdiction of U.S. v. Oregon.

The Grande Ronde TRMP incorporates discrete tributary harvest rates for hatchery and naturally-produced spring Chinook based on projected adult returns to Catherine and Lookingglass Creeks and the Lostine and upper Grande Ronde Rivers. Harvest levels are determined by a sliding scale harvest matrix (Table 6 and Figure 2).

Table 6. Proposed harvest rates for marked (H) and unmarked (W) adult spring Chinook at various projected adult run sizes into Catherine and Lookingglass Creeks, upper Grande Ronde River, and the Wallowa/Lostine river system.

Annual Adult Run Size (Wild and Hatchery independently)	Wild Harvest Rate*	Hatchery Harvest Rate*	# of Take on Wild Fish	# of Take on Hatchery Fish
<300	0.01	0.02	3	6
301-1,000	0.08	0.09	3-59	6-70
1,001-2,000	0.18	0.20	59-239	70-270
>2,000	0.28	0.40	>239	>270

*Harvest rates are calculated on the margin of 300, 1,000, and 2,000 run sizes.

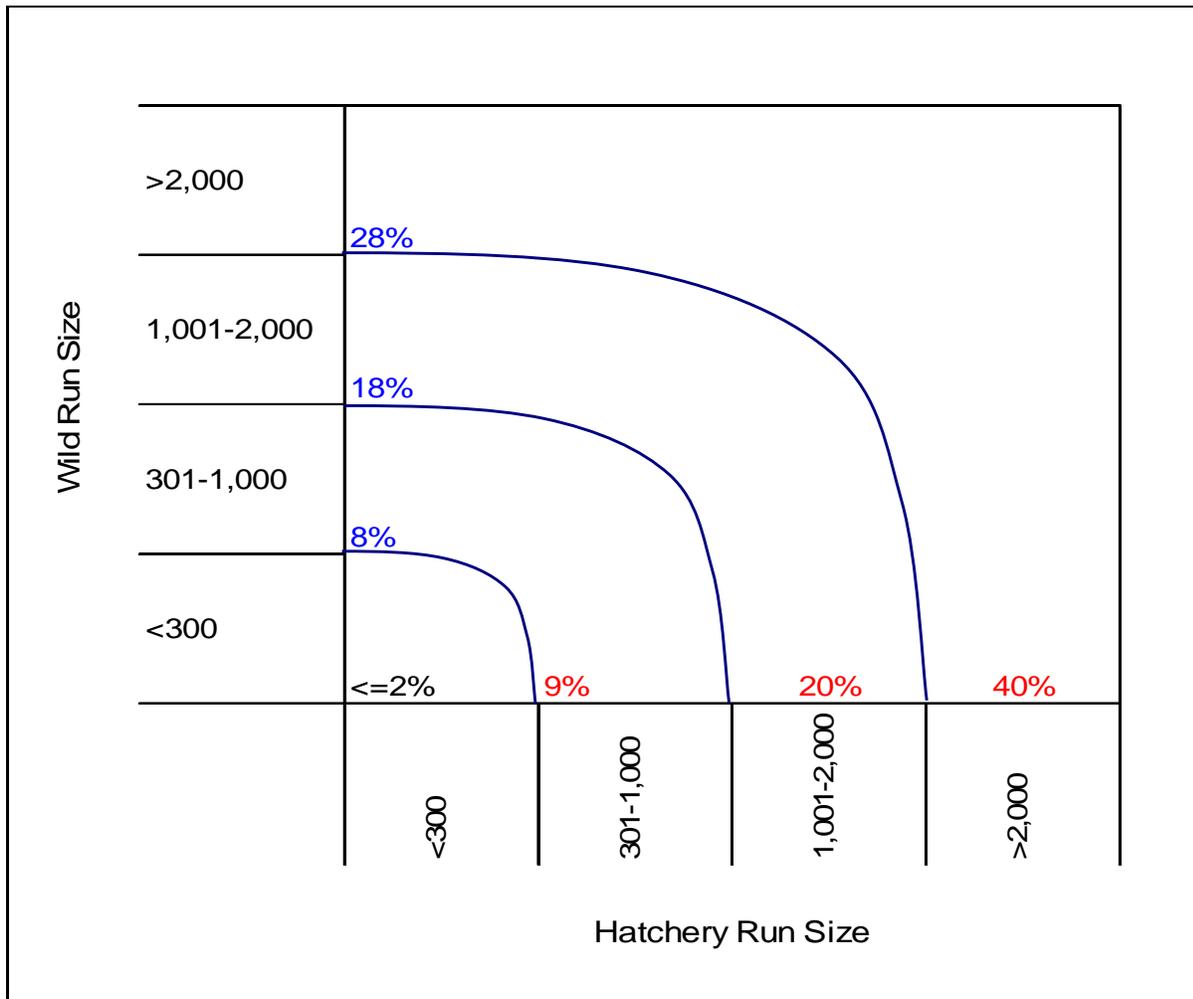


Figure 2. Proposed harvest rates for marked (H) and unmarked (W) adult spring Chinook at various projected adult run sizes into Catherine and Lookingglass Creeks and the Lostine and upper Grande Ronde Rivers.

The matrix applies increasing harvest rates at larger run sizes for both hatchery-origin and natural-origin fish. Harvest rates of natural-origin fish increase at a somewhat slower rate, based on how overall impact (total take limit) is allocated among the treaty and sport fisheries. Further discussion on this harvest matrix is contained in Appendix C.

While the Grande Ronde TRMP provides a general description of fishery timing and location options to guide harvest strategies, the specifics of length of season, Tribal harvest share, and selected fishery locations are detailed in Annual Fishery Plans developed pursuant to best available run projections and associated sliding scale harvest objectives.

The Nez Perce Tribe submitted to NMFS a 2006 Nez Perce Tribe Annual Fishery Implementation Plan for Nez Perce Grande Ronde Spring Chinook Fisheries (GRFIP), dated June 29, 2006 (Appendix D). The 2006 GRFIP was based on a pre-season return estimate of spring/summer Chinook salmon returning to the Grande Ronde River, that was coordinated among the co-managers; Nez Perce Tribe, Confederated Tribes of the Umatilla Indian Reservation and Oregon Department of Fish and Wildlife. The Nez Perce Tribe determined that the 2006 predicted spring/summer Chinook return to the Lostine River was sufficient to meet natural spawner thresholds, hatchery broodstock goals and support a fishery harvest. Target harvest rates were identified for the Lostine River by applying the proposed Grande Ronde TRMP sliding scale harvest rate methodology. Other Grande Ronde River tributaries (e.g., Catherine and Lookingglass Creeks) were not included in the 2006 Fishery Implementation Plan.

The projected 2006 return of Snake River spring/summer Chinook salmon to the Lostine River was 380 fish (72% hatchery-origin and 28% natural-origin).

Using the 2006 Grande Ronde TRMP harvest matrix as a guideline, the GRFIP proposed a 1.5% harvest rate on hatchery origin Chinook and a 1.0% harvest rate on natural-origin Chinook. It was estimated that application of this harvest strategy would result in the distribution of fish in the Lostine River as shown in Table 7.

Table 7. Distribution and management of adult Snake River spring/summer Chinook salmon returning to the Lostine River in 2006.

Area	Natural	Hatchery	Total
To River Mouth	108	272	380
Harvest Rate	1.0%	1.5%	1%
Tribal Harvest	1	4	5
Number of Fish Post Tribal Harvest	107	268	375
Hatchery Broodstock	17	71	88
Available for Outplant	0	0	0
Total Natural Spawning	90	197	287

The anticipated number of fish allowed to spawn naturally in the Lostine River was expected to be less than the previous year's predicted natural spawners of 542 fish (236 natural-origin fish), because the overall projected escapement to the Lostine River was less.

The implementation of the proposed fishery was expected to result in the harvest of 1 natural-origin and 4 hatchery-origin spring/summer Chinook salmon.

Imnaha River Subbasin Tribal Resource Management Plan

A multi-year 2007-2011 Nez Perce Tribal Resource Management Plan (TRMP) for Snake River Spring/Summer Chinook in the Imnaha River Subbasin was prepared and submitted to NOAA by the Nez Perce Tribe in July 2006 (Appendix E). In addition to describing the Nez Perce Tribe treaty fishery regime for the Imnaha Subbasin, the intent of the TRMP is to: 1) provide for the meaningful exercise of federally-protected Nez Perce treaty fishing rights; 2) provide for Tribal and non-tribal fishing opportunity co-managed under the continuing jurisdiction of U.S. v. Oregon; 3) describe associated hatchery operations that affect the listed anadromous fish; and 4) provide a method to assist the federal government in re-allocating the conservation burden through the use of the harvest sliding scale that allows less restrictive impacts on natural-origin fish in Tribal than non-Indian sport fisheries.

The TRMP is intended to define long-term Tribal take limits and distribution of natural-origin and hatchery-origin fish that return to the Imnaha River based on levels of annual adult escapement and run composition. The TRMP also specifies activities to be conducted by the Nez Perce Tribe, coupled to harvest activities conducted by the State of Oregon. Changes to this TRMP involving take limits or other fishery conservation measures require a thorough Conservation Necessity Principle analysis and meaningful government-to-government dialogue prior to revision and adoption by the Nez Perce Tribe.

Historically, the Imnaha River Subbasin supported healthy runs of spring/summer Chinook salmon¹, estimated at approximately 6,700 fish prior to the construction of the four Lower Snake River dams (USACE 1975). Peak escapement in recent history was estimated as ranging from 500 to 6,500 fish (Statler *et al.* 2006). TAC has indicated that the resource managers agree the natural environment has been significantly under-seeded for the past thirty years (LeFleur 2000).

Several escapement objectives have been identified for the Imnaha River. The Columbia River Treaty Tribes' Tribal Recovery Plan (Wy-Kan-Ush-Mi Wa-Kish-Wit) defines an adult return goal of 5,740 fish, of which 3,800 are for natural production and 700 for harvest (Nez Perce Tribe *et al.* 1995). Goals developed by co-managers for the 1990 Imnaha Subbasin Plan (Nez Perce Tribe *et al.* 1990) were 5,770 total (3,820 for natural spawning, 1,240 for hatchery production, and 700 for harvest). NMFS suggested an interim abundance target for the Imnaha

¹ A detailed discussion of the biology of Imnaha River chinook is presented in the Northeast Oregon Hatchery Master Plan (Ashe *et al.*, 2000). Chinook salmon returning to the Imnaha River fall into both the spring chinook and summer chinook migration timing categories. Fish begin entering the Imnaha River in late-April with peak entry in mid-to-late June. Most spring/summer chinook salmon are in the Imnaha River by the end of July. Presently, most salmon in the Imnaha River spawn from the Blue Hole to Crazyman Creek (RM 42.8). Some salmon have been observed spawning as far upstream as the lower reaches of the South Fork and as far downstream as Freezeout Creek (RM 29.4). Few spring/summer chinook salmon currently spawn in Big Sheep and Lick creeks. The majority of spawning in Big Sheep Creek currently occurs from RM 29.4 to RM 33.4. The majority of spawning in Lick Creek occurs in the upper 2.3 miles.

spawning aggregate of 2,500 fish in their Proposed Interim Abundance and Productivity Targets for Pacific Salmon and Steelhead Listed under the Endangered Species Act in the Interior Columbia River (NMFS 2002).

The existing range of escapement goals and viability thresholds (CRITFC, Imnaha Co-managers, NMFS, TRT, etc.) for the Imnaha River, and the underlying science which produced them, creates a quandary in determining which goal or threshold is appropriate to evaluate harvest as described in the multi-year plan.

In accordance with the TRMT, the Nez Perce Tribe uses two viability thresholds to analyze effects of harvest on the Imnaha River spring/summer Chinook salmon population: (1) the TRT population viability goal and (2) the Nez Perce Tribe “Minimum Conservation Adult Salmon Spawner”. The TRT viability goal is primarily concerned with the natural-origin fish abundance and productivity, while the NPT minimum spawner viability threshold goal accounts for combined natural-origin and hatchery-origin fish relative to population abundance and productivity.

The Nez Perce Tribe and the State of Oregon cooperatively developed a hatchery and harvest management plan for restoration of Imnaha River spring/summer Chinook, using the Lower Snake River Compensation Plan Imnaha hatchery program. The management plan was submitted to NMFS in an ESA Section 10 Permit application in 1998 (ODFW 1998). In the 2007-2011 TRMP for the Imnaha River subbasin, the sliding scale strategy has been further detailed to incorporate a harvest matrix framework used to determine annual harvest of Imnaha River spring/summer Chinook salmon (hatchery-origin and natural-origin fish) (Table 8)(Figure 3). This updated multi-year harvest and hatchery management strategy, in consideration of population viability thresholds identified by the Technical Recovery Team, was developed jointly by co-managers through the Northeast Oregon Hatchery planning process, U.S. v. Oregon, and other forums.

Table 8. Nez Perce harvest sliding scale and corresponding take levels for Imnaha River spring Chinook returns.

Annual Adult Run Size (N-O and H-O independently)	Natural-Origin Harvest Rate*	Hatchery-Origin Harvest Rate*	Natural-Origin Overall Range of Direct Take	Hatchery-Origin Overall Range of Direct Take
<300	0.01	0.02	3	6
301-1,000	0.08	0.09	3-59	6-70
1,001-2,000	0.18	0.20	59-239	70-270
>2,000	0.28	0.40	>239	>270

*Harvest rates are calculated on the margin of 300, 1,000, and 2,000 run sizes.

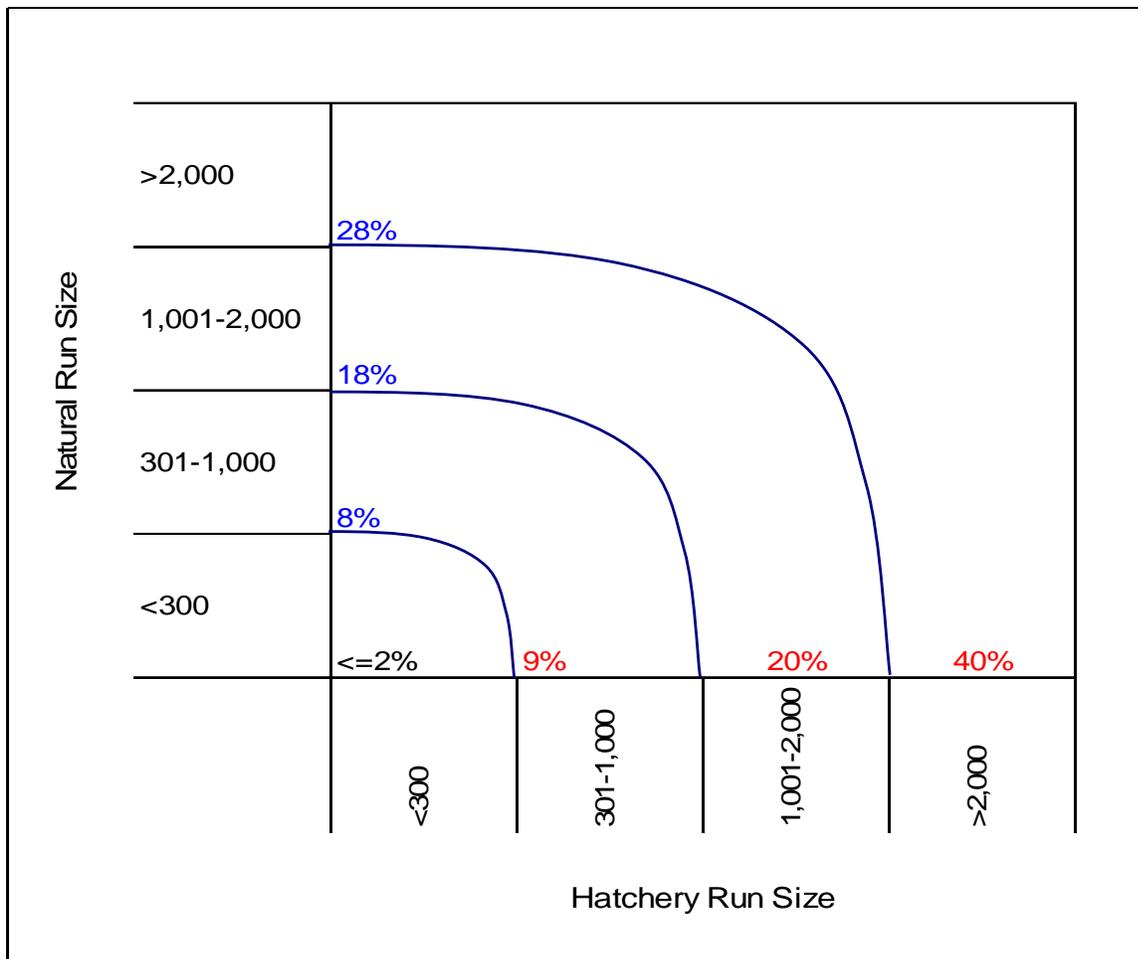


Figure 3. Innaha River Harvest Matrix for Adult Snake River Spring/Summer Chinook Salmon.

As indicated in Table 8 and Figure 3, above, Tribal harvest of spring/summer Chinook salmon in the Innaha River subbasin would not exceed the numbers determined by the following criteria embedded in the sliding scale:

- for adult escapement <300 for each run component, a Tribal ceremonial fishery will occur with a set 1% harvest rate for natural-origin Chinook and a 2% harvest rate for hatchery-origin Chinook, with no state fishery authorized at this run size,
- for adult escapement between 301-1,000 fish for each run component, a Tribal ceremonial and subsistence fishery is permitted with a 8% harvest rate on the margin for natural-origin Chinook and a 9% harvest rate on the margin for hatchery-origin Chinook,
- for adult escapement between 1,001-2,000 fish for each run component, a Tribal fishery is permitted with an overall 18% harvest rate on the margin for natural-origin Chinook and a 20% harvest rate on the margin for hatchery-origin Chinook, and

- for adult escapement >2,001 fish for each run component, a Tribal fishery is permitted with an overall 28% harvest rate on the margin for natural-origin Chinook and a 40% harvest rate on the margin for hatchery-origin Chinook.

The matrix assumes increasing harvest rates at larger run sizes for both natural-origin and hatchery-origin fish, but the natural-origin harvest rate increases at a slightly slower rate due to how overall impacts (total take limits) for returns are to be allocated between treaty and sport fisheries. The harvest rates and expected level of treaty take will be implemented as follows: 1) on run sizes less than 300 fish for each run component the natural- and hatchery-origin harvest rates are conservatively set; 2) on all natural-origin run sizes, the Tribal direct take will be greater than those allowed for reasonable state selective sport seasons that will also result in incidental/direct take; and 3) the treaty fishery will target an equal share (50% harvest share) on harvestable fish on all hatchery run sizes greater than 300 fish (Table 8). To implement the 50% harvest share principle criteria for all hatchery run sizes greater than 300 fish, a reduction in the sliding scale take of hatchery-origin fish by the Nez Perce Tribe may be needed.

For adult run sizes less than 2,000 fish for each run component, this Tribal conservation fishing regime sets the natural-origin harvest rate comparable to the hatchery-origin harvest rate in order to account for: expected state fishery impacts; the need to allocate the conservation burden for listed salmon to avoid discriminating against Nez Perce Tribe fishing rights; and, so Tribal fisheries can be implemented in the least restrictive manner. For run sizes less than 2,000 adult natural-origin returns, only a direct Tribal fishery will occur, for which the set harvest rates will represent a majority of the total natural-origin allowable take. For run sizes greater than 2,000, the Nez Perce Tribe will negotiate an appropriate natural-origin harvest sharing arrangement with the State of Oregon. These criteria are premised on the federal salmon recovery strategy that recognizes a greater level of impact allocated to Tribal fisheries in the interest of nondiscriminatory harvest regimes.

As the projected run size increases or decreases based on updated inseason data for hatchery-origin and natural-origin components, Nez Perce Tribe harvest targets can be likewise updated in accordance with the sliding scale criteria. The sliding scale and harvest matrix strategy is designed to account for inter-annual variation in total run size and to provide finer resolution and direction for future management actions that address apportioning adult returns among Tribal and state fisheries, hatchery broodstock needs, and natural spawning escapement. The Imnaha River Subbasin TRMP states that implementation of the proposed strategy would not appreciably reduce the likelihood of survival and recovery of the Snake River spring/summer Chinook ESU.

The Nez Perce Tribe submitted to NMFS a 2006 Nez Perce Tribe Annual Fishery Implementation Plan for Snake River Spring/Summer Chinook in the Imnaha River Subbasin, dated June 29, 2006 (IRFIP)(Appendix F). The 2006 IRFIP was based on a pre-season return estimate of spring/summer Chinook salmon returning to the Imnaha River, that was coordinated among the Nez Perce Tribe and the Oregon Department of Fish and Wildlife. The co-managers determined that the 2006 spring/summer Chinook inseason run size forecast to the Imnaha River of 1,121 adults (78% hatchery-origin and 22% natural-origin) was at a level to contribute to natural spawner, broodstock goals, and to support Tribal harvest (Table 9).

Table 9. Projected adult returns of Snake River spring/summer Chinook salmon in the Imnaha River in 2006 (revised ODFW Annual Operation Plan data).

Component	Jacks	Adults	Total
Hatchery-origin	89	874	963
Natural-origin*	43	247	290
Total	132	1,121	1,253
* Preseason AOP natural-origin jack estimate scaled by downgrade in hatchery-origin jacks (31% of original forecast).			

Using the 2006 Imnaha River TRMP harvest matrix as a guideline, the IRFIP proposed a 1.0% harvest rate on natural-origin Chinook and a 6.3% harvest rate on hatchery-origin Chinook. The Tribal fishery was set for June 15 through August 5, or until the target harvest number was achieved. The fishing area was from the Snake River confluence to 60 feet below the weir. As indicated in Table 10 below, the Nez Perce Tribe proposed to target 57 Chinook (2 natural-origin and 55 hatchery-origin), with adults only counting towards the harvest goal. fate

It was estimated that the 247 natural-origin spring Chinook returning to the Imnaha River during 2006 would be distributed as follows: 1% treaty harvest; 34% broodstock; and, 65% natural spawning. For the estimated 874 hatchery-origin Chinook returning to the Imnaha River, the target disposition was: 6% treaty harvest; 14% broodstock; 40% outplants and other uses; and, 39% natural spawning. This Tribal harvest regime was devised to address broodstock, natural recruitment and other management needs (Table 10) (Figure 4).

Table 10. Distribution and management of adult Snake River spring/summer Chinook salmon returning to the Imnaha River in 2006.

Area	Natural	Hatchery	Total
To River Mouth	247	874	1,121
Treaty Harvest Rate	1%	6.3%	2.6%
Treaty Harvest	2	55	57
Number of Fish Post Harvest	245	819	1,064
Fish Expected to Be Handled at Weir (.47% of post harvest escapement)	115	385	500
Hatchery Broodstock	83	125	208
Available for Outplant or Other Use	0	353	353
Outplant to Big Sheep	0	300	300
Total Natural Spawning (mainstem and tributaries)	162	341	503

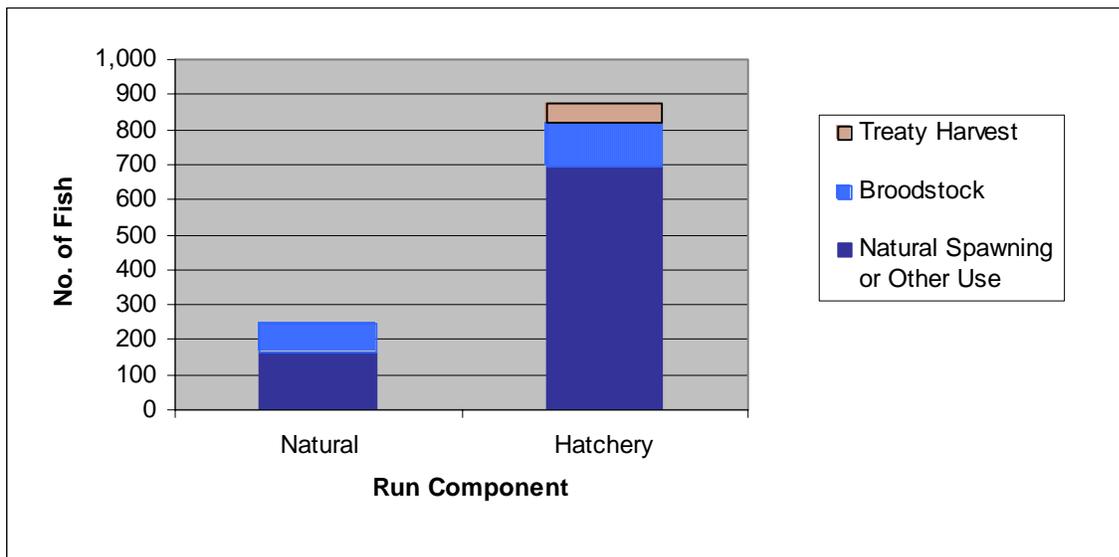


Figure 4. 2006 distribution of spring Chinook salmon between treaty harvest, hatchery broodstock requirement, and natural escapement or other management use.

The IRFIP concluded that the plan would not appreciably reduce the long-term likelihood of survival and recovery of the Snake River spring/summer Chinook ESU. The IRFIP also concluded that the impact from harvest within the Imnaha River itself would be minimal.

Conducted Fisheries and Implemented Harvest Monitoring Methodology as Planned

Fisheries were managed and implemented within the context of the applicable Biological Assessments, Tribal Resource Management Plans, Fishery Implementation Plans, 1855 Treaty reserved fishing rights and the U.S. v. Oregon framework. In-season escapement data were applied to adjust harvest commensurate with actual returns and following established criteria for incidental and direct take of ESA listed species, hatchery escapement and natural escapement. Table 11 summarizes the location specific Snake River Basin harvest targets that guided the conduct of Nez Perce Tribe spring and summer Chinook salmon fisheries in 2006. The harvest monitoring methodology applied was guided by the 2006 Snake River Basin Spring and Summer Chinook Sampling Plan (Appendix A).

Table 11. Summary of Nez Perce Tribe harvest targets and actual harvest for Snake River spring/summer Chinook salmon, 2006.

Location	Harvest Target	Estimated Actual Harvest (95% confidence interval)
Snake River Mainstem		
Oxbow Hatchery	372	0 ¹
Tucannon	0	0
Clearwater Subbasin		
Clearwater Hatchery	172	392(±131) ²
Dworshak Hatchery	-- ²	-- ²
Kooskia Hatchery	-- ²	65(±39)
Salmon River Subbasin		
South Fork Salmon	970	86 ³
Rapid River	1448	1293 (±272)
Pahsimeroi	0	0 ¹
Sawtooth	0	0 ¹
Grande Ronde Subbasin		
Wallowa/Lostine	5	5
Imnaha Subbasin		
Imnaha	57	56
Total	3,024	1897

¹ Based on post-season interviews.

² Includes both Dworshak Hatchery and Clearwater Anadromous Hatchery stock.

³ Summer Chinook.

Disseminated Data

Harvest estimates were shared with co-managers on a weekly or semi-monthly basis to coordinate harvest activities and to implement cumulative harvest targets. Project personnel reported their catch data directly to relevant fishery co-managers, pursuant to tributary harvest sharing and inseason fishery management criteria. Post-season harvest data were provided to TAC and to pertinent co-management entities (e.g., the Dworshak National Fish Hatchery) for

run reconstruction, population and hatchery performance evaluations and for input to adult escapement predictor models.

The 2006 Nez Perce Tribe Harvest Monitoring Annual Report is posted on BPA's web site and made available for distribution in PDF file format.

RESULTS AND DISCUSSION

Application of the step-wise methods previously described resulted in the estimated harvest of Snake River Basin spring/summer Chinook salmon by the Nez Perce Tribe shown in Table 11. Based on locations monitored, the Nez Perce Tribe harvested an estimated 1,897 spring/summer Chinook from the Snake River Basin, including 457 spring Chinook salmon from the Clearwater subbasin, 1,379 spring and summer Chinook salmon from the Salmon subbasin, 5 spring Chinook from the Grande Ronde subbasin and 56 spring Chinook from the Imnaha subbasin.

Nez Perce fishers harvested an estimated 4,320 chnook salmon, 348 coho salmon, 83 sockeye salmon and 837 steelhead in Zone 6 in 2006 (Table 12).

As indicated in Table 13, 2006 Nez Perce fisheries for Snake River spring/summer Chinook salmon addressed ESA take criteria while providing an opportunity for substantive harvests within traditional fishing areas of the Nez Perce Tribe.

Table 12. Estimated Nez Perce harvest of salmon and steelhead during 2006 Zone 6 fisheries.

Fishery	Chinook Salmon			Coho Salmon	Sockeye Salmon	Steelhead
	Adults	Jacks	Tules			
Spring C & S	1574	0	-	0	0	19
Summer Commercial	708	0	-		83	56
Fall Commercial	1525	0	334	263	0	668
Fall Permitted (C&S)	179	0	0	85	0	94
Total	3986	0	334	348	83	837

Table 13. Location specific target take limits and actual estimated take of listed Snake River spring/summer Chinook salmon by Nez Perce fishers, 2006.

Location	Listed Hatchery		Listed Wild/Nat		Non-Listed Estimate	Total
	Target limit	Actual Take Estimate	Target Limit	Actual Take Estimate		
Rapid River	na	na	4	11	1293(±272)	1304
Clearwater River	na	na	na	na	392(±131)	392
Clear Creek	na	na	na	na	65(±39)	65
Wallowa/Lostine	4	5	1	0	na	5
Imnaha River	55	56	2	0	na	56
South Fk Salmon R.	18	13	34	2	71	86

Formidable challenges during the 2006 spring/summer Chinook season posed by the late run timing were effectively addressed by rigorously monitoring the evolving in-season forecasts, and adjusting harvest strategies accordingly.

A post-season review of methods and approaches will again be undertaken. The intent is to apply sampling methodologies and strategies to obtain the best data feasible with the resources available. The multi-year sliding scale approaches to Tribal Resource Management Plans in the Grande Ronde and Imnaha Subbasins are expected to yield more efficient and timely processing. Project personnel will continue to strive for improved coordination and efficiency of Zone 6 harvest monitoring through collaboration with the Yakama Indian Nation and CRITFC staffs.

Implementation of the 2006 Nez Perce Tribe Harvest Monitoring Project has again demonstrated the feasibility and utility of conducting directed, managed and coordinated harvests on specific populations while assuring that hatchery and natural escapement targets are met to achieve mitigation goals and to rebuild weak stocks.

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APPENDIX A

2006 Snake River Basin Spring and Summer Chinook Sampling Plan

Nez Perce Tribe Harvest Monitoring Program -2006 Snake River Basin Spring and Summer Chinook Sampling Plan-

Introduction

The Nez Perce Tribe Harvest Division 2006 sampling plan is to provide a well-designed and appropriate assessment of planned Nez Perce treaty harvest fisheries targeting Snake River spring and summer Chinook. The Snake River Basin treaty fisheries are expected to be conducted consistent with Nez Perce Tribal Code and law, the Treaty of 1855, and the established U.S. v. Oregon harvest management framework. The primary objective of the Harvest Management Program (HMP) is to develop and implement a biologically sound harvest monitoring program through the collection of more precise catch data that would assist in maintaining harvest strategies consistent with treaty reserved fishing rights for fishing sites on the reservation lands, ceded lands, and at all usual and accustomed areas. Harvest monitoring activities for the Nez Perce Tribe covers Tribal treaty fishing activities in tributaries located in southeast Washington, northeast Oregon, and a majority of central Idaho. Within this area, the Tribe has the reserved right to access fully 50% of the fish available for harvest. The catch and harvest information generated from this sampling plan will be used to insure that proposed harvest is biologically and legally sound and that it occurs (i.e. take numbers, locations, dates and gear types) in the manner designed.

This sampling plan will be implemented using funding sources from the Lower Snake River Compensation Plan (LSRCP) and the Bonneville Power Administration (BPA), of which each respective contract establishes deliverables consistent to the fishing locations in Table 2. It is worth noting that the identified fisheries do not include all Nez Perce “usual and accustomed” fishing sites reserved to the NPT under the Treaty of 1855. This plan encompasses only those fisheries where level of fishing pressure, listing status, co-management priority, and/or contractual deliverables, necessitate rigorous harvest management. The results of this sampling plan will be evaluated post-season to determine the efficacy of the sampling strategies in producing precise harvest estimates. The three sampling methods as described below (creel survey, direct interview survey, and inseason interview survey) will be reviewed to see if harvest sampling data accurately characterizes the true number of chinook salmon harvested in each specific tributary.

The development of a harvest management system for the Nez Perce Tribe addresses some of the management issues as identified in Section D.5 of the 2000 Northwest Power Planning Council’s (NPPC) Fish and Wildlife Program (FWP). Specifically, the NPT is incorporating management practices that include the following key objectives identified by the FWP: manage harvest to ensure risk of imprecision and error in predicted run size does not threaten survival and recovery of naturally spawning populations; monitor in-river fisheries (escapement, catch, and expand monitoring programs to reduce critical uncertainties); manage for data integration and availability; and manage harvest consistent with the protection and recovery of the naturally spawning populations.

The primary strategy for the FWP is to assure that subbasin plans are consistent with harvest management practices and increase opportunities for harvest-like those envisioned by the Nez Perce Tribe-wherever feasible. The Council's program calls for subbasin plans to deal explicitly with harvest management plans, of which this sampling plan is considered one important subcomponent by the Nez Perce Tribe. It is expected that the harvest information derived from the implementation of this sampling plan will start to provide a baseline accounting of Nez Perce harvest in the Snake River Basin, of which corresponding information can be incorporated into harvest sections in subbasin plans. The successful implementation of this sampling plan will address specific harvest management issues of the FWP as it relates specifically to Snake River Basin spring and summer chinook management.

Sampling Design

The annual Snake River Spring and Summer Chinook Sampling Plan is designed to cover six geographic management areas that comprise the Nez Perce Tribe Snake River Basin (SRB) treaty management area. These management areas include the mainstem Snake River, Tucannon River Subbasin, Clearwater River Subbasin, Salmon River Subbasin, Imnaha River Subbasin, and the Grande Ronde Subbasin. The fisheries occurring in these management areas have the potential to affect Snake River (SR) spring and summer Chinook salmon listed under the Endangered Species Act (ESA) in hatchery-influenced or natural production areas located in these respective subbasins. The basic consideration undertaken by the Harvest Monitoring Program in collecting harvest data has been to determine what statistical sampling design provides the best quantitative estimate of the Tribal fishery characteristics. The information to collect and sampling area to cover will include the reservation and specific "usual and accustomed" fishing areas located in the above mentioned subbasins that are open to tribal fishing. The ESA listing of Snake River salmon and steelhead has resulted in the Nez Perce Tribe voluntarily structuring Ceremonial and Subsistence (C&S) and commercial fisheries to avoid or limit catch of these protected fish.

The primary focus is on collecting catch information necessary to calculate tribal fishing effort, fisher catch per hour (FCPH) or harvest per unit effort (HPUE), which is used to estimate total catch or harvest for a particular tributary. For the above parameters, the harvest estimates will be stratified into week day and weekend fishing profiles. Inseason monitoring of the catch composition of hatchery (unlisted and listed) and wild/natural (unlisted and listed) fish (dependent upon existence and type of mark) will be conducted so that harvest guidelines and constraints can be determined and appropriate steps to modify or close each given fishery can be taken when necessary. Annual fishery proposals by the Nez Perce Tribe will generally include details of expected run size composition (hatchery and wild/natural fish), selected harvest rates for Snake River spring/summer Chinook stocks, , location, timing, and a description of anticipated total take limits (hatchery and wild/natural fish). The season structure and sampling strategies may change (e.g, increase or decrease sampling effort per tributary) as the original pre-season Snake River Basin spring and summer Chinook forecast is updated.

Table 1. 2006 tributary season structure and sampling strategies.

Tributary	Fishing Period	No. of Samplers	Sampling Method
North Fork Clearwater River/mainstem CR*	24	0	Creel Survey
Clear Creek*	24	0	Creel Survey
South Fork CR*	24	0	Inseason Interview
Selway River*	24	0	Inseason Interview
Lochsa River*	24	0	Inseason Interview
Rapid River	24	2	Creel Survey
South Fork Salmon River	24	2	Inseason Interview
Sawtooth	24	0	Inseason Interview
Pahsimeroi	24	0	Inseason Interview
Mainstem Snake River	24	0	Inseason Interview
Tucannon River	24	0	Inseason Interview
Lookingglass Creek	24	0	Inseason Interview
Lostine River	24	2	Creel Survey
Imnaha River	24	2	Inseason Interview

The management timeframes for the above tributaries are summarized by respective subbasin in Table 2 below. The HMP will structure monitoring shifts for each tributary based on expected run timing, levels of harvestable fish, and tribal member fishing preference. The Nez Perce Tribe, in coordination with the other federal and state co-managers, expects to finalize Snake Basin run size predictions, broodstock needs, and harvest intents by late April. Below are the three components that constitute the sampling design for the anticipated 2006 Nez Perce spring and summer Chinook seasons.

1. Sampling Area

Sampling Strategies

The sampling design is customized to tributary listing status and attempts to fit the spatial and temporal characteristics of the drainages and tribal fishing activities to the extent practicable. The Nez Perce Tribe authorizes spring and summer Chinook treaty seasons that are considered “opened until closed,” and typically do not implement those seasons with timing closures (i.e., daylight fishing only or weekends only). The HMP accounts for this in the sampling methodologies as described in section 2 below.

Table 2. Annual Snake River Basin Spring and Summer Chinook sampling timeframe.

Management Week	Date	Salmon River Subbasin	Mainstem Snake River	Clearwater River Subbasin	Tucannon River Subbasin	Imnaha River Subbasin	Grande Ronde River Subbasin
1	Apr 10 - Apr 16	x	x				
2	Apr 17 - Apr 23	x	x				
3	Apr 24 - Apr 30	x	x	x			
4	May 1 - May 7	x	x	x			
5	May 8 - May 14	x	x	x			
6	May 15 - May 21	x	x	x			
7	May 22 - May 28	x	x	x			x
8	May 29 - Jun 4	x	x	x	x	x	x
9	Jun 5 - Jun 11	x	x	x	x	x	x
10	Jun 12 - Jun 18	x	x	x	x	x	x
11	Jun 19 - Jun 25	x	x	x	x	x	x
12	Jun 26 - Jul 2	x	x	x	x	x	x
13	Jul 3 - Jul 9	x	x	x	x	x	x
14	Jul 10 - Jul 16	x	x	x	x	x	x
15	Jul 17 - Jul 23	x	x	x	x	x	x
16	Jul 24 - Jul 30	x	x	x	x	x	x
17	Jul 31 - Aug 6		x	x	x	x	
18	Aug 7 - Aug 13		x	x			
19	Aug 14 - Aug 20						

For tribal harvest monitoring purposes the HMP anticipates the following sampling strategies will be implemented to cover the 2006 treaty salmon fisheries.

Clearwater River Subbasin

North Fork Clearwater/ Clear Creek Fisheries

Depending upon actual level of adult run size and broodstock attainment, this system may be sampled by an on-site monitor for two week days and one weekend day for the North Fork Clearwater River. If run size is sufficient for a Clear Creek fishery, an on-site monitor will sample 2 week days and 1 weekend day. The samplers will collect information each management week according to the creel survey method to determine the overall treaty catch. The tributary harvest estimate will be conducted so that harvest guidelines and constraints can be determined and appropriate steps to modify or close the fishery can be taken when necessary.

Other Clearwater River Subbasin Fisheries

If staff level permits, a roving monitor will be included to collect harvest information for other Clearwater River tributary fisheries. The collection of harvest data for hatchery and wild/natural spring Chinook (dependent upon existence and type of mark) is developed to determine the overall treaty catch. The harvest estimates will be produced on a weekly to bi-weekly schedule. Inseason interview survey method will be used to determine if tribal harvest guidelines and constraints have been reached for South Fork Clearwater River system, Lochsa River, and Selway River fisheries and when appropriate steps to modify or close a specific fishery will be authorized.

Salmon River Subbasin

Rapid River Fishery

The proposed sampling strategy includes 2 monitors to work 8 days on/6 days off for the duration of the fishing season. The samplers will collect information each fishing day according to the creel survey method to determine the overall treaty catch. Sampling effort will focus on catch composition (hatchery versus wild/natural fish) and whether or not it is a listed fish (dependent upon existence and type of mark) for the Rapid River fishery. The harvest estimate will be conducted so that harvest guidelines and constraints can be determined and appropriate steps to modify or close the fishery can be taken when necessary. The inseason harvest information will be evaluated on a weekly to bi-weekly basis so that the wild impact level is not exceeded.

South Fork Salmon River Fishery

The proposed sampling strategy includes 2 monitors to work 8 days on/6 days off for the duration of the fishing season. The collection of harvest data for hatchery and wild/natural summer chinook is developed to determine the overall treaty catch. Inseason monitoring of the catch composition (hatchery versus wild/natural fish) and whether or not it is a listed fish (dependent upon existence and type of mark) for South Fork Salmon River fishery will be conducted so that harvest guidelines and constraints can be determined and appropriate steps to modify or close the fishery can be taken when necessary. The inseason harvest information will be evaluated on a weekly to bi-weekly basis so that the wild/natural impact level is not exceeded.

Other Salmon River Subbasin Fisheries

Depending upon actual level of adult run size and broodstock attainment in other Salmon River Subbasin tributaries, sampling may occur using the inseason interview approach by samplers assigned to monitor Rapid River and South Fork Salmon River. The collection of harvest data for hatchery and wild/natural summer chinook is developed to determine the overall treaty catch. Inseason monitoring of the catch composition (hatchery versus wild/natural fish) and whether or not it is a listed fish (dependent upon existence and type of mark) for Johnson Creek, Sawtooth, and Pahsimeroi fisheries will be conducted so that harvest guidelines and constraints can be

determined and appropriate steps to modify or close the fishery can be taken when necessary. The inseason harvest information will be evaluated on a weekly to bi-weekly basis so that the wild/natural impact level is not exceeded.

Imnaha River Subbasin

Imnaha River Fishery

The proposed sampling strategy for the Imnaha River includes 2 monitors to work 8 days on/6 days off for the duration of the fishing season. The collection of harvest data for hatchery and wild/natural spring Chinook (dependent upon existence and type of mark) is developed to determine the overall treaty catch. Inseason interview survey method will be used to determine if tribal harvest guidelines and constraints have been reached for the Imnaha River and when appropriate steps to modify or close the fishery are to be authorized. The inseason harvest information will be evaluated on a weekly to bi-weekly basis so that the overall impact level on listed fish is not exceeded.

Grande Ronde River Subbasin

Grande Ronde River Fishery

The proposed sampling strategy for the Grande Ronde River system includes 2 monitors to work 8 days on/6 days off for the duration of the fishing season at the Lostine River. The collection of harvest data for hatchery and wild/natural spring Chinook (dependent upon existence and type of mark) is developed to determine the overall treaty catch. Inseason interview survey method will be used to determine if tribal harvest guidelines and constraints have been reached for the Lostine River and when appropriate steps to modify or close the fishery are to be authorized. The inseason harvest information will be evaluated on a weekly to bi-weekly basis so that the overall impact level on listed fish is not exceeded.

Other Grande Ronde River Subbasin Fisheries

Depending upon actual level of adult run size and broodstock attainment in other Grande Ronde River Subbasin tributaries, sampling may occur using the inseason interview survey method by samplers assigned to monitor Lostine River. The collection of harvest data for hatchery and wild/natural summer chinook is developed to determine the overall treaty catch. Inseason monitoring of the catch composition (hatchery versus wild/natural fish) and whether or not it is a listed fish (dependent upon existence and type of mark) for the Catherine Creek, Upper Grande Ronde River, and Lookingglass Creek fisheries, will be conducted so that harvest guidelines and constraints can be determined and appropriate steps to modify or close the fishery can be taken when necessary. The inseason harvest information will be evaluated on a weekly to bi-weekly basis so that the wild/natural impact level is not exceeded.

Tucannon River Subbasin

Tucannon River Fishery

Depending upon actual level of adult run size and broodstock attainment, this system may be sampled by an on-site monitor operating on a shift of 8 days on/6 days off for the duration of the fishing season. The collection of harvest data for hatchery and wild/natural spring Chinook (dependent upon existence and type of mark) is developed to determine the overall treaty catch. Inseason interview survey method will be used to determine if tribal harvest guidelines and constraints have been reached for the Tucannon River and when appropriate steps to modify or close the fishery are to be authorized. The inseason harvest information will be evaluated on a weekly to bi-weekly basis so that the overall impact level on listed fish is not exceeded.

2. Methods of Harvest Estimation and Statistical Analysis

The monitoring surveys were developed as a simple random design by stratification of week day versus weekend fishing time preference or by constant weekly survey times (for certain tributaries the monitors will sample each day of the work week). The Nez Perce treaty fisheries are open from the arrival of the fish to the time that seasons are closed due to reaching the tribal harvest allocation quota, reaching a specific take limit, or that the time of spawning nears, whichever comes first. Information to be collected in the proposed fisheries will include the following: 1) number of fishers, 2) time period engaged in fishing activity, 3) fisher catch per hour (FCPH) for fisher monitoring or harvest per unit effort (HPUE) for fisher interviews, 4) species, 5) number of hatchery or wild/natural chinook released, and 6) number of hatchery or wild/natural chinook harvested.

Creel Survey

Statistical analysis of creel catch data and the calculation of harvest expansions for each tributary and strata will give a measure of variance, which could then be used to calculate the level of uncertainty for each catch estimate. Calculating the standard deviation and 95% confidence interval for each tributary and strata will produce upper and lower values to weekly catch harvest estimate. Data will be collected for by direct observation on specific days selected randomly or systematically from a seven-day timeframe (Monday-Sunday). Typically, this seven-day timeframe is open continuously with no time closure restriction in effect. For those tributaries identified for this method, sampling data will be collated and entered into a spreadsheet by hour increments contained in a 24 hour (h) sampling period that represents the 24 hour fishing period. The monitors will survey an 8-h segment from a 24-h fishing period. Generally, the HMP will assign sampling shifts based upon an Excel-derived scheduling format which identifies sampling time strata (days and hours).

However, the Rapid River will use a systematic sampling strategy where the available sampling time will be equally divided into strata and selected uniformly each management week. An 8-h segment of time will be selected systematically from three time periods (See Table 3). The time periods have expected sampling day coverage time as follows:

Table 3. Daily sampling segments.

Time Period	Expected Sampling %
1:00 am – 9:00 am	33%
9:00 am – 5:00 pm	33%
5:00 pm – 1:00 am	33%

There are a total of 21 8-h segments (6 weekend and 15 week time segments) in a standard sampling week. The actual sampling rates (# of 8-h segments/21 8-h segments) for each tributary that will use the creel survey sampling method may vary depending upon whether the random or systematic selection approach is employed. The final creel survey sampling schedule will be determined based upon the available number of samplers and expected chinook salmon returns.

This revised sampling strategy still seeks to define what times of the fishing season (categorized into week and weekend strata) there is high and low fishing intensity.

From the sampling data, an expansion will be calculated by the following equation (Rishi Sharma, personal communication, February 21, 2006):

$$\hat{C}_{S,t} = (\bar{N}) \times \left[\frac{\sum_{i=1}^x \frac{C_{i,a}}{n_{obs}}}{x} \right] [H_T - H_{ob}] + \frac{\sum_{i=1}^n C_{i,a}}{sf}$$

Or

$$\hat{C}_{S,t} = [(\bar{N}) \times FCPH \times [H_T - H_{ob}]] + \frac{\sum_{i=1}^n C_{i,a}}{sf}$$

Where

\hat{C} is the catch in area/strata (S) over time (t),

\bar{N} (bar) = estimate of the number of fishers in area (s), and time (t) for any given hour (representative of the instantaneous fishing effort of any given hour from interview),

C = the catch observed in area a (a subset of area S) and time i (for the observed number of fishers, n) over the number of i 's (x) sampled (average catch per hour),

$FCPH$ = the average observed fisher catch per hour which is ,

H_T = Total number of hours the fishers are fishing, and

H_{Ob} = Observed sample hours when the fishery is taking place

Sf=sampling fraction on observed fisherman over total fisherman $sf = \frac{n_{ob}}{N_{Tot}}$ where N_{ob} is equal to the number of fishers observed and N_{Tot} is the total number of fishers fishing in that strata (N_{Tot} generated from interview).

The variance of the catch estimate is:

$$Var(\hat{C}_{s,t}) = Var(FCPH) \times \left[\frac{H_T}{H_{ob}} \right]^2 \times [\bar{N}]^2 + Var(C_a) \left[\frac{1}{sf} \right]^2$$

Where H_T is the total hours in the stratum that the fishery is open and H_{ob} is the sampled time period of this stratum (note this ratio is equivalent to the sampling fraction in standard sample theory).

A second estimate will also be generated based on the total catch reported at the site for the strata based on interviews. We call this second estimate $CI_{i,s,t}$ or interview based catch.

Thus an estimate of overall catch can now also be generated based on the equation below:

$$\hat{C}_{s,t} = \frac{\sum_{i=1}^n CI_{i,s,t}}{s_f F_f}$$

Where s_f = the proportion of the time sampled to expand the estimate based on the observations, $CI_{i,s,t}$ is the interview based catch reported (per individual) that is summed over all fishers in a certain area (s) and time stratum (t) and F_f is equal to the fishers interviewed overall fishers for the strata being sampled² $F_f = \frac{n_{Int}}{N_{Tot}}$ where N_{Int} is equal to the number of fishers interviewed and N_{Tot} is the total number of fishers fishing in that strata.

Variance on this estimate will be generated based on:

$$Var(\hat{C}_{s,t}) = Var(CI) \times \left(\frac{1}{s_f} \right)^2 \left(\frac{1}{F_f} \right)^2$$

The variance of $C_{i,s,t}$ is basically a function of the variability in individual fishers catching ability for that strata, and can be generated by the following:

² Objective is to get N_{Int} to equal N_{Tot} , or equal to 1.

$$Var(CI) = \frac{\sum_{i=1}^n CI_{i,s,t} - \bar{CI}}{n-1}$$

The task is to estimate confidence intervals (CI), precision (indicator of data quality), and variance (indicator of monitoring effort) in catch for the SRB tributary fisheries that use data produced from the creel survey collection method.

- a. Weekly catch expansions.

Analysis Method

Comparison of the CI, precision, and variance values for weekly expansions are used to determine where majority of variability in the monitoring of catch occurs for this method. The following statistical measures for each respective fishery that uses the creel survey method will be calculated:

- b. The sample mean is sum of the catch observed in a specific area and time (for the observed number of fishers) over the number of fishers sampled (average catch per hour) for the number of hours the fishery is opened.
- c. The estimate of standard error (SE) of the sample mean is used to measure the level of precision for an estimate (assuming normality of the catch data). Our attempt is to produce a SE value that is equal to or less than 20% of the estimate, to ensure that the 95% confidence intervals surrounding the estimate is kept within a statistically desirable range.
- d. The range, sample variance (s^2), and sample standard deviation (SD), are measures of dispersion of data that describe sampling variation. These statistical procedures characterize the spread of sample measurements about the sample mean (used to express central tendency). The variability of the sample mean is denoted by $Var(\hat{C})$ in the equation (no variance associated with the estimate of the number of fishers in specified area and time, the number of hours the fishery is open, and the proportion of the fishers sampled).

Inseason Interview Survey

This survey method will collect data by direct observation and through interviews for fisheries that require extensive travel and time to cover or for tributary fisheries that will not be assigned a sampler because of insufficient amount of funding (see Table 1 above). For tributaries identified for this method, data will be collected on-site on a daily basis for the duration of the fishery season and monitoring schedule (8 days on/6 days off). Tributaries not assigned an on-site sampler will rely on samplers operating within the same subbasin to interview fishers for catch data.

The monitors will survey an 8-h segment for each sampling week, to survey each 24-h fishing period. The sampling period is designed to directly observe the numbers of fishers in the area, and to interview the individual fishers for times in the fishing period that observed or interviewed fish data was not collected. This is to off-set the potential for not directly observing specific fishers between sampling periods and to collect harvest data that might have accrued during the time sampling was not conducted.

From the interview data, the calculation of HPUE will be based on the total-ratio estimator as described by the following steps:

Total-ratio estimator: $HPUE=h/e$,

$$\hat{R}_2 = \frac{\sum_{i=1}^n h_i}{\sum_{i=1}^n e_i}$$

$$\sum_{i=1}^n h_i = \text{sum fish harvested per fisher } (h_i) \text{ over all fishers interviewed } (n).$$

$$\sum_{i=1}^n e_i = \text{sum hours fished per fisher } (e_i) \text{ over all fishers interviewed } (n).$$

Catch is generated for the unsampled fishers using the equation below:

$$\hat{C}_{s,t} = \hat{R}_2 \times H_f \times \hat{N}_{s,t}$$

Where \hat{C} is the catch in area (S) over time (t),

R = the catch efficiency per fisher hour

H = the number of hours fishery was open in area S

N = the number of unsampled fishers in area (S) at time (t)

Variance for the catch is dependent on the variance of R_2 . So, if R_2 has mean (μ) and variance (σ^2) then,

$$Var(\hat{C}_{s,t}) = \sigma^2 \times H_f^2 \times N_{s,f}^2$$

μ = population mean

σ = variance of the population

The task is to estimate confidence intervals (CI), precision (indicator of data quality), and variance (indicator of monitoring effort) in catch for the SRB tributary fisheries that use data produced from the inseason interview collection method. The purpose is to determine the following fishery characteristic:

- e. Weekly catch expansions.

Analysis Method

Comparison of the CI, precision, and variance values for weekly expansions are used to determine where majority of variability in the monitoring of catch occurs for this method. The following statistical measures will be calculated for the harvest estimates produced from the inseason interview method:

- f. The sample mean is sum of the catch efficiency rate observed in a specific area and time (for the observed number of fishers) multiplied by the number of unsampled fishers for the number hours the fishery is opened.
- g. The estimate of standard error (SE) of the sample mean is used to measure the level of precision for an estimate (assuming normality of the catch data). Our attempt is to produce a SE value that is equal to or less than 20% of the estimate, to ensure that the 95% confidence intervals surrounding the estimate is kept within a statistically desirable range.
- h. The range, sample variance (s^2), and sample standard deviation (SD), are measures of dispersion of data that describe sampling variation. These statistical procedures characterize the spread of sample measurements about the sample mean (used to express central tendency). The variability of the sample mean is denoted by $Var(\hat{C}_{s,t})$ in the equation (variance for the catch is dependent on the variance of R multiplied by the number of hours the fishery is open and the number of unsampled fishers).

An assumption is that the majority of fishers will be contacted and a ratio estimate of total harvest over the duration of the fishing season can be produced. The differences in daily fishing effort acts as a self-weighting factor for harvest estimates produced by this method. The harvest information contributed by individual fisher that is used in the total-ratio estimator are weighted by the amount of fishing effort expended, and therefore is the appropriate estimator to use for calculation of total harvest when completed trip data is used.

Post-Season Interview Survey

If necessary the Harvest Division will institute a post-season interview survey method to derive a harvest estimate for areas where inseason interviews for certain fishing locations were not conducted or had incomplete harvest information. The post-season interview method will utilize fishing profiles (low, medium, and high) to estimate the level of harvest for a particular tributary.

The fishing profiles will be developed using existing harvest data for that particular tributary (when incomplete information exists) or catch information that has been collected at other Snake River Basin tributary fisheries that the Harvest Division anticipates to have similar fishing characteristics (numbers of fishers, fishing effort, and fish escapement).

The harvest monitors will routinely conduct interviews with the tribal fishers and submit the data collection sheets for tabulation in the spreadsheet on a weekly basis. This can be facilitated through direct contact with tribal fishers by harvest monitors assigned to a specific tributary for inseason interview duties. The interview survey data will be documented on a weekly basis to avoid counting the same fish over in subsequent interviews with tribal fishers.

From the sampling data an expansion will be calculated by the following equation (Rishi Sharma, personal communication, March 24, 2004):

$$\hat{C}_s = \frac{\sum C_{i,s}}{n} \times \hat{N}_s$$

or ,

$$\hat{C}_s = CPH \times \hat{N}_s$$

Where \hat{C} is the estimate of catch in area (S),

n = the number of fishers sampled by profile- high, medium, and low fishing profile,

C = the catch observed from fisher i sampled by fishing profile,

CPH = the average observed catch per fisher, and

N_s = estimate of the number of fishers by strata (s) – high, medium, and low fishing profile.

Mean catch per hour (CPH) expanded by fisher effort data (number of fishers in area sampled by high, medium, and low fishing profiles) will be used to derive weekday and weekend estimated catch. The expansion will produce a harvest estimate for that specific fishing location and season duration. The results generated from monitoring are to be used to evaluate the statistical effectiveness of the sampling design.

If $CPH \sim Normal(\mu(1), \sigma(1)^2)$, and there is no variance associated with N , then the variance of the catch estimate is:

$$Var(\hat{C}_s) = Var(CPH) \times \left[\frac{1}{\left(\frac{n}{\hat{N}_s} \right)} \right]^2 ,$$

$$\sqrt{\text{Var}(\hat{C}_s)} = \text{S.E.}(\hat{C}_s) \quad , \text{ and}$$

$$95\% \text{ Confidence Interval} = \hat{C}_s \pm 1.96 (\text{S.E.}(\hat{C}_s)).$$

Analysis Method

Comparison of the CI, precision, and variance values for weekly expansions are used to determine where majority of variability in the monitoring of catch occurs for this method. The following statistical measures will be calculated for the harvest estimates produced from the inseason interview method:

- i. The sample mean is sum of the catch efficiency rate observed in a specific area and time (for the observed number of fishers) multiplied by the number of unsampled fishers for the number hours the fishery is opened.
- j. The estimate of standard error (SE) of the sample mean is used to measure the level of precision for an estimate (assuming normality of the catch data). Our attempt is to produce a SE value that is equal to or less than 20% of the estimate, to ensure that the 95% confidence intervals surrounding the estimate is kept within a statistically desirable range.
- k. The range, sample variance (s^2), and sample standard deviation (SD), are measures of dispersion of data that describe sampling variation. These statistical procedures characterize the spread of sample measurements about the sample mean (used to express central tendency). The variability of the sample mean is denoted by $\text{Var}(\hat{C}_s)$ in the equation.

An assumption is that the majority of fishers will be contacted and that the mean catch per fisher hour (CPH) value can be determined for the low, medium, and high fishing profiles. The differences in weekly fishing effort acts as a self-weighting factor for harvest estimates produced by this method. The harvest information contributed by individual fisher that is used in this harvest estimator are weighted by the amount of fishing effort expended, and therefore is the appropriate estimator to use for calculation of total harvest when collecting harvest information for specific tributaries where creel survey or inseason interview surveys were not conducted, or conducted to the limited extent.

Sampling Objective

The management objective of the sampling design is to estimate tribal catch or harvest with a coefficient of variation value of 0.3 for 95% of the sampling time. This CV value assures that we are adequately sampling the fishery. Certain critical ESA stocks of spring and summer chinook in the SRB may require higher sampling effort to obtain this value. The harvest of these critical stocks will be determined using the inseason interview as facilitated by on-site harvest monitors (as described above). The overall goal is to create a complementary harvest monitoring system that increases the precision and accuracy of annual tribal catch or harvest estimates and to

allow the evaluation of sampling plan effectiveness.

3. Reporting

The NPT recognizes that significant interaction and cooperation with other tribal, state, and federal fish managers will need to occur in order fulfill co-management obligations for harvest management.

Inseason checks will be used to evaluate the number of spring and summer chinook returns over the Lower Granite Dam to each tributary of monitoring focus. As the actual numbers of spring and summer chinook increase or decrease from preseason projections, Nez Perce Tribe may increase or decrease harvest goals accordingly. This inseason monitoring is facilitated through the collection and sharing of fishery information by the respective fishery managers, which includes the following; fish returning and collected at hatchery facilities, harvest updates, and through updated run predictions based on the PIT tag detections at Lower Granite dam. Additionally, the NPT may modify this sampling plan inseason if chinook salmon runize projections to the SRB indicate that the spring and summer Chinook salmon distribution and abundance will differ significantly than anticipated. Modifications will be in the form of re-directing seasonal staff to areas of anticipated higher fish returns and fishing intensity, and not of utilizing different harvest estimation methods.

The Nez Perce Tribe Harvest Division will provide to the co-managers weekly harvest updates for the treaty fisheries covered under this sampling plan. A final report for the 2006 Nez Perce Tribe spring and summer chinook season will be provided to the co-managers.

REFERENCES

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APPENDIX B

Biological Assessment of Impacts of the Proposed Nez Perce 2006 Fisheries in the Snake River Basin

**Biological Assessment of Impacts of the Proposed
Nez Perce 2006 Fisheries in the Snake River Basin**

*Bureau of Indian Affairs
-Northern Idaho Agency-*

June 16, 2006

Biological Assessment of Impacts of the Proposed Nez Perce 2006 Fisheries in the Snake River Basin

Introduction

The National Marine Fisheries Service (NMFS) listed Snake River sockeye as an endangered species in December 1991, listed Snake River wild spring/summer chinook and Snake River wild fall chinook as threatened species in May 1992, and listed Snake River wild steelhead as threatened species on August 18, 1997. The natural population of Snake River spring/summer chinook, as listed under the Endangered Species Act (ESA), occurs in the mainstem Snake River and in the Tucannon, Grande Ronde, Imnaha, and Salmon river subbasins. Clearwater Basin spring/summer chinook stocks are excepted from the listing because the original population was extirpated early in the century due to construction of Lewiston Dam and current natural populations are the result of hatchery reintroduction from outside stocks. The natural population of Snake River fall chinook, as listed under the ESA, occurs in the mainstem Snake River and in the Tucannon, Palouse, Grande Ronde, Imnaha, Salmon, and Clearwater river subbasins. Snake River steelhead were listed throughout the Snake River Basin.

This biological assessment provides a description and evaluation of the fisheries proposed by the Nez Perce Tribe on Snake River Basin Spring/Summer Chinook salmon listed under the ESA. The Northern Idaho Agency- Bureau of Indian Affairs (BIA) is initiating the consultation process on listed species under the Endangered Species Act for proposed Nez Perce treaty fisheries in the Snake River Basin. Therefore, this Biological Assessment addresses proposed 2006 Snake River Basin fisheries not covered in previous documents. For 2006 mainstem Columbia River fisheries, a multi-year interim Management Agreement has been established which dictates harvest rates for non-Indian and treaty Indian fisheries for 2005 through 2007, based on aggregate run sizes, with specific triggers for listed Snake River and Upper Columbia River spring chinook. This proposal for the Nez Perce Tribe's 2006 Snake River Basin fisheries will be managed in accordance with the interim agreement.

The BIA makes no judgement as to the merit of any of the fisheries (i.e. location, harvest levels, etc.). However, the Bureau of Indian Affairs acknowledges NOAA Fisheries policy of conducting conservation necessity standards for tribal treaty fisheries that may conflict with the ESA. Policy issues involving these proposed fisheries can be addressed in appropriate *U.S. v. Oregon* fora. The following federal-tribal relationships provide a basis for ESA Section 7 consultation on tribal fisheries:

- the United States' Treaty of 1855 in which the United States guaranteed the tribe's fishing rights,
- the BIA's role as trustee of a property right, which is the treaty fishing right reserved in the treaty with the United States, and
- the presence of the United States as plaintiff in the *U.S. v. Oregon* in an action to enforce the treaty fishing right.
-

The Nez Perce Tribe requests that the BIA forward this Biological Assessment to the National Marine Fisheries Service which has statutory authority to review biological assessments and render a biological opinion for all anadromous fish species listed under the ESA.

In previous years, to facilitate the consultation processes of federal actions on listed species, the NMFS requested that the *U.S. v. Oregon* Technical Advisory Committee (TAC) of the Columbia River Fish Management Plan (CRFMP) (Parties to *U.S. v. Oregon* 1987) develop the technical information (e.g., harvest proposals, run size estimates, stock composition, etc.) to complete a Biological Assessment of the fishery impacts of proposed fisheries in the Snake River Basin. TAC will continue to develop the harvest tables as facilitated in previous biological assessments, and it will be the responsibilities of the parties to develop and submit separate biological assessments/tribal management plans for their respective fisheries.

For this document, a wild fish is considered to be a fish which was hatched in the wild and not destined to return to a hatchery. Wild fish do not include hatchery strays, hatchery fish with partial clips (e.g., Rapid River), or hatchery fish released off-station. For this document, "listed species" refers to Snake River sockeye, Snake River wild spring/summer and fall chinook, and Snake River wild steelhead as described by geographic location above. In addition, some hatchery produced spring/summer chinook are also considered listed species. The management (marking) strategies for listed fish produced in a hatchery vary between the states.

Hatchery programs for listed chinook in Idaho (McCall, Pahsimeroi and Sawtooth fish hatcheries) have operated to maintain two groups of hatchery-origin fish which are differentially marked to be visually distinguishable and identify their listing status. The marks are also used to allow fisheries on hatchery produced fish. Fish resulting from crosses of known hatchery-origin parents only (Idaho's "marked reserve" group) are unlisted and are adipose clipped, while fish resulting from crosses of hatchery-origin and natural-origin parents (Idaho's "supplementation" group) are listed and are not adipose clipped. The supplementation group includes fish resulting from crossing of two listed fish or one listed and one unlisted fish. Although they are not adipose clipped, they do have other marks (e.g. coded wire tag only or ventral fin clips), that identify them as being produced in a hatchery.

The programs producing listed chinook in Washington (Tucannon) and Oregon (Imnaha and Grande Ronde) utilize a different management strategy. These programs attempt to insure a maximization of spawners from wild origin, but fish from hatchery by hatchery crosses are not marked to be visually differentiated from fish of hatchery by wild or wild by wild crosses. Rather, fish are simply identified as being of hatchery origin by the presence of an adipose clip. In the Grande Ronde (with the exception of Rapid River stock released at Lookingglass Hatchery) and Imnaha, hatchery fish are also listed fish. The Tucannon hatchery programs produce listed chinook in southeast Washington. The WDFW discontinued marking hatchery-produced fish with an adipose fin clip. Starting with the 2000 Brood Year, the supplementation fish are identified as being of hatchery origin by the presence of a CWT and a red visible implant (VI) elastomer tag behind the right eye.

The following section describes reservation lands, our ceded area, and usual and accustomed places, that the Tribe is intent on having Ceremonial and Subsistence (C&S) and commercial

fisheries, consistent with this management framework and pursuant to our jurisdictional authority under the Treaty of 1855. The aforementioned fisheries in this assessment fall under one of these jurisdictional area delineations. Additionally, the Tribe has considerable interest in expanding tribal fisheries to usual and accustomed fishing areas not previously fished because of diminished returns. Due to listing status of spring and summer chinook salmon in the Imnaha River, Grande Ronde River, and Tucannon River subbasins, the Tribe may develop fishery proposals under the ESA Tribal 4(d) Rules for tributaries that have 'direct take' implications. Policy issues involving these proposed fisheries can be addressed in appropriate *U.S. v. Oregon* fora. The Nez Perce Tribe's proposal for the 2005 Snake River Basin fisheries, as contained in this biological assessment, are very similar to those submitted in previous years.

U.S. v. Oregon Harvest Management Framework

Within the 761,000 acre Nez Perce Reservation, the Tribe has exclusive jurisdiction to regulate its own tribal members and any other Indian authorized to fish by tribal authority. As a general rule, state jurisdiction within Indian Country is preempted both by federal protection of tribal self-government and by federal treaties and statutes on other subjects relating to Indians, tribes, their property and federal programs.

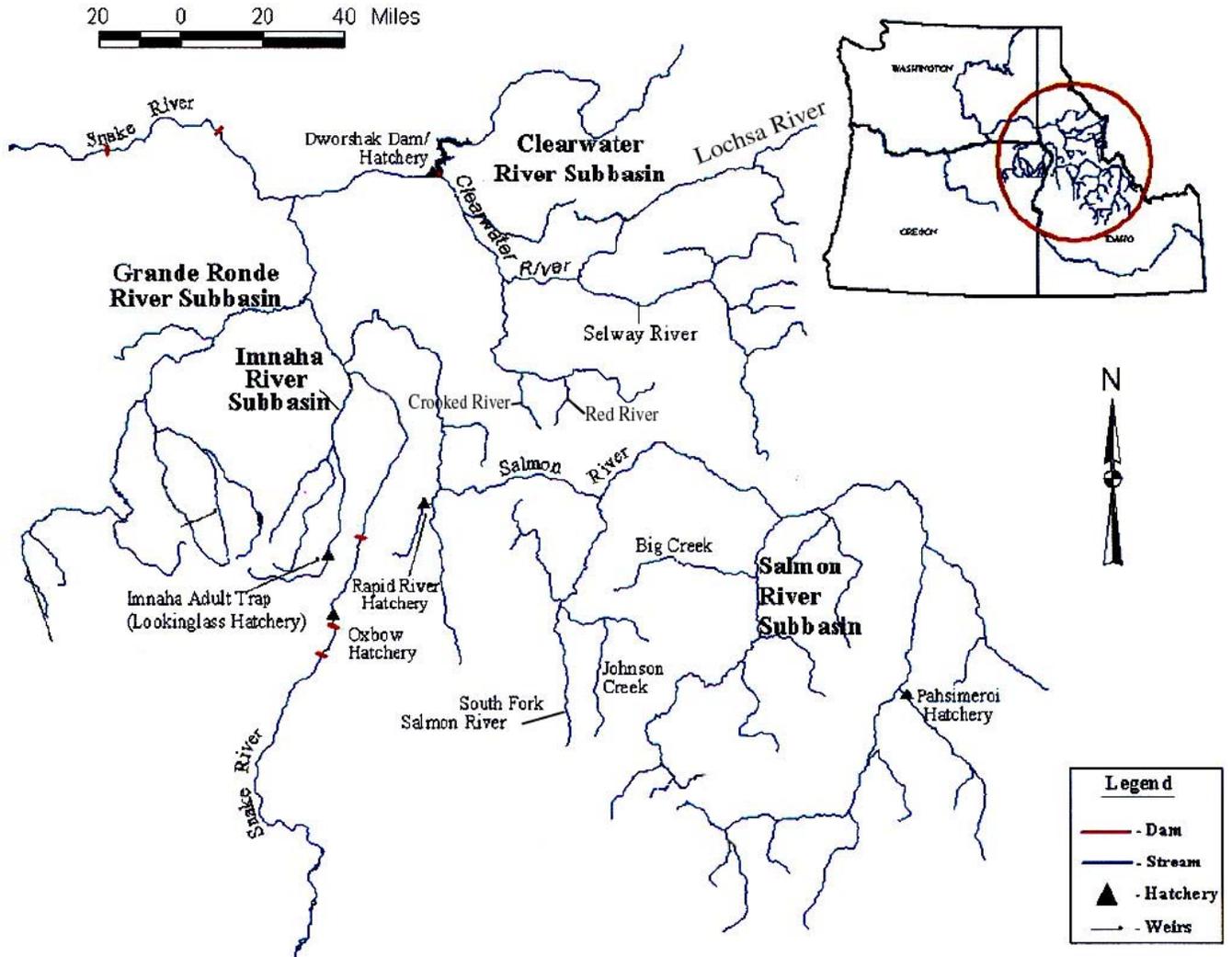
The Nez Perce Tribe has what might be deemed near exclusive jurisdiction to regulate tribal members exercising treaty reserved fishing rights at all off reservation, usual and accustomed locations in the Snake River Basin. The Nez Perce Tribe has usual and accustomed fishing locations not only within that portion of the 13,204,000 acres (Figure 1) that have been found to be exclusively used and occupied by the Tribe including the major portions of the Snake, Salmon and Clearwater Rivers and their drainages situated in three states-Washington, Oregon, and Idaho, but there are many Nez Perce usual and accustomed fishing sites located beyond that aboriginal territory as well. The best example of that is represented by the rights the Nez Perce Tribe to fish pursuant to treaty rights at usual and accustomed fishing areas in the lower Columbia River as determined by the *U.S. v. Oregon* litigation.

Salmon and other migratory fish species are an invaluable food resource and an integral part of the Nez Perce Tribe's culture. Anadromous fish have always made up the bulk of the Nez Perce tribal diet and this dependence on salmon was recognized in the treaties made with the Tribe and the United States. In 1855, representatives of the United States government negotiated a treaty with the Nez Perce in which the Tribe expressly reserved:

The exclusive right of taking fish in all the streams where running through or bordering said reservation is further secured to said Indians; as also the right of taking fish at all usual and accustomed places in common with citizens of the Territory; and of erecting temporary buildings for curing, together with the privileges of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land (12 Stats., 957-Article 3). Treaty of 1855.

Figure 1. Historical use area of the Nez Perce Tribe that covers the portions of, southeast Washington, northeast Oregon, and north central Idaho.

Thus, the legal, historic, economic, social, cultural, and religious significance of the fish to the Nez Perce Tribe continues to this day, which makes the decline of fish populations in the Snake River Basin a substantial detrimental impact to the Nez Perce way of life. These treaty fishing rights were reserved in the Treaty of 1855, they were not granted. A “reasonable and necessary” conservation principle must be applied when agencies consider actions that result in restrictions on the use or development of tribal fish resource, the exercise of tribal fishing rights or the



conservation burden placed on Nez Perce fishers. Consistent with court rulings regarding the exercise of treaty fishing rights, restrictions on tribal fisheries are applied only when:

- a. they are reasonable and necessary for species preservation,
- b. they are the least restrictive available to achieve the required conservation purpose,
- c. they do not discriminate against Indian activities, either on their face or as applied,
- d. their purpose cannot be achieved solely through the regulation of non-Indian activity, and,
- e. voluntary tribal conservation measures are not adequate to achieve the conservation purpose.

In addition, a district court opinion in Idaho has established that the state must cooperate with the tribe in determining appropriate fish management programs and must afford the tribe reasonable, meaningful, and adequate opportunity to participate in the regulation making process.

To be consistent with the Treaty of 1855 and *U.S. v. Oregon* case law principles, the federal government must consider treaty Indian fisheries before all other non-Indian sources of mortality have been approved in a biological opinion. For the purpose of considering tribal fisheries in the context of biological opinion and conservation principles, the salmon life cycle should be viewed as beginning with the tribal fishery.

Comparison of Nez Perce treaty fishery harvest against all other non-Indian mortalities across the various mortality sectors (the total non-Indian harvest) produces a different view than the present evaluation of fishery harvest alone. The tribe's harvest levels are substantially lower in comparison to the combined impacts in the non-Indian hydrosystem, habitat, hatchery, and ocean harvest mortality sectors. The purpose of this biological assessment is not to provide the calculation of allocation across the various mortality sectors. However, the federal government must provide such an analysis before attempting to impose a conservation restriction (if a "jeopardy" conclusion is determined) in order to be consistent with the *U.S. v. Oregon* case law and the Secretarial Order.

The BIA requests that NOAA Fisheries evaluate the State of Idaho 2006 Snake Basin recreational fisheries (Permit #1481) consistent with court rulings regarding the exercise of treaty fishing rights and the application of conservation measures. Additionally, if the federal government is to issue a "jeopardy" conclusion for any Snake River Basin fisheries that the Nez Perce Tribe has authorized seasons, the BIA first requests NOAA Fisheries to apply the conservation principles as outlined above (Principles b through e) to the combined fisheries that are expected to occur of which the implementation of will impose incidental impacts to listed fish to those tributaries.

The now expired CRFMP directed the affected Parties to develop tributary harvest and production plans for each of the subbasins. Where harvest opportunities are expected, the states and tribes will negotiate a sharing of the harvest.

Description of Tribal Fisheries

Tribal ceremonial and subsistence (C&S) fisheries occur at various locations throughout the Snake River Basin. Nez Perce tribal commercial fisheries in the Snake River Basin has occurred in years 2001 through 2005, but is not considered for the expected 2006 spring and summer chinook returns. In recent years, the Nez Perce Tribe has voluntarily reduced ceremonial and subsistence fisheries to target hatchery stocks near hatcheries, although the Tribe continues to preserve the right to harvest in wild production areas. These voluntary restrictions (Principle e above) have been made in good faith and for the projected returns for this year, the Nez Perce Tribe does not agree to further restrictions on treaty usual and accustomed fisheries take levels, until significant action is taken on state recreational fisheries first or NOAA Fisheries

commitment to additional rebuilding measures are taken such that the conservation burden being placed on the Nez Perce Tribe. Proposed harvest for 2006 SRB fisheries may change in-season, based on updated return expectations and consistent with the harvest management guidelines as described in this assessment. Since 1986, tribal chinook fisheries have generally occurred from May through mid-August. No tribal fisheries for fall chinook or sockeye have been authorized in recent years. Although some steelhead C&S fisheries are open year-round in parts of the Snake River Basin, the tribal harvest on steelhead occurs primarily from October through April where steelhead are abundant, and salmon are not. Steelhead harvested in the C&S fisheries are largely of hatchery origin.

During tribal fisheries for spring/summer chinook, a variety of gear types are utilized. In tribal fisheries where unmarked fish are to be released, hook-and-line or dipnets may be the primary gear types utilized to minimize incidental take of listed fish. A 10% handling mortality will be used in this assessment for all non-retention hook-and-line catch. Dipnet release mortality studies for Columbia River salmon fisheries are lacking. It is believed that dipnet handling mortality is less than the 10% assumed for hook-and-line non-retention fisheries. For the purposes of this assessment, a 1% handling mortality will be used for all non-retention dipnet catch (Vincent-Lang 1992). The Nez Perce Tribe propose to use an abundance based harvest management approach in that we will target 50% of the harvestable returns to the Snake River Basin and reserve the right to increase or decrease harvest as returns increase or decrease from predicted values. The Tribe has considerable interest in expanding tribal fisheries to usual and accustomed fishing areas not previously fished because of diminished returns.

2006 Snake River Basin Expected Returns

Expected 2006 returns to the Snake River Basin are displayed in Table 2. These are based on the Idaho Department of Fish and Game (IDFG) modified forecast methods agreed to by TAC. Projected Snake River tributary returns are estimated using independent cohort projections, and distribution of the estimated spring/summer chinook smolt habitat for various subbasins above Lower Granite Dam.

The TAC is continually reviewing the spring/summer chinook run information. However, this biological assessment uses an inseason prediction of 29,811 spring and summer chinook to the Lower Granite Dam.

Geographic Units

The Snake River Basin fisheries, as proposed by the Nez Perce Tribe, have been grouped into six separate geographic management units where ceremonial, subsistence, and commercial fisheries have historically taken place by the Tribe, which include the: 1) Mainstem Snake River; 2) Tucannon River Subbasin; 3) Clearwater River Subbasin; 4) Salmon River Subbasin; 5) Grande Ronde River Subbasin, and 6) Imnaha River Subbasin. For purposes of this tribal harvest assessment, only the Mainstem Snake River, Clearwater River Subbasin, and Salmon River Subbasin units are covered under this biological assessment.

Unit 1: Mainstem Snake River

Spring and summer chinook, sockeye, and steelhead migrate through this mainstem unit en route to natal tributary destinations. Fall chinook spawning is known to occur in mainstem dam tailraces (Dauble et al. 1994), in the free flowing mainstem Snake River from the head of the Lower Granite Reservoir up to Hells Canyon Dam, and in the lower portions of larger tributaries. Chinook have been known to spawn in Asotin Creek, which enters the Snake River at RM 145. Asotin Creek is one of the 39 subpopulations described for the Snake River ESU in the Proposed Recovery Plan (NMFS 1995). However, recent discussion between the co-managers indicate that chinook have not spawned in Asotin Creek since 1993, and that the subpopulation is probably now extinct. Adult anadromous salmonid fisheries in Asotin Creek have not occurred in recent years and are not planned for 2005. Asotin Creek is not included in other geographic units as outlined in this assessment.

Spring chinook salmon also return to the base of Hells Canyon Dam. Part of the Idaho Power Company Hells Canyon Complex mitigation hatchery production at Rapid River are released at the base of Hells Canyon Dam. With the listing of several hatchery stocks returning to tributaries in the Snake River, and the progeny of hatchery fish that spawned in the wild that are also considered listed, the Hells Canyon releases are generally not targeted by any fisheries. Consequently, when they are trapped upon return, they are only used as a back-up brood source for the Rapid River program.

Nez Perce C&S Fisheries

For 2006, the Nez Perce Tribe propose to harvest 372 hatchery-origin spring chinook migrating to the Oxbow Hatchery facility in the area of the mainstem SR from the Imnaha River upstream to the base of the Hells Canyon Dam. Dates for the fishery could be set during the end of May or early June with anticipated opening from early June through July; closures will be regulated inseason.

The total predicted return of spring chinook past the area of the mainstem SR, from the Imnaha River upstream to the Hells Canyon Dam, is predicted to be 744 adults, of which the Nez Perce Tribe proposes to target 50% of the harvestable surplus. These fish are all unlisted hatchery fish that are used as back-up brood source for Rapid River. The Rapid River hatchery is expected to achieve its broodstock needs this year based on the estimated hatchery fish expected to return to the facility, and so the Nez Perce Tribe proposes to take 372 spring chinook destined to the Oxbow Hatchery facility.

Summary - Unit 1

The Nez Perce Tribe's proposal is to harvest up to 372 hatchery-origin spring chinook destined to the Oxbow Hatchery facility on the mainstem Snake River.

Permitted gear types include dipnet, gaff, spear, long bow, hoopnet, and hook and line. No listed spring/summer chinook, fall chinook, or steelhead are expected to be harvested during the Tribal C&S fisheries for chinook.

Unit 3: Clearwater River Subbasin

The Clearwater River enters the Snake River just above the Washington/Idaho border at Lewiston (RM 139). The Clearwater River Subbasin is located entirely in Idaho, and supports runs of summer steelhead, spring chinook, and fall chinook. Summer chinook and sockeye are not present in this subbasin. Chinook returned throughout this subbasin until the construction of Lewiston Dam early in this century. In the late 1940's, spring chinook were reintroduced in the Clearwater drainage. Wild production has been reestablished in the Lochsa, Selway, and South Fork Clearwater rivers. The wild spring chinook population in this subbasin is not listed under the ESA. Listed fall chinook currently spawn in the mainstem Clearwater River from the Potlatch Mill site upstream to the lower South Fork Clearwater, in the North Fork Clearwater downstream of Dworshak Dam and recently, in the lower Potlatch River (Bill Arnsberg, Nez Perce Tribe personal communication).

Nez Perce C&S Fisheries

The Nez Perce Tribe propose Ceremonial and Subsistence fisheries for the hatchery and wild/natural origin spring chinook to the Clearwater River Subbasin. The tributaries located within the Clearwater River Subbasin that tribal fisheries are set to occur due to the predicted returns are the mainstem Clearwater River, North Fork Clearwater River, South Fork Clearwater River (primarily the Red River and Crooked River areas), Clear Creek, Lochsa River, and Selway River. The total predicted spring chinook return to the Clearwater River Subbasin is 4,756 fish, which is 146 fish more than the broodstock needs of 4,610 for the subbasin hatchery programs (Dworshak National Fish Hatchery, Kooskia National Fish Hatchery, Clearwater Anadromous Fish Hatchery, and Nez Perce Tribal Hatchery program). The Nez Perce Tribe is proposing a 2006 fishery targeting 73 (50% of the overall harvestable fish) spring chinook destined to return to the Clearwater River Subbasin (see Table 8).

The areas open are as follows:

- ▶ Mainstem Clearwater River/North Fork Clearwater River - the mainstem Clearwater River from its confluence with the Snake River upstream to the confluence with the Lochsa and Selway rivers, and the North Fork Clearwater from its confluence with the mainstem upstream to the dam.
- ▶ Clear Creek - area just below the hatchery ladder and downstream to the mouth of Clear Creek.
- ▶ South Fork Clearwater River - confluence of the South Fork Clearwater River with the Middle Fork Clearwater River upstream to the 60 feet below the weirs located on Red River and Crooked River (tributaries on South Fork Clearwater with primary fishing reaches).
- ▶ Lochsa River - area just below the hatchery trap on Walton Creek, tributary to Lochsa River, downstream to the confluence of Lochsa River with Selway River and the Middle Fork Clearwater River (Three Rivers area).
- ▶ Selway River - mouth of Selway River upstream to the just below the mouth of Meadow Creek.

In addition, the Nez Perce Tribe propose a fishery to harvest 99 of the predicted 989 adult wild/natural spring chinook destined to the Clearwater River system (Table 2). This take would represent 10% of predicted wild/natural returns to the Clearwater River Subbasin. The fishing area is on the mainstem Clearwater River from its confluence with the Snake River upstream to the confluence with the Lochsa River and Selway River (Three Rivers area). The anticipated opening is for the spring chinook fishery for this subbasin will be from late April through early to mid-August; closures will be regulated inseason. All traditional fishing gear is permitted.

Summary - Unit 3

The Nez Perce Tribe's proposal is to harvest 73 (50% of harvestable hatchery fish) spring chinook and 99 wild/natural spring chinook in the Clearwater River Subbasin. Nez Perce tribal fisheries are not expected to cause mortality of any listed species other than the steelhead impacts that will be addressed in the Mainstem Columbia River fall fishery Biological Assessment. Listed sockeye, and spring chinook are not produced in this subbasin and therefore should not be caught in any fishery in the Clearwater River Subbasin.

Unit 4: Salmon River Subbasin

The Salmon River enters the Snake River at RM 188. The Salmon River Subbasin is located entirely in the State of Idaho and is the largest salmon producing subbasin of the Snake River. Steelhead and wild spring/summer chinook are produced throughout the Salmon River Subbasin. Sockeye return to Stanley Basin lakes in the upper reaches of the mainstem Salmon River. Fall chinook are present in this subbasin in at least the lower 10 miles of the mainstem Salmon River.

Nez Perce C&S Fisheries

Rapid River Spring Chinook

The Nez Perce tribal C&S fisheries targeting Circle C Hatchery (commonly known as Rapid River Hatchery) spring chinook have occurred in Rapid River since 1980. Rapid River Hatchery spring chinook return primarily from mid-May until late June. Tribal harvest is by gaff, dipnet, spear, and hook and line.

A small return of wild/natural summer chinook enters Rapid River from late June until early September. The 2006 Nez Perce's fishery in Rapid River for Circle C Hatchery spring chinook, may impact listed wild spring/summer chinook. However, it is uncertain that the targeted harvest number of hatchery chinook will be reached before wild fish enter the system. The Nez Perce spring chinook fishery in Rapid River will not catch sockeye or wild fall chinook.

The estimated return to Rapid River Hatchery is 5,287 fish, which is 2,887 fish more than the broodstock goal of 2,400. The estimated listed chinook return to the Little Salmon River drainage is 21 spring and summer adults according to recent TAC estimates (Table 2). The Nez Perce Tribe propose a 2006 spring chinook fishery in the Little Salmon and Rapid rivers for a

harvest which would take 1,444 hatchery and 4 wild/natural chinook for tribal ceremonial and subsistence uses. This take would represent 26% of predicted hatchery and 20% of wild returns. The fishing area for the Little Salmon River is from the Salmon River Bridge upstream of the Salmon River confluence. The fishing boundaries for Rapid River are from the confluence upstream to 60 feet downstream of the trap entrance. Effort and catch are primarily distributed in Rapid River from the trap entrance to the confluence with the Little Salmon. Dates for the fishery could be set during the April through early June time period with anticipated opening from late April through July; closures will be regulated inseason. Initially, fishing will be open to all traditional gear including gaff, dipnet, hoopnet, spear, long bow and hook and line. If the take of wild fish reaches 3 (75% of the harvest impact ceiling) before the hatchery target take is reached, the fishery will be restricted to dipnet only to account for the additional incidental take of 1 wild spring/summer chinook. The remaining fishery will target hatchery fish with catch and release of wild fish.

South Fork Salmon River Summer Chinook

The TAC estimated return to the South Fork Salmon River system is 4,845 Snake River spring/summer chinook. This is based on 1,110 listed wild fish, 3,135 unlisted hatchery fish, and an additional 600 listed hatchery fish predicted to return to the South Fork Salmon River system (Table 2).

Based on the Northwest Power Planning Council's presence/absence database, the majority (67%) of the wild spring/summer chinook smolt production capacity of the South Fork Salmon River system is in the East Fork South Fork Salmon River and the Secesh River drainage. Nez Perce fisheries will be located above these natural production areas, and harvest of fish destined to spawn in these tributaries is not expected. However, redd count data indicate the majority of natural spawning occurs in the mainstem South Fork. There is no indication that fall chinook or sockeye will enter or be harvested in the South Fork Salmon River.

NMFS' view is that there exists a differentiated stock structure in the South Fork and that proposed fisheries need to recognize and manage for those differences to the degree possible. The Nez Perce Tribe does not agree with the NMFS' identification and management of the South Fork Salmon River into the lower mainstem (SF mouth to Blackmere Creek; including Poverty Flats), upper mainstem (Blackmere Creek to Stolle Meadows), and the unlisted, hatchery-origin fish distinct breeding populations. Continued segregation of a hatchery component increases the chances of domestication selection effects, and has shown to be a detrimental hatchery practice. Additionally, spawning ground surveys continually show that a sizeable portion of the spawners in the lower South Fork (Poverty Flats reach) consist of hatchery fish, thus making the segregation strategy quite artificial. Managing this one stretch of the same river as though it were three populations detracts from achieving realistic rebuilding goals for the South Fork population. Further, the Tribe objects to the use of two separate stepped harvest rate schedules developed in the 2000 NOAA Fisheries biological opinion for managing each of these areas. The first harvest rate schedule depends on the expected return of natural-origin spawners to the Poverty Flats index area; the second depends on the forecast return to the weir of natural-origin and hatchery-origin supplementation fish and the resulting expected number that would be passed above the weir as a result of the hatchery/genetic management protocol.

The Nez Perce Tribe propose a 2006 spring/summer chinook ceremonial and subsistence fishery in the South Fork Salmon River to target a harvest of 918 marked and unmarked (adipose misclips) hatchery chinook predicted to return to the South Fork Salmon River. The fishery as proposed is expected to take a total of 52 listed fish wild/natural and/or listed hatchery chinook based upon the projected return for listed and unlisted chinook to the weir and to the area from Goat Cr. to confluence with the East Fork South Fork. Areas open to fishing would include the South Fork Salmon River from 10 feet below the weir (RM 72) downstream to the confluence with the East Fork South Fork. The fishery will be during June through August. Final season structure will be set by field regulations of the Nez Perce Tribe. Fishing gear permitted will initially include all traditional gear (gaff, dipnet, hoopnet, long bow, spear, and hook and line).

The 2006 prediction for the South Fork Salmon River is for 1,710 (35%) listed fish and 3,135 (65%) unlisted hatchery chinook, which is 1,835 fish more than the broodstock goal of 1,300 fish. The total return to the hatchery rack would be 3,735 fish (consisting of 600 listed and 3,135 unlisted fish), while an estimated 925 listed fish would also return to spawn downstream of the weir (Table 2). The Nez Perce Tribe propose a 2006 summer chinook fishery in the South Fork Salmon River for a harvest which would take 918 hatchery and 52 listed (34 wild/natural and 18 hatchery chinook based on run size proportion) fish for tribal ceremonial and subsistence uses. This take would represent 29.3% of predicted hatchery and 3% of wild returns. The initial fishery would be an indiscriminate fishery utilizing all traditional gear types. Total impacts of the proposed Nez Perce Tribe fishery in the South Fork Salmon River would be 52 (3% of the total listed run of 1,710) listed fish. If the take of wild fish reaches 44 (85% of the harvest impact ceiling) before the hatchery target take is reached, the fishery will be restricted to dipnet only to account for the additional incidental take of 8 listed spring/summer chinook. The remaining fishery will target unlisted hatchery fish with catch and release of wild fish.

Summary - Unit 4

In the Rapid River, the Nez Perce Tribe is expected to harvest 1,444 hatchery and 4 listed wild chinook. In the South Fork Salmon River hatchery-influenced area, the Nez Perce Tribe is expected to harvest 918 unlisted hatchery and 52 listed spring/summer chinook. No expected impacts to steelhead in the South Fork Salmon River.

Summary of Snake River Basin Fishery Impacts on Listed Snake River Salmon

Projected tribal harvest and mortality of spring/summer chinook in 2006 proposed fisheries are shown in Table 6, by specific area/stock and harvest. Table 7 summarizes total estimated salmon harvest and mortality as proposed for 2006. Both Tables 6 and 7 include non-retention mortality. The Nez Perce Tribe propose to target 50% of the harvestable returns to the Snake River Basin and reserve the right to increase or decrease harvest as returns increase or decrease from predicted values.

Tribal C&S fisheries in the Snake River Basin which target steelhead will be assessed in the *U.S. v. Oregon* 2005-2007 Interim Agreement. Tribal C&S fisheries in the Snake River Basin which target hatchery spring/summer chinook are conducted in areas and during time frames that wild fall chinook are not present. A 1% and a 10% handling mortality has been assumed for all non-retention dipnet and hook-and-line fisheries, respectively, in this assessment. The effects of traditional gear types on wild spring/summer chinook are evaluated consistent with their application to tributaries containing listed populations.

The Nez Perce Tribe proposes to have a total harvest of 2,905 non-listed Snake River spring/summer chinook and mortality up to 56 listed fish for the Snake River Basin. Recently, tribal fisheries have voluntarily targeted hatchery stocks near hatcheries, although the Nez Perce Tribe reserve options for harvest opportunities in wild production areas located in the Clearwater River, Snake River, Tucannon River, Imnaha River, Grande Ronde River, and the Salmon River drainages.

The Tribe has developed this Biological Assessment for the Bureau of Indian Affairs pursuant to its authority as a co-manager of the resource and pursuant to its treaty-reserved fishing rights. The Nez Perce Tribe expects the NMFS to fulfill its trust obligation in addressing this document consistent with the *U.S. v. Oregon* case that explicitly outlines the Nez Perce Tribe's right to take fish and regulate the fishery resource. In 1991, 1994 and 1995, the Tribe voluntarily restricted tribal fisheries by not authorizing a season for those particular years and hatchery programs in the Snake River Basin that experienced poor hatchery and wild/natural spring/summer chinook returns.

Implementation of this Biological Assessment of proposed fisheries for 2006 is consistent with the Nez Perce Tribe's legally enforceable treaty-reserved fishing rights and with the NOAA Fisheries' trust responsibilities to the Nez Perce Tribe. All other non-Indian activities (hydrosystem, habitat, hatcheries, and non-Indian harvest) should be considered in the rest of the salmon life-cycle to just before the fish enter the treaty Indian fishery. Otherwise, the burden of conservation would be placed solely on the tribe, which is inconsistent with the conservation principles established in *U.S. v. Oregon*. The Nez Perce Tribe expects the NOAA Fisheries, as a federal agency of the United States government, to evaluate the fisheries within the Snake River Basin with the Nez Perce Tribe's management authority and jurisdiction pursuant to the Treaty of 1855, the conservation necessity principles, and the *U.S. v. Oregon* harvest management framework.

If the federal government is to issue a "jeopardy" conclusion for the Rapid River and/or South Fork Salmon River fisheries, the Nez Perce Tribe first requests NOAA Fisheries to apply the established conservation principles to the combined fisheries that are expected to occur in those tributaries so that NOAA Fisheries Biological Opinion (i.e., NOAA Fisheries' Incidental Take Permit, Reasonable and Prudent Alternative, and the Conservation Recommendations) ensures the following principles are met: that they are least restrictive available to achieve the required conservation purpose; they do not discriminate against Nez Perce fishing activities, either on their face or as applied; that their purpose cannot be achieved solely through the regulation of non-Indian activity; and, that voluntary tribal conservation measures are not adequate to achieve the conservation purpose.

Actions Implemented to Limit the Catch of Listed Species

Most tribal C&S fisheries in the Snake River Basin target hatchery spring/summer chinook and hatchery steelhead. Spring/summer chinook fisheries occur during late spring and summer. Hatchery steelhead fisheries generally occur during late fall through early spring. Tribal fisheries generally occur in areas and during time frames where sockeye and wild fall chinook are not present. Where wild chinook and steelhead are likely to be present the following actions are implemented:

1. The Nez Perce Tribe intend to manage their Rapid River/Little Salmon River, mainstem Snake River, and South Fork Salmon River spring and summer chinook fisheries to target hatchery chinook.
2. The Nez Perce Tribe intend to manage their spring/summer chinook harvest primarily in hatchery influenced areas (sections of the Salmon River Subbasin), under harvest levels consistent with our tribal review and analysis. The Nez Perce Tribe structures its fishery regulations to target primarily hatchery fish. The Nez Perce Tribe continues to reserve the right to harvest in wild production areas. Fisheries are closed by regulation long before fish begin spawning.
3. The Nez Perce Tribe to conduct catch monitoring and enforcement of fisheries to ensure that tribal fishers comply with tribal regulations.

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Table 1. Preseason projections for 2006 returns of Snake River spring and summer chinook, sockeye based on the TAC run size predictions, expected 2006 Columbia River fisheries, and average conversion rates or proportions.

	Forecast Columbia River Mouth	Updated Forecast River Mouth Return	Ratio	Forecast Lower Granite Dam
Spring Chinook	88,400	120,000	1.36	
Spring/ Summer Chinook				
Snake River Total	46200	62,715		21,961 29,811
Snake River Hatchery Total	31,600	42,896		15,021 20,390
Snake River Wild/Natural	14,600	19,819		6,940 9,421
Sockeye				
Columbia River		30,100		--
Snake River		66		51

1. Includes treaty and non-treaty harvest rates. Treaty harvest rates = 10% spring.
Nontreaty wild harvest rates = 2% spring, 1% summer. Hatchery harvest rates = ?%
2. Five year average conversion rates from Bonneville through Lower Granite Dams.

Table 2. 2006 projected Snake River tributary returns of adult spring and summer chinook.

Forecasts	Spring/Summer Chinook		Un- Marked		Non Ad-C	Total Un-Marked			
	Brood Stock Required	Ad- clipped Hatchery	Un- Listed Hatch	Listed	W/N	Hatchery	Total	F/N	
Lower Granite Dam Wild	9,421								
Lower Granite Dam Hatchery	20,390								
Lower Granite Dam Total	29,811								
Snake River									
Oxbow Hatchery		744	--			0		744	1/
Clearwater River									
Clearwater Wild/Natural			--			989	0	989	3/
Clearwater Hatchery	2,100	0						0	
Walton Creek (Powell)								0	
Red River								0	
Crooked River								0	
N.F. Clearwater River								0	
S.Fk Clear. (Red House Hole)							0	0	5/
Dworshak Hatchery	1,800	0				0	0	0	6/
Kooskia Hatchery		0				0	0	0	7/
Subtotal Clearwater		4,756	0			989	0	5,745	
Salmon River									
Little Salmon/Rapid River		0				21	21	21	8/
Rapid River Hatchery	2,400	5,287				0	0	5,287	9/
Lower Main Salmon		0				0	0	0	10/
Middle Main Salmon		0				217	217	217	11/
* Secesh, Johnson, EFSFSR						1,214	1,214	1,214	12/
* S. Fk. Salmon Mouth to Miners		0				107	107	107	13/
* S. Fk. Salmon Miners to Poverty		0				486	486	486	13/
* S. Fk. Salmon Poverty to Weir		0				332	332	332	13/
* S. Fk. Salmon River Weir	1,300	3,135		600	185	785	3,920	3,920	14/
S. Fk. Salmon Subtotal		3,135		600	2,324	2,924	6,059	6,059	
Middle Fork Salmon		0				2,582	2,582	2,582	15/
Panther Creek		0				0	0	0	16/
Lemhi River		0				624	624	624	17/
1 Mainstem above Lemhi							0		
* Pahsimeroi Hatchery	600	850	0				0	850	18/
Upper Salmon (Mid. To E. Fk.)						1,180	1,180	1,180	19/
East Fork Salmon River							0	0	20/
East Fork Rack		0					0	0	21/
Yankee Fork							0	0	22/
Valley Creek						350	350	350	23/
Main Salmon E.Fk. To Sawtooth						659	659	659	24/
Sawtooth Hatchery Weir	700	697					0	697	25/
Subtotal Salmon River						7,957			
Grande Ronde River									
Grande Ronde Subbasin		1,722		0	506	506	2,228	2,228	26/
Lookingglass Hatchery	na	0					0	0	27/
Imnaha River									
Imnaha Subbasin	na	1,670		0	377	377	2,424	2,424	28/
TOTAL									
		21,996	0		9,829	10,175	31,246	31,246	
					9,421				
		Total Hatchery			21,996				

Footnotes For Table 2.

- 1/ Oxbow Hatchery. Independent prediction by IDFG. In 2002 the number of wild/natural adults forecasted to return was based on a proportion of the number of hatchery origin adults (about 1%) In 2003 no hatchery origin adults are forecasted to return and therefore no wild/natural adults are forecasted to return.
- 2/ Tucannon River. Independent prediction by WDFW. These fish are Listed.
- 3/ Clearwater Wild/Natural proportion spring/summer smolt production above Lower Granite Dam (.0864). Values from Subbasin Planning Smolt Density Model, StreamNet, 1/16/97.
- 4/ Red River Rack and Crooked River Rack. Independent prediction by IDFG. Does not include a forecast for number of RV and LV clipped chinook that were released as parr.
- 5/ Powell Rack. Independent prediction by IDFG. Does not include a forecast for the number of fish that were not fin clipped but were CWT.
- 6/ Dworshak Hatchery. Independent prediction by USFWS. Does not include a forecast for the number of fish that were not fin clipped but were CWT.
- 7/ Kooskia Hatchery. Independent prediction by USFWS. Does not include a forecast for number of RV and LV clipped chinook.
- 8/ Little Salmon and Rapid River Wild/Natural proportion spring/summer smolt production above Lower Granite Dam (.0220). Values from Subbasin Planning Smolt Density Model (Petrosky & Kiefer, 7/2/91).
- 9/ Rapid River Hatchery. Independent prediction by IDFG.
- 10/ Lower Main Salmon Wild/Natural proportion spring/summer smolt production above Lower Granite Dam (.0038). Values from Subbasin Planning Smolt Density Model, StreamNet, 1/16/97.
- 11/ Middle Main Salmon Wild/Natural proportion spring/summer smolt production above Lower Granite Dam (.0079). Values from Subbasin Planning Smolt Density Model, StreamNet, 1/16/97.
- 12/ Secesh R. and Johnson Cr. Wild/Natural. Proportion spring/summer smolt production above Lower Granite Dam (.0519). Values from Subbasin Planning Smolt Density Model, StreamNet (Kutchins, 4/15/03).
- 13/ South Fork Salmon River sections 27-29 - below weir. Average of sibling/redd estimate (IDFG) and redd/LGR estimate (SBT).
- 14/ South Fork Salmon River Rack. Independent prediction by IDFG. Does not include a forecast for number of chinook that were CWT only and released as parr. Supplementation fish above weir are listed.

- 15/ Middle Fork Salmon Wild/Natural proportion spring/summer smolt production above Lower Granite Dam (.192). Values from Subbasin Planning Smolt Density Model (Petrosky & Kiefer, 7/2/91).
- 16/ Panther Creek Wild/Natural. IDFG and SBT consider this run extirpated.
- 17/ Lemhi River Wild/Natural proportion spring/summer smolt production above Lower Granite Dam (.037). Values from Subbasin Planning Smolt Density Model (Petrosky & Kiefer, 7/2/91).
- 18/ Pahsimeroi Hatchery. Independent prediction by IDFG. These fish are listed.
- 19/ Upper Main Salmon (Middle Fork to East Fork). Proportion spring/summer smolt production above Lower Granite Dam (.0212). Values from Subbasin Planning Smolt Density Model, StreamNet (Kutchins, 4/15/03).
- 20/ East Fork Salmon River. Redd/LGR regression estimate (SBT).
- 21/ East Fork Rack. Independent prediction by IDFG.
- 22/ Yankee Fork Salmon River. Redd/LGR regression estimate (SBT).
- 23/ Valley Creek. Redd/LGR regression estimate (SBT).
- 24/ Main Salmon River from the East Fork Salmon River to the Sawtooth Hatchery weir. Proportion spring/summer smolt production above Lower Granite Dam (.0364). Values from Subbasin Planning Smolt Density Model, StreamNet (Kutchins, 4/15/03).
- 25/ Sawtooth Hatchery. Independent prediction by IDFG. These fish are listed.
- 26/ Grande Ronde Subbasin. Independent prediction by ODFW. Does not include Lookingglass Creek returns. These fish are listed.
- 27/ Lookingglass Hatchery. Independent prediction by ODFW.
- 28/ Imnaha Subbasin. Independent prediction by ODFW. These fish are listed.

Table 3. Annual Nez Perce spring chinook harvest in the Grande Ronde River and Clearwater River subbasins, 1986-2005. 1/

Year	Lookingglass 3/		North Fork Clearwater 3/		Clear Creek 3/	
	Hatchery	Wild	Hatchery	Wild	Hatchery	Wild
1986	0	0	0	0	0	0
1987	0	0	160	0	50	0
1988	0	0	240	0	72	0
1989	0	0	346	0	58	0
1990	0	0	514	0	130	0
1991	0	0	0	0	0	0
1992	120	0	160	0	0	0
1993	50	0	43	0	0	0
1994	0	0	0	0	0	0
1995	0	0	0	0	0	0
1996	4	0	24	0	0	0
1997 2/	150	0	835	0	12	0
1998	0	0	182	0	20	0
1999	0	0	36	0	1	0
2000	23	0	1,173	0	10	0
2001	133	0	531	0	834	0
2002	35	0	794	0	683	49
2003	na	na	1,445	0	164	0
2004	na	na	419	0	389	11
2005	na	na	na	na	na	na

1/ "na" indicates that a fishery may have occurred, but no catch data are available.

2/ The Nez Perce Tribe also harvested 4 spring chinook from the Lochsa River in 1997.

3/ Unlisted Fish.

Table 4. **Annual Nez Perce spring and summer chinook harvest in the Salmon River Subbasin, 1981- 2005.**
 1/

Year	Spring Chinook Rapid River		Summer Chinook South Fork Salmon	
	Hatchery	Wild	Hatchery	Wild
1981	na	0	0	0
1982	na	0	0	0
1983	na	0	0	0
1984	na	0	0	0
1985	2,023	0	0	0
1986	1,855	0	0	0
1987	2,430	0	0	0
1988	3,520	0	0	0
1989	544	0	0	0
1990	980	0	0	0
1991	0	0	0	0
1992	643	0	0	0
1993	696	0	34	12
1994	0	0	0	0
1995	0	0	0	0
1996	0	0	0	0
1997	2,196	0	1	0
1998	603	15	3	1
1999	88	2	4	0
2000	2,557	4	88	5
2001	7,467	36	436	106
2002	2,425	19	423	62
2003	4,226	16	763	75
2004	5,280	21	290	3
2005	na	na	na	na

1/ "na" indicates that a fishery may have occurred, but no catch data are available.

2/ Fifteen wild fish released.

3/ 38 wild fish released.

4/ 46 wild fish released.

Table 5. Summer chinook returns to the South Fork Salmon River weir, 1980-2005.

Year	Lower Granite Counts	1/	South Fork Harvest 2/			Total	South Fork Weir
			Nez Perce	Sho- Ban	Sport		Counts
1980	8,200	--	--	--	--	--	175
1981	16,400		0	0	0	0	400
1982	16,600		0	0	0	0	502
1983	13,400		0	0	0	0	433
1984	11,900		0	0	0	0	934
1985	30,269		0	0	0	0	1,410
1986	37,876		0	0	0	0	1,468
1987	34,762		0	45	0	45	2,319
1988	35,640		0	100	0	100	2,285
1989	16,124		0	0	0	0	440
1990	22,408		0	22	0	22	911
1991	10,432		0	3	0	3	425
1992	24,405		0	100	0	100	2,643
1993	28,924		46	256	0	302	2,674
1994	3,915		0	8	0	8	527
1995	1,799		0	2	0	2	206
1996	6,823		0	12	0	12	462
1997	44,563		1	274	275	550	3,659
1998	14,242		4	120	na	124	898
1999	6,556		4	71	na	75	1,218
2000	37,755		93	377	470	940	6,391
2001	185,693		542	1,672	2,214	4,428	9,830
2002	97,185		485	1,097	1,582	3,164	7,476
2003	87,031		853	864	1,717	3,434	5,895
2004	79,591		293	812	1,105	2,210	5,201
2005	--		--	--	--	--	2,723

1/ Combined spring and summer chinook counts.
Includes hatchery and natural fish

2/ mortalities.

Table 6. Proposed Nez Perce Ceremonial and Subsistence fisheries for spring and summer chinook salmon within the Snake River Basin and impacts on listed salmon returns for 2006.

Fishing site	Predicted Returns			Percent of Total			Proposed Harvest			Harvest Impacts (% of Total)						
	hatch non-listed	hatch non-listed	wild listed	hatch non-listed	hatch non-listed	wild listed	hatch non-listed	hatch non-listed	wild listed	hatch non-listed	hatch non-listed	wild listed				
Rapid River	5,287	0	0	21	5,308	100%	0%	0%	1,444	0	0	4	27.19%	0.00%	0.00%	0.08%
Clearwater R. System	4,756	0	989	0	5,745	83%	0%	17%	73	0	99	0	1.27%	0.00%	1.72%	0.00%
South Fork Salmon	3,135	600	0	1,110	4,845	65%	12%	0%	918	18	0	34	18.94%	0.37%	0.00%	0.70%
Snake River 2/	744	0	0	0	744	100%	0%	0%	372	0	0	0	50.00%	0.00%	0.00%	0.00%

1/ The specific allocation per tributary of the Clearwater River Subbasin will be determined through coordination and co-management with IDFG.

2/ Includes fish destined to reach the area of the Snake River between Imnaha River upstream to Hells Canyon Dam.

Table 7. Projected harvest and total spring and summer chinook mortality of 2006 proposed Nez Perce fisheries by specified area/stock.

Tributary		Non-Listed	Listed
Unit 1:	Mainstem Snake River	372	0
Unit 3:	Clearwater River	172	0
Unit 4:	Salmon River		
	Rapid River	1,444	4
	South Fork Salmon River	918	52
Grand Total		2,905	56

Table 8. 2006 Predicted Spring and Summer Chinook Hatchery Returns at Lower Granite Dam and Nez Perce Tribe Share.

Location	Adult Ad-Clip Forecast	Scaled Forecast 1/	Broodstock Requirements	Harvestable Surplus	NPT Share
Clearwater Hatchery			2,100		
Dworshak National			1,800		
Kooskia National			(included in Dworshak)		
NPTH					
IDFG Broodstock for NPTH			400		
Subtotal Clearwater	3,195	4,756	4,610	146	73
Grand Ronde	1,157	1,722	N/A	N/A	N/A
McCall 2/	3,134	3,135	1,300	1,835	918
Pahsimeroi	571	850	600	250	125
Rapid River	3,552	5,287	2,400	2,887	1,444
Imnaha	1,122	1,670			
Hells Canyon/Oxbow	500	744	N/A	744	372
Sawtooth	468	697	700	-3	-2
Total	13,699	20,390	9,610	5,858	2,929

1/ These forecasts from Sam Sharr (independent forecasts for hatchery programs)

2/ Idaho ESA Section 10 Permit #1481 - 2006 Recreational Fisheries Proposal for Unlisted McCall Hatchery Summer Chinook (May 2006).

Table 9. 2006 South Fork Salmon River System Forecast.

	South Fork Salmon Forecast**	Run Size Proportions
Hatchery Origin	3,135	0.65
Listed Supplementation	600	0.12
<hr/>		
Wild/Natural		
Section 29*	107	
Section 28*	486	
Section 27*	332	
Section 26	185	
Total Wild Natural	1,110	0.23
Listed Adults above Goat Cr.	951	
Total Return	4,845	1.00
<hr/>		
*South Fork Salmon River sections 27-29 - below weir determined using average of sibling/redd regression estimate (IDFG).		
** Idaho ESA Section 10 Permit #1481 - 2006 Recreational Fisheries Proposal for Unlisted McCall Hatchery Summer Chinook (May 2006).		

APPENDIX C

Tribal Resource Management Plan Grande Ronde River Spring Chinook Salmon Fisheries

TRIBAL RESOURCE MANAGEMENT PLAN

**Snake River Spring/Summer Chinook ESU
Grande Ronde River Spring Chinook Salmon Fisheries**

Prepared by

Confederated Tribes of the Umatilla Indian Reservation

Nez Perce Tribe

July 2006

Tribal Resource Management Plan (TRMP)
Snake River Spring/Summer Chinook ESU
Grande Ronde River Spring Chinook Salmon Fisheries

Responsible Management Agency.

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Agency: Nez Perce Tribe

Original Date Completed.

2004

Date Revised.

July 2006

SECTION 1. FISHERIES MANAGEMENT

General objectives of the TRMP.

This plan provides a context, framework, guidelines and justification for development and implementation of annual spring chinook harvest strategies within the Grande Ronde River basin. Snake River spring/summer chinook are listed under the Endangered Species Act (ESA). The plan encompasses all potential tribal fisheries which target listed spring chinook salmon within the Grande Ronde River basin. The plan describes maximum allowable tribal take scenarios within given projected run sizes, to be used by tributary, and assumes 50/50 harvest sharing within basin between tribal treaty and state sport spring chinook fisheries.

The Grande Ronde River Subbasin spring chinook tribal fishing regime is designed to permit annual 'meaningful degree' of treaty harvest opportunities consistent with the "conservation necessity" principles regarding the exercise of treaty fishing rights. The plan provides for voluntary tribal actions that continue to contribute to the conservation and recovery of this local chinook population through application of conservation harvest rates.

List of the “Performance Indicators” for the management objectives.

Performance indicators include fish population parameters used to assess the status of populations and the affect of the fishery, including:

1. Number and composition (origin and age) of chinook harvested within the basin.
2. Estimated fishery related incidental mortality of listed target and non-target fish in the basin
3. Number and composition (origin and age) of chinook intercepted at trapping locations and estimated on the spawning grounds within the basin
4. Accuracy of pre-season run projections
5. Level of chinook angler effort within the basin
6. Level of compliance with fishing regulations

Description of the relationship and consistency of harvest management with artificial propagation programs.

The Grande Ronde River flows through Oregon and Washington and enters the Snake River at RM 168. The Grande Ronde River supports runs of summer steelhead, spring chinook and fall chinook. The Grande Ronde Basin once supported large runs of chinook salmon with estimated escapements in excess of 10,000 as recently as the late 1950's (COE 1975). Natural escapement declines in the Grande Ronde Basin have paralleled those of other Snake River tributaries. A major reason for these declines has been attributed to construction of the four lower Snake River dams. In order to offset these losses, the Lower Snake River Compensation Program (LSRCP) was authorized in 1976. The compensation identified for the Grande Ronde Basin under LSRCP was to return 5,856 spring chinook adults to the area above the four lower Snake River dam projects (Herrig 1990). This compensation goal included fish returning to hatchery racks, natural spawning areas, and fisheries. In order to meet this compensation goal, Lookingglass Hatchery (LFH) was constructed on Lookingglass Creek and became operational in 1982.

Despite these hatchery programs, natural spring chinook populations continued to decline resulting in the National Marine Fisheries Service (now known as NOAA Fisheries) listing Snake River spring/summer chinook salmon as "threatened" under the federal Endangered Species Act on April 22, 1992. Escapement levels in the Grande Ronde Basin dropped to alarmingly low numbers in the mid 1990's. This continued declining population trend raised concern that Grande Ronde River spring chinook salmon were in imminent danger of extinction. A total of 15, 4 and 16 redds were observed in Catherine Creek, the upper Grande Ronde River and Lostine River in 1994. In 1995, 20, 7 and 11 redds were observed in those same streams. These levels fell well below historical annual counts that exceeded 200 redds in Catherine Creek and 100 redds in the Lostine River in the late 1980's and the over 100 redds counted in the upper Grande Ronde River as late as 1992. In response to this precipitous decline in population levels, Bonneville Power Administration (BPA) funded the initiation of captive broodstock programs for these three stocks in the late 1990's to conserve these populations and preserve future options for recovery and mitigation. Along with these captive broodstock programs, the LFH hatchery program was converted to endemic broodstocks in order to better meet LSRCP mitigation goals.

In order to coordinate these endemic captive brood and conventional production programs, the Grande Ronde Spring Chinook Hatchery Management Plan (GRSCHMP) was developed and agreed upon by co-managers in 2002. The plan laid out juvenile production, adult disposition, and weir management details for the four Grande Ronde Basin tributaries involved with LFH production (Lostine River, Catherine Creek, Upper Grande Ronde River and Lookingglass Creek). Although detailed harvest specifics were not included in the plan, harvest was identified as an objective for the program in all four tributaries. All of the captive brood hatchery production is externally marked with an adipose fin clip to allow for evaluation, weir management, and fisheries options.

Although the Grande Ronde spring chinook hatchery program is currently absorbing a conservation and recovery roll, hatchery production remains consistent with LSRCP harvest mitigation levels. As a result of the large hatchery production and relatively lower natural productivity it is expected that hatchery fish will significantly dominate run composition as the hatchery program reaches production objectives. This plan allows the use of harvest as a tool to assist in the management of hatchery and naturally produced spawner composition in tributary areas. Harvest as described in this plan will be used to; 1) provide for the meaningful exercise of federally-protected treaty fishing rights, 2) provide for tribal and non-tribal fishing opportunity co-managed under the continuing jurisdiction of U.S. v. Oregon, 3) reduce the risk of negative hatchery program affects, 4) improve the chances of meeting current hatchery program conservation and recovery objectives and 5) address harvest objectives outlined in the LSRCP.

General description of the relationship between the TRMP objectives and Federal tribal trust obligations.

Upriver spring chinook are subject to Federal tribal trust obligations and impacts on upriver spring chinook stocks are jointly managed by the four Columbia River treaty Indian tribes, the federal government, and the states of Oregon, Washington, and Idaho under continuing court jurisdiction in *U. S. v. Oregon*.

TRMP area(s).

Description of the geographic boundaries of the management area of this TRMP.

The plan encompasses the entire Grande Ronde River Basin (Fig.1).

Description of the time periods in which fisheries occur within the management area.

This fisheries plan is intended to provide guidance for spring chinook fisheries in the Grande Ronde Basin until superceded by a new plan. Fisheries will occur during the months of May through early August as appropriate to produce harvest levels up to those outlined in this plan. Although, fisheries may be curtailed at anytime to avoid harvest levels that exceed those prescribed by this plan.

Listed salmon and steelhead affected within the Fishery Management Area specified in section 1.2.

Spring chinook

Historically, spring chinook spawned in the mainstem and headwater areas throughout the Grande Ronde Basin (GRSS 2001). Currently, there are five core populations identified within the basin. Three of these populations are targeted for supplementation (Catherine Creek, Lostine River, and Upper Grande Ronde River) and two populations are managed solely for natural production (Minam River and Wenaha River). Another major population in the basin, Lookingglass Creek, was extirpated in the early 1980's due to the construction and operation of LFH. Efforts to reestablish a naturally spawning population in upper Lookingglass Creek utilizing Catherine Creek stock is ongoing. This TRMP specifically focuses on the affects to the core populations in Catherine Creek and the Lostine and upper Grande Ronde rivers.

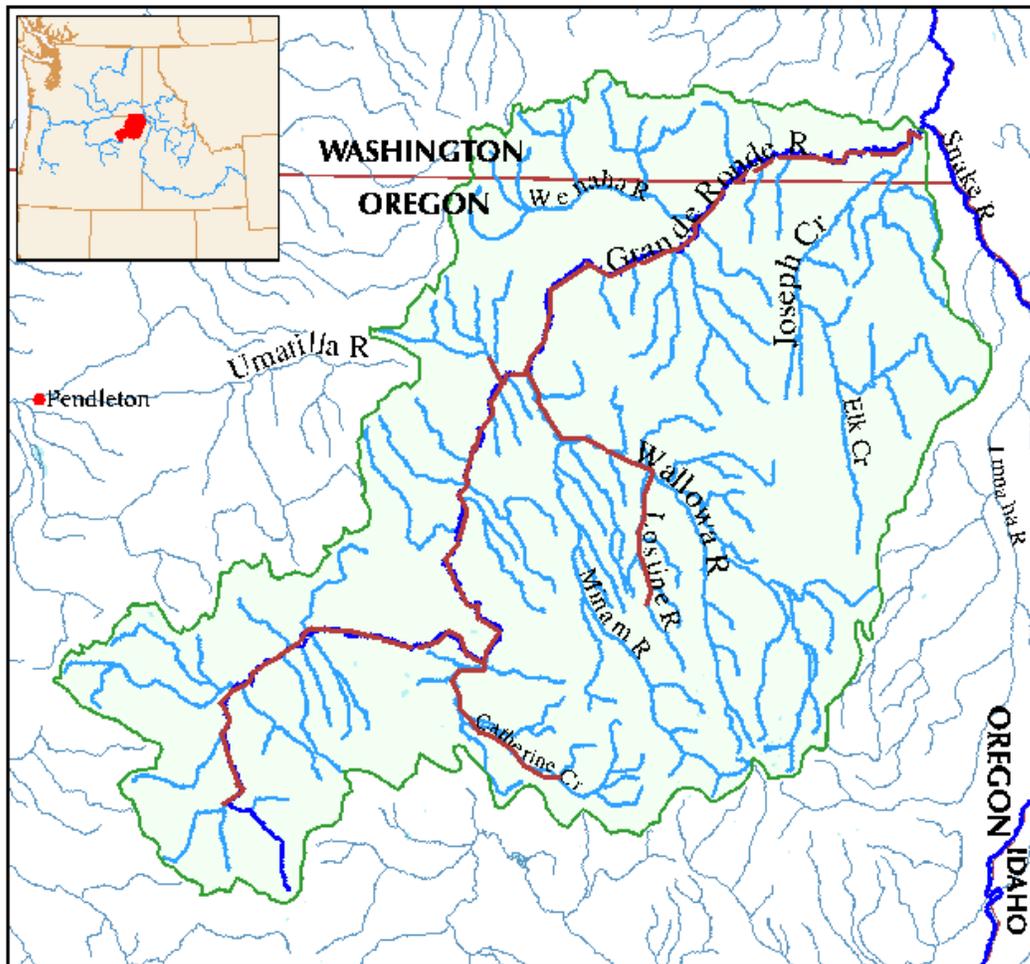


Figure 1. Map of the Grande Ronde Basin showing the TRMP area and potential fisheries locations (indicated in red).

Adult Snake River spring chinook enter the Columbia River in March through May. Movement into summer holding areas ranges from May through August. Age 4 fish typically dominate returns to the Grande Ronde Basin. Spawning occurs from early August through September and generally peaks in late August. Emergence begins in January and extends through June. Fry expand their rearing distribution in the summer. The extent and direction of fry movement depends on environmental conditions. Fall pre-smolt migrations occur in some populations. Juveniles typically rear in tributary areas for over one year and smolt the following spring. Smolt migration can begin as early as January and extend through late June.

Summer steelhead - Grande Ronde basin summer steelhead are typical of A-run steelhead from the mid-Columbia and Snake basins. Most adults returning to the Grande Ronde basin do so after one year of ocean rearing (60%). The remainder consists of two-salt returns with an occasional three-salt fish. Females generally predominate with a 60/40 sex ratio on average. Returning adults range in size from 45 to 91 cm and 1.4 to 6.8 kg. Adults generally enter the Columbia River from May through August subsequently entering the Grande Ronde River from September through April. Adults utilize accessible spawning habitat throughout the Grande Ronde Basin. Spawning is initiated in March in lower elevation streams and spring-fed tributaries and continues until early June in higher elevation “snowmelt” systems. Juveniles utilize a wide range of habitats throughout the basin. Most naturally produced smolts migrate after rearing for two years. A much lower percentage migrates after one or three years. Smolt outmigration extends from late winter until late spring. Peak smolt movement is associated with increased flow events between mid-April and mid-May (Anne Setter, ODFW, personal communication). Currently there are no hatchery steelhead programs in the upper Grande Ronde River basin.

Bull trout – Both fluvial and resident life history forms of bull trout inhabit the Grande Ronde River and a number of tributaries. Habitat conditions and influence of introduced brook trout vary widely across the basin and affect bull trout productivity in some areas. As a result, basin bull trout populations vary from areas of relative strength in wilderness streams where brook trout are not currently present to areas where habitat condition and/or interaction with brook trout result in substantially depressed bull trout productivity. Fluvial adults migrate into headwater areas during the summer and early fall after over-wintering in mainstem tributaries and the Snake River. Spawning for both resident and fluvial adults occurs in September and October. Fry emerge in during the spring. Juvenile rearing is restricted to headwater areas by increasing water temperatures downstream.

Description of “critical” and “viable” thresholds for each population (or management unit) consistent with the concepts in the technical document “Viable Salmonid Populations and the Recovery of Evolutionarily Significant Units.”

Prior to work completed by the Interior Columbia Technical Recovery Team (TR), limited guidance was provided by NOAA Fisheries on fish numbers corresponding to critical and viability thresholds. They discuss hypothetical risks related to genetic processes effective at an annual spawning population size ranging from 50 to several thousand individuals. They also suggest that spawner numbers of 200-250 to 1,100-1,375 per year might be considered “safe” for spring/summer chinook (McElhany et al. 2000). As part of the original Section 10 Captive Brood

Permit Application (ODFW 1995) a critical threshold of 150 spawners per year was identified for Catherine Creeks, Lostine River and the upper Grande Ronde River spring chinook populations. Spawner numbers of 150 or greater appear sufficient to avoid detrimental short term genetic and demographic effects.

Based on the NOAA Fisheries Viable Salmonid Populations guidelines, an interim population viability standard was developed based on a generally increasing population trend and expected escapements sufficient to identify population capacity and productivity with an effective monitoring plan. Long term viability thresholds would include average spawner abundance greater than 50% of subbasin capacity where capacity is defined based on the smaller of replacement spawner abundance (i.e. the intersection of the stock recruitment curve and the 1:1 replacement line) or spawner number at maximum recruitment and would include a productivity standard equivalent to a long term average replacement rate of 1.0 (i.e. a stable population size). Information to determine a viable threshold level based on these parameters is not currently available. However, *U.S. v. Oregon* subbasin production reports for these tributaries (Carmichael and Boyce 1986) identified habitat capacities of 928 spawners for Catherine Creek, 1,716 spawners in the Lostine River and 804 spawners for the upper Grande Ronde River based upon historic high spawner numbers. Utilizing these figures as estimates of sub-basin capacity, an abundance level equal to 50% of subbasin capacity would produce a viable threshold of 464 for Catherine Creek, 858 for the Lostine River and 402 for the upper Grande Ronde River. Viable threshold for Lookingglass Creek using this calculation method would be 502 spawners (Table 1). However, the *U.S. v. Oregon* sub-basin production reports estimates of spawner capacity were developed using peak spawner numbers and are generally agreed to represent an overestimate of capacity from a sustainable population perspective.

Since the submittal of this Plan in 2004, the TRT has developed viable population thresholds for these populations, as defined in their viability criteria document. The TRT classify Grande Ronde spring chinook populations according to the following levels: large (Lostine/Wallowa, Catherine Creek and Upper Grande Ronde), intermediate (Minam and Wenaha rivers), and basic (Lookingglass Creek). The co-managers have agreed to these classifications and viable population levels for use in management for Grande Ronde River spring chinook returns (revised Table 1).

Table 1. List of the TRT-defined natural fish populations, “Viable Salmonid Population” thresholds, and associated hatchery stocks included in this TRMP.

Natural Populations or Management Units	Critical Threshold (abundance)	Viable Threshold (abundance)	Associated hatchery stock(s)	Hatchery stock essential for recovery? (Y or N)
Catherine Creek	150 adults/yr	500 adults/yr	Catherine Creek endemic/Lookingglass Hatchery	Y
Wallowa/Lostine rivers	225 adults/yr	750 adults/year	Lostine River endemic/Lookingglass	Y

			Hatchery	
Upper Grande Ronde River	150 adults/yr	500 adults/yr	Grande Ronde endemic	Y
Lookingglass Cr.	150 adults/yr	500 adults/yr	Catherine Creek endemic	Y

Description of the current status of each population (or management unit) relative to its “Viable Salmonid Population thresholds” described above. Include abundance and/or escapement estimates for as many years as possible.

Catherine Creek

The Catherine Creek population dropped to a very low level in 1994 with 15 redds counted in the spawning area. This level was well below the highest historically recorded redd counts of 246 in 1953, 225 in 1987, and 212 in 1988. Redd levels remained low with counts of 12 to 46 redds from 1995 to 2000. In 2001 the redd count increased significantly to 133 redds. Weir counts that year estimated the adult population at 397 fish, all of which were natural origin. The first adult returns from the endemic hatchery program occurred in 2002. Redd count and population estimates in Catherine Creek have continued to increase each of the last two years. Composition of the return was 52.8% hatchery origin in 2002 and 54.3% in 2003. Abundance and redd counts have been on an increasing trend the last three years. Escapement estimates have been well above the critical threshold level and are approaching the estimated viable threshold number. It is anticipated that escapement estimates for 2004 will exceed the critical threshold level and could approach the viable threshold level. These estimates are presented in Appendix A. Spawner abundance in Catherine Creek is limited by the adult sliding scale, otherwise it is anticipated that it would exceed the viable threshold level in 2004. Redd counts and estimated population sizes since 1988 are included in Table 2.

Lostine River

Consistent with population trends observed across the Snake River and Grande Ronde basins, spawner numbers as indicated by redd counts achieved a modest rebound in the mid to late 1980s only to retreat to alarmingly low levels by the mid 1990s. Since that time naturally produced spawner numbers have increased and naturally spawning hatchery fish have supplemented spawners to the point that on the order of several hundred redds were observed in the Lostine in 2002 and 2003 (Table 2).

Upper Grande Ronde River

The Upper Grande Ronde River population dropped to a very low level in 1989 with no redds counted in the spawning area. Redd counts again dropped to very low levels in the mid to late 1990’s with only four redds counted in 1994, seven in 1995, and no redds in 1999. These levels are well below the highest historically recorded redd counts of 304 in 1968, 185 in 1987, 116 in 1988, and 116 in 1992. Redd levels have remained low with counts of 0 to 29 redds from 1996 to 2003. The return in 2001 was estimated at 34 fish of which 100% were natural origin. The first adult returns from the endemic hatchery program occurred in 2002. The population estimate for

the upper Grande Ronde River has increased each of the last two years and the redd count number increased significantly in 2003. Composition of the return was 94.4% natural origin in 2002 and 93.7% in 2003. Abundance and redd counts have generally increased the last three years. Escapement estimates have remained below the critical and viable threshold levels. However, it is anticipated that escapement estimates for 2004 will exceed the critical threshold level and may also surpass the viable threshold level. These estimates are presented in Appendix A. Redd counts and estimated population sizes since 1988 are included in Table 2.

Lookingglass Creek

The endemic stock of spring chinook salmon in Lookingglass Creek was functionally extirpated by 1984. Since that time a mixture of unmarked and hatchery returns of Carson and Rapid River stock releases from Lookingglass Hatchery have spawned in Lookingglass Creek. Currently, remnant returns of Rapid River stock spring chinook salmon occur annually in Lookingglass Creek and are anticipated to continue through 2007. These fish are unmarked fish but are not considered part of the listed ESU by NOAA Fisheries (Herb Pollard, NOAA Fisheries, personal communication). These Rapid River stock fish are being removed from the basin and are being replaced with releases of endemic spring chinook from Catherine Creek stock.

Table 2. Annual redd counts and estimated adult spawning escapement from Catherine Creek, the Lostine River and the upper Grande Ronde River. These are minimum counts and do not reflect spatial or temporal expansions.

Year	Catherine Creek		Lostine River		Upper Grande Ronde River	
	Redds	Est. Adult Esc. ¹	Redds	Est. Adult Esc. ¹	Redds	Est. Adult Esc. ¹
1986	94	301	61	195	48	154
1987	225	720	95	304	185	592
1988	212	678	182	582	116	371
1989	49	157	53	170	0	0
1990	40	128	11	35	32	102
1991	20	64	28	90	14	45
1992	49	157	28	90	116	371
1993	84	269	73	324	103	330
1994	15	48	16	51	4	13
1995	20	64	11	35	7	22
1996	12	38	27	86	22	70
1997	46	105	48	161	19	59
1998	34	101	35	166	25	84
1999	40	54	57	71	0	4
2000	34	44	64	341	20	23
2001	133	397	131	376	15	34
2002	158	443	209	682	14	60
2003	167	477	194	657	29	100

¹ 1986 – 1996 escapement estimates equal redd number times 3.2 fish / redd, mark recapture estimates 1997 on.

Harvest Regime

This plan prescribes discrete tributary adult harvest rates for hatchery and naturally produced spring chinook based on projected adult returns to Catherine and Lookingglass creeks and the Lostine and upper Grande Ronde rivers via the harvest matrices described in Figure 2 (and corresponding Table 3). Jack chinook return will not be included in the preseason run projections used to set harvest rates and jacks caught in the fishery will not be included as part of harvest estimate. Harvest scenarios set forth in the plan are designed to meet natural escapement and broodstock needs and to provide for balancing of run components in a manner consistent with treaty Indian fishing rights and methods. The plan provides a general description of fishery timing and location options that may be applied to achieve harvest prescribed in the plan. However, details of length of season, bag limits and fishery locations proposed to achieve harvest levels suggested by this plan will be submitted in annual fishery plans as run projections are made and harvest limits set.

Both listed hatchery and naturally produced spring chinook return to the TRMP management area. In order to ensure sustainability of the core populations within the basin, including natural spawning populations in the Minam and Wenaha rivers, the harvest matrix is designed with a conservative allowable non-fin-clipped harvest rates as a default. In many cases lower non-fin-clipped harvest rate limits will restrict access to harvestable hatchery produced fish. This will require the co-managers to structure annual fisheries to ensure adequate fish distribution between minimum hatchery and natural escapement objectives. Wild fish harvest impacts under this plan will be shared between tribal and sport fishers in a manner consistent with current Columbia River harvest sharing agreements, 85% tribal and 15 % sport. This wild fish impact agreement further provides for tribal seasons that are more consistent with cultural fishing practices and methods while providing for reasonable state sport selective fishery seasons. This plan specifies the integrative harvest framework that will be used to develop annual natural and hatchery harvest rates and associated take limits.

The matrix assumes increasing harvest rates at larger run sizes for both natural-origin and hatchery-origin fish but the natural-origin harvest rate increases at a slightly slower rate due to how overall impacts (total take limits) for returns are to be allocated between treaty and sport fisheries. The harvest rates and expected level of treaty take will be implemented as follows: 1) on run sizes less than 300 fish for each run component the natural- and hatchery-origin harvest rates are conservatively set; 2) on all natural-origin run sizes, the tribal direct take will be greater than those allowed for reasonable state selective sport seasons that will also result in incidental/direct take; and 3) the treaty fishery will target an equal share (50% harvest share) on harvestable fish on all hatchery run sizes greater than 300 fish (Table 6). However, the treaty tribes expect to reduce tribal hatchery-origin take to keep within the overall 50:50 harvest allocation principle.³

The following section contains the harvest matrix and sliding scale process that will be used to define year-specific harvest rates and take levels for the range of fishery configurations.

³ This can be accomplished in the format used for the 2006 Nez Perce Tribe Imnaha River fishery implementation plan (FIP). (Table 2 of FIP).

Provide escapement objectives and/or maximum exploitation rates for each population (or management unit) based on its status.

The GRSCHMP has established agreed upon minimum escapement objectives of 150 adults for three of the affected tributary areas, Catherine and Lookingglass creeks, the upper Grande Ronde River and 225 fish for Wallowa/Lostine river system. Maximum allowable harvest rates prescribed by this plan for natural and hatchery components of runs at various expected levels are outlined in Figure 2. These harvest rates were determined by evaluating harvest schedules established for other Snake River spring/summer Chinook populations and areas, including those proposed by the northeast Oregon co-managers for the Imnaha River integrative spring Chinook hatchery program.

Annual harvest management of Snake River spring/summer Chinook salmon returning to the Grande Ronde River basin will be determined by using the following management sliding scale and harvest matrix to predict year-specific levels of tribal treaty take based on annual forecasted return and run composition information. State fisheries are to be managed according to maximum sport harvest rates.

The harvest rate levels for Imnaha River spring/summer Chinook salmon in tribal fisheries implemented according to this plan shall not exceed the numbers provided by the sliding scale,⁴ as defined:

- adult escapement <300 for each run component, only a tribal ceremonial fishery will occur with a set 1% harvest rate for natural-origin Chinook and a 2% harvest rate for hatchery-origin Chinook, and no state fishery to be authorized at this run size,
- adult escapement between 301-1,000 fish for each run component, a tribal ceremonial and subsistence fishery is permitted with a 8% harvest rate on the margin for natural-origin Chinook and 9% harvest rate on the margin hatchery-origin Chinook,
- adult escapement between 1,001-2,000 fish for each run component, a tribal fishery is permitted an overall 18% harvest rate on the margin for natural-origin Chinook and 20% harvest rate on the margin hatchery-origin Chinook, and
- adult escapement >2,001 fish for each run component, a tribal fishery is permitted an overall 28% harvest rate on the margin for natural-origin Chinook and 40% harvest rate on the margin hatchery-origin Chinook.

⁴ Table 5 of the plan provides for tribal ceremonial and subsistence fisheries at all levels of escapement and non-tribal recreational fisheries when total escapement to the Imnaha River mouth is expected to be greater than 700.

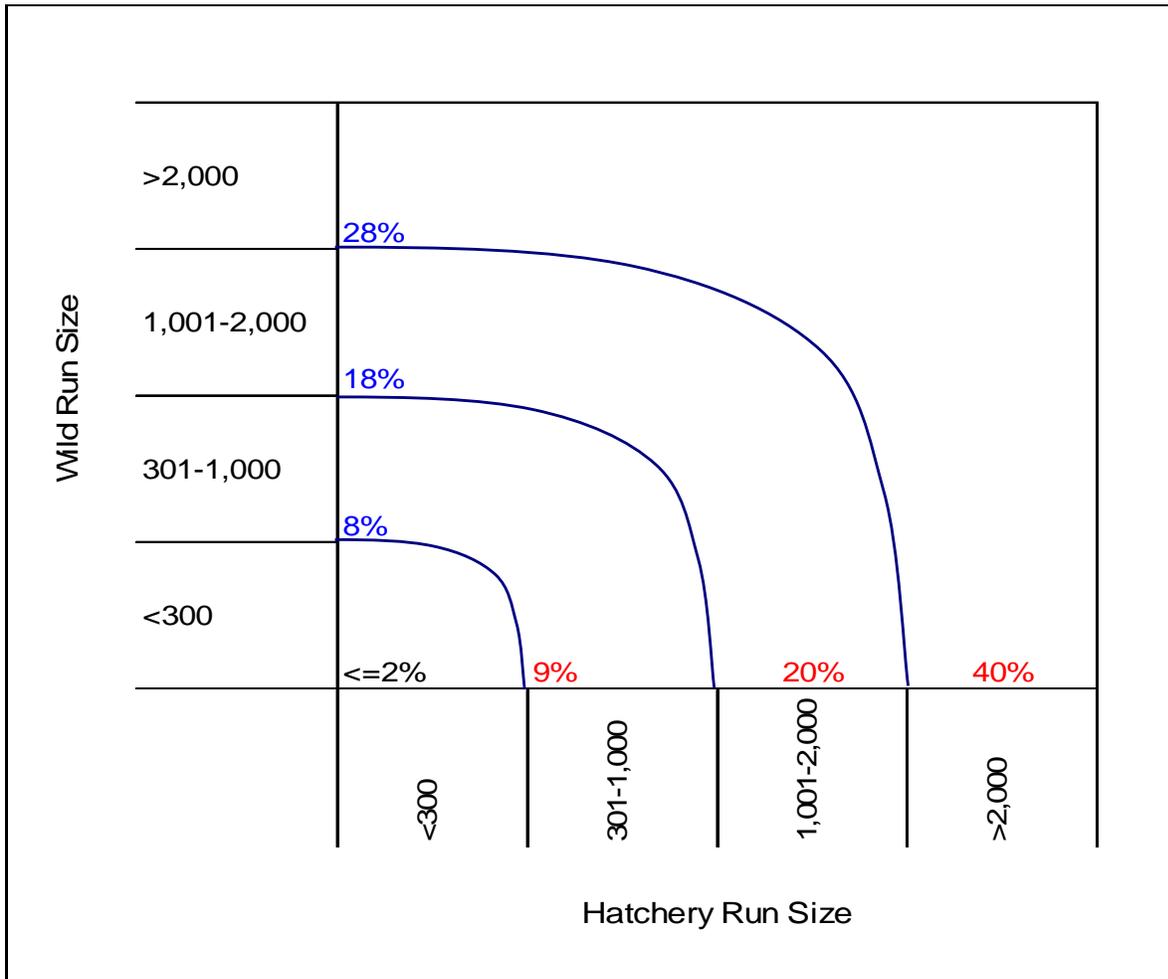


Figure 2. Proposed harvest rates for marked (H) and unmarked (W) adult spring chinook at various projected adult run sizes into Catherine and Lookingglass creeks, upper Grande Ronde River, and the Wallowa/Lostine river system.

The year-specific overall direct take limits for each run component respectively can be determined by annual run size and composition estimates and corresponding harvest rates (Table 3).

The maximum harvest is 9 fish (3 natural-origin and 6 hatchery-origin) on total adult returns equal or less than 600 fish and up to a minimum harvest of 510 fish (239 natural-origin and 270 hatchery-origin) on total adult returns equal to or greater than 4,000 fish. Figure 3 demonstrates estimated treaty take relative to matching natural-origin and hatchery-origin run size.

Table 3. Proposed harvest rates for marked (H) and unmarked (W) adult spring Chinook at various projected adult run sizes into Catherine and Lookingglass creeks, upper Grande Ronde River, and Wallowa/Lostine river system.

Annual Adult Run Size (Wild and Hatchery independently)	Wild Harvest Rate*	Hatchery Harvest Rate*	# of Take on Wild Fish	# of Take on Hatchery Fish
<300	0.01	0.02	3	6
301-1,000	0.08	0.09	3-59	6-70
1,001-2,000	0.18	0.20	59-239	70-270
>2,000	0.28	0.40	>239	>270

*Harvest rates are calculated on the margin of 300, 1,000, and 2,000 run sizes.

However, the direct linkage between these two rates will likely not occur as projected run sizes for the two run components do not typically equal as depicted in the table. Because salmon abundance is highly variable from year to year due to changing environmental conditions, it is expected that the harvest rates for natural-origin Chinook will be significantly lower than that of the hatchery-origin harvest rate, as the hatchery-origin fish will likely continue to be more abundant.

Description of how the fisheries will be managed to conserve the weakest population or management unit.

Harvest decisions outlined in this plan are intended to occur at a tributary level. Individual tributary run projections and fishery access within tributary reaches provides managers the ability provide harvest opportunity discretely among the tributaries. Given the number of tributaries involved in the hatchery program, a wide range of potential fishery configurations exist; from any one of the tributaries individually, to some combination of tributaries, to all tributaries plus some type of mixed stock fishery. However, mixed stock fisheries, in the mainstem Grande Ronde River for instance, would be limited in impact to the level of the weakest stock affected by the fishery. If tributary target harvest rates are achieved within a mixed stock fishery no further harvest would occur within that tributary. Closing one tributary to harvest would not preclude further harvest in other tributaries. In-season fishery monitoring will provide critical real-time information to decisions processes regarding fishery status.

The harvest matrix and sliding scale strategy is scaled to ensure that broodstock needs will be meet in any given run year. It was developed for the Imnaha River Subbasin which targets 208 fish to meet annual broodstock needs. This provides added buffer because the Grande Ronde River basin hatchery programs have lower approximate annual brood needs (Cathrine Creek is 89, Lostine River is 180, upper Grande Ronde is 52, and Lookingglass Creek is 150). The hatchery broodstock needs may vary year to year depending upon per tributary projected returns and hatchery and/or weir management objectives.

Demonstrate that the harvest regime is consistent with the conservation and recovery of commingled natural-origin populations in areas where artificially propagated fish predominate.

Hatchery programs within the Grande Ronde basin have recently proven to be very successful in returning spring chinook to the basin. The productive capacity of the hatchery programs can result in large numbers of returning hatchery adults and hatchery spring chinook can significantly outnumber naturally produced chinook within a given year.

Grande Ronde basin spring chinook management strategies outlined in the GRSCHMP strive to avoid demographic risk to populations at low productivity and escapement levels by using hatchery adults to supplement natural spawner numbers. However, the plan also recognizes the potential impacts of hatchery influence on natural productivity and attempts to address that risk through management of hatchery and natural spawner ratios. While strategies to accomplish this and the level of interaction allowed between hatchery and natural spawners varies across the basin, management in all tributaries recognizes a preference for higher level of contribution by naturally produced fish to the spawner population when escapement level offers some flexibility. Harvest of hatchery origin adults returning to Grande Ronde tributaries offers managers a tool for regulating hatchery/natural escapement percentages when demographic risk to populations is not an issue. Harvest can help reduce the imbalance in anticipated hatchery/natural return ratios at the weirs and on spawning grounds.

The Grande Ronde basin harvest matrix, Figure 2, employs generally conservative harvest rates for all chinook at lower projected return levels and gradually ramps harvest up as expected returns increase. The harvest matrix also prescribes preferential harvest of the hatchery run components in most situations. As a result, harvest scenarios resulting from run projections that are weighted toward hatchery fish will depend upon some level of harvest selectivity (i.e., fishery timing and gear types authorized) in order to accomplish the desired outcomes.

Annual Implementation of the Fisheries

Given a run size capable of supporting fishery harvest and following the guidelines herein, Grande Ronde basin co-managers will provide to NOAA Fisheries a proposal for fisheries implementation based upon run projections as they become available in winter and spring. Since this plan outlines maximum allowed harvest rates for individual run components actual annually applied harvest rates may be adjusted downward through co-manager agreement. The annual fishery proposal will include details of expected hatchery and natural run strength by tributary, projected harvest rate based on this plan and a description of fishery take limits, location and timing. In addition it will include a summary of the expected outcomes for hatchery broodstock, additional surplus and natural spawner composition for each tributary.⁵ Description of expected fishery outcomes links harvest and with management strategies described in the GRSCHMP. Once an annual fishery is authorized by the implementing tribe, modification of harvest

⁵ Table 3 in the 2006 Nez Perce Tribe Grande Ronde Subbasin fishery implementation plan (FIP) provides an example application of estimated run strength, associated plan defined harvest rate, and hatchery broodstock and natural escapement outcomes.

strategies, in-season adjustments and fishery closures may occur in response to updated run projections from TAC, PIT tag data from Lower Granite Dam and in-basin weir returns. These management actions will be coordinated with NOAA Fisheries.

SECTION 2. EFFECTS ON ESA-LISTED SALMONIDS

2.1) Description of the biologically-based rationale demonstrating that the fisheries management strategies will not appreciably reduce the likelihood of survival and recovery of the affected ESU(s) in the wild.

Harvest rates prescribed by this plan provides for increasing harvest as expected run sizes increase. The plan calls for preferentially harvesting available hatchery chinook under most escapement scenarios. While the primary outcome of the plan is to provide tribal and sport harvest, it also provides co-managers with a much needed tool to address potential imbalances between natural and hatchery produced chinook escaping to spawn. Harvest strategies are applied by individual tributary in order to protect stocks experiencing weaker returns while taking advantage of other, more robust tributary returns to meet harvest management objectives.

2.1.1) Description of which fisheries affect each population (or management unit).

Fisheries described herein may affect hatchery and wild components of any or all populations within the Grande Ronde basin in a given year.

2.1.2) Assessment of how the harvest regime will not likely result in changes to the biological characteristics of the affected ESUs.

As described in the harvest matrix, sizeable harvest will only be considered when projected hatchery and wild returns achieve levels that provide for substantial seeding of natural habitat and hatchery broodstock needs. The plan's intent is to focus harvest on hatchery run components when they are not essential for conservation and recovery and only prescribes significant levels of wild fish harvest when large numbers of naturally produced fish are expected to return. Harvest strategies will prescribe fishery locations and times that reduce temporal fishery selectivity when possible, although early curtailment of fisheries may result in some selective affect. Harvest allowed under this plan is intended to increase protection for the natural spawning population against inadvertent loss of diversity and productivity due to hatchery influence.

The treaty tribes recognize that increased productivity and abundance in the population will continue to be hindered until more favorable habitat and migratory conditions (including addressing the impacts of the hydrosystem) occur in the Columbia River Basin. The purpose of this plan is to show that harvest is a necessary part of meeting the LSRCP mitigation goals, is a component of the ongoing restoration and recovery objectives for the Grande Ronde River system, and is a necessary element to the United States' treaty and trust obligations to be fulfilled.

2.1.3) Comparison of harvest impacts in previous years and the harvest impacts anticipated to occur under the harvest regime in this TRMP.

Harvest proposed under this plan would be the first implemented in the Grande Ronde basin outside of Lookingglass Creek since the 1970's. Harvest in recent years has been limited to sport and tribal fisheries for unlisted Rapid River stock hatchery returns to Lookingglass Creek. Implementation of this plan could result a substantial increase in harvest number and area of impact within the Grande Ronde basin relative to that occurring recently. The overall harvest rate and associated take level is determined on a per tributary basis by the harvest rate framework found in section 1.4.1, and may vary inseason based on updated estimates of run size.

However, conservative fishery restrictions will not in itself be sufficient to meet desired annual viable seeding levels for Grande Ronde River tributaries and other significant factors that affect salmon survival and productivity will also need to be considered comprehensively with the harvest limits as set forth in this plan. Further reductions in local treaty harvest will not produce the desired yearly level of natural escapement. Existing recovery and rebuilding objectives in the Grande Ronde River Subbasin and the Columbia Basin will need to provide improvements in survival and numbers of fish that make it to the spawning grounds. The federal government with statutory authority to recover the Snake River spring/summer chinook evolutionary significant unit (ESU) will need to consider all sources of mortality before further restricting the treaty harvest portion as contained in this plan.

This fishery harvest management plan does contain voluntary tribal take restrictions. The implementation of the plan is not expected to appreciably reduce the likelihood of survival and recovery of the Snake River spring/summer chinook ESU. Other sources of mortality that harvest salmon throughout the lifecycle of Grande Ronde spring chinook, which have no federally-reserved treaty rights or priority, have been permitted by NOAA Fisheries.

A fish distribution table will be provided for each tributary fishery area in the annual fishery plans, to include information on projected run size and run composition, combined harvest impact levels (tribal harvest rates with take limits; state sport harvest rates with take limits), post-harvest escapement, broodstock composition, post broodstock escapement, available hatchery outplant numbers, and total natural spawners and composition. The proposed Grande Ronde River fisheries considered in this plan will have little or no effect on other populations within the Snake River Basin. The proposed fisheries are terminal-area fisheries and will thus affect only the populations returning to the Grande Ronde River.

2.1.4) Description of additional fishery impacts not addressed within this TRMP for the listed ESUs specified in section 1.3. Account for harvest impacts in previous year and the impacts expected in the future.

Spring chinook fisheries have been conducted in the mainstem Columbia River since 2001 and are controlled under *U.S. v. Oregon*. Sport fisheries are limited to identifiable hatchery fish (adipose clip) and are allowed only an incidental take of natural fish. Tribal fisheries may take

natural or hatchery adults. A sliding scale for apportioning mainstem fishery impacts to natural populations based on run size was agreed to by the parties of *U.S. v. Oregon* as part of the 2001-2003 Interim Management Agreement for Spring Chinook.⁶ Based on the sliding scale, the allowable tribal fishery impact on natural spring chinook has ranged from 11%-13% during that period and the sport fishery impact has been limited to a 2% rate. The allowable harvest impacts for 2004 based on preseason run forecasts are anticipated to be 13% for tribal fisheries and 2% for sport fisheries. Actual impact rates for 2001 as calculated by the *U.S. v. Oregon* Technical Advisory Committee estimated that tribal fisheries had a 13.1% impact rate on the natural upriver population (above Bonneville Dam) and the impact on wild fish in non-treaty mainstem fisheries was estimated at 1.6%. For coded wire tag groups in 2001, 6% of the total recoveries were in Zone 6 tribal fisheries, while 26% were in mainstem sport and commercial fisheries.

SECTION 3. MONITORING AND EVALUATION

3.1) Description of the specific monitoring of the “Performance Indicators” listed in section 1.1.3.

Monitoring of fisheries within the TRMP management area will be conducted using statistical catch and handle estimates in stratified, random, roving creel surveys conducted in the areas of allowed harvest. In addition, spot checks and in-season phone surveys of known tribal fishers will be conducted by CTUIR and NPT for the tribal fisheries. Information to be collected during statistical creel surveys will include location, gear type, number harvested, catch composition (including marks and biological data), and effort. Follow-up post-season phone surveys of tribal fishers will be conducted and data from volunteer returns of sport license salmon tags will be collected. Monitoring will provide estimates of catch and harvest for marked and unmarked chinook by tributary, estimates of tribal and sport effort by tributary and estimates of resulting spawner escapement and composition.

3.2) Description of other monitoring and evaluation not included in the Performance Indicators (section 3.1) which provides additional information useful for fisheries management.

Information from Columbia River fisheries and Columbia and Snake rivers dam counts will be utilized to assess impacts from mainstem fisheries on Grande Ronde natural and hatchery run components as the season progresses.

3.3) Public Outreach

Public notice of Tribal policy approved tributary spring chinook fishing regulations will be sent to a comprehensive list of tribal fishers and published in the tribal newspapers. In addition, the regulations will be posted in tribal offices. A special pamphlet describing the sport fishery will be published and distributed to local vendors in Union, Wallowa and surrounding counties. It

⁶ Columbia River treaty and non-Indian spring chinook fishery seasons are now guided by the 2005-2007 Interim Management Agreement that covers upriver spring chinook.

will also be available at local ODFW offices, at Lookingglass Hatchery, and posted in the fishery area. In addition, the fishery will be publicized in local newspapers.

3.4) Enforcement

The Oregon State Police will incorporate the Grande Ronde sport fisheries into their enforcement planning. CTUIR Fish and Wildlife officers will provide enforcement for the tribal fisheries. Enforcement contact information will be used to develop estimates of regulation compliance (Performance Indicator).

3.5) Schedule and process for reviewing and modifying fisheries management.

A post-harvest review following each harvest season will be conducted and a post-season report will be produced. The review and report will be used to assess the fisheries success and identify potential modifications to improve fisheries planning.

3.5.1) Description of the process and schedule that will be used on a regular basis (e.g. annually) to evaluate the fisheries, and revise management assumptions and targets if necessary.

The post-season report outlining fisheries characteristics as they relate to performance indicators will be completed following each fishery season. The report will be utilized to evaluate fishery impacts and options to improve performance of run projections, harvest criteria, fishery logistics, monitoring and enforcement.

3.5.2) Description of the process and schedule that will occur every X years to evaluate whether the TRMP is accomplishing the stated objectives. The conditions under which revisions to the TRMP will be made and how the revisions will likely be accomplished should be included.

Fishery outcomes relative to performance indicators will be evaluated annually and a detailed review will occur after five harvest cycles. Modifications to the plan will occur as needed.

SECTION 4. CONSISTENCY OF TRMP WITH PLANS AND CONDITIONS SET WITHIN ANY FEDERAL COURT PROCEEDINGS

This TRMP has been developed in conjunction with ODFW and will be consistent with on-going proceedings in *U.S. v. Oregon*. A 50:50 harvest allocation principal will be adhered to in the fishery with neither the tribal nor sport fishery harvesting over 50% of the available surplus. An 85:15 impact allocation on natural-origin fish will also be implemented in tribal and state fisheries in the Grande Ronde River.

Implementation of this plan for harvest management is consistent with the legally enforceable treaty-reserved fishing rights held by the Nez Perce Tribe (NPT) and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), along with the Secretary's trust responsibilities to Indian tribes. The Tribal Management Plan is also consistent with the existing and ongoing federal court proceeding in United States v. Oregon. The levels of harvest as proposed above and the harvest effects analysis illustrates that implementation of this plan will not appreciably reduce the likelihood of survival and recovery of listed Snake River spring/summer Chinook salmon that return to the Grande Ronde River system.

The approach represents an effort to reach a balance between the conservation needs of the fish and meaningful treaty harvest by the NPT and CTUIR in the Grande Ronde basin. The plan calls for a greater accounting of all mortality sources that affect the VSP parameters (abundance, productivity, diversity, and distribution) of Grande Ronde River spring chinook and requirement that treaty harvest not bear the conservation burden disproportionately than those occurring in the other non-Indian mortality sectors. The Nez Perce Tribe and CTUIR expect that this plan to be evaluated consistent with the "conservation necessity" principles regarding the exercise of treaty fishing rights.

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APPENDIX D

Annual Fishery Implementation Plan for Nez Perce Grande Ronde Spring Chinook Fisheries - 2006

**2006 NEZ PERCE TRIBE
ANNUAL FISHERY IMPLEMENTATION PLAN
FOR NEZ PERCE GRANDE RONDE SPRING CHINOOK
FISHERIES**

Nez Perce Tribe

July 7, 2006

A Fishery Implementation Plan (FIP) Objective

The Nez Perce Tribe, Confederated Tribes of the Umatilla Indian Reservation (CTUIR), and the Oregon Department of Fish and Wildlife (ODFW), have coordinated on annual pre-season and in-season run size estimates for Snake River spring/summer Chinook salmon expected to return to the Grande Ronde River Subbasin. The Nez Perce Tribe, along with the CTUIR, will submit in the future a revised long-term Grande Ronde tribal resource management plan (TRMP) to NOAA Fisheries that describes how year-specific treaty harvest will be determined.

The objective is to apply harvest rates and corresponding total treaty take (hatchery and natural origin fish) to the 2006 predicted returns to the Lostine River. Lostine River hatchery management activities will occur as identified in the weir management sliding scale approach as implemented by the Nez Perce Tribe and agreed to in the 2006 Annual Operating Plan (AOP) coordination process.

The Nez Perce Tribe has determined that the projected returns to the Lostine River are sufficient to conduct a treaty harvest and still contribute fish to hatchery broodstock needs and natural spawning goals. Area open to fishing by Nez Perce tribal members include the Lostine River from the confluence with the Wallowa River upstream to 60' below the adult weir on the Lostine River. The area upstream of the weir is prohibited from fishing. Typically, a tribal fishery may occur from June 15 through July. This year due to run timing and fishery planning circumstances, the season may run from the first week through the third weekend in July, or until the harvest number is achieved. Fishing gear permitted may include dipnet, gaff, longbow, spear and hook and line. Final season structure will be set by tribal regulations. Other Grande Ronde River tributaries (e.g., Catherine Creek and Lookingglass Creek) are not included in this year's fishery plan.

A Projected 2006 Return and Management

The projected return of Snake River spring/summer Chinook salmon in the Lostine River for 2006 is 380 fish (72% hatchery-origin and 28% natural-origin) (Table 1).

Table 1. Projected adult returns of Snake River spring/summer Chinook salmon in the Lostine River in 2006 (revised NPT data).

* The hatchery-origin adult forecast includes jacks. These fish are either from the conventional or captive brood hatchery programs.			
Component	Jacks	Adults	Total
Hatchery-origin*	--	272	272
Natural-origin	12	96	108
Total	12	368	380

The 2006 Lostine River forecasted run size and run composition is 55% of the 2005 predicted run size of 692 fish (168 natural-origin and 524 hatchery-origin). Applying a more conservative harvest rate than used in 2005, a tribal fishery is proposing an overall 1% harvest rate on natural-origin Chinook and 1.5% harvest rate on hatchery-origin Chinook.⁷ The Nez Perce Tribe will target a total of 5 spring Chinook (1 natural-origin and 4 hatchery-origin fish) with adults and jacks counting towards the harvest goal.

The Nez Perce Tribe proposed in 2005 a 1.7% harvest rate on 280 natural-origin fish for a take of 5 fish, and a 2.9% harvest rate on 524 hatchery-origin fish for a take of 15 fish in the Lostine/Wallowa river system (Table 2). The tribal fishing effort was focused primarily in the reach of the Lostine River downstream of the trap, with no documented effort occurring in the Wallowa River. The proposed take of 20 fish represented a take percentage of 2.5% of the combined 804 projected returns to the Lostine and Wallowa rivers. Actual take was estimated to be 25 fish in the Lostine River (0 natural-origin and 25 hatchery-origin), or 4.8% of total Lostine River hatchery-origin predicted returns. A total of 2 natural-origin fish were caught but released in this fishery.

Table 2. The Nez Perce Tribe treaty harvest of Lostine River spring Chinook in 2005.

Year	Run Size Forecast			Authorized Take			Estimated Take		Total Actual Take
	N-O	H-O	Total	N-O	H-O	Total	N-O	H-O	
2005	280	524	804	5	15	20	0	25	25

A Application of the Tribal Resource Management Plan

Applying the harvest strategy to the 2006 estimated return would result in the distribution of fish as shown in Table 3.

Table 3. Distribution of adult Snake River spring/summer Chinook salmon returning to the Lostine River in 2006.

Number of Fish Post Tribal Harvest	107	268	375
Hatchery Broodstock	17	71	88
Available for Outplant	0	0	0

⁷ The Nez Perce Tribe is still developing a harvest sliding scale approach that will be used on an annual basis to determine annual harvest rates and corresponding take for the Lostine River.

Total Natural Spawning	90	197	287
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The anticipated number of fish allowed to spawn naturally in the Lostine River is expected to be less than the previous year's predicted natural spawners of 542 fish (236 natural-origin fish) because the overall projected escapement to the Lostine River is smaller.

A Impact of Tribal Management Plan on Escapement Objectives

The expected 2006 spring Chinook return and run composition is skewed to hatchery-origin fish. A majority of the natural-origin fish will be permitted to spawn naturally after a harvest of 1 fish (Figure 1).

It is estimated that of the 108 natural-origin spring Chinook that will return to Lostine River, the following distribution percentages will occur: 1% for treaty harvest; 15.7% for broodstock, and 83.3% for natural spawning. Likewise for the 272 hatchery-origin Chinook, the overall distribution percentages constitutes: 1.5% for treaty harvest, 26.1% for hatchery broodstock, and 72.4% for natural spawning. This tribal fishery harvest ensures hatchery broodstock needs would be met for the Lostine River.

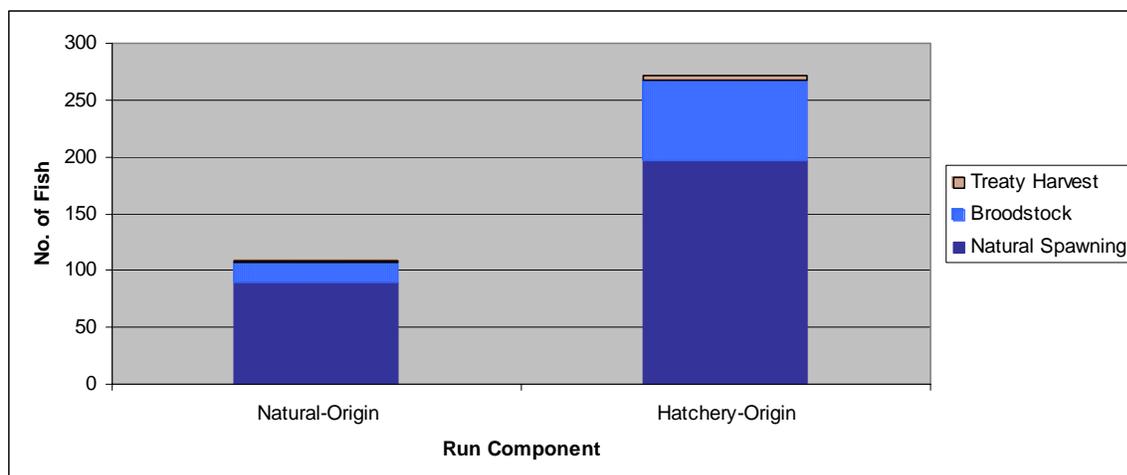


Figure 1. 2006 distribution of Lostine River spring Chinook between treaty harvest, hatchery broodstock requirement, and natural escapement.

The application of the FIP would not significantly affect the year-specific condition or status of the Snake River spring/summer Chinook salmon in the Lostine River. Treaty harvest is an important element to fulfill in the management of expected Lostine River spring/summer Chinook returns. The tribal application of this management plan continues to rely on hatchery-origin fish to rebuild and recover this local Snake River spring/summer Chinook population.

After harvest, the number of fish allowed to spawn naturally in the Lostine River is 287 fish, of which 90 would be natural-origin fish.

A MONITORING AND ENFORCEMENT

An inseason interview census monitoring will be utilized to monitor and evaluate treaty fishing effort and take. Conservation enforcement officers will conduct routine patrols of the fishing area to promote enforcement of treaty fishery regulations.

A REPORTING

The Nez Perce Tribe will distribute fishing effort and take numbers to the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), Oregon Department of Fish and Wildlife (ODFW), and NOAA Fisheries on a bi-weekly schedule.

A CONCLUSION

Treaty fishery harvest will not appreciably slow or impede the conservation or recovery efforts being conducted within the Lostine River, and provides a method to apply tribal fisheries designed to achieve hatchery and natural escapement objectives. After harvest, 375 fish can be committed to those objectives. This annual fishery implementation plan does not appreciably reduce the long-term likelihood of survival and recovery of the Snake River spring/summer chinook ESU. Further, an assessment within the Lostine River itself also shows that impact of the proposed harvest to be minimal. Because actions would be contained within the Lostine River, the recovery or likelihood of survival of the entire ESU would not be affected.

The Nez Perce Tribe recognizes that treaty harvest must be assessed in the context of other non-Indian constraints (habitat, hatchery, harvest, and hydro) on Chinook survival and productivity. Furthermore, this tribal fishery must be implemented so that conservation harvest restrictions do not discriminate against Nez Perce Tribe fishing rights and is implemented in a least restrictive manner.

The Nez Perce Tribe expects the 2006 tribal fishery implementation plan (FIP) for the Grande Ronde River Subbasin to be evaluated consistent with the “conservation necessity” principles regarding the exercise of treaty fishing rights. This annual plan provides for year-specific, voluntary tribal actions that continue to contribute to the conservation and recovery of this local Chinook population.

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APPENDIX E

2007-2011 Nez Perce Tribal Management Plan for Snake River Spring/Summer Chinook in the Imnaha River Subbasin

**2007-2011 NEZ PERCE
TRIBAL RESOURCE MANAGEMENT PLAN
FOR SNAKE RIVER SPRING/SUMMER CHINOOK
IN THE IMNAHA RIVER SUBBASIN**

Nez Perce Tribe

July 2006

IMNAHA RIVER SUBBASIN

General Objective of the Imnaha River Tribal Resource Management Plan

The objective of this multi-year Tribal Resource Management Plan (TRMP or Tribal Plan) is to describe the Nez Perce Tribe treaty fishery regime for the Imnaha River Subbasin. Snake River spring/summer Chinook are listed under the Endangered Species Act (ESA). The Imnaha River spring Chinook tribal fishing regime is designed to permit annual ‘meaningful degree’ of treaty harvest opportunities consistent with the “conservation necessity” principles regarding the exercise of treaty fishing rights. The Plan provides for voluntary tribal actions that continue to contribute to the conservation and recovery of this local Chinook population through application of conservation harvest rates. Other sources of mortality affecting the Imnaha spring Chinook will need to be addressed to complement tribal sacrifice in harvest.

Additionally, the Tribal Plan is to: 1) provide for the meaningful exercise of federally-protected Nez Perce treaty fishing rights; 2) provide for tribal and non-tribal fishing opportunity co-managed under the continuing jurisdiction of U.S. v. Oregon; 3) describe associated hatchery operations that affect the listed anadromous fish; and 4) provide a method to assist the federal government re-allocate the conservation burden through the use of the harvest sliding scale that allows more impacts on natural-origin fish in tribal than non-Indian sport fisheries. This Tribal Plan will be used to define long-term tribal take limits and distribution of natural-origin and hatchery-origin fish that return to the Imnaha River based on levels of annual adult escapement and run composition. The Tribal Plan will specify activities that are to be conducted by the Nez Perce Tribe and will remain coupled to harvest activities that are to be conducted by the State of Oregon. Any changes required to this Plan that involve tribal take limits or other fishery conservation measures first needs to have a thorough Conservation Necessity Principle analysis and meaningful government-to-government dialogue before tribal revision and adoption.

Imnaha River

Population Status

Historically, the Imnaha River Subbasin supported healthy runs of natural spring/summer chinook salmon⁸ - estimated at approximately 6,700 fish prior to the construction of the four Lower Snake River dams (USACE 1975). Peak escapement in recent history was estimated as ranging from 432 to 6,582 fish (Table 1 and Table 3). The past five years have seen large escapements (combined natural-origin and hatchery-origin) as depicted in Table 3.

Table 4. Depicts returns for 1957 – 1978 (from ODFW 2001).

Year	Estimated Return to River
1957	4,391
1958	1,548
1959	874
1960	2,070
1961	1,280
1962	1,382
1963	755
1964	1,380
1965	1,048
1966	1,261
1967	1,203
1968	1,420
1969	1,683
1970	976
1971	2,049
1972	1,884
1973	3,061
1974	1,529
1975	823
1976	701
1977	871
1978	2,291

⁸ A detailed discussion of the biology of Imnaha River Chinook salmon is presented in the Northeast Oregon Hatchery Master Plan (Ashe et al., 2000). Chinook salmon returning to the Imnaha River fall into both the spring chinook and summer chinook migration timing categories. Fish begin entering the Imnaha River in late-April with peak entry in mid-to-late June. Most spring/summer Chinook salmon are in the Imnaha River by the end of July. Presently, most salmon in the Imnaha River spawn from the Blue Hole to Crazyman Creek (RM 42.8). Some salmon have been observed spawning as far upstream as the lower reaches of the South Fork and as far downstream as Freezeout Creek (RM 29.4). Few spring/summer Chinook salmon currently spawn in Big Sheep and Lick creeks. The majority of spawning in Big Sheep Creek currently occurs from RM 29.4 to RM 33.4. The majority of spawning in Lick Creek occurs in the lower 2.3 miles.

Escapement Objectives

Several escapement objectives have been established for the Imnaha River. The Columbia River Treaty Tribes' Tribal Recovery Plan (Nez Perce Tribe et al. 1995) defines an adult return goal of 5,740 fish, of which 3,800 are for natural production and 700 for harvest. Goals developed by co-managers in Imnaha Subbasin Plan (Nez Perce Tribe et al. 1990) were 5,770 total fish (3,820 for natural spawning, 1,240 for hatchery production, and 700 for harvest). The Imnaha River Subbasin Plan also has an adult return goal of 5,740 fish and 3,820 fish for natural spawning, in addition to a hatchery broodstock component of 320 fish and at least 700 for in-basin harvest (Nez Perce Tribe et al 2004). The Lower Snake River Compensation Plan has a smolt production goal of 490,000 fish.

Previously, NMFS suggested an interim abundance target for the Imnaha spawning aggregate at 2,500 fish in their Proposed Interim Abundance and Productivity Targets for Pacific Salmon and Steelhead Listed under the Endangered Species Act in the Interior Columbia River (NMFS 2002). The NMFS abundance target has been replaced by the Technical Recovery Team (TRT) preliminary draft guideline of 1,250 (750 Imnaha River and 500 Big Sheep) spring/summer Chinook as a viable population in respect to population level abundance, productivity, spatial structure, and diversity for the Imnaha River Subbasin (TRT 2005). The Nez Perce Tribe recommends a "Minimum Conservation Adult Salmon Spawner" of 1,076 spring/summer Chinook for the Imnaha River. Recently, the U.S. v. Oregon Technical Advisory Committee (TAC) has been assigned the task to determine escapement objectives for spring Chinook in the Columbia River Basin. This plan will incorporate the TAC-generated Imnaha River escapement objective once it is completed.

A multitude of factors determine the risk of extinction faced by a population, and the difficulty of simultaneously assessing these factors has led to the broad application of numerical thresholds based on either demographic or genetic factors (Lande 1988). Further complications arise from social interactions and behavioral attributes of populations that result in responses to changes in abundance and productivity that may not be readily predicted by either genetic or demographic considerations.

Annual thresholds can be grouped into three basic categories; management goals, viability, and functional extirpation. Management goals encompass the long-term desired conditions that support full ecosystem processes and substantial harvest opportunities. These goals have been described in subbasin plans and are typically in the thousands to ten of thousands of fish. The viability range includes; minimum spawner escapement thresholds⁹, recovery goals, or viability level. The viability range is estimated to be from

⁹ NPT Minimum spawner escapement threshold calculated as $Nb/(Nb/N)/\text{Geomean } S/S$ ratio. Nb of 100 was used. Nb varies (50, 100, 200) with the four broad classes of uncertainty, geographic scale, habitat diversity, and demographics. The 8-year geometric mean spawner/spawner ratio is 0.92 (BY93-00; ODFW

150 to 2,000 (Table 2). This range is associated with sustainable but with limited robustness to support significant harvest or short-term (4-5 generations) productivity below replacement. The low end of escapement describing functional extirpation or quasi-extinction, as coined by the Technical Recovery Team (TRT), includes annual escapements of 20 to 250 (Table 2). Each of these categories vary in their application of annual versus generational characterization, hatchery:natural composition, effective population size, N_b/N ratio, and spatial-scale of application.

Table 5. Summary of viability and extirpation levels currently prescribed for salmon management goals, specifically applied to Imnaha River (including Big Sheep Creek) (ICTRT populations in the Imnaha River Subbasin).

Threshold Description	Originating Group/Process	Prescribed Abundance	Natural:Hatchery Composition	Timeframe
Minimum Conservation Adult Salmon Spawner Escapement Goals	NPT	1,076	Combined Natural and Hatchery Origin/ Natural Origin	Annual / 8 year geometric mean
Interim Abundance Guidelines	NOAA –ICTRT	1,000 ¹⁰	Natural Only	10 – year geometric mean
Viability Threshold	Section 10 permit 1128 application	700	Combined Natural and Hatchery Origin/ Natural Origin	Annual
Conservation Hatchery Initiation Threshold	HSRG	500	Origin not specified; 375 spawning naturally and 125 hatchery broodstock	Annual
Minimum Genetic Diversity Threshold	NPT	250	Not specified	Annual
Minimum Escapement	BRWG	150	Not specified	Annual
Quasi-extinction	NOAA – ICTRT	50	Natural	Annual assessment for 5 year periods

The existing range of escapement goals and viability thresholds (CRITFC, Imnaha Co-managers, NMFS, TRT), and likely TAC goal, for the Imnaha River, and the underlying science which produced them, leaves the co-managers in a situation of determining which goal or threshold is appropriate to evaluate harvest as described in this multi-year plan.

unpublished data). N_b/N ratio of 0.1 identified as a conservative approach for conservation application (Foose et al 1995).

¹⁰ ICTRT classified the Imnaha River mainstem as an intermediate population (750) and Big Sheep Creek as a basic population (500). Big Sheep Creek is considered functionally extirpated. Current management practices combine the Imnaha mainstem and Big Sheep Creek areas in a single unit. As such, an ICTRT designation of “large” (1,000) will be applied in this plan.

The Nez Perce will use two viability thresholds to analyze effects of harvest to the Imnaha River spring/summer Chinook salmon population: (1) the TRT population viability goal and (2) the Nez Perce Tribe “Minimum Conservation Adult Salmon Spawner”. The TRT viability goal is primarily concerned with the natural-origin fish abundance and productivity, while the NPT minimum spawner viability threshold goal accounts for combined natural-origin and hatchery-origin fish relative to population abundance and productivity.

Hatchery Program

A hatchery program was initiated in the Imnaha River in 1982, under the auspices of the Lower Snake River Compensation Plan, using local broodstock. This hatchery program (described in Ashe et al, 2000) has been refocused from a mitigation program to a conservation and restoration program which allows for potential harvest opportunities consistent with recovery efforts. This integrated propagation program is designed for conservation and recovery of the Snake River spring/summer Chinook salmon ESU while maintaining an important role in fulfilling Nez Perce trust and treaty obligations and in supporting non-Indian recreational fishing.

This hatchery program was developed using local broodstock; wild adults returning to the Imnaha River were collected to develop the hatchery broodstock. “Natural” adults (those resulting from parents spawning in the stream) have been incorporated into the hatchery broodstock every year. It is estimated that an average of 65% of the Imnaha River annual adult escapement is trapped at the weir location.¹¹ The remaining fish spawn below the weir location and some fish pass above the weir prior to installation.

The Nez Perce Tribe and Oregon Department of Fish and Wildlife developed key objectives for the hatchery program, as described in the draft ODFW Hatchery and Genetic Management Plan (HGMP); (1) establish annual broodstock to meet LSRCP mitigation goals, (2) restore and maintain the natural spawning population, (3) re-establish sport and tribal fisheries, (4) meet LSRCP mitigation goal through activities to establish total annual return of adult fish, and (5) minimize the impacts of the program on resident game fish (ODFW 2003).

The program is operated specifically to address both demographic and genetic risks, and minimize the chance of extirpation and domestication selection. The broodstock

¹¹ Broodstock collection for the hatchery, as well as monitoring activities on the run, occur at a weir located just downstream of Gumboot Creek (Figure 1). Based on recent trapping information, an estimated 65% of the run is trapped at the weir, while the remaining 35% either spawns downstream of the weir, or passes upstream of the weir prior to its installation. Fish trapped at the weir are either released upstream of the weir to spawn naturally, taken for broodstock for the hatchery, or are outplanted to tributaries (Big Sheep and Lick creeks). Hatchery broodstock are transported to Lookingglass Hatchery for spawning and their eggs are currently transported to Oxbow and Irrigon hatcheries for incubation and rearing. Smolts are returned to the Gumboot facility for acclimation prior to release.

management protocol ensures that hatchery-origin and natural-origin fish are incorporated into both the natural spawning and hatchery components. Electrophoretic analysis of Imnaha spring/summer Chinook salmon by NMFS has determined that Imnaha River hatchery-produced fish did not differ from naturally-produced fish (Waples et al. 1993). As shown in Table 3, hatchery produced fish have contributed to the naturally spawning population annually since 1985. In addition, natural fish have been collected for hatchery broodstock annually since 1982.

Imnaha Subbasin

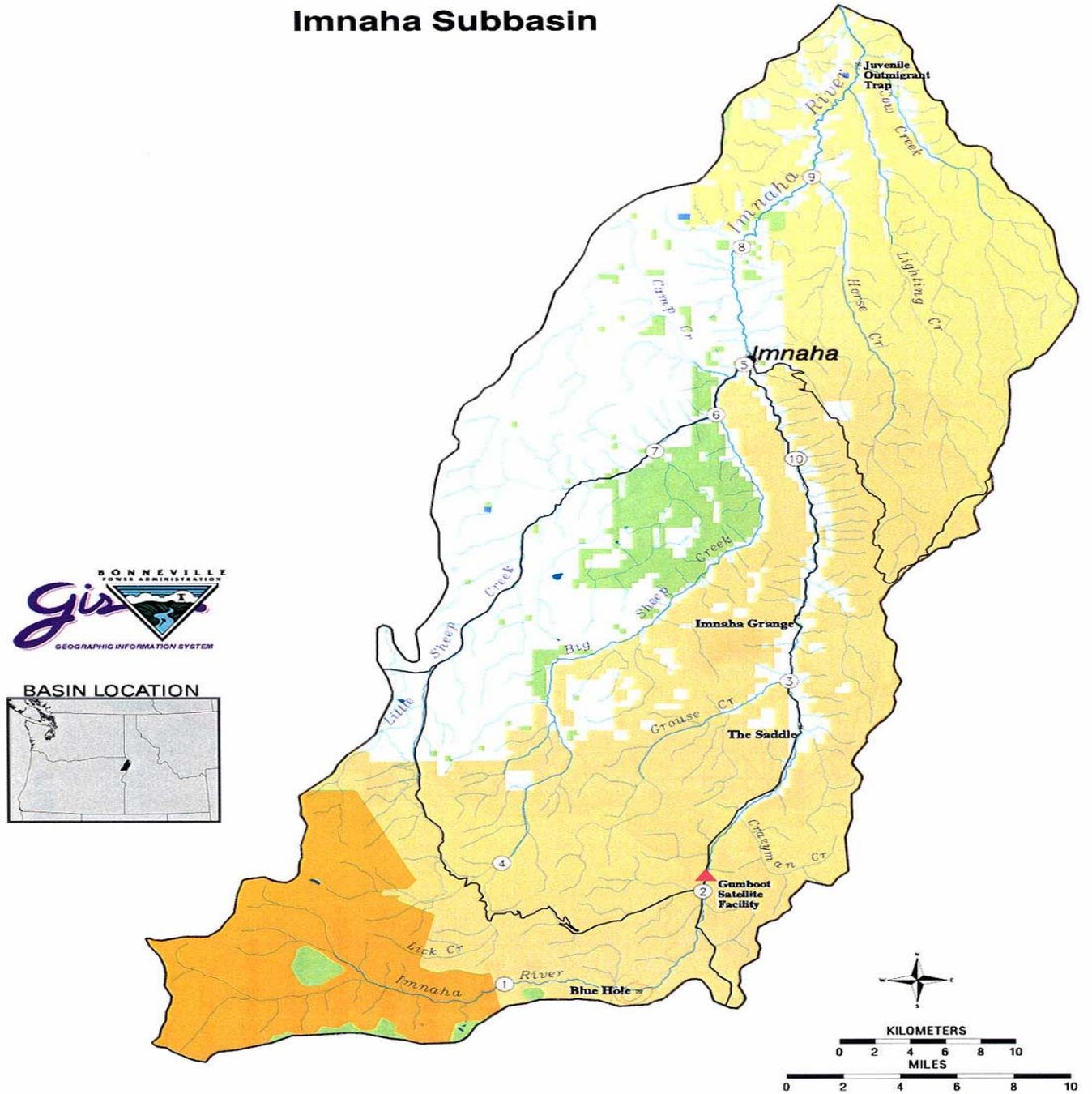


Figure 2. The Imnaha River Subbasin located in northeast Oregon.

Table 6. Total Escapement, Number of Broodstock Collected, and Number and Origin of Natural Spawners in the Imnaha River (1979–2004).

Year	Total Escapement	Broodstock Collected		Natural Spawners		Natural Spawners of Hatchery Origin (%)
		Natural	Hatchery	Natural	Hatchery	
1979*	192	0	0	192	0	0
1980*	125	0	0	125	0	0
1981*	307	0	0	307	0	0
1982	1,262	28	0	1,234	0	0
1983	990	64	0	926	0	0
1984	1,178	36	0	1,142	0	0
1985	1,844	115	14	1,573	142	8
1986	1,165	315	21	788	51	6
1987	644	83	22	484	55	10
1988	928	140	68	609	111	15
1989	697	105	187	297	108	27
1990	627	81	159	199	188	49
1991	959	51	262	198	448	70
1992	1,353	54	331	205	763	79
1993	1,724	58	394	430	842	66
1994	311	20	31	118	142	55
1995	432	38	30	204	160	44
1996	535	72	61	266	136	34
1997	517	23	149	129	216	63
1998	586	77	57	255	197	44
1999	1,676	22	254	287	1,113	80
2000	2,364	49	282	647	1,364	68
2001**	6,582	86	169	2,549	2,787	53
2002**	5,269	32	200	1,042	3,311	77
2003**	5,729	40	197	1,623	3,020	66
2004	2,823	55	157	384	1,037	73

Notes: Jacks and fish harvested are included in the estimates. Total escapement is the sum of total natural spawners estimated from redd counts and fish retained for hatchery broodstock.

*Estimates prior to 1982 are based on redd counts above the location of the weir and not expanded for those fish spawning below the weir location.

**Updated total escapement and corresponding distribution numbers by ODFW from those reported in previous TMPs. Brad Smith, District Fish Biologist.

Data sources: Parker (1997) and data from ODFW files, LaGrande office.

The Salmonid Hatchery Inventory and Effects Evaluation Report (NMFS 2004) assessment of the effects of the Imnaha Hatchery Program on the Snake River spring/summer Chinook ESU, as determined using the four Viable Salmonid Population (VSP) criteria, concluded the following:

Abundance – The propagation program has apparently contributed to increasing the total number of fish in the combined natural and hatchery origin population. Adult returns have increased to average 4,400 fish in the past 5 run years compared to 775 in the preceding decade. Natural spawning escapements of combined hatchery and natural-origin fish have increased to numbers similar to the peak abundance recorded in the 1950s and 1960s.

Productivity – Productivity in recent years has markedly increased from that seen in the 1980s and 1990s. Some of the large natural-origin returns in the past few years were produced by spawning escapements that were 70% or more hatchery-origin fish. However, much of this improved survival is thought to be based on generally improved ocean conditions and longerterm affects on natural fish productivity remains uncertain.

Diversity – The program attempts to maintain genetic diversity representative of the source population. In some years, the weir can not be installed in the river until after flows drop and the early component of the run can not be collected. It is unclear what effect this may have over time, but currently no signs of divergence have been reported. The out-planting of adults from the Imnaha program into the Big Sheep Creek basin may have reduced the diversity within the Imnaha basin, however, natural fish were are very low abundance levels when this outplanting was initiated in the mid 1990s. The historic Big Sheep and Lick Creek spawning aggregates may no longer survive as an independent population.

Distribution – Spring/summer chinook salmon are using available habitat throughout the mainstem Imnaha River. However, there is some indication that a slightly larger percentage of fish spawn below the weir that did historically.

The total escapement to the Imnaha River for the time period 1985-2004 has ranged from 311 (1994) to 6,582 (2001). The natural spawning fish of hatchery-origin have increased during this time period from 6% (1987) up to 80% in 1999. The recent five-year average (2000-2004) for hatchery-origin fish spawning naturally in the Imnaha River is 67% (includes areas above and below the Gumboot weir).

ESA Listed Population

The National Marine Fisheries Service (NMFS) has listed several populations of Columbia River Basin salmon under the Endangered Species Act (ESA). In May 1992, NMFS listed the Snake River spring/summer chinook Evolutionarily Significant Unit (ESU) as threatened. This ESU includes all natural (non-hatchery) populations of spring and summer chinook in the tributaries in the Snake River upstream of the confluence of the Snake and Columbia rivers (excluding the Clearwater River). Additionally, as a result of NMFS' (now NOAA Fisheries) final 2005 listing determinations (50 CFR 37160; June 28, 2005), the Imnaha River and Big Sheep stocks are considered to be a part of the ESU. In the Imnaha River Subbasin, both natural and hatchery fish are considered

listed, although the take prohibitions contained in NOAA's regulations do not apply equally.

Three other salmon ESUs listed under the ESA occur in the Snake River Basin: endangered Snake River sockeye salmon, threatened Snake River fall chinook salmon, and threatened Snake River steelhead. Snake River fall chinook and sockeye are not present in this subbasin during the fishery and therefore will not be caught in any Imnaha River fishery. Impacts to steelhead are expected to be negligible. Spawning of steelhead generally occurs from late April to early June in the Imnaha River and therefore are not targeted in this fishery.

Sliding Scale Management Strategy

As a result of U.S. v. Oregon Dispute Resolution, the Nez Perce Tribe and the State of Oregon cooperatively developed a hatchery and harvest management plan for restoration of Imnaha River spring/summer chinook, using the Lower Snake River Compensation Plan Imnaha hatchery program. The management plan was submitted to NMFS in an ESA Section 10 Permit application in 1998 (ODFW 1998). The agreed to plan contains a sliding scale management strategy to define the long-term allocation of the natural and hatchery fish that are trapped at the weir and appropriate harvest opportunities (tribal and non-tribal fisheries) based on levels of adult escapement (Table 4 and 5). In this document, the sliding scale has been expanded to include a harvest matrix framework that will be used to determine annual harvest of Imnaha River spring/summer Chinook salmon (hatchery-origin and natural-origin fish).

This Tribal Plan is intended to be multi-year harvest management plan for Snake River spring/summer chinook salmon in the Imnaha River for the years 2007-2010. Hatchery management activities will occur as identified in the sliding scale resulting from U.S. v. Oregon Dispute Resolution, as incorporated in previous section 10 permits, and agreed to in the draft HGMP and from Annual Operating Plan (AOP) coordination activities. This multi-year harvest and hatchery management strategy and plan has been developed jointly by co-managers through the Northeast Oregon Hatchery planning process, U.S. v. Oregon and other forums.

Table 7. Sliding scale developed for allocation of Snake River spring/summer chinook salmon in the Imnaha River collected at the Gumboot Weir to natural spawning or hatchery production.

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<p>NA – Not applicable.</p> <p>a – Percentages determined as a result of implementing other criteria, therefore not a decision factor.</p> <p>Source: ODFW 1998.</p>					

Escapement Level	Start Captive Brood Program	Collect for hatchery broodstock and spawn	Release to spawn naturally above weir	Outplant (hatchery fish only)	Harvest for Tribal Ceremonial Use	Harvest for Tribal Subsistence	Constraints on % of hatchery or natural for release or broodstock	Recreational Harvest
<300 for 2 consecutive years*	Yes	No	No	No	**	**	No	No
51-700	No	Yes	Yes	No	Yes	**	No	No
>700 (see criteria below)	No	Yes	Yes	Yes	Yes	Yes	Yes	**

Criteria and Priorities for fish trapped at the weir:

1. Retain natural adults at the maximum allowable percentage defined in the sliding scale up to that needed to achieve the egg take goal of 576,500 green eggs.
2. Retain hatchery adults to meet broodstock needs at the rate equal to the number allowable to meet the minimum percentage of broodstock that must be natural origin. Spawn all fish that are collected for broodstock.
3. Do not retain more than 320 (160 females and 160 males) adults for combined natural and hatchery broodstock.
4. Release hatchery fish above the weir up to the rate equal to the percentage of adults released above the weir that can be hatchery origin.
5. Hatchery fish that are excess to what is needed for broodstock and releases above the weir will be outplanted to Big Sheep and Lick Creek or harvested.
6. No more than 10% of males placed above the weir will be hatchery origin jacks. All other hatchery jacks will be spawned with the total hatchery jack contribution to fertilization not to exceed 10% of the eggs.

*Co-managers would submit a modification to the existing permit application to initiate a captive broodstock component for the Imnaha program.

** Decision would be made on a case-by-case basis.

Source: ODFW.

Table 8. Management guidelines.

Harvest Matrix

Annual harvest management of Snake River spring/summer Chinook salmon returning to the Imnaha River will be determined by using the following management sliding scale and harvest matrix to predict year-specific levels of tribal treaty take based on annual forecasted return and run composition information. State fisheries are to be managed according to maximum sport harvest rates. This harvest matrix approach has been developed to maintain consistency with the ODFW sport harvest goals. It builds upon recently implemented (2001-2004) tribal treaty and sport harvest rates for natural-origin and hatchery-origin fish run composition and escapement levels. This abundance-based strategy is designed to be conservative on low returns levels (i.e., on low combined return for both hatchery-origin and natural-origin fish) to ensure broodstock collection and natural escapement occurs consistent with identified escapement goals and viability thresholds, while still permitting conservative tribal ceremonial and/or subsistence fisheries on these returns.

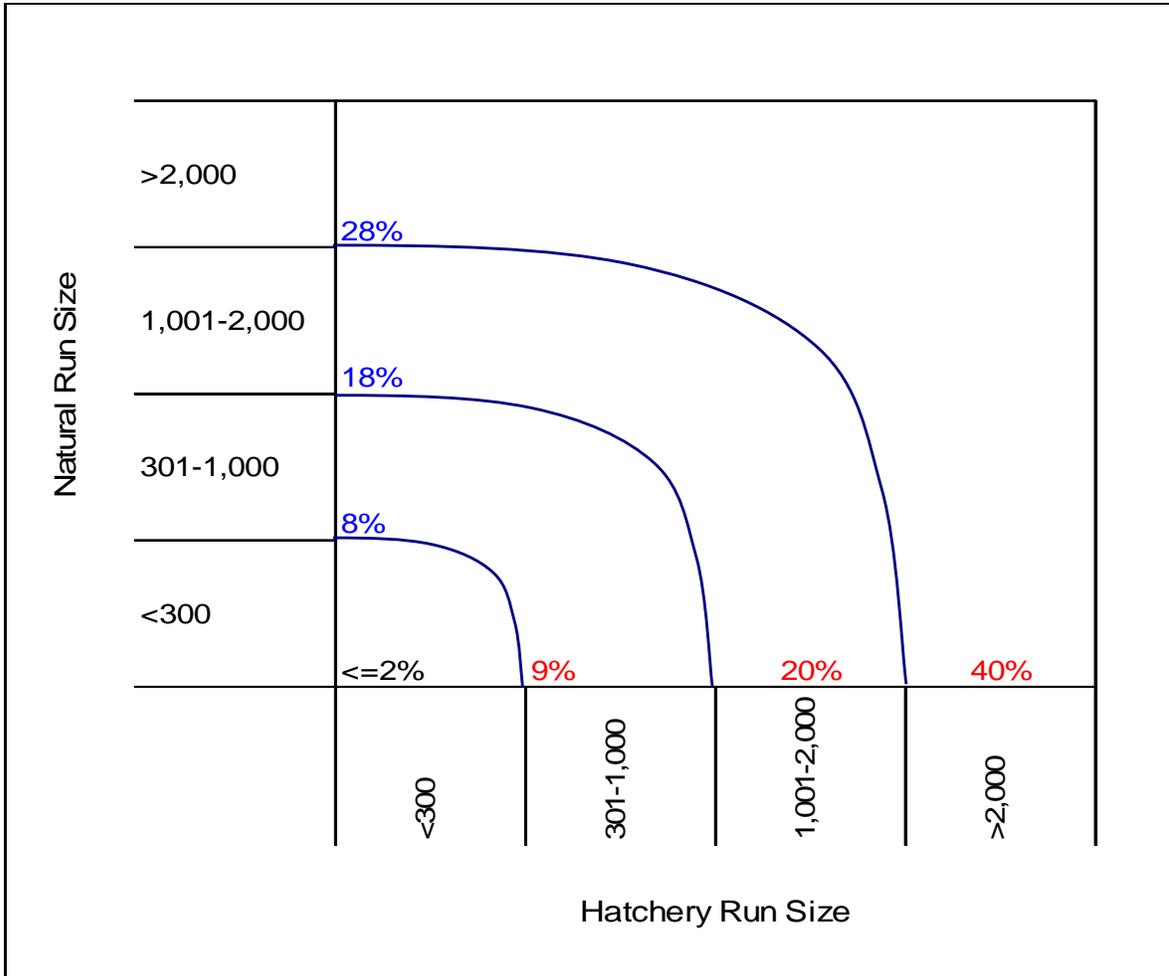


Figure 3. Innaha River Harvest Matrix for Adult Snake River Spring/Summer Chinook Salmon.

The harvest rate levels for Innaha River spring/summer Chinook salmon in tribal fisheries implemented according to this plan shall not exceed the numbers provided by the sliding scale,¹² as defined:

- adult escapement <300 for each run component, only a tribal ceremonial fishery will occur with a set 1% harvest rate for natural-origin Chinook and a 2% harvest rate for hatchery-origin Chinook, and no state fishery to be authorized at this run size,
- adult escapement between 301-1,000 fish for each run component, a tribal ceremonial and subsistence fishery is permitted with a 8% harvest rate on the margin for natural-origin Chinook and 9% harvest rate on the margin hatchery-origin Chinook,

¹² Table 5 of the plan provides for tribal ceremonial and subsistence fisheries at all levels of escapement and non-tribal recreational fisheries when total escapement to the Innaha River mouth is expected to be greater than 700.

- adult escapement between 1,001-2,000 fish for each run component, a tribal fishery is permitted an overall 18% harvest rate on the margin for natural-origin Chinook and 20% harvest rate on the margin hatchery-origin Chinook, and
- adult escapement >2,001 fish for each run component, a tribal fishery is permitted an overall 28% harvest rate on the margin for natural-origin Chinook and 40% harvest rate on the margin hatchery-origin Chinook.

But as actual inseason run size increases or decreases from predicted values for each run component independently, this sliding scale strategy (Table 4 above) and matrix approach will allow the Nez Perce Tribe to modify run component harvest rates accordingly. The sliding scale and harvest matrix strategy is designed to account for inter-annual variation in total run size and provide for finer resolution in future management actions that will provide for long-term distribution of adult returns between tribal and state sport harvest, hatchery broodstock, and natural spawning escapement requirements.

The matrix assumes increasing harvest rates at larger run sizes for both natural-origin and hatchery-origin fish but the natural-origin harvest rate increases at a slightly slower rate due to how overall impacts (total take limits) for returns are to be allocated between treaty and sport fisheries. The harvest rates and expected level of treaty take will be implemented as follows: 1) on run sizes less than 300 fish for each run component the natural- and hatchery-origin harvest rates are conservatively set; 2) on all natural-origin run sizes, the tribal direct take will be greater than those allowed for reasonable state selective sport seasons that will also result in incidental/direct take;¹³ and 3) the treaty fishery will target an equal share (50% harvest share) on harvestable fish on all hatchery run sizes greater than 300 fish (Table 6). However, the Nez Perce Tribe expects to reduce our hatchery-origin take to keep within the overall 50:50 harvest allocation principle.¹⁴

At adult run sizes less than 2,000 fish for each run component, this tribal conservation fishing regime keeps natural-origin harvest rate comparable to the hatchery-origin harvest rate in order to account for expected state fishery impacts and the need to allocate the conservation burden for listed salmon so that it does not discriminate against Nez Perce Tribe fishing rights and tribal fisheries can be implemented in a least restrictive manner. For run sizes less than 2,000 adult natural-origin returns, a direct tribal fishery only will occur, of which the set harvest rates will represent a majority of total natural-origin allowable take. For run sizes greater than 2,000 the Nez Perce Tribe will negotiate with the State of Oregon on an appropriate natural-origin harvest sharing arrangement. It is premised on the federal salmon recovery strategy to recognize greater level of impact to tribal fisheries in a manner that allows for nondiscriminatory harvest practices to operate.

¹³ The Nez Perce Tribe prefer that natural-origin harvest rates be determined using the 85:15 harvest sharing framework, or some similar arrangement. An 85:15 sharing principle for natural-origin fish is consistent with annual harvest sharing arrangements from previous Imnaha River tribal resource management plans, U.S. v. Oregon stipulated court orders, and weir management spreadsheet as developed by ODFW. The annual harvest rate for natural-origin fish will only change if actual natural-origin run size decreases or increases from preseason estimated values.

¹⁴ This can be accomplished in the format of the 2006 Nez Perce Tribe Imnaha River fishery implementation plan (FIP). (Table 2 of FIP).

The range of levels used for the hatchery-origin component and the natural-origin component approximate spring/summer Chinook returns to the Imnaha River for the time period 1990-2004. The 1990-2004 period was selected as it encompasses the general time frame that hatchery-produced fish started to significantly contribute to Imnaha River natural spawners (hatchery-origin fish averages to 61% of total return for this 15-year period). The direct linkage between these two rates will likely not occur as projected run sizes for the two run components do not typically equal as depicted in the bulleted summary. Because salmon abundance is highly variable from year to year due to changing environmental conditions, it is expected that the harvest rates for natural-origin Chinook will be significantly lower than that of the hatchery-origin harvest rate, as the hatchery-origin fish will likely continue to be more abundant.¹⁵ The harvest rates are consistent with recent allowed harvest rates under the assumption that these will remain adequately protective for a potential range of run sizes similar to those as recorded for the Imnaha River during the 1990-2004 baseline period.

Therefore, hatchery and natural run size productivity will continue to vary as the Imnaha River integrated propagation program continues to operate to meet LSRCP objectives. Natural-origin fish run sizes were only larger than the hatchery-origin fish for return years 1995, 1996, and 1998, which total escapement for each of those years were less than 600 fish respectively. The hatchery-origin fish on average for this 15-year period constituted 64% of the total annual returns (a low of 37% in 1996 to a high of 82% in 1999). The natural spawners (natural-origin and hatchery-origin) for this time period averages to 69% of the total recorded escapement. The percent of fish allowed to spawn naturally as compared to the total escapement has a range of 54 % as recorded for 1994, up to 85% as recorded for 1996. These circumstances will require the co-managers to design annual fisheries that are responsive to the population abundance and harvest objectives particular to year-specific run sizes.

The year-specific overall direct take limits for each run component respectively can be determined by annual run size and composition estimates and corresponding harvest rates (See Table 6).

¹⁵ In run years where conservation dictates more stringent conservation restrictions, NOAA Fisheries can look at reducing sport fishery impacts. This provides added protection because the overall natural-origin harvest rate will be downgraded as sport impact levels are reduced and then all residual impact will occur in a limited tribal fishery (“irreducible core” tribal harvest).

Table 9. Nez Perce harvest sliding scale and corresponding take levels for Imnaha River spring Chinook returns.

Annual Adult Run Size (N-O and H-O independently)	Natural-Origin Harvest Rate*	Hatchery-Origin Harvest Rate*	Natural-Origin Overall Range of Direct Take	Hatchery-Origin Overall Range of Direct Take
<300	0.01	0.02	3	6
301-1,000	0.08	0.09	3-59	6-70
1,001-2,000	0.18	0.20	59-239	70-270
>2,000	0.28	0.40	>239	>270

*Harvest rates are calculated on the margin of 300, 1,000, and 2,000 run sizes.

The maximum harvest is 9 fish (3 natural-origin and 6 hatchery-origin) on total adult returns equal or less than 600 fish and up to a minimum harvest of 510 fish (239 natural-origin and 270 hatchery-origin) on total adult returns equal to or greater than 4,000 fish. Figure 3 demonstrates estimated treaty take relative to matching natural-origin and hatchery-origin run size.

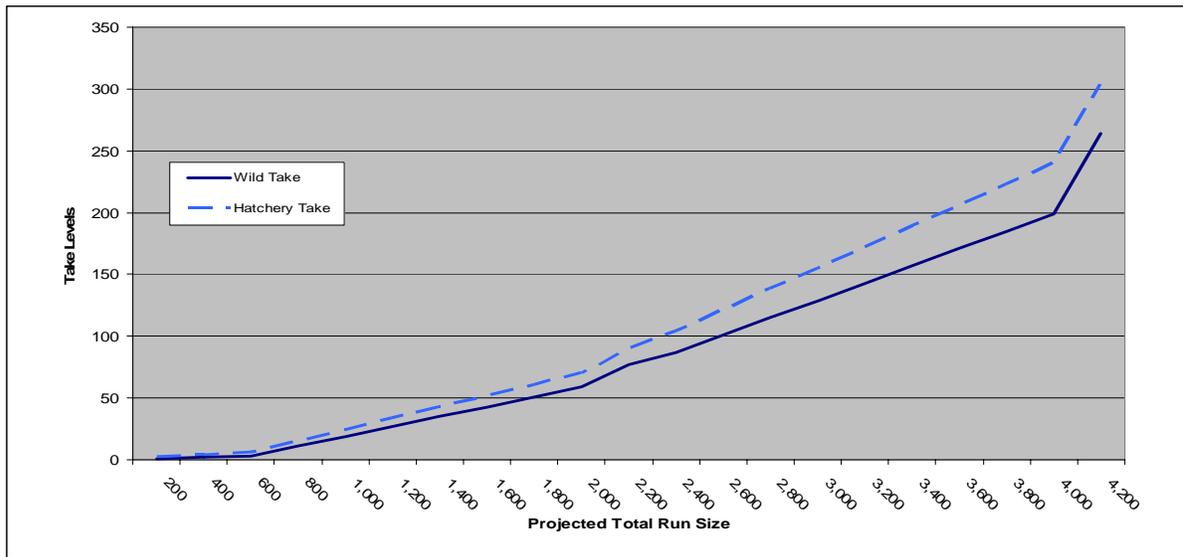


Figure 4. Interaction of treaty take levels for natural-origin and hatchery-origin fish relative to total run size projected to Imnaha River.

It is possible that natural-origin salmon returns to the Imnaha River over the life of the plan could experience a low return of less than 300 fish to at least a high return of 2,500 fish (i.e., 1994 and 2001 natural-origin run sizes). This translates into a set 1% harvest rate and a 25% harvest rate on the margin of natural-origin fish, respectively. Similarly, hatchery-origin salmon returns could experience a low return of less than 300 fish to at least a high return of 3,500 fish (i.e., 1994 and 2002 hatchery-origin run sizes). This translates into a set 2% harvest rate and a 40% harvest rate on the margin of hatchery-

origin fish, respectively. These harvest rate levels are estimated to account for the TRT large population viability threshold of 1,000 natural origin spawners (Imnaha River system) at 8% at the low end and 221% at the high end. Similarly, the Nez Perce Tribe “Minimum Conservation Adult Salmon Spawner” viability threshold of 1,076 fish (combined natural-origin and hatchery-origin) will attain a level of 15% at the low end of total adult return sizes, up to 411% at the recent peak run size. Table 7 illustrates the effects of this harvest matrix if it were to be applied to the run sizes similar to those as observed during the baseline period.

Table 10. Tribal harvest rates and approximate natural spawning outcomes for future run size scenarios if similar to returns as observed in the 1990-2004 baseline.

Projected Annual Adult Run Size Natural-Origin Fish	Projected Annual Adult Run Size Hatchery-Origin Fish	Natural-Origin Harvest Rate	Hatchery-Origin Harvest Rate	Projected Adult Natural Spawning*	Approximated % Natural Spawning Relative to TRT Viability Threshold (1,000)**	Approximated % Natural Spawning Relative to NPT Viability Threshold (1,076)**
<300	<300	.01	.02	158	8	15
<300	301-1,000	.01	.05	469	13	44
301-1,000	<300	.08	.09	342	23	32
<300	1,001-2,000	.01	.20	1,083	17	101
301-1,000	1,001-2,000	.08	.20	1,505	40	140
1,001-2,000	>2,000	.18	.40	3,657	120	340
>2,000	>2,000	.28	.40	4,427	221	411

*Includes approximation of fish (natural and hatchery) spawning upstream and downstream of Imnaha River Gumboot weir and hatchery fish outplanted to Big Sheep Creek.

**Note: For natural-origin fish the run size frequencies are as follows: <300 = 6; 301-1,000 = 6; 1,001-2,000 = 2; >2,000 = 1. Hatchery-origin run size frequencies were: <300 = 4; 301-1,000 = 3; 1,001-2,000 = 5; >2,000 = 3. For those run size increments that had multiple values an average was taken to get projected natural spawning values. All other run size increments not in this table did not have actual corresponding returns and were not included in this specific evaluation. TRT threshold value is calculated using a subset of natural-origin fish from the natural spawning population, while the NPT threshold uses both run components that comprise the overall estimated natural spawning population.

Figure 4 illustrates how distribution of spring Chinook between natural escapement, broodstock requirements, and treaty harvest, would look like for the baseline period.

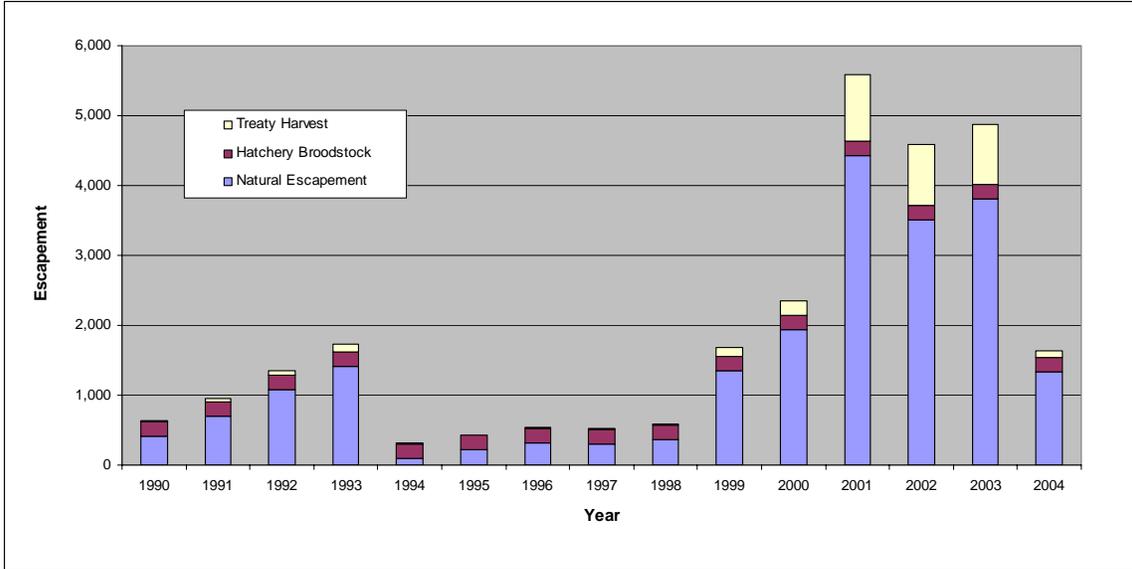


Figure 5. Distribution of fish between natural escapement, hatchery broodstock, and Nez Perce treaty harvest.

The following graph illustrates the estimated impacts of the harvest matrix on natural escapement on TRT and NPT viability thresholds (Figure 5) for the baseline period. It is one alternative way to consider tribal harvest effects on natural escapement objectives.

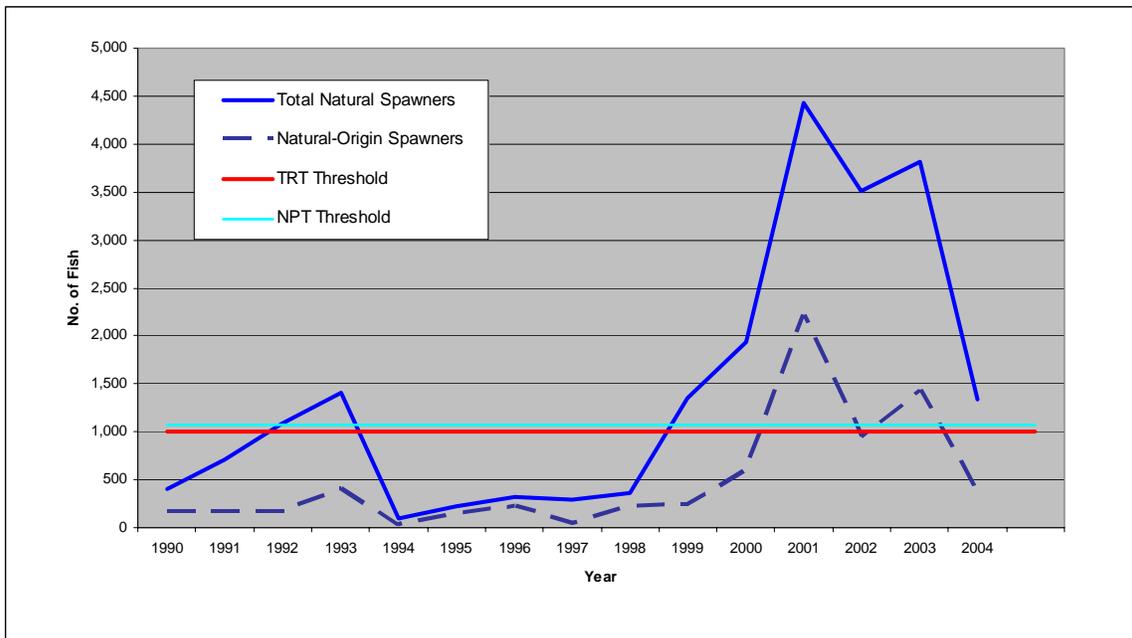


Figure 6. The estimated impacts of the tribal harvest matrix relative to the TRT and NPT natural escapement thresholds for run size scenarios similar to baseline.

Figures 4 and 5 indicate that the tribal fishing regime is conservative and is not expected to significantly reduce natural escapement or impede collection of necessary broodstock.

The distribution as determined by the application of the sliding scale and harvest matrix would not significantly affect the condition or status of the Snake River spring/summer chinook salmon in the Imnaha River over the duration of the Tribal Plan.

Annual Projected Return and Management

The Nez Perce Tribe and the Oregon Department of Fish and Wildlife will develop annual preseason return estimates of Snake River spring/summer Chinook salmon to the Imnaha River. The run size composition information will focus on hatchery-origin and natural-origin adults. Given a run size forecast capable of supporting fishery harvest and following the guidelines herein, the Parties will develop a proposal for fisheries based upon year-specific run projections as they become available during the winter and spring management periods. The harvest matrix will be employed to allow the fishery co-managers to determine appropriate abundance-based harvest rates per run component (hatchery- or natural-origin fish). The annual fishery proposal will include details of expected hatchery and natural run size composition, selected harvest rates based on this plan, a description of total take limits (hatchery and natural origin fish), location, timing, and manner in which harvest rates are to be adjusted based on revised run size estimates.

Each year, ODFW and the Tribal Co-managers develop an annual operating plan for the Northeast Oregon hatchery programs. Typically the co-managers meet from December through February to review annual preliminary run predictions, production levels in the hatchery facilities, broodstock needs, and natural spawning escapement goals. Agreements are made regarding the release of smolts, collection of broodstock, spawning protocols in the hatcheries and other aspects of the cooperative management of the fishery resources of the Grande Ronde and Imnaha River systems.

During the process of developing an AOP, the potential for harvestable fish in each of the hatchery and natural run components is identified. It is expected that the annual fishery proposal will be developed at the same time as the TAC Snake River biological assessment tables are developed, using the most current run predictions from TAC and estimates developed by the co-managers, and considering the allocation of available fish to respond to hatchery broodstock, natural escapements and harvest needs.

The Annual Operating Plan and annual fishery proposals are expected to be finalized by March 1 each year, while the actual run does not reach the Snake River until May and June. During the run, the pre-season prediction is adjusted as fish are counted past the Columbia and Snake River dams, and as PIT tag detections at the dams allow for more precise estimates of run abundance. The refined run predictions as provided by TAC are used to adjust the AOP and will be used to adjust the annual fisheries proposals before the season opens. If necessary, fishery regulations and allocations to broodstock and escapement are further adjusted during the run as harvest monitoring, weir counts and dam counts provide more data about the numbers and distribution of returning salmon.

A primary objective will be to develop a flexible, annual fishing program for managing Imnaha River fisheries to meet conservation and harvest objectives. Each annual harvest proposal will likely have different effects to the Imnaha River fish population in terms of escapement levels, take and corresponding harvest-related mortality, fishery resource protection, and hatchery and natural distributions.

Description of Previous Tribal and State Imnaha River Fisheries

The Nez Perce Tribe and State of Oregon have cooperatively implemented this sliding scale management strategy for annual treaty Indian and non-Indian fisheries since 2001 with variable impact levels. Each Party has issued on an annual basis respective fishery regulations and harvest management frameworks to ensure that neither fishery exceeds the total allowable impact as determined for a particular run year. The annual harvest rate determination for each run component was developed in a similar manner as that outlined in the harvest matrix section. Typically, the natural-origin harvest rate was set more conservatively than the hatchery-origin rate to ensure escapement and program broodstock needs would be met and that distribution of projected returns remained consistent with conservation objectives identified for the population.

Based on the preseason run size forecasts for the period 2001-2004, the Nez Perce Tribe and ODFW implemented fisheries according to run size and run composition (see Table 8).

Table 11. Previously approved take levels for the Imnaha River for the 2001-2004 Chinook salmon seasons.

Year	Run Size Forecast			Authorized Take			Estimated Natural-Origin Take		Estimated Hatchery-Origin Take		Total Actual Take
	N-0	H-0	Total	N-0	H-0	Total	Tribal	State	Tribal	State	
2001	3,518	3,213	6,731	210	460	670	0	52	33	302	387
2002	2,665	3,631	6,296	132	498	630	47	2	196	152	397
2003	1,540	2,635	4,175	93	325	418	17	10	190	125	342
2004	1,048	2,582	3,630	53	675	728	28	3	288	192	511
2005	427	1,725	2,152	9	173	182	na	na	na	na	na

The following is a summary of these estimated run sizes and fishing seasons:

- 2001 – proposed take of 670 fish (210 natural-origin and 460 hatchery-origin) represented a take percentage of 10% (6% natural-origin and 14% hatchery-origin), of which take was estimated to be 387 fish (52 natural-origin and 335 hatchery-origin),
- 2002 – proposed take of 630 fish (132 natural-origin and 498 hatchery-origin) represented a take percentage of 10% (5% natural-origin and 14% hatchery-

- origin), of which take was estimated to be 397 fish (49 natural-origin and 348 hatchery-origin),
- 2003 – proposed take of 418 fish (89 natural-origin and 329 hatchery-origin) represented a take percentage of 10% (6% natural-origin and 12% hatchery-origin), of which take was estimated to be 342 fish (27 natural-origin and 315 hatchery-origin),
 - 2004 – proposed take of 728 fish (53 natural-origin and 675 hatchery-origin) represented a take percentage of 20% (5% natural-origin and 26% hatchery-origin), of which take was estimated to be 511 fish (31 natural-origin and 480 hatchery-origin), and
 - 2005 – proposed take of 182 fish (9 natural-origin and 173 hatchery-origin) represented a take percentage of 8% (2% natural-origin and 10% hatchery-origin).

The estimated take corresponding to each fishing season was lower than permitted pre-season, thus likely having less of an impact to natural escapement goals (or viability thresholds) than was authorized.

The Imnaha River is a traditional, usual and accustomed fishing area of the Nez Perce Tribe. Prior to the development of the tribal resource management plan in 2001, harvest has occurred in the area but historic tribal catch data do not exist. In 2001, the Nez Perce Tribe estimated harvest at 33 Chinook salmon (0 natural-origin and 33 hatchery-origin). In 2002, tribal fishers harvested 243 fish (47 natural-origin and 196 hatchery-origin). In 2003 and 2004, tribal fishers harvested 207 (17 natural-origin and 190 hatchery-origin) and 316 (28 natural-origin and 288 hatchery-origin) Imnaha River spring/summer Chinook, respectively (Table 9).

In 2001, ODFW estimated a sport harvest of 302 hatchery-origin Chinook salmon, in addition, an estimated 21 hatchery-origin fish and 433 natural-origin fish were caught and released for additional handling mortalities of 2 hatchery-origin and 48 natural-origin fish. The ODFW in 2002 estimated a sport harvest of 152 hatchery-origin Chinook salmon, in addition, an estimated 9 hatchery-origin fish and 15 natural-origin fish were caught and released for additional handling mortalities of 1 hatchery-origin and 2 natural-origin fish. The ODFW estimated a sport harvest for 2003 was 125 hatchery-origin Chinook salmon, with an estimated catch and release of 22 hatchery-origin fish and 83 natural-origin fish for additional handling mortalities of 2 hatchery-origin and 9 natural-origin fish. In 2004, the ODFW estimated a sport harvest of 192 hatchery-origin Chinook salmon, in addition, an estimated 21 hatchery-origin fish and 29 natural-origin fish were caught and released for additional handling mortalities of 2 hatchery-origin and 3 natural-origin fish (Table 9).

Table 12. Imnaha River Spring Chinook Sport and Tribal fisheries impact for years 2001 through 2004 (ODFW 2005).

Year	Sport Season	Escapement to River		Sport						Tribal				Total Impact %	
				Harvest	Released		Impact		Est. Harvest		Impact %				
							N	%							
		(H)	(W)	(H)	(H)	(W)	(W)	(H)	(W)	(H)	(W)	(H)	(W)		
2001	6/2-6/21	3,876	2,706	302	21	433	52	7.8	1.9	33	0	0.9	0	8.7	1.9
2002	6/1-6/30	4,132	1,137	152	9	15	2	3.7	0.2	196	47	4.7	4.1	8.4	4.3
2003	6/7-7/1	4,004	1,725	125	22	83	10	3.2	0.6	190	17	4.7	1	7.9	1.6
2004	6/19-7/5	2,332	491	192	21	29	3	8.3	0.6	288	28	12.3	5.7	20.7	6.3

(H) = Hatchery fish, (W) = Wild fish

Sport impact includes an 11.2% fishery mortality for both hatchery and wild fish caught and released

Annual Fishing Regulations

The Nez Perce Tribe and the State of Oregon will each harvest salmon under annual run conditions that support joint harvest actions and in accordance to year-specific harvest limits. In some years however, run conditions may support tribal-only harvest actions to occur. The Tribe and ODFW, through a stipulated order, will define specific details of annual fishing regimes; i.e., where and when fisheries occur, what gear type will be used, or how harvest will be allocated between the Tribe and State of Oregon. The Nez Perce Tribe will continue to exercise its sovereign authority under the Treaty of 1855 to allow the direct harvest of listed Snake River spring/summer Chinook in the Imnaha River. Likewise, the State of Oregon will continue to allow recreational take of listed fish through its regulatory process.

General Tribal Fishing Regulations

Generally, areas open to fishing by Nez Perce tribal members may include the mainstem Imnaha River from the Snake River confluence upstream to 60 feet below the weir. The tribal fishery may occur from early June to early August, or until the harvest number is achieved. Fishing gear permitted will include dip net, gaff, longbow, spear and hook and line. On run sizes of less than 1,000 fish for each run component, the Nez Perce Tribe may implement take thresholds by which the tribal fishery will be restricted to dip net and/or hook and line only. It involves defining a take threshold that once achieved, will trigger a tribal action to restrict gear types (typically set as a % of total take level for a run component). This is a tribal conservation measure designed to avoid exceeding the year-specific treaty take limits for natural and hatchery fish.

Final season structure will be set by tribal regulations.

General State Fishing Regulations

The State of Oregon fisheries will be managed by ODFW regulations and remain consistent with recent fishing seasons and regulations.

Application of the Tribal Resource Management Plan

Applying the sliding scale and harvest matrix framework to annual spring Chinook returns will result in year-specific distribution of fish based on run strength and hatchery and harvest management objectives. The annual distribution of Snake River spring/summer Chinook returning to the Imnaha River will be determined by the co-managers based on agreed to management objectives that will include the following; harvest take limits, estimated fish to weir (set at approximately 65% of annual post harvest return), hatchery broodstock requirements¹⁶, available fish to outplant to Big Sheep and Lick Creek tributaries, estimated number of fish spawning upstream of weir, estimated number of fish spawning downstream of weir (set at approximately 35% of annual post harvest return), and total natural spawning (mainstem and tributaries) fish. (This is the same information as found in Table 6 from previous annual plans). Additionally, the Nez Perce may include information on predicted impact level that will occur by an annual tribal fishery on the Snake River spring/summer Chinook ESU (Section 2 below). This information will be provided in an annual fishery implementation plan (FIP).

Once an annual fishery authorization or proposal is implemented, the Parties may modify year-specific harvest strategies and harvest rates, coordinate on in-season fishery management issues, and authorize fishery closures when necessary as a result of updated estimated harvest (amount of take), and run projections as determined from TAC, PIT tag data from Lower Granite Dam, and Imnaha River weir returns. The harvest objectives as determined by the matrix may vary from year to year based on the annual abundance and population status of this local Chinook salmon population.

Impact of Tribal Resource Management Plan on Escapement Objectives

Consistent with the sliding scale management strategy resulting from U.S. v. Oregon Dispute Resolution, and described in the Imnaha draft HGMP, co-managers will determine on an annual basis if anticipated level of adult escapement is sufficient to meet natural spawner and hatchery broodstock goals as well as support a fishery harvest. The Parties will determine if anticipated level of year-specific adult escapement will be

¹⁶ Actual collection goals are established each year through development of an annual operation plan that is based on the adult sliding scale. All adults that enter the Imnaha weir trap are sorted by origin (marked vs. unmarked), sex and age. Fish are retained for brood stock, out-planted, or released above the weir. Ratios will vary annually depending on escapement estimates and the guidelines outlined in Table 3. Detailed discussion on collection protocol can be found in the Imnaha River draft HGMP.

expected to achieve hatchery broodstock goals, contributes fish toward natural spawner targets as well as support a harvest. The various natural escapement goals or viability thresholds that have been established for the Imnaha River (see Table 2 above) makes it problematic to apply the sliding scale and harvest matrix approach to meet each goal respectively.

Because the implementation of a fishery would be assessed using the preliminary TRT viability guideline and the tribal “Minimum Conservation Adult Salmon Spawner” viability escapement threshold, the Parties consider the impacts determined by the harvest matrix to be consistent with the purpose and intent of those escapement metrics. Other factors that affect salmon survival and productivity will also need to be addressed in conjunction with the harvest limits as set forth in this plan, in order to realistically meet annual thresholds that have been developed for the Imnaha River Chinook population. It is generally accepted by the Parties that further reductions in local harvest will not produce the desired yearly and long-term level of natural escapement to the Imnaha River.

The impact sharing on natural-origin fish, as described above, is also consistent with the federal government’s *Basin Wide Salmon Recovery Strategy*, or All-H paper, which outlined conservation harvest strategies. This Tribal Plan employs a number of key strategies as recommended by the federal government (Federal Caucus 2000a) as part of their harvest conservation measures, that include: 1) fishery-related redistribution of the conservation burden historically borne by tribal fisheries¹⁷; 2) use of tribal threshold point to close gear types to non-lethal gear only (selective fishing tool); and 3) sliding scale approach to determine appropriate take limits on critically-low runs (“irreducible core” tribal harvest) as well as on healthier runs at levels that may slow recovery. In short, to give effect to the federal government “priority legal” standing to support fishing regimes that recognize greater impacts to tribal fisheries than associated state fisheries on shared resources because of the Tribe’s treaty rights (Federal Caucus 2000b).

NOAA Fisheries should conduct their analysis on impacts originating from tribal treaty fisheries first before permitting state selective fishery impacts that will further reduce the number of fish making it back to the spawning areas of the Imnaha River. Certainly, the NOAA Fisheries can look to apply other conservation measures to the variety of non-Indian mortality sectors.

IMPACT OF TRIBAL RESOURCE MANAGEMENT PLAN

The actual return of the total Snake River spring/summer chinook ESU is not typically quantified, and so an assessment of the level of impact on the listed population is an approximation. Although the count of natural-origin spring and summer chinook at Lower Granite Dam have been used as a measurement of return for the ESU (e.g. NMFS

¹⁷ The federal government CNP analysis can identify how the conservation burden can be distributed equitably to other major mortality sectors other than tributary sport harvest, such as the hydrosystem and out-of-basin habitat conditions.

2000), these counts include returns to the Clearwater River, which is not part of the ESU. Additionally, the return of the hatchery origin component of the ESU is often not included in the calculation. If information is available, annual fishery proposals may provide an estimate of return for the Snake River ESU so that the level of predicted impact resulting from implementing a proposed fishery can be assessed.

This fishery harvest management plan does not appreciably reduce the likelihood of survival and recovery of the Snake River spring/summer Chinook ESU. Other sources of mortality that harvest salmon throughout the salmon's lifecycle, which have no federally-reserved treaty rights or priority, have been permitted by NMFS (now NOAA Fisheries). For example, NMFS' Biological Opinion on operation of the Federal Columbia River Power System (NMFS 2000), allows the harvest of 43% of the downstream migrating Snake River spring/summer Chinook ESU occurring in the hydrosystem. An additional 18% of the returning salmon are allowed to be harvested as a result of upriver passage mortality associated with the hydrosystem (NMFS 2000).

This plan does contain voluntary harvest constraints to assist in the localized rebuilding of the Imnaha River spring/summer Chinook population, but habitat capacity and juvenile and adult productivity need to be protected and restored in order to achieve population rebuilding and recovery objectives. The Nez Perce Tribe recognizes that addressing the Imnaha River naturally spawning population will first require accounting of all sources of mortality (including the hydrosystem, habitat, and harvest). This process can aid NOAA Fisheries in determining the complexity of the Conservation Necessity Principle (CNP) application to this tribal fishery proposal and voluntary fishing restrictions. Moreover, harvest-related mortalities must be assessed in the context of other constraints on Chinook survival and productivity and the recognition that each threat must have actions needed to address the impacts.

Evaluation of the effects of the harvest matrix on Co-manager and CRITFC natural spawning escapement goals (3,820 and 3,800 fish respectively), and on the natural-origin spawners for suggested for critical and viable thresholds, is described in Figure 6. As will be the case for most if not all run years, the Co-manager and CRITFC natural escapement goals will be difficult to achieve due to levels of escapement in recent history. Only run years of 2001 and 2003 were sufficient enough to meet these natural escapement goals.

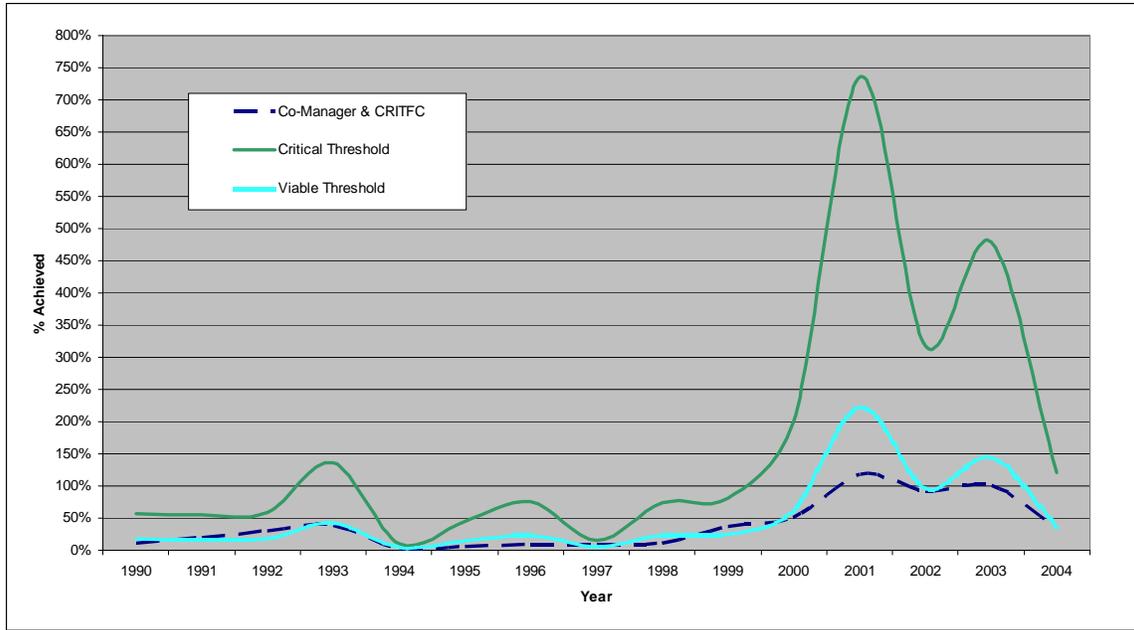


Figure 7. A description of effect of harvest on percent achieved for the Co-Manager and CRITFC natural spawning goals and critical and viable thresholds for natural-origin spawners for the baseline period.

To remain consistent with the *U.S. v. Oregon* case law and the Secretarial Order, the responsibility of the federal government is to provide an analysis of all sources of mortality on this population before attempting to impose further conservation requirements on treaty harvest. It is expected that tribal harvest levels in this plan are substantially lower in comparison to the combined impacts in all non-Indian hydrosystem, habitat, hatchery, and inriver and ocean harvest mortality sectors that affect the Imnaha River spring/summer Chinook population.¹⁸ As noted in the *Imnaha Subbasin Management Plan*, the “[o]ut-of-subbasin factors—including estuarine and ocean conditions, hydropower impacts such as water quality and fish passage, mainstem Snake/Columbia river water quality and quantity conditions, and downriver and oceanic fisheries—are the primary factors limiting recruitment of anadromous spawners to the Imnaha subbasin.”

Comparison of all sources of mortality sectors is also called for in the Independent Scientific Advisory Board’s (ISAB) 2005 harvest report. The ISAB vision supports conservation and sustainable use and decision processes that “ensure that the removal (i.e., total mortality from all sources) of Columbia River salmon does not exceed the productive capacities of naturally spawning populations over the long-term.” Additionally, this plan seeks to follow the ISAB recommendation for effective harvest management systems, through 1) incorporating a sound scientific foundation for harvest

¹⁸ The 2004 BiOp Remand Process is currently conducting a similar analysis at the Columbia Basin scale and preliminary investigation regarding relative impacts across all sources of mortality show that tribal harvest basin-wide is negligible and further reduction will not bridge the gap between current run status and future runs at levels needed to meet delisting and for “broad-sense recovery.”

management for the Imnaha River Subbasin, 2) implementing clearly defined harvest and hatchery management objectives for this population, and 3) instituting sufficient fishery conservation regulations and framework that will contribute treaty harvest information for the adult stage of the Imnaha River spring/summer Chinook life cycle.

It is important to note however that this Tribal Plan is not to serve as a “stop-gap” measure for overall conservation of Imnaha River spring/summer Chinook, as the Tribe recognizes that increased productivity and abundance in the population will continue to be hindered until more favorable habitat and migratory conditions (including addressing the impacts of the hydrosystem) occur in the Columbia River Basin. The purpose of this Tribal Plan is to show that harvest is a necessary part of meeting the LSRCP mitigation goals, is a component of the ongoing restoration and recovery objectives for the Imnaha River, and is necessary to meet the United States’ treaty and trust obligations. This sliding scale and harvest matrix approach has been developed to be responsive to the long term health and viability of the hatchery and natural origin fish and to existing natural and artificial propagation objectives of the Imnaha River spring/summer Chinook population. It should serve as an appropriate tribal fishing regime system that targets Chinook destined to integrated propagation programs designed for conservation and recovery of Snake River spring/summer Chinook ESUs.

Detailed discussion on allowable mortalities occurring through the fishes’ lifecycle are presented in the Biological Assessment on Columbia Basin Tribal Treaty fisheries (Speaks 2000).

MONITORING AND EVALUATION

This plan includes monitoring and evaluation of the following activities; fisheries expected to affect Snake River spring/summer Chinook salmon, the abundance of naturally spawning fish, and allocation of fish to hatchery brood stock and natural escapement (includes supplemental adult out plants) purposes. In-season checks will be used to evaluate the progress of the returns of Snake River spring and summer chinook salmon over the mainstem dams to each subbasin. The Nez Perce Tribe and ODFW will continue to document level of fishing effort and harvest, the abundance and composition of the Chinook salmon return, and the level of attainment of escapement goals and harvest quotas during the life of this multi-year plan.

Mandatory reporting, reporting stations, and creel census monitoring may also be utilized to monitor and evaluate fishing effort.

The Nez Perce Tribe will continue to cooperate with the ODFW in management of the Imnaha River chinook salmon resource, including artificial propagation, monitoring and evaluation, and harvest management.

ENFORCEMENT

Conservation enforcement officers will conduct catch monitoring and enforcement of fisheries.

RESTRICTIONS ON RESIDENT AND ANADROMOUS SPECIES

Regulations regarding harvest of other species (bull trout, steelhead) will not be affected by this proposal. It is expected that the Nez Perce Tribe and ODFW will collect information concerning the catch of bull trout during the tribal and state Chinook fisheries.

CONSISTENCY WITH PLANS AND CONDITIONS ESTABLISHED WITHIN COURT PROCEEDINGS

The parties to U.S. v. Oregon are under a court order obligating them to “exercise their sovereign powers in a coordinated and systematic manner in order to protect, rebuild, and enhance upper Columbia River fish runs while providing harvests for both treaty Indian and non-Indian fisheries.”

The sliding scale and harvest matrix strategy does not determine the allocation of take between the tribal or sport fisheries. Allocation of take limits for natural-origin and hatchery-origin fish between the Nez Perce Tribe and the State of Oregon will follow similar arrangements as has been used in Imnaha River harvest sharing for the years 2001-2005. The Nez Perce Tribe, due to traditional lethal fishing practices and the U.S. v. Oregon harvest management framework, has been authorized majority of the identified take limit for natural-origin fish as determined by annual court stipulated order process.

Under this plan the Nez Perce Tribe continues to define overall tribal take allocation and provisions in the stipulated order procedure per U.S. v. Oregon. The harvest rates and overall take limits (natural-origin and hatchery-origin) as set forth in this plan will be the basis of annual harvest agreements with the State of Oregon. Proposed harvest management guidelines established in this Plan may change in the future due to new and updated information that is collected over the life of this Plan, and the Nez Perce Tribe recognize that if conditions warrant further modification to the Plan to remain consistent with U.S. v. Oregon harvest management framework and Nez Perce treaty fishing rights, such a modification shall be conducted in writing at any point prior to the expiration of this Plan.

CONCLUSION

Implementation of this multi-year Tribal Management Plan for harvest management is consistent with the Nez Perce Tribe's legally enforceable treaty-reserved fishing rights and with the Secretary's trust responsibilities to the Nez Perce Tribe. The Tribal Management Plan is also consistent with the existing and ongoing federal court proceeding in United States v. Oregon. The levels of harvest as proposed above and the harvest effects analysis illustrates that implementation of this plan will not appreciably reduce the likelihood of survival and recovery of listed Snake River spring/summer Chinook salmon.

The approach represents an effort to reach a balance between the conservation needs of the fish and meaningful treaty harvest by the Nez Perce Tribe in the Imnaha Subbasin. The plan calls for a greater accounting of all mortality sources that affect the VSP parameters (abundance, productivity, diversity, and distribution) of Imnaha River spring/summer Chinook and requirement that treaty harvest not bear the conservation burden disproportionately than those occurring in the other non-Indian mortality sectors. It is a conservation technique that makes it even more unlikely that excessive biological harm will occur to the natural-origin fish if non-Indian sources of salmon mortality are constrained appropriately.

This Tribal Plan allows Imnaha River Subbasin co-managers to ensure that annual fisheries are consistent with existing recovery and rebuilding objectives. Furthermore, it builds on the success of the spring Chinook returns to the Imnaha River, and continues the existing integrated hatchery and harvest management framework reached in United States v. Oregon dispute resolution and agreed to by the co-managers.

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APPENDIX F

Nez Perce Tribe Annual Fishery Implementation Plan for Snake River Spring/Summer Chinook in the Imnaha River Subbasin - 2006

**2006 NEZ PERCE TRIBE
ANNUAL FISHERY IMPLEMENTATION PLAN
FOR SNAKE RIVER SPRING/SUMMER CHINOOK
IN THE IMNAHA RIVER SUBBASIN**

Nez Perce Tribe

June 29, 2006

Fishery Implementation Plan (FIP) Objective

The multi-year Imnaha River Tribal Resource Management Plan (TRMP)¹⁹ will continue to be used by the Nez Perce as an interim hatchery and harvest management plan for Snake River spring/summer chinook salmon in the Imnaha River for the 2006. Hatchery management activities will occur as identified in the sliding scale resulting from U.S. v. Oregon Dispute Resolution, incorporated in the ODFW FMEP, and agreed to in the 2006 Annual Operating Plan (AOP) coordination process.

The Nez Perce Tribe and the Oregon Department of Fish and Wildlife (ODFW), through the AOP process, have coordinated on annual preseason return estimates for Snake River spring/summer Chinook salmon expected to return to the Imnaha River. Run size composition for adults of hatchery-origin and natural-origin spring Chinook is included below. The Nez Perce Tribe has submitted a 2007-2011 tribal resource management plan (TRMP) to NOAA Fisheries that describes how year-specific treaty harvest will be determined. The objective is to apply the Tribal Plan harvest rates and corresponding total treaty take limits (hatchery and natural origin fish) to the 2006 run year.

The co-managers have determined that the anticipated level of adult escapement for 2006 contributes fish to natural spawner and hatchery broodstock goals, as well as support a fishery harvest. Areas open to fishing by Nez Perce tribal members include the mainstem Imnaha River from the Snake River confluence upstream to 60 feet below the weir. The tribal fishery may occur from June 15 to August 5, or until the harvest number is achieved. Fishing gear permitted will be determined preseason, but may include dip net, gaff, longbow, spear and hook and line. Final season structure will be set by tribal regulations.

Projected 2006 Return and Management

Given the current inseason run size forecast, the Nez Perce is applying the proposed harvest rates to determine appropriate overall treaty take in the Imnaha River for 2006. The inseason projected return of adult Snake River spring/summer Chinook salmon in the Imnaha River for 2006 is 1,121 fish (78% hatchery-origin and 22% natural-origin).

¹⁹ At the time of this FIP submittal, the Nez Perce Tribe is still developing the multi-year Imnaha River plan that will have the harvest sliding scale to be used in determining future year-specific spring Chinook harvest rates and treaty take. The Tribal Plan is proposed to operate for the years 2007-2011.

Table 13. Projected adult returns of Snake River spring/summer Chinook salmon in the Imnaha River in 2006 (revised ODFW Annual Operation Plan data).

Component	Jacks	Adults	Total
Hatchery-origin	89	874	963
Natural-origin*	43	247	290
Total	132	1,121	1,253
* Preseason AOP natural-origin jack estimate scaled by downgrade in hatchery-origin jacks (31% of original forecast).			

The 2006 run size and run composition is within the range of values as observed in the baseline 1990-2004 period as described in the Tribal Plan. The Nez Perce Tribe is proposing a 1% harvest rate on natural-origin fish and a 6.3% hatchery-origin harvest rate. The Nez Perce Tribe will target a total of 57 Chinook (2 natural-origin and 55 hatchery-origin fish) with adults only counting towards the harvest goal.

Application of the Tribal Resource Management Plan

Applying the sliding scale strategy to the inseason 2006 estimated return would result in the distribution of fish as shown in Table 2.

Table 14. Distribution of adult Snake River spring/summer Chinook salmon returning to the Imnaha River in 2006.

Available for Outplant or Other Use	0	353	353
Outplant to Big Sheep	0	300	300
Total Natural Spawning (mainstem and tributaries)	162	341	503
	2	55	57
Number of Fish Post Harvest	245	819	1,064
Fish Expected to Be Handled at Weir (.47% of post harvest esc.)	115	385	500
Hatchery Broodstock	83	125	208

After treaty harvest, a total of 1,064 fish will be distributed to hatchery broodstock, outplants and other uses (includes 300 for Big Sheep Creek), and natural escapement.

Impact of Tribal Resource Management Plan on Escapement Objectives

A harvest of 57 fish (2 natural-origin and 55 hatchery-origin) is expected to conserve fish by allowing a majority of fish returning to the Imnaha River to spawn naturally, as well as fully meeting the identified broodstock requirement. A run year like this is expected to have majority of overall tribal take limits be weighted to hatchery fish (natural-origin harvest rate lower than that of the hatchery-origin harvest rate) because hatchery-origin fish comprise a greater percentage of predicted total spring Chinook return to the Imnaha River.

It is estimated that of the 247 natural-origin spring Chinook that will return to Imnaha River, the following approximate distribution percentages will occur: 1% for treaty harvest; 34% for broodstock, and 65% for natural spawning. Likewise for the 874 hatchery-origin Chinook, the overall distribution percentages constitutes: 6% for treaty harvest, 14% for broodstock, 40% for outplants and other uses, and 39% for natural spawning. Under this tribal fishery harvest, broodstock needs would be met for the Imnaha River, and achieve management escapement thresholds at various levels (Figure 1).

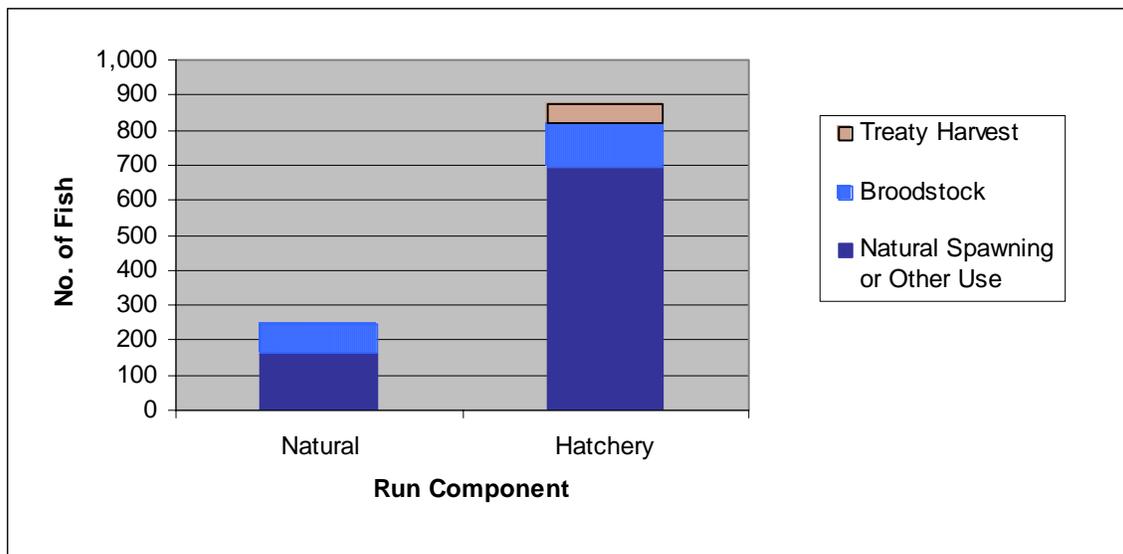


Figure 8. 2006 distribution of spring Chinook salmon between treaty harvest, hatchery broodstock requirement, and natural escapement or other management use.

It is estimated that the 162 projected total natural-origin spawners achieves 26% of Technical Recovery Team (TRT) viable threshold value for Snake River natural-origin spring/summer Chinook salmon in the Imnaha River (Table 3). The Tribal Plan would meet 80% of the NPT goal of 1,076 fish spawning naturally in the Imnaha River system (353 natural spawners in Imnaha River and 503 fish available to outplant or other uses).²⁰

Table 15. A “snap-shot” evaluation of specific management thresholds and percent attained based on 2006 estimated distribution of natural-origin spring Chinook salmon and fish allowed to spawn naturally.

Threshold Description	Group/Process	Prescribed Abundance	% Achieved based on 2006 Est. Return
Minimum Conservation Adult Salmon Spawner Escapement Goals*	NPT	1,076	80%
Interim Abundance Guidelines**	NOAA –ICTRT	1,000	16%
Viability Threshold**	ODFW FMEP	700	23%
Critical Threshold**	ODFW FMEP	300	54%
Quasi-extinction**	NOAA – ICTRT	50	323%
*Composition is combined natural and hatchery origin/ natural origin fish (available for outplant and other use + Imnaha natural spawners).			
**Composition is natural-origin spawners only.			

The distribution as determined by the application of the FIP would not significantly affect the year-specific condition or status of the Snake River spring/summer Chinook salmon in the Imnaha River. The application of this management plan continues to rely on

²⁰ It is expected that 300 fish will be outplanted to Big Sheep Creek and the remaining 53 spring Chinook will be used for other agreed to management uses.

hatchery-origin fish to rebuild and recover this local Snake River spring/summer Chinook population.

IMPACT OF FISHERY IMPLEMENTATION PLAN

The actual return of the total Snake River spring/summer Chinook ESU is not typically quantified, and so an assessment of the level of impact on the listed population is an approximation. Although the count of natural-origin spring and summer Chinook at Lower Granite Dam have been used as a measurement of return for the ESU, these counts include returns to the Clearwater River, which is not part of the ESU. Additionally, the return of the hatchery origin component of the ESU is often not included in the calculation. An estimate of the total return for the Snake River ESU is not included in this assessment due to the abnormal run timing and circumstances for many of the Snake River stocks. However, it is assumed that the harvest of 57 fish will have negligible impact on the Snake River ESU.

MONITORING AND ENFORCEMENT

An inseason interview census monitoring will be utilized to monitor and evaluate treaty fishing effort and take. Conservation enforcement officers will conduct routine patrols of the fishing area to promote enforcement of treaty fishery regulations.

REPORTING

The Nez Perce Tribe will distribute fishing effort and take numbers to Oregon Department of Fish and Wildlife (ODFW) and NOAA Fisheries on a bi-weekly schedule.

CONCLUSION

This annual fishery implementation plan does not appreciably reduce the long-term likelihood of survival and recovery of the Snake River spring/summer chinook ESU. Further, an assessment within the Imnaha River itself also shows that impact of the proposed harvest to be minimal. Because actions would be contained within the Imnaha River, the recovery or likelihood of survival of the entire ESU would not be affected.

The Nez Perce Tribe recognize that treaty harvest must be assessed in the context of other non-Indian constraints (including sport fishery) on Chinook survival and productivity. Furthermore, this tribal fishery must be implemented so that conservation harvest restrictions (i.e., allocation of overall take limits for 2006 return) do not discriminate against Nez Perce Tribe fishing rights and is implemented in a least restrictive manner.

It is expected that the Nez Perce Tribe 2006 fishery implementation plan (FIP) for the Imnaha River Subbasin will be evaluated consistent with “conservation necessity” principles regarding the exercise of treaty fishing rights. The annual plan provides for year-specific, voluntary tribal actions that continue to contribute to the conservation and recovery of this local Chinook population through application of a conservation fishing regime.

REFERENCES

Nez Perce Tribe. 2005. 2005 Nez Perce Tribal Management Plan for Snake River Spring/Summer Chinook in the Imnaha River Subbasin. Nez Perce Tribe Department of Fisheries Management, Lapwai, Idaho. (Draft submitted to NOAA Fisheries June 11, 2006).

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