Biological Assessment of Impacts of Anticipated 1993 Fisheries in the Snake River Basin on Listed Species Under the Endangered Species Act

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# TABLE OF CONTENTS

Introduction .......................................................... 1

Snake River Basin Harvest Management Plans .................. 1

Description of Non-Indian Fisheries ............................. 1

Description of Treaty Indian Fisheries ......................... 2

Geographic Units .................................................... 2
   Unit 1: Mouth of Snake River to Hells Canyon Dam .......... 2
      Non-Indian Sport Fisheries .............................. 2
      Treaty Indian Subsistence Fishery ...................... 3
      Summary ................................................... 4
   Unit 2: Tucannon River Subbasin ............................. 4
      Non-Indian Sport Fisheries .............................. 4
      Treaty Indian C&S Fisheries ............................ 5
      Summary ................................................... 5
   Unit 3: Clearwater River Subbasin ........................... 5
      Non-Indian Sport Fisheries .............................. 5
      Treaty Indian C&S Fisheries ............................ 5
         Nez Perce Fishery for Dworshak Hatchery Spring Chinook 5
         Nez Perce Fishery for Dworshak Hatchery Steelhead ........ 6
         Nez Perce Fishery for Kooskia Hatchery Spring Chinook .... 6
      Summary ................................................... 6
   Unit 4: Salmon River Subbasin ................................ 7
      Non-Indian Sport Fisheries .............................. 7
      Treaty Indian C&S Fisheries ............................ 7
         Nez Perce Fishery for Rapid River Hatchery Spring Chinook 7
         Shoshone-Bannock C&S Fisheries ......................... 7
         Potential Nez Perce Fishery ........................... 9
      Summary ................................................... 9
   Unit 5: Grande Ronde River Subbasin ......................... 9
      Non-Indian Sport Fisheries .............................. 10
      Treaty Indian C&S Fishery .............................. 10
      Summary .................................................. 10
   Unit 6: Imnaha River Subbasin ................................ 11
      Non-Indian Sport Fisheries .............................. 11
      Treaty Indian C&S Fisheries ............................ 11
      Summary .................................................. 11

Actions Implemented to Limit the Catch of Listed Species 12
   Non-Indian Steelhead Sport Fisheries ...................... 12
   Treaty Indian C&S Fisheries .............................. 12

Summary of Snake River Basin Fishery Impacts on Listed Species 13

Literature Cited .................................................. 14
List of Tables

Table 1. Annual Treaty Indian C&S Harvest of Spring and Summer Chinook Salmon in the Snake River Basin, 1985-92. 15

Table 2. Anticipated 1993 Catch of Adult Salmonids in the Snake River Basin (Excluding Idaho Sport Catch). 16
of incidental catch in most areas of the Snake River Basin upstream from the Washington/Idaho border at Clarkston (RM 139). Since 1986, Oregon and Washington steelhead sport fisheries have occurred from September 1 through March 31 or April 15.

**Description of Treaty Indian Fisheries**

Treaty Indian commercial fisheries in the Snake River Basin have not occurred in recent history and are not planned for 1993. Treaty Indian ceremonial and subsistence (C&S) fisheries occur at various locations throughout the Snake River Basin. Treaty Indian fisheries generally target on surplus hatchery stocks near hatcheries with the exception of fisheries in the upper Salmon River Basin which do harvest wild fish while targeting hatchery stocks. Since 1986, treaty Indian fisheries have generally targeted hatchery spring and summer chinook during May and June, though some harvest occurs through August. Treaty Indian fisheries are not known to have occurred in recent years on fall chinook and sockeye. A steelhead C&S fishery is open year-around throughout the Snake River Basin. However, treaty Indian harvest on steelhead has occurred when and where steelhead are abundant.

**Geographic Units**

For purposes of this assessment, the Snake River Basin fisheries have been grouped into six separate geographic units where recent fisheries have occurred: 1) mouth of the Snake River to Hells Canyon Dam; 2) Tucannon River Subbasin; 3) Clearwater River Subbasin; 4) Salmon River Subbasin; 5) Grande Ronde River Subbasin; and 6) Imnaha River Subbasin.

**Unit 1: Mouth of Snake River to Hells Canyon Dam**

Snake River dam counts of sockeye, steelhead, and spring, summer, and fall chinook are available through 1991 (WDF/ODFW, 1992). For spring and summer chinook returns and escapements, wild populations were estimated in Tables 2-5 of the 1993 biological assessment for mainstem Columbia River fisheries and sockeye returns and escapement in Tables 6 and 7 (TAC, 1993). The most recent information for wild fall chinook returns and escapement are available in Tables 5, 6, 8, and 9 of the 1992 summer and fall season biological assessment for mainstem fisheries (TAC, 1992). The TAC will update the 1992 tables later this year when the biological assessment of fall season mainstem Columbia River fisheries on listed species is completed. Fall chinook spawning is known to occur in the mainstem Snake River from the head of the Lower Granite Reservoir up to Hells Canyon Dam. Wild chinook are known to spawn in Asotin Creek which enters the Snake River at RM 145. However, Asotin Creek is not specifically mentioned in the listing. Adult salmonid fisheries in Asotin Creek have not occurred in recent years and are not planned for 1993.

**Non-Indian Sport Fisheries**

Washington steelhead sport fisheries are conducted from the mouth of the Snake River (RM 0) to the Washington/Oregon border (RM 174) from September 1 to March 31. Regulations allow the use of barbed hooks from the mouth of the Snake River up to Clarkston, but barbless hooks are required upstream from Clarkston. Regulations and seasons are unchanged for the 1993 Washington steelhead sport fishery. Oregon steelhead sport fisheries are conducted from the Oregon/Washington border (RM
to Hells Canyon Dam (RM 247) from September 1 to April 15 and require the use of barbless hooks. Regulations and seasons are unchanged for the 1993 Oregon steelhead sport fishery.

The State of Washington conducted fall chinook fisheries from 1987 through 1992 (open from September 1 to November 30) in various portions of the Snake River between the mouth and Little Goose Dam (RM 70) targeting on hatchery fall chinook returning to Lyons Ferry Hatchery. In 1988 an area was open for jacks and adults (less than 28 inches) and in the other years the fishery was open for jacks only (less than 24 inches). Most of the angling effort occurred in close proximity to the hatchery. The Washington Department of Fisheries is recommending closure of this chinook fishery in 1993, with regulation promulgation scheduled for March 1993. Average jack harvest in this fishery from 1987 through 1991 was 14 jacks, and in 1988 there were 14 adults harvested. Only one jack was reported caught and kept in 1992. No retained adult chinook have been checked by Washington Department of Wildlife (WDW) personnel in the last three years. During fall of 1992, three adult chinook were handled by steelhead anglers.

Early season angling success for steelhead in the mainstem Snake River is hindered by warm water temperatures. Peak harvest occurs from October through January depending on weather and the vast majority of the fishing effort takes place in limited sections of the river. Concentrations of fish immediately below each dam in tailrace areas and near ladder entrances attract heavy fishing pressure. However, there is a standard closure of 400 feet below each dam and fishway entrance. Areas above each dam near the adult ladder outlet and along the face of the dams also receive significant shore and boat angler pressure. The outlet of Lyons Ferry Hatchery attracts large numbers of fish and anglers throughout the season. Both chinook and steelhead congregate at the hatchery’s ladder entrance throughout the summer and fall. The 400 foot radius fishing closure around the ladder prevents direct access to these fish after the season opens September 1. The area around the mouth of the Tucannon River also receives heavy fishing pressure from both shore and boat anglers from September through January. The confluence of the Snake and Clearwater rivers at Lewiston is another concentration area for fish and anglers. Heavy fishing pressure occurs here from mid-September through January. Upstream of this area, angling pressure is more scattered because river conditions are more conducive to an even distribution of fish and anglers. The mouths of Asotin Creek and the Grande Ronde River attract concentrations of anglers depending upon weather conditions and movements of steelhead.

Sockeye, spring chinook, and summer chinook are not known to be migrating through the mainstem Snake River during open sport steelhead seasons. However, fall chinook are present at the beginning of migration in August through the end of spawning in early December. Annual creel census and enforcement patrols indicate that fall chinook are not caught incidentally in steelhead sport fisheries upstream from Little Goose Dam. Since 1986, mortality of Snake River fall chinook during the Oregon and Washington steelhead sport fishery is estimated to be zero from Little Goose Dam to Hells Canyon Dam. With the planned closure of the 1993 jack retention fishery below Little Goose Dam, Oregon and Washington sport fisheries on the mainstem Snake River are not likely to result in the mortality of any listed species in 1993.

**Treaty Indian Subsistence Fishery**

Although a treaty Indian subsistence steelhead fishery is open year-round, significant tribal fisheries have not occurred in recent years on the mainstem Snake River. However, a few tribal members do target steelhead using hook and line at the mouth of the Clearwater River when steelhead abundance is high. Tribal steelhead fishing effort is concurrent with the non-Indian steelhead sport fishery. The
treaty Indian subsistence steelhead fishery remains open for 1993. Under tribal regulations retention of chinook is illegal. No catch of sockeye, spring or summer chinook is expected to occur because no tribal fishing effort is expected during the migration period of these species. Like the steelhead sport fishery, no known fall chinook mortalities have occurred as a result of the treaty Indian subsistence fishery. The 1993 treaty Indian subsistence steelhead fishery on the mainstem Snake River will not impact listed species.

Summary
There is a slight chance that fall chinook could be handled in Oregon and Washington steelhead sport fisheries and the treaty Indian subsistence steelhead fishery. However, mortalities of any listed species are not likely to occur in 1993 fisheries on the mainstem Snake River up to Hells Canyon Dam.

Unit 2: Tucannon River Subbasin

The Tucannon River Subbasin is located entirely in Washington and enters the Snake River at RM 62. The Tucannon River supports runs of summer steelhead and spring chinook, but sockeye and summer chinook are not present. Small numbers of fall chinook spawn in the lower Tucannon River, but tag recoveries suggest most, if not all, are stray hatchery fall chinook from nearby Lyons Ferry Hatchery and elsewhere. Wild fall chinook may be colonizing in the lower reaches of the Tucannon River Subbasin. Wild spring chinook returns to the Tucannon River have sustained themselves at a low but consistent level for many years. Lyons Ferry Hatchery also produces Tucannon spring chinook for acclimation and release at the Tucannon Hatchery.

Non-Indian Sport Fisheries
Washington steelhead sport fisheries are open from the mouth of the Tucannon River up to Highway 12 from September 1 through April 15. From Highway 12 upstream to the Little Tucannon River, the season is open from November 1 through April 15, except that the river is closed to fishing from Cummings Creek to the Tucannon Hatchery Bridge (1.1 miles). The later opening of the upper section of the river is to avoid harassment of spawning spring chinook. Regulations allow the use of barbed hooks, but chinook and wild steelhead must be released. Regulations are unchanged for the 1993 Washington sport fishery.

The Tucannon River steelhead fishery is relatively small with harvest evenly distributed from October through March. Weather and water conditions influence fishing success and can have a dramatic effect upon the migratory patterns of steelhead which may result in rapid movement through and out of sections of the river accessible to anglers. Chinook mortality resulting from incidental handle is assumed to be very low or may not occur at all given that this subbasin does not support any major fishing opportunity for steelhead. Because summer chinook and sockeye are not in the Tucannon River Subbasin, catch of these species is not expected to occur. For 1993, the Washington sport fishery in the Tucannon River is not likely to result in the mortality of any listed species.
Treaty Indian C&S Fisheries

Tribal fisheries have not occurred in recent years in the Tucannon River Subbasin and are not anticipated for 1993.

Summary

There is a slight chance that wild fall chinook may be handled in the Washington steelhead sport fishery. Fisheries in 1993 in the Tucannon River Subbasin are not likely to result in the mortality of any listed species.

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. The Clearwater River Subbasin supports runs of summer steelhead, spring chinook, and fall chinook. Wild spring chinook returned to this subbasin until the construction of Lewiston Dam early in this century. Current spring chinook returns are attributable to hatchery production and supplementation throughout the subbasin. Wild production has been re-established through supplementation and colonization in the Lochsa, Selway, and South Fork Clearwater rivers. The wild spring/summer chinook population in this subbasin was not included in the NMFS listing. Fall chinook currently spawn in the mainstem Clearwater from the Potlatch Mill site upstream to the mouth of the North Fork Clearwater River. Sockeye are not present in the Clearwater River Subbasin.

Non-Indian Sport Fisheries

The State of Idaho will assess 1993 non-Indian sport fisheries in an independent document.

Treaty Indian C&S Fisheries

Nez Perce Fishery for Dworshak Hatchery Spring Chinook

The Nez Perce tribe has conducted C&S fisheries for Dworshak Hatchery spring chinook annually since 1987 except in 1991 when the hatchery return was poor. Dworshak Hatchery is located on the North Fork Clearwater River below Dworshak Dam. The Nez Perce spring chinook fishery usually opens in May and closes in mid-June or early July, prior to arrival of fall chinook and takes place primarily below the hatchery ladder. Nez Perce tribal harvest is by hook and line. Since 1987, the Nez Perce tribal harvest of Dworshak Hatchery spring chinook in the North Fork Clearwater River has ranged from 160 to 514 (Table 1).

Plans for a 1993 Nez Perce fishery for hatchery spring chinook depend on the anticipated return to Dworshak Hatchery. If inseason analysis indicates that a surplus is expected at the hatchery, a Nez Perce fishery for Dworshak Hatchery spring chinook may be set, presumably under similar regulations of time and area as past fisheries. The 1993 Nez Perce fishery in the North Fork Clearwater River for Dworshak Hatchery spring chinook (if it occurs) will not catch listed species.
Nez Perce Fishery for Dworshak Hatchery Steelhead

The Nez Perce Tribe has conducted C&S fisheries in the North Fork Clearwater River for Dworshak Hatchery steelhead annually since the early 1970s. The Nez Perce steelhead fishery is open year-round and only closed during years of poor returns to the hatchery; the fishery was closed inseason in anticipation of a poor return in the spring of 1988. Steelhead fishing generally begins in October when steelhead become available and the fishery continues through early May; peak catch occurs in February and March. The fishery takes place from the Dworshak Hatchery upstream to Dworshak Dam, though the majority of the fishery takes place in the immediate vicinity of Dworshak Hatchery. Nez Perce tribal harvest method is by hook and line.

Since 1974, annual treaty Indian harvest of Dworshak Hatchery steelhead has averaged about 1,500 fish and ranged from 290 to 4,210 fish. Occasionally a fall chinook is reportedly handled in the steelhead fishery during the month of October. Retention of fall chinook is prohibited by tribal regulations. Fishing pressure during October is very low due to the limited availability of steelhead which reduces the likelihood of fall chinook being caught if they are in the area. In 1992, a few fall chinook returned to Dworshak Hatchery. Studies are under way to determine the origin of these fall chinook.

The Nez Perce fishery for surplus hatchery steelhead is open year-round and there are no plans to change the location or timing of the 1993 fishery. There is a slight chance that a wild fall chinook could be handled in the 1993 Nez Perce steelhead fishery in the North Fork Clearwater River.

Nez Perce Fishery for Kooskia Hatchery Spring Chinook

The Nez Perce tribe has conducted C&S fisheries in Clear Creek for Kooskia Hatchery spring chinook annually from 1987 to 1990. Due to poor hatchery returns in 1991 and 1992, no tribal fisheries occurred. Kooskia Hatchery is located on Clear Creek, a tributary to the Middle Fork Clearwater River. The Nez Perce tribal spring chinook fishery usually opens in May and closes in mid-June or early July and takes place just below the hatchery ladder and downstream to the mouth of Clear Creek. Nez Perce tribal harvest methods are by dipnet, gaff, and hook and line. Nez Perce tribal harvest in 1987-90 of Kooskia Hatchery spring chinook in Clear Creek ranged from 50 to 130 fish (Table 1).

Plans for a 1993 treaty Indian fishery for hatchery spring chinook depend on the anticipated return to Kooskia Hatchery. If inseason analysis indicates that a surplus is expected at the hatchery, a Nez Perce fishery for Kooskia Hatchery spring chinook may be set, presumably under similar regulations for time and area as the past fisheries. The 1993 Nez Perce fishery in Clear Creek for Kooskia Hatchery spring chinook (if it occurs) will not catch listed species.

Summary

Idaho sport fisheries are not assessed here. There is a slight chance that the Nez Perce C&S fishery for surplus Dworshak Hatchery steelhead would handle fall chinook. However, 1993 Nez Perce tribal fisheries in the Clearwater River Subbasin are not expected to cause mortality to any listed species.
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. Wild spring and summer chinook are produced throughout the Salmon River Subbasin. Sockeye return to the upper reaches of the mainstem Salmon River. Wild fall chinook may be present in this subbasin in the lower reaches of the mainstem Salmon River though documentation is not available.

Non-Indian Sport Fisheries

The State of Idaho will assess 1993 non-Indian sport fisheries in an independent document.

Treaty Indian C&S Fisheries

Nez Perce Fishery for Rapid River Hatchery Spring Chinook

The Nez Perce tribal C&S fisheries for Circle C Hatchery (commonly known as Rapid River Hatchery) spring chinook have occurred annually in Rapid River since 1980 with the exception of the poor return year of 1991. Rapid River is a tributary to the Little Salmon River. Wild spring chinook are not known to return to Rapid River. Rapid River Hatchery spring chinook primarily return from mid-May until late June. The Nez Perce spring chinook fishery is generally open from mid-May to mid-June. Treaty Indian harvest is by gaff pole, dipnet, spear, and hook and line. Treaty Indian catch during 1985-92 in Rapid River ranged from 544 to 3,520 spring chinook (Table 1). A small return of wild summer chinook enter Rapid River from late June until early September. To reduce the likelihood that a wild summer chinook is harvested, the Nez Perce Tribe closes the fishery by emergency action when a wild summer chinook has been observed at the Rapid River Hatchery trap (based on determination by Idaho Department of Fish and Game staff). Plans for a 1993 Nez Perce fishery for hatchery spring chinook depend on the anticipated return to Rapid River Hatchery. If inseason analysis indicates that a surplus is expected at the hatchery, a Nez Perce fishery for Rapid River Hatchery spring chinook may be set, presumably under similar regulations for time and area as past fisheries. The Nez Perce spring chinook fishery in Rapid River will not catch sockeye, wild spring chinook, or wild fall chinook, and is managed to avoid the harvest of wild summer chinook.

Shoshone-Bannock C&S Fisheries

Historically, Shoshone-Bannock tribal fisheries have occurred throughout the Snake River Basin. In recent years, the Shoshone-Bannock Tribes have conducted C&S fisheries in the Salmon River Subbasin. The fisheries primarily occur in the mainstem and tributaries of the Salmon River above the confluence with (and including) the South Fork Salmon River (this area is now defined as the Upper Salmon River Subbasin). The Shoshone-Bannock chinook fishery generally occurs from June through August and their steelhead fishery generally occurs from October through May. Both fisheries typically occur in the tributaries to the Upper Salmon River, but notable mainstem Salmon River harvest can also occur, if conditions permit. In addition, the Shoshone-Bannock Tribes authorized a spring chinook fishery in the Little Salmon and Rapid rivers in 1992. Shoshone-Bannock fishing methods are typically spear-fishing, although hook and line and other traditional methods are also utilized. Fall chinook are
not present in the Shoshone-Bannock fishing areas and will not be caught in the Shoshone-Bannock chinook or steelhead fisheries.

Sockeye migration in the mainstem Salmon River occurs in July and August and sockeye are not present during the Shoshone-Bannock steelhead fishery. However, sockeye may be present in the mainstem Salmon River when the Shoshone-Bannock chinook fishery takes place. Sockeye must pass through the entire mainstem Salmon River enroute to their spawning grounds at the headwaters of the mainstem Salmon River. However, there are no recent records of sockeye being caught in Shoshone-Bannock chinook fisheries. Inseason time and area closures could be developed based on 1993 sockeye run timing at Lower Granite Dam to further minimize any chance of sockeye impact in the 1993 Shoshone-Bannock chinook fisheries.

Catch of spring and summer chinook during the steelhead fishery does not occur because chinook spawning is completed in September prior to the steelhead fishery which begins in October. The steelhead fishery is completed in May prior to the arrival of spring and summer chinook in June. However, wild spring and summer chinook are present and are caught in the Shoshone-Bannock chinook fisheries. For the period 1981-92, a Shoshone-Bannock analysis indicated that their harvest rate ranged from 0.1% to 0.7% of the wild spring and summer chinook escapement at Lower Granite Dam. In the analysis the catch is adjusted to Lower Granite Dam equivalence by dividing the number caught by the adjustment factor (one minus the loss rate of 0.2 = 0.8) prior to the calculation of harvest rates.

In 1992, NMFS issued a biological opinion indicating that 140 spring/summer chinook could be caught in the Shoshone-Bannock chinook fishery from the East Fork Salmon River to Sawtooth Hatchery without jeopardizing the continued existence of listed species; the actual catch was four hatchery and two wild chinook. The NMFS biological opinion also indicated that 100 spring/summer chinook could be caught in the Shoshone-Bannock tribal chinook fishery in the South Fork Salmon River without jeopardizing the continued existence of listed species; the actual catch was 69 hatchery and 31 wild chinook. The total catch of 33 wild chinook represents a 0.44% harvest rate on the escapement of 9,344 wild spring and summer chinook at Lower Granite Dam.

For 1993, Shoshone-Bannock Tribes plan to regulate their anadromous fisheries by establishing specific dates, times, open areas, and numbers to be harvested based on expected escapements to the Salmon River System. Final estimates of expected escapement are based on a regression of cumulative Snake River dam counts through May 1. The Shoshone-Bannock Tribes intend to manage their spring and summer chinook harvest based on harvest rate objectives (number harvested compared to the number of fish in the area) of less than 10% harvest in the most hatchery influenced areas, less than 5% harvest in the moderately hatchery influenced areas, and less than 2.5% harvest in the wild production areas. For Upper Salmon River Subbasin fisheries, if the same number of wild fish harvested in 1992 (33 fish) are harvested in 1993, and the expected return of wild spring and summer chinook of 7,200 fish is realized (assuming anticipated run size and mainstem fisheries), then a harvest rate of 0.57% is predicted. This 0.57% harvest rate for 1993 is within the 0.1% - 0.7% range, which occurred during 1981-92 fisheries.

A 1993 Shoshone-Bannock spring chinook fishery may be considered for the Little Salmon and Rapid rivers if a hatchery spring chinook surplus is expected at Rapid River Hatchery. The catch of listed species in not expected in this fishery.
Potential Nez Perce Fishery

The Nez Perce Tribe may also consider treaty Indian C&S fisheries in the Upper Salmon River Subbasin, other than the Rapid River Hatchery spring chinook fishery. Historically, Nez Perce fisheries have occurred throughout the Salmon River Subbasin. However, recent Nez Perce fisheries for spring and summer chinook other than the Rapid River fishery have not occurred due to poor returns. The dates of fishing and expected catch are undetermined. A Nez Perce chinook fishery, if it occurs, will be in the South Fork Salmon River.

Wild fall chinook will not be caught because fall chinook are not present in the South Fork Salmon River where fishing is expected to take place. If a Nez Perce chinook fishery takes place (expected announcement in early February), then wild spring and summer chinook are likely to be caught. The Nez Perce Tribe will conduct a fishery only if: 1) predicted returns of spring and summer chinook substantially exceed the hatchery needs and requirements; and 2) return levels are such that a reasonable level of harvest can be made with no significant impact to wild chinook spawning in the South Fork Salmon River. If a 1993 Nez Perce fishery occurs in the South Fork Salmon River, a harvest similar to that of the Shoshone-Bannock Tribes’ harvest can be expected.

Summary

Idaho sport fisheries for 1993 are not assessed here. During 1993 tribal fisheries in the Salmon River Subbasin, it is highly unlikely that sockeye and wild fall chinook would be caught. There is a slight chance that an early migrating summer chinook might be caught in the Nez Perce tribal C&S fishery for Rapid River spring chinook. However, the tribal fishery for Rapid River spring chinook is managed to avoid the harvest of wild summer chinook.

Regarding fisheries in the Upper Salmon River Subbasin, specific guidelines (quotas, dates, and times) for tribal fisheries are not available. For the Shoshone-Bannock fisheries, if the same wild spring and summer chinook catch (33 chinook) as 1992 is assumed for 1993, then a harvest rate of about 0.6% can be expected (percent of escapement at Lower Granite Dam). If a Nez Perce tribal fishery occurs in the South Fork Salmon River (expected announcement in early February), the harvest rate for wild spring and summer chinook may double for the Upper Salmon River Subbasin (1.2%). This treaty Indian harvest rate of 1.2% is also equivalent to a Columbia River mouth harvest rate, and is significantly below the CRFMP allowed harvest rate of 11.1% for spring chinook and 10% for summer chinook in mainstem Columbia River fisheries.

Unit 5: Grande Ronde River Subbasin

The Grande Ronde River originates in the headwater streams of the Blue and Wallowa mountains of northeast Oregon. The mainstem flows generally north and east crossing into the State of Washington 37 miles upstream from its confluence with the Snake River at RM 169. The Grande Ronde supports runs of summer steelhead, spring chinook, and small numbers of fall chinook. Steelhead and spring chinook utilize the entire watershed with wild spawning occurring throughout the system. Fall chinook appear to be colonizing the lower portion of the mainstem. Historically (before construction of the Hells Canyon dam complex) fall chinook were not known to use the subbasin. Sockeye are no longer present in the Grande Ronde Subbasin.
Non-Indian Sport Fisheries

Washington steelhead sport fisheries are open from the mouth upstream to the County Road Bridge (RM 2.5) from September 1 through May 31, catch and release angling only, and barbless hooks required. From the County Road Bridge upstream to the Washington/Oregon border (RM 37) the river is open for retention of only hatchery steelhead from September 1 through April 15. Retention of salmon is prohibited. Regulations and season are unchanged for 1993.

Oregon steelhead sport fisheries are open from the state line (RM 37) upstream to Meadow Creek (RM 183), and in three tributaries, from September 1 through April 15. The tributaries and open areas are: Wenaha River (RM 0-6), Wallowa River (RM 0-26), and Catherine Creek (RM 0-21). Regulations require the use of barbless hooks, and immediate release of wild steelhead and other non-legal incidental catch. Retention of salmon is prohibited. Regulations and season are unchanged for 1993.

Fisheries in the Grande Ronde River Subbasin do not catch sockeye or summer chinook. Small numbers of fall chinook are known to be in the area of steelhead sport fisheries, but creel census indicates that the incidental harvest of fall chinook does not occur; mortality is therefore estimated to be zero. Steelhead fishing generally occurs after spring chinook spawning is complete and in locations distant from chinook spawning areas. Mortality of fall chinook during steelhead sport fisheries is considered to be non-existent.

Treaty Indian C&S Fishery

Umatilla tribal C&S fisheries for spring chinook were set annually in the upper Grande Ronde River and Catherine Creek from 1986-90 during the mid-May to mid-June time frame. Treaty Indian harvest is by gaff pole, dipnet, spear, and hook and line. For 1986-89 fisheries, approximately 80% of the catch was hatchery origin fish, indicating a wild spring chinook catch ranging from two to 25 fish (Table 1). Though a small fishery was set in 1990, tribal participation may not have occurred and the estimated catch is zero. No tribal fisheries occurred in 1991 in the Grande Ronde Subbasin. In 1992, the Nez Perce and Umatilla tribes both conducted C&S fisheries targeted exclusively on Lookingglass Hatchery spring chinook with a total catch of 175 fish (Table 1). The 1992 tribal fishery occurred in Lookingglass Creek from the hatchery weir downstream 1.5 miles to the mouth. Plans for a 1993 fishery for Lookingglass Hatchery spring chinook are currently undetermined. If the inseason analysis indicates that a surplus is expected at the hatchery, tribal fisheries for Lookingglass Hatchery spring chinook may be set. Presumably, regulations would be similar in time and area to the 1992 fisheries. Catch of wild spring chinook or other listed species will not likely occur based on location of this fishery (immediately below the hatchery weir).

Summary

There is a slight chance that fall chinook would be handled during the steelhead sport fishery. Mortalities of listed species are not likely to occur in the Grande Ronde Subbasin in 1993 fisheries.
Unit 6: Imnaha River Subbasin

The Imnaha River originates on the east slope of the Wallowa Mountains and enters the Snake River at RM 192. The entire subbasin is located in Oregon. The Imnaha River supports runs of spring chinook and summer steelhead. Though summer chinook are known to inhabit the Imnaha River, considerable overlap of spring and summer chinook occurs in migration timing and spawning habitat making separation impossible. Therefore, Oregon Department of Fish and Wildlife considers them to be a single stock and classifies them as spring chinook in this subbasin. Sockeye are not present in the Imnaha River Subbasin. There is some evidence of fall chinook colonizing in the lower mainstem in recent years. Before the construction of the Hells Canyon dam complex, fall chinook were not known to utilize the Imnaha River.

Non-Indian Sport Fisheries

Oregon steelhead sport fisheries are open on the Imnaha River from the mouth to RM 20 from September 1 through April 15. Regulations require the use of barbless hooks and immediate release of wild steelhead and other non-legal incidental catch. Retention of salmon is prohibited. Regulations and season are unchanged for 1993.

Though small numbers of fall chinook are present, creel census indicates that fall chinook are not caught. Steelhead fishing generally occurs after spring chinook spawning is complete and in locations distant from chinook spawning areas. Mortality of fall chinook during steelhead sport fisheries is considered to be very low or non-existent.

Treaty Indian C&S Fisheries

Tribal fisheries in the Imnaha River Subbasin have not occurred in recent years and are not anticipated for 1993.

Summary

There is a slight chance that fall chinook would be handled during the steelhead sport fishery. Mortalities of any listed species are not likely to occur in 1993 fisheries in the Imnaha River Subbasin.
Actions Implemented to Limit the Catch of Listed Species

Non-Indian Steelhead Sport Fisheries

Washington and Oregon steelhead sport fisheries target hatchery steelhead only. With few exceptions, the following guidelines reduce the handling mortality of listed species to near zero:

Season: Fisheries are not open during migration and spawning of chinook and sockeye. Retention of chinook and sockeye is not allowed.

Areas: Only streams or sections of streams where hatchery steelhead are abundant are open. Primary spawning areas are closed by established angling deadlines below the spawning areas. Standard closures are established at all fishways, weirs, and dams.

Gear: Barbless hooks are required in most areas to facilitate release of and reduce handling stress on non-retention fish.

Monitoring: Creel census monitoring is used to evaluate the handle of non-target species and will be continued. Enforcement patrols ensure that anglers comply with regulations, and provide additional information on the handle of non-target fish.

Emergency Rules: Emergency regulations can be adopted when necessary to protect fish from unanticipated events.

Treaty Indian C&S Fisheries

All treaty Indian C&S fisheries in the Snake River Basin target hatchery spring chinook and steelhead. Treaty Indian fisheries are primarily located in areas and time frames where sockeye and wild chinook are not present. Where wild chinook are likely to be present the following actions will be implemented:

1. The Nez Perce Tribe will manage the Rapid Hatchery spring chinook fishery to avoid the harvest of wild summer chinook.

2. The Shoshone-Bannock Tribes intend to manage their spring and summer chinook harvest in the Upper Salmon River Basin based on harvest rate objectives (number harvested compared to the number of fish in the area) of less than 10% harvest in the most hatchery influenced areas, less than 5% harvest in the moderately hatchery influenced areas, and less than 2.5% harvest in the wild production areas.

3. The Nez Perce Tribe will conduct a fishery in the South Fork Salmon River only if: 1) predicted returns of spring and summer chinook substantially exceed the hatchery needs and requirements; and 2) return levels are such that a reasonable level of harvest can be made with no significant impact to wild chinook spawning in the South Fork Salmon River.

4. The Nez Perce tribal steelhead fishery is closed to the retention of chinook.

In addition to these actions, the tribes also conduct catch monitoring and enforcement of fisheries to ensure that tribal fishers comply with regulations.
Summary of Snake River Basin Fishery Impacts on Listed Species

Oregon and Washington steelhead sport fisheries in the Snake River Basin are generally conducted in areas and during time frames that sockeye, and wild spring and summer chinook are not present. Wild fall chinook are present in the mainstem Snake River where steelhead sport fisheries occur, but incidental handle and mortality is essentially zero. For 1993, Washington and Oregon steelhead sport fisheries in the Snake River Basin are not expected to impact listed species. The State of Idaho will assess 1993 Idaho non-Indian sport fisheries in an independent document.

Treaty Indian C&S fisheries in the Snake River Basin which target steelhead are conducted in areas and during time frames that listed species are not present. Treaty Indian C&S fisheries in the Snake River Basin which target hatchery spring and summer chinook are conducted in areas and during time frames that wild fall chinook are not present. However, some incidental harvest of wild spring and summer chinook in the Upper Salmon River Subbasin is expected in Nez Perce and Shoshone-Bannock fisheries (assumed total of 66 fish). The TAC calculates this catch to be equivalent to 1.2% of the total Snake River wild spring and summer chinook return to the mouth of the Columbia River. This 1.2% harvest rate for 1993 exceeds the 0.1% - 0.7% range of 1981-92 Shoshone-Bannock C&S fisheries. There is a slight chance that sockeye might be caught in the Upper Salmon River Subbasin though records indicate that sockeye have not been caught in recent similar fisheries. Inseason time and area closures could be developed based on 1993 sockeye run timing at Lower Granite Dam to further minimize any chance of sockeye catch in the 1993 Shoshone-Bannock C&S chinook fisheries.

Table 2 summarizes estimated salmon and steelhead catch in anticipated 1993 treaty Indian and Oregon and Washington sport fisheries and is also specific to listed species. No fisheries in the Snake River Basin will target listed species. Only fisheries in the Upper Salmon River Subbasin are expected to catch listed species incidentally.
Literature Cited


Table 1. Annual Treaty Indian C&S Harvest of Spring and Summer Chinook Salmon in the Snake River Basin, 1985-92.

| Year | Umatilla Grande Ronde | Nez Perce Lookingglass | Nez Perce Rapid River | Nez Perce NF Clearwater | Nez Perce Clear Creek | Shoshone-Bannock
<table>
<thead>
<tr>
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<tbody>
<tr>
<td></td>
<td>Hatchery</td>
<td>Wild</td>
<td>Hatchery</td>
<td>Hatchery</td>
<td>Hatchery</td>
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</tr>
<tr>
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<td></td>
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<tr>
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<td></td>
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<tr>
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<td>120</td>
<td>643</td>
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1. The Umatilla tribal harvest from 1986 to 1989 was from Catherine Creek and upper Grande Ronde River; the catch was estimated to be 80% hatchery fish, based on spawning ground carcass surveys. In 1992 the harvest was entirely Lookingglass Hatchery spring chinook in Lookingglass Creek.
2. The Shoshone-Bannock Tribes have determined that catch information prior to 1992 is confidential and have not made this information available for publication.
<table>
<thead>
<tr>
<th>Geographic Unit #</th>
<th>Natal Origin</th>
<th>Spring and Summer Chinook</th>
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<tr>
<td></td>
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**Totals**

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