



*Washington
Department of*
**FISH and
WILDLIFE**

**JOINT STAFF REPORT
CONCERNING COMMERCIAL SEASONS FOR
SPRING CHINOOK, STEELHEAD, STURGEON, SHAD, SMELT,
AND OTHER SPECIES AND MISCELLANEOUS
REGULATIONS FOR 2002**

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Oregon Department of Fish & Wildlife

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JOINT STAFF REPORT CONCERNING COMMERCIAL SEASONS FOR SPRING CHINOOK, STEELHEAD, STURGEON, SHAD, SMELT, AND OTHER SPECIES AND MISCELLANEOUS REGULATIONS FOR 2002

INTRODUCTION

This report is the second in an annual series the Joint Columbia River Management Staff of the Oregon Department of Fish & Wildlife (ODFW) and Washington Department of Fish & Wildlife (WDFW) produces prior to each major Columbia River Compact hearing. The second Compact hearing for 2002 management will begin at 10 AM, January 31, at the Water Resources Education Center located in Vancouver, Washington. The data and recommendations in this report were reviewed by members of the *US vs Oregon* Technical Advisory Committee (TAC).

THE COMPACT

The Columbia River Compact is the entity charged with congressional and statutory authority to adopt seasons and rules for Columbia River commercial fisheries. In recent years, the Compact has consisted of the Oregon and Washington agency directors, or their delegates, acting on behalf of the Oregon Fish and Wildlife Commission (OFWC) and the Washington Fish and Wildlife Commission (WFWC). In addition, the Columbia River treaty tribes have authority to regulate treaty Indian fisheries. When addressing commercial seasons for salmon, steelhead, and sturgeon, the Compact must consider the effect of the commercial fishery on escapement, treaty rights, and sport fisheries, as well as the impact on species listed under the Endangered Species Act (ESA).

Although the Compact has no authority to adopt sport fishing seasons or rules, it is an inherent responsibility of the Compact to address the allocation of limited resources between sport, commercial, and tribal users. This responsibility has become increasingly demanding in recent years. The Compact can be expected to continue the recent trend of conservative management when considering fisheries that will impact listed Columbia River salmon and steelhead stocks.

SEASONS CONSIDERED

On January 31, 2002, the Compact will consider non-Indian and treaty Indian commercial winter seasons for spring chinook, steelhead, sturgeon, and smelt. Winter commercial seasons occur from January through March and spring commercial seasons occur from April through mid-May. Non-Indian target sturgeon (January through early February) and smelt (January through March) seasons were adopted at the December 12, 2001 Compact hearing and modifications to these seasons may be considered at the January 31, 2002 Compact hearing. The Compact will also be considering non-Indian commercial shad seasons which usually occur in late May and June and may consider an early fall sturgeon target season that typically occurs in early August. At this time, commercial sockeye seasons are not anticipated in 2002. Finally, there are general commercial fishery permanent rules and the anchovy and herring fishery, which is open all year in the lower Columbia River, to be considered. Other commercial seasons or modifications to seasons adopted at the January 31, 2002 Compact hearing will be considered at future Compact hearings as information on fish runs becomes available.

STOCKS CONSIDERED

Spring Chinook

Spring chinook entering the lower Columbia River from mid-February to mid-March are predominantly large, 5-year-old fish destined for lower river tributaries. Age 5 chinook are dominant throughout March and reach peak abundance in the lower Columbia River by late March. Smaller 4-year-old fish enter in increasing numbers after mid-March, reaching peak abundance during April. Upriver chinook destined for above Bonneville Dam begin entering the Columbia River in substantial numbers after mid-March and generally peak in the lower Columbia River near mid-April.

Results of genetic stock identification (GSI), visual stock identification (VSI), and recovery of coded-wire tags (CWTs) indicate that spring chinook destined for the Willamette River comprised the majority of the chinook caught during past winter commercial seasons and March Columbia River sport fisheries. Willamette fish predominate because they exhibit an earlier migration pattern and contain a greater proportion of early-entering 5-year-old fish than other spring chinook runs. The remaining chinook landed were destined for the upper Columbia River and other lower river tributaries such as the Cowlitz, Kalama, Lewis, and Sandy rivers, plus Select Area sites of Youngs Bay, Tongue Point, Blind Slough, and most recently Deep River (Table 1). April sport fisheries and spring commercial seasons include increasing numbers of upriver stock spring chinook and 4-year old spring chinook fish destined for lower river tributaries.

Willamette River Spring Chinook

Although Willamette fish predominate in the winter gillnet season catch, the bulk of the run actually enters the lower Columbia River after the season closes. The run passes through the lower Columbia River from February through May with peak abundance during mid-March to mid-April. Migration through the lower Willamette River varies with water conditions but typically occurs from mid-March through April. Passage through the Willamette Falls fishway occurs from mid-April to mid-June with peak passage in May.

Historically, wild spring chinook spawned in nearly all east side tributaries above Willamette Falls. During 1952-1968, dams were completed by the U.S. Army Corps of Engineers (USACE) on all the major east side tributaries above Willamette Falls, blocking over 400 stream miles of rearing area for wild spring chinook. Some residual spawning areas remain, including about two-thirds of the McKenzie River and about one-quarter of the North Santiam River; however, these areas are affected by upstream dams through alteration of flows and temperature. Additionally, the majority of the Clackamas River basin remains accessible although the 3-dam complex (River Miles 23-31) has impacted migration and rearing conditions in the mainstem Clackamas River. Recent estimates place the percentage of wild fish in current Willamette spring chinook runs at about 10%, with the majority being destined for the McKenzie River. Passage over Leaburg Dam on the McKenzie River and North Fork Dam on the Clackamas River plus redd counts in the North Santiam River are currently used to index the status of wild spring chinook populations in the Willamette River Basin. The National Marine Fisheries Service (NMFS)

combined spring chinook destined for the Willamette River above Willamette Falls and the Clackamas River into a single Evolutionarily Significant Unit (ESU) and listed the wild component as a threatened species under the ESA effective May 24, 1999.

Accurate run size estimates prior to 1946 are not available. During 1946-1989, it was generally believed that the 1953 run was the largest on record, at 125,000 fish. The 1953 run was predominantly wild. A new record run size was established in 1990, with a run of 130,600 fish. The 1990 run was comprised of primarily hatchery produced spring chinook.

Current runs are predominately hatchery produced with four large hatcheries above Willamette Falls producing up to 4.4 million smolts each year, plus additional fingerlings to seed reservoir and stream areas. About three-quarters of this hatchery production is funded by USACE as mitigation for the lost production areas. Below Willamette Falls, hatchery releases in the Clackamas River total about 1.0 million smolts annually.

2001 Run

The Willamette return of 80,300 spring chinook (including jacks) entering the Columbia River in 2001 was the largest return since 1991 and continued an increasing trend observed since the record low return of 34,800 in 1996 (Table 2). The 2001 return exceeded the recent 10-year average of 57,000 and was 131% of the preseason forecast of 61,000; however, for the tenth consecutive year the Willamette Basin Fish Management Plan (WFMP) objective of 100,000 Willamette River spring chinook entering the Columbia River was not achieved (Table 3). As has been the case in recent years, wild fish comprised approximately 10% of the 2001 Willamette spring chinook run.

2001 Sport Fisheries

The lower mainstem Willamette River was open for spring chinook angling seven days per week with no quota in effect for the first time since 1995; however, release of nonadipose fin-clipped spring chinook was required for the majority of the season. Hatchery-produced age 4 spring chinook were nearly 100% marked with an adipose fin clip for selective fishery purposes while only a portion of the age 5 hatchery returns were marked for stock identification purposes. Due to the large number of unmarked age 5 spring chinook destined for Willamette River Basin hatcheries the fishery opened with the retention of nonadipose fin-clipped spring chinook being allowed. Effective March 12, when significant numbers of the 100%-marked age 4 hatchery fish began entering the lower Willamette River, retention was restricted to adipose fin-clipped spring chinook only with a two fish per day catch limit in effect throughout the season.

The lower Willamette sport catch totaled 12,400 spring chinook (7,000 kept and 5,400 released) in 2001. Angler trips in 2001 totaled 101,500 and the catch rate of 8.2 angler days to harvest one Willamette spring chinook was an improvement over 2000 and was similar to the recent 5-year average of 8.4 angler days. Total lower Willamette catch and number of angler trips in 2001 were the most since 1995 but only about one third of the record high of 300,000 trips in 1988.

The upper Willamette mainstem spring chinook sport fishery opened on April 1 with a 7-day per week fishery. The daily catch limits of one fish per day was in effect and the release of nonadipose fin-clipped

salmon was required during 2001. Release of nonadipose fin-clipped chinook was required in the McKenzie River in 1995 and 1996 and during 1997-2000 the McKenzie River was closed to salmon angling. In 2001 changes to the 2000 regulations opened the McKenzie and North Fork Santiam rivers for adipose fin-clipped spring chinook. There were no changes to sport fisheries in other Willamette River tributaries above Willamette Falls. The 1980-1998 sport catch above Willamette Falls (mainstem and tributaries combined) has ranged from 1,900 to 10,900, or 6-26% of the Willamette Falls count (Table 4). The 1999-2001 sport catch totals for above Willamette Falls will not be available until 2002 because of delays in receiving and processing angler returned catch records.

2001 Escapement

The Willamette Falls escapement of 54,000 spring chinook was the largest escapement since 1990 and was considerably higher than the recent 5-year average of 32,500 fish (Table 2). The 2001 escapement reflects the low mark rate on age 5 hatchery fish and the conservative management approach taken with respect to commercial fisheries in the mainstem Columbia River. Since 1970, the number of spring chinook passing Willamette Falls has ranged from 20,600 to 71,300 and averaged 39,200 fish.

The OFWC adopted revised spring chinook chapters of the WFMP in February 1998 and further modified the fishery management regime in February 1999. The Mainstem Chapter replaced the previous 30,000 Willamette Falls escapement guideline with a sliding scale harvest rate based on the forecasted return. At the January 21, 2000 OFWC meeting the Commission approved a 15% overall harvest rate for Willamette spring chinook (9,000 fish in lower mainstem Willamette and Columbia River fisheries) in 2000 and allocated 1,200 fish each to the commercial gillnet and sport fisheries in the lower Columbia River, and the remaining 6,600 to the lower Willamette sport fishery. In 2001 all freshwater fisheries were limited to a 20% and managed for a 15% impact on wild Willamette spring chinook in accordance with the recently completed Willamette spring chinook Fishery Management and Evaluation Plan (FMEP). The FMEP and preceding catch quotas were adopted to help provide an increasing trend in wild/natural fish numbers into wild fish production areas in the Willamette River basin.

Preliminary returns to Leaburg Dam in the McKenzie River during 2001 totaled 4,428 (3,400 wild) as compared to the preseason expectation of 2,300. The total return is the third largest in the database, dating back to 1970, exceeded only by returns of 6,800 in 1988 and 7,100 in 1990. Total spring chinook passage over Leaburg Dam averaged 4,900 during the strong return years of 1988-1993 and 1,600 during the poor return years of 1994-1999. Escapement of wild spring chinook past Leaburg Dam has only been estimated since 1994, during which time wild counts have ranged between 825 and 1,986 and averaged 1,200. The preliminary estimate of 3,400 wild spring chinook past Leaburg Dam in 2001 would be the largest count in the database and was within the range of escapement goals set forth in McKenzie River Basin Fish Management Plan. Returns to North Fork Dam on the Clackamas River totaled 3,748, in 2001 (2,248 unmarked fish that were passed upstream) as compared to the preseason expectation of 2,800. Total spring chinook passing North Fork Dam averaged 3,500 during the stronger return years of 1988-1993 and 1,400 during the poor return years of 1994-1999. For spring chinook returning in 2001 only age 4 hatchery-produced fish were adipose fin-clipped for selective fishery purposes and a total of 1,500 spring chinook returning to North Fork Dam were

adipose fin-clipped fish that were recycled downstream through fisheries. The total return is the second largest count in the database, dating back to 1969.

The hatchery egg take needs for the combined Willamette and Clackamas River programs have been met annually from 1980-2001, excluding 1984. In 1994, the McKenzie River Hatchery achieved only 67% of the eggs necessary for the McKenzie River smolt program goal; however, other Willamette and Clackamas River hatcheries met their egg take goals that year. The 2001 spring chinook count at Willamette Falls of 53,973 (52,685 adults) resulted in 20,256 returning to upper Willamette River hatcheries.

With a post-Bonneville Dam era record large upriver spring chinook run (416,500 adults), the Columbia River treaty tribes were able to meet their minimum ceremonial and subsistence (C&S) entitlement as set forth in the expired "Columbia River Fish Management Plan" (CRFMP) through their own fishing efforts; therefore, no Willamette hatchery spring chinook were provided to the Columbia River tribes as part of the minimum C&S entitlement. A total of 491 surplus fish were provided to Oregon coastal Indian tribes and 629 surplus fish from upper Willamette hatcheries were supplied to local food banks. Additionally, a total of 13,120 spring chinook returning to upper Willamette River hatcheries were either passed upstream or recycled downstream through fisheries.

2002 Forecast

The ODFW staff is projecting a return of 73,800 Willamette spring chinook to the Columbia River mouth in 2002 which would be similar to the 2001 return. Age specific returns are expected to total 1,500 3-year olds, 25,900 4-year olds, 45,600 5-year olds, and 800 6-year olds. The 2002 forecast includes a correction for reduced ocean harvest in Canadian fisheries. The 2002 forecast is an increase over the 2001 preseason forecast of 61,000 but less than the 2001 actual return of 80,300 (Table 3).

The 2002 return of 73,800 is expected to include about 7,400 wild fish (10% of total return) which would be slightly less than the 2001 return of about 8,000. Based on the current run size prediction, a 20% harvest rate, and average conversion rates; it is estimated that the number of spring chinook passing Leaburg (McKenzie River) and North Fork (Clackamas River) dams in 2002 will total 3,200 and 2,300, respectively. An escapement of 3,200 fish past Leaburg Dam would be less than the 2001 escapement of 4,400 but would be the second largest return since 1993. An escapement of 2,300 past North Fork Dam would not surpass the 2001 escapement of 3,700 but would be similar to the 2000 escapement of 2,300.

Clackamas River Spring Chinook

The return of spring chinook (including jacks) to the Clackamas River in 2001 totaled 10,800 fish, which is the largest return since 1992 and exceeds the recent 10-year average of 8,200. Wild fish comprised approximately 15% of the 2001 Clackamas River spring chinook run. The run entering the Clackamas River has increased from an annual average of 2,600 chinook in the 1970s, 8,200 in the 1980s, and 8,500 in the 1990s. The larger returns in recent years are due to Clackamas Hatchery at McIver Park, which came on-line in 1979, and an increase in passage over North Fork Dam with a corresponding increase in natural production. The 2001 Clackamas return was below the average

annual run size goal (12,400 fish entering the Clackamas River) stated in Objective 6 of the Clackamas spring chinook chapter of the WFMP.

2001 Sport Fisheries

The 2001 lower Clackamas River fishery was open to salmon and steelhead angling 7 days per week and catch limits were consistent with the lower Willamette River sport fishery. As was the case in the lower Willamette River fishery, effective March 12 only adipose fin-clipped salmon could be retained. The 2001 lower Clackamas sport fishery catch totaled 1,327 spring chinook (783 kept and 544 released) from a record low 10,500 angler trips. The record low effort level in 2001 reflects the conservative management approach taken with respect to Clackamas River spring chinook and other spring chinook angling opportunities in the lower Columbia and Willamette rivers during 2001. The catch total was well below the recent 5-year average of 1,600 and the angler trip total was just below the previous record lows of 12,900 in 1999 and 12,300 in 2000. The catch rate of 7.9 angler days to catch one Clackamas River spring chinook was similar to the 1990-1999 average of 7.5.

2001 Escapement

The North Fork Dam count of 3,748 spring chinook in 2001 included 2,243 unmarked fish that were passed upstream and 1,505 marked fish that were recycled downstream through fisheries. Spring chinook were separated based on fin marks for the first time in 2001 with only age 4 fish being fully adipose fin-clipped. The 2,243 fish that passed over North Fork Dam exceeded the interim 400-800 adult escapement goal set forth in objective 4 of the Clackamas spring chinook chapter of the WFMP. A long term escapement goal of

2,900 adults past North Fork Dam is set forth in objective 5 of the Clackamas spring chinook chapter of the WFMP. The dam count has increased from an annual average of 500 in the 1970s, to 2,600 in the 1980s and 2,300 in the 1990s, and since 1980 has included unknown numbers of hatchery fish. Additionally, about 50 fish were observed spawning below North Fork Dam in 2001. In 2001, a total of 6,155 fish returned to Clackamas Hatchery; of which 3,711 were sold as surplus, 214 were provided to Oregon coastal Indian tribes, 547 were donated to a local food bank, and 438 were recycled downstream through the fishery.

Sandy River Spring Chinook

Fish returning to the Sandy River originate from transferred hatchery stocks produced in the Willamette River system. Spring chinook smolt releases were initiated in 1976 and subsequently doubled beginning in 1986. The purpose of these releases was to supplement the depleted native run with Willamette spring chinook. The Marmot Dam count has increased from an average of 124 fish during 1954-1970, to 1,000 during the 1980s, to 2,900 during the 1990s. The NMFS combined spring and fall chinook destined for Columbia River tributaries below the mouth of the Klickitat River (excluding the Willamette River Basin spring chinook) to form a single ESU that was listed as threatened under the ESA effective May 24, 1999. This ESU includes wild spring chinook destined for the Sandy River in Oregon and the Cowlitz, Kalama, and Lewis rivers in Washington.

The minimum spring chinook run entering the Sandy River is the sum of Marmot Dam passage plus sport catches below Marmot Dam. The preliminary 2001 Sandy run size estimate of 5,600 is the largest return since 1993 and exceeds the recent 5-year average of 4,000. The 2002 Sandy River forecast of 4,300 spring chinook is based on the recent 5-year average and would be less than the 2001 return (Table 5). Wild run size forecasts are not available for Sandy River spring chinook at this time.

2001 Sport Fishery

The sport fishery for spring chinook in the Sandy River is not sampled for catch and effort; therefore, catch is estimated from angler returned catch records. Catch records for 1999-2001 are not available at this time due to delays in receiving and processing angler returned catch records. Since 1986 harvest rates in the Sandy River have ranged between 28% and 54% and averaged 38%. The 1997 and 1998 sport catch below Marmot Dam was estimated to total 1,300 in 1997 and 1,400 in 1998, which results in harvest rates of 28% and 35% respectively. Based on the average harvest rate and the Marmot Dam escapement of 3,500 the projected sport catch for 2001 is 2,100 fish.

Cowlitz River Spring Chinook

The Cowlitz River run is essentially supported by hatchery production and is closely related genetically to runs in the Kalama and Lewis rivers. These fish migrate earlier than the upriver stocks with the majority passing through the lower Columbia River from mid-March to mid-May. Contribution of this run is included under "other lower river" in Table 1 and "Cowlitz, Kalama, and Lewis rivers combined (adults)" in Table 3. Estimated adult returns to the Cowlitz River for recent years are shown in Table 5. The NMFS combined spring and fall chinook destined for Columbia River tributaries below the mouth of the Klickitat River (excluding the Willamette River Basin spring chinook) to form a single ESU that was listed as threatened under the ESA effective May 24, 1999. This ESU includes wild spring chinook destined for the Sandy River in Oregon and the Cowlitz, Kalama, and Lewis rivers in Washington.

2001 Run

The adult return of 1,700 spring chinook in 2001 was within the range of low returns observed since 1994. The hatchery escapement of 1,300 adults surpassed the 1,150 fish escapement goal. Natural spawning escapement of 300 adults is the same as the recent 5-year average. The preseason forecast resulted in a sport fishery that was closed effective April 1 and produced a total catch of 100 fish (Table 6).

2002 Forecast

The forecast for the Cowlitz River in 2002 is for a return of 3,100 adult spring chinook of which 80% are expected to be age four fish. This would be the largest return since 1994. Adult returns have been in a general pattern of decline since 1984 and have "stabilized" at this low level during the last eight years. Since 1994, returns have ranged between 1,100-3,100 and averaged 1,900. An adult run size of approximately 1,400 is needed to achieve the 1,150 fish minimum hatchery escapement goal because

a portion of the run spawns naturally. This forecast suggests that a sport season should be appropriate in 2002.

Kalama River Spring Chinook

Like the Cowlitz River run, the Kalama River run is essentially supported by hatchery production although natural spawner escapement goals have been formulated. As with spring chinook destined for the Cowlitz and Lewis rivers, these fish migrate earlier than the upriver stocks with the majority passing through the lower Columbia River from mid-March to mid-May. Contribution of this run is included under "other lower river" in Table 1 and "Cowlitz, Kalama, and Lewis rivers combined (adults)" in Table 3. Estimated adult returns to the Kalama River for recent years are shown in Table 5. The NMFS combined spring and fall chinook destined for Columbia River tributaries below the mouth of the Klickitat River (excluding the Willamette River Basin spring chinook) to form a single ESU that was listed as threatened under the ESA effective May 24, 1999. This ESU includes wild spring chinook destined for the Sandy River in Oregon and the Cowlitz, Kalama, and Lewis rivers in Washington.

2001 Run

The adult spring chinook return of 1,700 fish to the Kalama River in 2001 was the largest return since 1993. The hatchery return of 508 adults exceeded the hatchery escapement goal of 450. Additionally, more than 200 adults were passed upstream to spawn in the area above the hatchery barrier. The natural spawn escapement for the reach downstream from the hatchery barrier was less than 600 adults. The preseason forecast and ensuing improved return resulted in a 7-day per week sport fishery in 2001 with a catch of 300 fish (Table 6).

2002 Forecast

The forecast for the Kalama River in 2002 is for a return of 1,600 adult spring chinook, which would be similar to the actual return in 2001. Age 4 fish are expected to comprise 40% of the 2002 forecast. The 2002 forecast shows continued improvement from the extremely poor return years of 1995-1998 when returns ranged between 400 and 700 adults annually. A run of approximately 600 adults is needed to achieve the 450 fish minimum hatchery escapement goal because a portion of the run spawns naturally. The 2002 forecasted return should be adequate to support a full area sport season.

Lewis River Spring Chinook

Like the Cowlitz and Kalama river runs, the Lewis River run is essentially supported by hatchery production and migration timing is similar to that observed in other Washington tributaries. Contribution of this run is included under "other lower river" in Table 1 and "Cowlitz, Kalama, and Lewis rivers combined (adults)" in Table 3. Estimated adult returns to the Lewis River for recent years are shown in Table 5. The NMFS combined spring and fall chinook destined for Columbia River tributaries below the mouth of the Klickitat River (excluding the Willamette River Basin spring chinook) to form a single ESU that was listed as threatened under the ESA effective May 24, 1999. This ESU includes wild spring chinook destined for the Sandy River in Oregon and the Cowlitz, Kalama, and Lewis rivers in Washington.

2001 Run

The adult spring chinook return of 2,200 fish to the Lewis River in 2001 was similar to the poor returns observed since 1996, but improved over 1998 and 1999 returns. The hatchery return of 800 adults achieved the hatchery escapement goal of 700 adults. Natural spawning escapement was 600 adults. The sport fishery was restricted by area and daily catch limits due to a lower than desired preseason forecast; however, the restrictions were lifted in June after the hatchery escapement goal was achieved. Sport catch totaled 700 adults in 2001 (Table 6).

2002 Forecast

The forecast for the Lewis River in 2002 is for a return of 2,000 adult spring chinook of which 50% are expected to be age 4 fish. This would be similar to the 2001 return. Adult returns had been in a general state of decline since 1989, which appears to have culminated with the record poor return in 1998. An adult return of approximately 1,600 is needed to achieve the 700 fish minimum hatchery escapement goal because a portion of the run spawns naturally.

Select Area Spring Chinook

The spring chinook program in Select Areas began modestly with the Clatsop County Economical Development Council (CEDC) operating limited net pens in Youngs Bay. Beginning in 1995 the Bonneville Power Administration (BPA) funded the Select Areas Fisheries Evaluation (SAFE) Program which resulted in expansion of the spring chinook program in Select Areas. Fish returning to Select Area's originate from transferred hatchery stocks that are acclimated in net pens located in Youngs Bay, Tongue Point, and Blind Slough in Oregon plus Deep River in Washington. Spring chinook releases in Oregon Select Areas are Willamette stock while the Washington site used Cowlitz stock. Juvenile spring chinook are reared to smolt size in hatcheries supported by the BPA-funded SAFE Project, Gnat Creek Hatchery in Oregon, and Gray's River Hatchery in Washington. Prior to release, smolts are acclimated for two to four weeks in net pens located in off-channel sites that have good water quality for rearing fish and are conducive for developing known-stock terminal fisheries.

The SAFE spring chinook program began in 1990 with a release of 54,300 smolts into Youngs Bay. During 1990-1993 releases varied from zero to 54,000 and averaged 21,500 before stabilizing at about 450,000 smolts annually during 1995-2001. Releases of smolts into Tongue Point and Blind Slough began in 1996. Since 1996 releases into Blind Slough have ranged between 170,000 and 250,000 smolts annually. During 1996-2000 releases into Tongue Point ranged between 225,000 and 300,000 smolts annually; however, excessive straying resulted in termination of full scale releases in 2001. Releases into Deep River were initiated in 1998 with a release of 56,400. Since 1999 releases have totaled 39,700 in 1999 and zero in 2000. During 1997-2000 total spring chinook releases in all Select Areas combined have ranged between 900,000 to 1,000,000 smolts annually.

2001 Run

Fisheries in Select Areas are adopted with the intent of harvesting 100% of the returning adults. With all smolts being released from net pen sites there is only a limited number of fish that are observed in escapement areas. Landings in the Select Areas in 2001 totalled 9,253 spring chinook of which 5,591

were landed in Youngs Bay, 1,618 were landed in Tongue Point, and 2,044 were landed in Blind Slough. There was no fishing season in Deep River because of limited returns expected in 2001. The total landings of nearly 10,000 spring chinook in Select Areas exceeds the previous record large catch of 6,500 in 2000.

2002 Forecast

Smolts released in 2000 would return as age 4 fish and smolts released in 1999 would return as age 5 fish in 2002. Based on total releases of 1.8 million smolts and survival rates of other Willamette spring chinook the expected return in 2002 is for 5,000-9,000 adult spring chinook of which 3,000-5,000 are destined for Youngs Bay, 1,000-2,000 for Tongue Point, and 1,000-2,000 for Blind Slough. A return of 5,000-9,000 spring chinook to Select Areas would be similar to returns observed in 2000 and 2001.

Upriver Spring Chinook Run

Upriver spring chinook begin entering the Columbia River in late February and early March and reach peak abundance in the lower river (below Bonneville Dam) during April and early May. All chinook passing Bonneville Dam from March through May are counted as upriver spring chinook (Figure 1). The upriver run size is the sum of the Bonneville Dam count and the number of fish of upriver origin caught in lower river fisheries during February through May (Table 7).

The upriver spring chinook run is comprised of stocks from three geographically separate production areas: 1) the Columbia River system above the mouth of the Snake River, 2) the Snake River system, and 3) Columbia River tributaries between Bonneville Dam and the Snake River. In each of these areas, production is now a mix of hatchery and wild/natural fish. Although no estimates of hatchery contribution to upriver runs are available prior to 1977, it can be assumed those runs were predominantly wild. Hatchery production in the 1960s and early 1970s was very limited in comparison to current production. Since the 1970s, spring chinook hatchery production in the upriver system has expanded to the point that in recent years about two-thirds of the run is hatchery produced. With considerable numbers of hatchery eggs, fry, smolts, and adults being outplanted in recent years, it is likely that some of the current natural production is also an indirect hatchery product. Under the ESA, the NMFS listed Snake River wild spring/summer chinook as threatened in May 1992 and upper Columbia wild spring chinook as endangered effective May 24, 1999. The expired CRFMP includes interim management goals of 115,000 adult spring chinook passing Bonneville Dam and 35,000 passing Lower Granite Dam, of which 25,000 should be wild/natural fish.

In general, runs were extremely poor in 1979-1984 (49,000-71,000 fish) with a low point in 1984. The returns in 1985-1993 (60,000-121,000 fish) were somewhat improved, with a high point in 1986. The 1994 and 1995 runs were the lowest on record at 21,100 and 10,200, respectively. The 1996 run of 51,500 and the

1997 run of 114,100 showed an improvement after the 2-year low. However, the 1998 and 1999 returns, which were primarily offspring of the record low returns in 1994 and 1995, were near record lows at 38,400 and 38,700, respectively. The 2001 return of 416,500 fish was the largest return on record (since 1938).

2001 Run

The preseason prediction for the 2001 upriver spring chinook run was 364,600 adults. The actual run entering the Columbia River was 416,500, the largest return observed during the post-Bonneville Dam era. Based on fish sampled at Bonneville Dam, the 2001 age class components were 377,600 4-year olds, 38,500 5-year olds, and 14,800 jacks. The return of listed Snake River wild spring chinook in 2001 was 67,800 fish, as compared to the preseason forecast of 39,300 fish (Table 8). This was the largest return in the database (since 1986) and greatly exceeded the previous record return of 16,200 in 1992. Wild spring chinook comprised 29% of the total Snake River return. Returns of listed upper Columbia wild spring chinook in 2001 were estimated to be about 10,600 fish which is the second largest return in the database (since 1985), only exceeded by a return of 10,900 in 1985 (Table 9). Wild spring chinook comprised 16% of the total upper Columbia spring chinook returns.

2002 Forecast

The 2002 forecast is for a large return of 333,700 adult upriver spring chinook to the Columbia River which is projected to include 251,700 4-year olds and 82,000 5-year olds. This would be the second largest return since counting began at Bonneville Dam in 1938, surpassed only by the 2001 return. A comparison of predicted and actual upriver adult returns for 1980-2001 is shown in Table 3.

The TAC estimates that the 2002 upriver run will include 168,400 Snake River spring chinook and 51,000 upper Columbia spring chinook. The number of listed Snake River wild fish is estimated to be 50,500, which would be the second largest return in recent history and six times the 1986-1999 average return of 7,900 fish. The number of listed upper Columbia wild spring chinook is projected to be 5,100 fish, which would be the third largest return in the database, dating back to 1985.

Upriver Summer Chinook

All chinook passing Bonneville Dam from June 1 through July 31 are counted as summer chinook (Figure 1). The summer chinook run is destined for production areas and hatcheries above Priest Rapids (upper Columbia River stock) and Lower Granite (Snake River stock) dams. The upriver run size is the sum of the Bonneville Dam count and catch or mortalities in lower river fisheries during late May through July. The Snake River wild summer chinook were combined with Snake River wild spring chinook to form a single ESU that has been listed as a threatened species under the ESA since May 1992. The expired CRFMP does not provide a management goal for summer chinook, though fishery managers have been using 80,000 to 90,000 fish at Bonneville Dam as an interim goal.

2001 Run

The 2001 return of 76,400 summer chinook to the Columbia River was the largest run since 1969 and tripled the recent 5-year average of 36,500 fish. Since 1973, the summer chinook adult return has been at record low levels, but fairly stable, ranging between 15,000 and 38,700 and the 2001 preseason forecast of 24,500 was within that range. There are no directed summer chinook fisheries below Bonneville Dam and the treaty

Indian fishery harvested about 830 fish in the C&S fishery. Returns of summer chinook to the upper Columbia River, as measured at Priest Rapids Dam, were 53,200 fish which was the largest count since Priest Rapids Dam was built in 1959 and greatly exceeds the recent 5-year average of 16,500 fish (Table 10). The return of Snake River wild summer chinook in 2001 totaled 2,600 fish to the mouth of the Columbia River, as compared to 900 in 2000, and an average of 2,900 during the 14-year time period of 1986-1999. The 2001 Snake River wild return is the sixth smallest return in the database which begins in 1986 (Table 11). The 2001 estimate is likely biased low due to accounting difficulties that are inherent in the Snake River Basin. The TAC acknowledged that using a specific date to discriminate between spring and summer chinook in the Snake River Basin was likely inadequate due to early migration timing in 2001.

2002 Forecast

The TAC projection for the 2002 summer chinook run is for a return of 77,700 adults to the Columbia River which would be similar to the 2001 return of 76,300. The Snake River wild portion of the 2002 return includes offspring from the stronger return years of 1997 and 1998 and is expected to comprise 8% of the total summer chinook return. The 2002 forecast for Snake River wild spring chinook is 6,600 fish which would double the recent 5-year average of 3,100 fish and would be the largest return in the database, which begins in 1986.

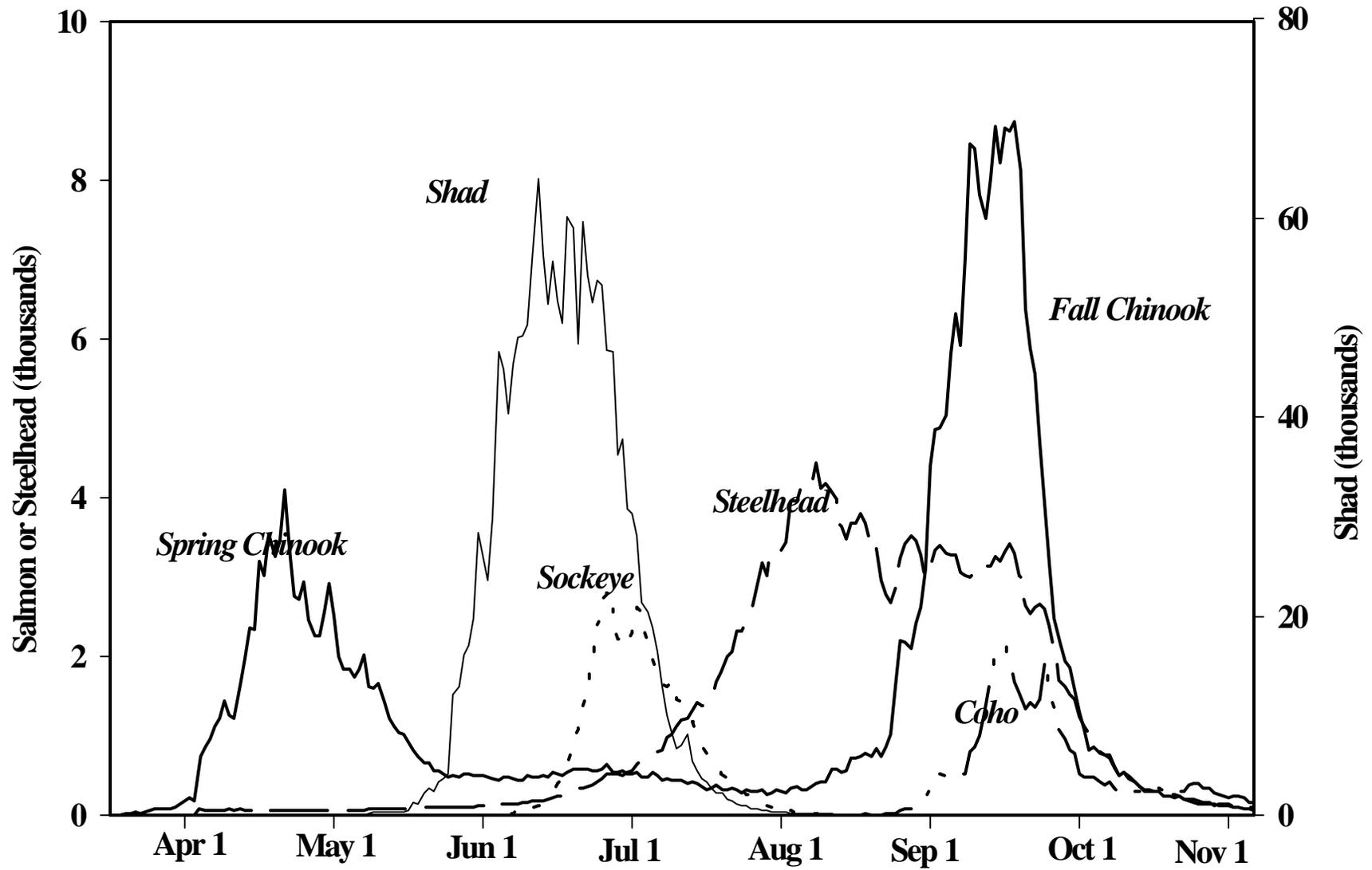


Figure 1. Average Daily Counts of Salmon, Steelhead, and Shad at Bonneville Dam, 1986-2001.

Sockeye

Sockeye salmon migrate through the lower Columbia River during June and July, with normal peak passage at Bonneville Dam around July 1 (Figure 1). Sockeye runs include fish from the Okanogan and Wenatchee rivers in the upper Columbia River basin plus a remnant Snake River run that has been listed as endangered since December 1991. The Wenatchee stock generally migrates earlier than the Okanogan stock although run timing overlaps. Current run timing information for the Snake River stock is not available. The goal of 65,000 fish at Priest Rapids Dam, described in the expired CRFMP, requires a 75,000 fish run over Bonneville Dam assuming average migration conditions.

2001 Run

The preseason forecast for sockeye in 2001 was for a return of 78,100 fish to the Columbia River, as compared to the actual return of 116,600 fish (Table 12). Stock composition estimates, based on run reconstruction data, for the 2001 return include 42,900 Wenatchee stock, 73,800 Okanogan stock, and 50 Snake River stock. The 2001 return of 116,600 was the largest return since 1987 and nearly triples the recent 5-year average of 40,400 fish.

The escapement goal of 65,000 at Priest Rapids Dam was achieved for the second time since 1993. The escapement of 38,600 Wenatchee stock was the largest since 1995 and escapement of 74,500 Okanogan stock past Wells Dam was the largest since 1984. A total of 45 sockeye were counted at Lower Granite Dam in the Snake River, which is less than half of the preseason expectation.

2002 Forecast

An estimated 39,900 sockeye are expected to enter the Columbia River in 2002 which would be the ninth smallest run since 1938. The return is expected to include 14,000 Wenatchee stock, 25,900 Okanogan stock, and 26 Snake River stock.

Summer Steelhead

The Columbia River summer steelhead run is comprised of populations from lower river and upper river tributaries. Summer steelhead enter fresh water over a protracted time period (March through October) each year. The lower river component of the run is primarily hatchery produced, derived from Skamania stock, and tends to be earlier timed than the upriver stocks. Abundance of lower river returns peak during May and June. Lower river summer steelhead return to the Elochoman, Cowlitz, Kalama, Lewis, and Washougal rivers in Washington and the Willamette and Sandy River basins in Oregon. In addition, hatchery fish of the Skamania stock are released annually in Bonneville Pool tributaries of both states. Summer steelhead caught on the mainstem lower Columbia River through June each year are classified and counted as lower river stock. Lower river wild steelhead were listed as threatened by the NMFS on May 24, 1999.

Upriver summer steelhead include hatchery and wild steelhead that pass Bonneville Dam from April 1 through October 31 each year; however, those counted at Bonneville Dam in April, May, and June are now considered hatchery Skamania stock returning to Bonneville Pool tributaries and are therefore classified as lower river steelhead (Figure 1). The upriver run is comprised of two stocks, (Group A

and Group B), and historically, peak counts at Bonneville Dam were bimodal, with the first peak in early August (Group A stock) and a second peak in mid-September (Group B stock). The Group A fish are characteristically smaller (under 10 pounds) fish that spend one or two years at sea and return to tributaries throughout the mid and upper Columbia River system plus the Snake River basin. The later arriving Group B fish are larger (over 10 pounds), typically having spent two or three years at sea and only return to Idaho's upper Clearwater and Salmon River subbasins in the Snake River system. The NMFS has further divided the upriver summer steelhead run into three ESU's: (1) the middle Columbia ESU (wild fish only) which was listed as threatened on May 24, 1999, (2) the upper Columbia ESU (hatchery and wild fish) which was listed as endangered on May 24 1999, and (3) the Snake River ESU (wild fish only) which was listed as threatened on October 17, 1997.

Since 1984, summer steelhead passing Bonneville Dam have been randomly sampled throughout the run (April-October) to ascertain age and size composition plus hatchery to wild ratios of each year's return. Prior to 1999, managers used the date method which classified the Group A run as all fish counted during April 1 through August 25 and the Group B run as all fish counted during August 26 through October 31. Based on the date method, the expired CRFMP had an interim management goal of 75,500 wild steelhead (62,200 Group A and 13,300 Group B) at Bonneville Dam, which was expected to provide 30,000 wild escapement above Lower Granite Dam under past production and average upstream passage conditions.

During recent years, the Group A and Group B runs have not shown the bimodal peaks and there has been considerable overlap between the two runs. In an attempt to alleviate the problems overlapping runs created for fisheries management a new method (index method) of assessing the relative returns of Group A and Group B steelhead was developed by the TAC in 1999. The index method classifies all fish counted during April 1-June 30 as Skamania Index, July 1-October 31 that are less than 78 cm fork length as Group A Index, and July 1-October 31 that are greater than or equal to 78 cm fork length as Group B Index. The index method will be used to estimate run sizes and to make inseason fishery management decisions pertaining to the ESA. No escapement goals have been developed based on the index method; however, since 1999 fisheries impacts have been limited to less than 17% of the wild Group B index steelhead return. The date method will continue to be tracked and used as a historical index.

2001-2002 Run

The in-river summer steelhead run is the sum of lower river tributary returns (lower river stocks), mainstem harvest during May-October (lower river and upriver stocks), and Bonneville Dam counts during April-October (upriver stocks). Since the 2001-2002 run is still in progress at upriver dams, some harvest has yet to occur and escapement estimates are incomplete. Final run size data will be included in the Fall Joint Staff Report but preliminary estimates are included in this report. Based on preliminary run reconstruction data the 2001-2002 summer steelhead run was the largest return during the post Bonneville Dam era (since 1938). Run size estimates and dam counts, based on the date method, through 2001 for lower river, Group A, and Group B summer steelhead are presented in Tables 13-14. For Group A index steelhead the total return and wild return were the largest since sampling began in 1984. For Group B index steelhead the total return was also the largest observed since 1984 and the wild return was the largest observed since 1992 (Table 15). Run size and wild

escapement at Lower Granite Dam are included in Table 16; however, the 2001-2002 count at Lower Granite Dam will not be complete until May 31, 2002.

2002-2003 Forecast

Using the index method, the 2002-2003 prediction for upriver summer steelhead at Bonneville Dam of 447,700 fish (369,700 Group A Index, 60,600 Group B Index, and 17,400 Skamania Index) nearly doubles the 2001 forecast of 249,300, but is less than the 2001 record large return of 630,200 fish. The 1-salt return was predicted using the recent 5-year average. The predicted 2-salt return is based on the 2001 1-salt return and a regression of 2-salt vs. 1-salt returns from the same cohort using 1983-2001 data. Independent estimates were made for Group A Index and Group B Index, and wild and hatchery fish (Table 15). The Group A Index predicted return at Bonneville Dam for the 2002-2003 run year is 369,700, of which 105,000 (28%) are expected to be wild. The total return would be a decrease compared to the record large return in 2001 and the wild run would be the second largest since 1987. The Group B Index predicted return at Bonneville Dam for the 2002-2003 run year is 60,600, of which 21,600 (36%) are expected to be wild. The total returns would be a slight decrease from 2001, while the wild run would be the largest since sampling began in 1984 (Table 15). No prediction was made for lower river summer steelhead returning in 2002.

Shad

Shad are an introduced species brought to the West Coast from Pennsylvania stock in the 19th century. Since the extensive development of mainstem hydro-electric projects, shad runs have increased markedly in abundance and have extended their range into the upper Columbia River and into Hells Canyon of the Snake River. Since the late 1970's, all shad runs have exceeded 1 million, with a peak of over 4 million in 1990. Shad run timing extends from mid-May through early August at Bonneville Dam, with peak daily counts occurring in June (Figure 1). Since the run timing of the prolific shad runs overlap with upriver chinook, sockeye, and steelhead runs, harvest opportunities are limited to minimize handle and impact on salmonids.

2001 Run

The 2001 minimum shad run size was 2,888,400, with a minimum spawning escapement of about 2,725,000 above The Dalles Dam, plus an unknown number below The Dalles Dam. The non-Indian (lower Columbia and Willamette rivers) sport and commercial combined catches of 163,400 fish was about 6% of the minimum estimated shad run size. The 2001 shad run in the Columbia River, at 2.9 million fish, is the highest since 1992 when 3.1 million shad entered the Columbia River (Table 17).

REVIEW OF MAINSTEM AND SELECT AREA FISHERIES

Non-Indian Fisheries

Past Lower River Mainstem Winter Gillnet Salmon Seasons

Winter gillnet salmon season dates have been established since 1878. Past season dates were January 1-March 1, 1878-1942; January 29-March 1, 1943-1958; February 15-March 1, 1959-1967; and since 1968 (excluding 1995 and 1997-1999) seasons have opened as early as February 10 and closed as late as March 11 with seasons varying from one to 20 days. No lower river winter gillnet salmon seasons occurred during 1995 and 1997-1999; however, small numbers of spring chinook were landed in conjunction with winter target sturgeon seasons during these years.

Winter salmon season fishing dates, mesh size restrictions, and landings since 1970 are shown in Table 18. Since 1970, chinook landings have ranged from 100 to 18,300 fish. A minimum mesh size restriction of 7-¼ inches was placed on the fishery in 1970 to reduce steelhead handle. Subsequent to the prohibition on the sale of steelhead in 1975, the minimum mesh size restriction was increased to 8 inches which continued through 2001. No salmon fishing has been allowed above Kelley Point at the Willamette River mouth during winter salmon seasons since 1975 to reduce catch of upriver spring chinook. Since 1957, all non-Indian commercial fisheries have been restricted to Zones 1-5 (below Bonneville Dam) and treaty Indian commercial seasons to Zone 6 (Bonneville Dam to McNary Dam) (Figure 2).

During the 1975-1990 winter salmon seasons, the Joint Staff estimated that an average of about 250 steelhead were handled each fishing day, with a seasonal average of less than 500 dead steelhead annually. The steelhead estimates were based on changes in time, area, and mesh size regulations plus observations made onboard gillnet boats during 1970-1977 and 1986 winter salmon seasons. Monitoring data collected during the 1975-1977 and 1986 winter salmon seasons indicated that about 17% of the steelhead handled were immediate mortalities which corresponds to an average of 40 steelhead mortalities per day. Based on observations during the 1991-1993 winter salmon seasons in the Marine Mammal Observer Program, less than 100 steelhead per fishing day were handled, with 17% assumed to be immediate mortalities based on the aforementioned sampling data. This provides a current average of 16 steelhead mortalities per fishing day, considerably less than the 40-per-day average assumed for prior winter salmon seasons.

White sturgeon have been an important commercial species during winter salmon seasons. Catches ranged from 500-1,200 during the 1989-1993 winter salmon seasons. White sturgeon landings during winter salmon seasons comprised 10-21%, and averaged 15%, of the total annual white sturgeon gillnet landings during 1989-1993. Sturgeon management and quotas changed several times between 1993 and 1997. These changes culminated with the adoption of the Olympia Accord by Oregon and Washington in October 1996, and since 1997 sturgeon management has been guided by two Joint State Agreements on sturgeon management. More detailed information concerning past sturgeon management can be found in the document titled "*Joint Staff Report Concerning Commercial Seasons for Sturgeon and Smelt in 2002*". Since 1997 sturgeon directed fisheries have operated

from early January through mid-February with landings during winter sturgeon seasons averaging 2,500 white sturgeon or 22.1% of the annual white sturgeon gillnet landings.

Past Select Area Fisheries

Test fishing operations regularly occurred in Select Areas prior to release of fish or adoption of fisheries. Test fisheries have consistently been the basis on which initially fisheries were proposed. Expansion in time or area has consistently been preceded by positive results from test fishing operations. Results from test fisheries in Select Areas are typically corroborated by ensuing commercial fisheries.

Spring chinook commercial fisheries in Select Areas were initiated with 9-day fishing seasons in Youngs Bay during 1992-1994. Fisheries remained at low levels and limited to Youngs Bay only through 1996 with landings of less than 1,000 spring chinook annually. Landings in the Youngs Bay commercial fishery have increased steadily from 800 spring chinook landed in 1997 to 5,600 spring chinook landed in 2001. Initially seasons in Youngs Bay were restricted to the spring fishing period with seasons occurring primarily during late April through early June. As returns increased winter and summer seasons were adopted in an attempt to harvest 100% of the returning adults. Winter seasons during mid-February through mid-March were initiated in 1998 to harvest early returning age 5 spring chinook. Beginning in 1999 summer seasons during mid-June through July were adopted to increase harvest on late returning age 4 spring chinook and early returning Select Area bright (SAB) fall chinook. Fisheries have consistently been closed during mid-March through mid-April to minimize the handle of non-local spring chinook stocks whose abundance peak during that time.

Commercial fisheries in Blind Slough were initiated in 1998 with a 9-day spring season that resulted in a catch of 60 spring chinook. Since 1998 annual landings have steadily grown with a catch of 2,000 in 2001. The initial winter season occurred in Blind Slough in 2000 with only spring seasons occurring prior to 2000. As with Youngs Bay these early winter seasons targeted on early returning age 5 spring chinook that were available prior in the time period when a significant number of non-local stocks were present. No summer seasons have been adopted in Blind Slough. The area fished was initially limited to Blind Slough but as returns increased the area was expanded in 1999 to include the waters of Knappa Slough from the mouth of Blind Slough to the east end of Minaker Island. The expanded area was adopted to increase catch and decrease congestion during peak fishing periods.

Commercial fisheries in Tongue Point were initiated in 1998 with a 9-day spring season that resulted in a catch of 30 spring chinook. As was the case in Blind Slough, Tongue Point landings have steadily increased with a catch of 1,600 spring chinook in 2001. The Tongue Point commercial fishery was managed in concert with the Blind Slough fishery with winter seasons being initiated in 2000 to harvest early returning age 5 spring chinook. To date, no summer fisheries have occurred in the Tongue Point Select Area. The fishing area was expanded in 1999, as was the case in Blind Slough, to include the South Channel between the confluence with the John Day Slough and the Prairie Channel to increase catch and reduce congestion during peak fishing periods.

Although spring chinook have been released into the Deep River Select Area since 1998, returns have not been adequate to support a commercial fishery as of yet. Releases to date have been experimental

releases that supported only limited test fisheries on returning adults. The first full fleet commercial fishery is expected to occur in Deep River in 2003.

Select Area fishing sites have been open for sport fishing since the inception of the SAFE project. Sport fisheries typically develop more slowly than do commercial fisheries, as has been the case in Select Areas. Due to high turbidity sport fishing in Youngs Bay is typically limited; however, in 1998 it was estimated that 55 spring chinook were landed in Youngs Bay. Other than 1998, sport catch of spring chinook in Youngs Bay has been less than 15 fish. To date sport catches in Tongue Point have been minor to non-existent. Blind Slough shows good potential for developing a strong sport fishery. Effort and catch has increased significantly during the last two years. A limited creel program conducted in 2000 produced a catch estimate of 121 chinook from 615 angler trips. Effort and catch in 2001 exceeded that observed in 2000. However, with the mainstem Columbia River open for spring chinook angling, sport sampling efforts focussed on the mainstem fishery; therefore, no catch and effort estimates are available for 2001. Catch and effort in the Blind Slough/Knappa Slough Select Area is included in mainstem catch and effort estimates.

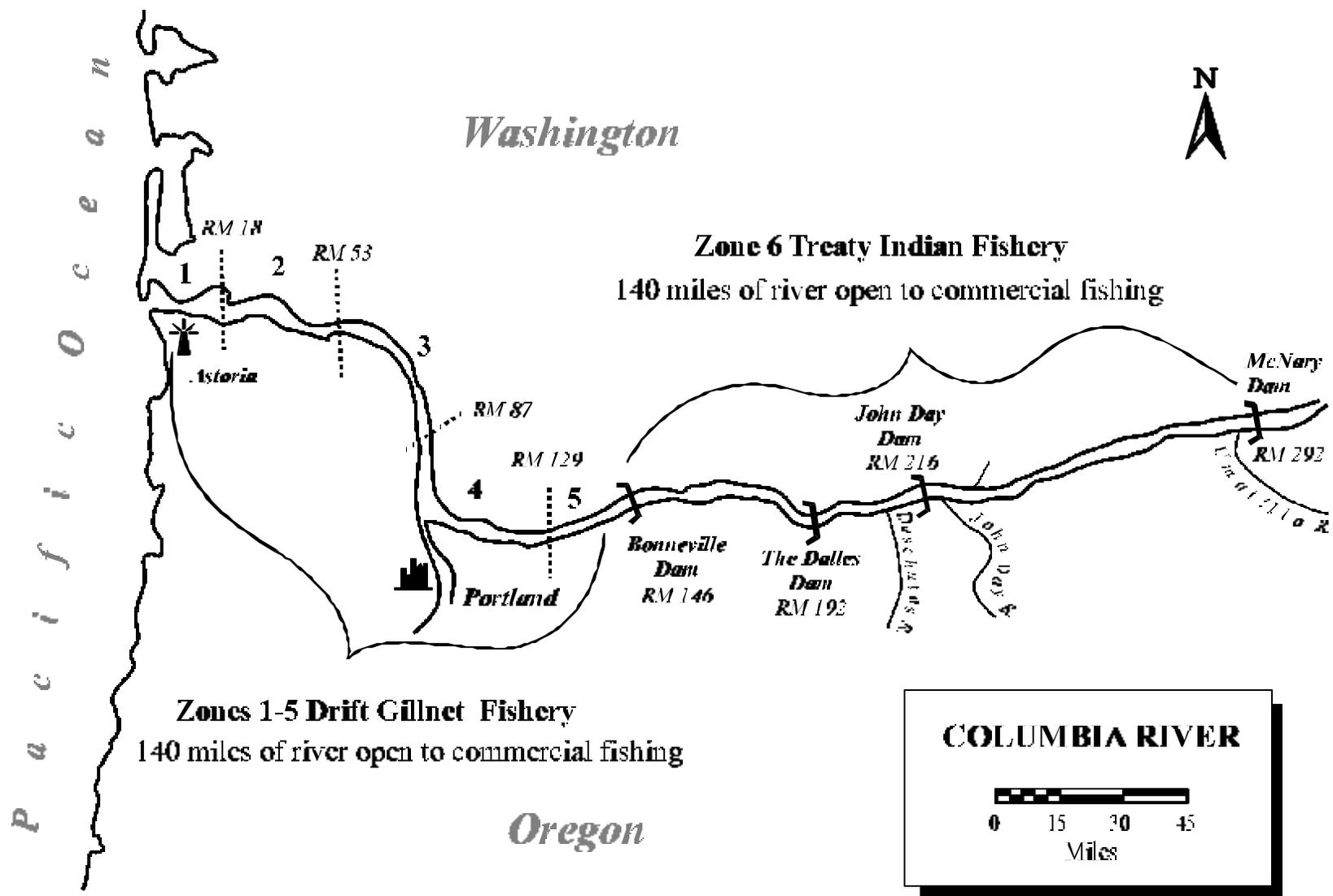


Figure 2. Map of the Columbia River Below McNary Dam Showing Areas Open to Commercial Fishing.

2001 Lower River Winter Gillnet Season

The major tenets of the 1997-1999 Olympia Accord on sturgeon management which included allowing target sturgeon seasons to access white sturgeon commercial catch allocation, were readopted by the Oregon and Washington Fish and Wildlife Commissions for 2000-2002 fisheries. In accordance with the Joint State Management Agreement a 2001 winter target sturgeon season consisting of five consecutive 2-day per week fishing periods from noon Mondays to 6 PM Tuesdays (30 hours) and noon Thursdays to 6 PM Fridays (30 hours) during the time period of January 8 through February 9 was adopted at the December 18, 2000 Compact hearing. Both 9-inch minimum and 9¾-inch maximum mesh size restrictions were adopted for this season to minimize the catch of chinook, the handle of steelhead and sublegal sturgeon, and to facilitate the catch of legal-size sturgeon. Preseason catch expectations for the five weeks were 1,500–2,500 white sturgeon and up to 50 chinook. Catches were slightly higher than expected during the 5-week period with 2,745 white sturgeon and 71 spring chinook landed.

An additional Compact hearing was scheduled for January 25, 2001 to consider non-Indian fisheries for smelt, sturgeon, chinook, and shad. No additional winter sturgeon fishing periods were set at this Compact and decisions on mainstem salmon seasons were delayed. As in 2000, there was no signed Management Agreement for upriver spring chinook, summer chinook, and sockeye between the parties to *U.S. vs Oregon*. In the absence of an agreement, non-Indian and treaty Indian fisheries proposed for January 1-July 31, 2001 were described in separate ESA documents; however, negotiations concerning state and tribal fishery impacts continued with the intent of completing a draft Management Agreement in early February. The ODFW was also anticipating a mid-February letter of concurrence from the NMFS on their draft FMEP for Willamette spring chinook.

By the February 20, 2001 Compact hearing a tentative agreement for 2001 winter, spring, and summer fisheries' management had been reached and the NMFS had concurred with the Willamette spring chinook FMEP. Following guidelines set forth in these documents, managers intended to limit the winter salmon season to a 6-7% impact on Willamette wild spring chinook and to a 0.5% impact on upriver wild spring chinook which was expected to produce a catch of 6,000 spring chinook based on preseason run size expectations. The Compact set a winter season salmon fishery from the mouth upstream to Kelley Point for two 30-hour periods from noon February 26 to 6 PM February 27 and noon March 1 to 6 PM March 2. A minimum mesh size restriction of 8 inches was adopted to target chinook and still allow protection for winter steelhead. Spring chinook catches were lower than expected with 1,778 chinook and 200 white sturgeon landed.

These lower than expected chinook landings resulted in the Willamette and upriver spring chinook impacts for mainstem commercial fisheries being well within preseason guidelines; therefore, the winter salmon season was extended for a 36-hour period from 6 PM March 4 to 6 AM March 6. When the March 6 fishery checkpoint indicated chinook catches would not exceed impact guidelines, the fishing season was extended for two more days from 5 PM March 6 to noon March 7 and noon March 8 to 3 AM March 9. The 2001 winter salmon season fishery ended with final catches totaling 5,374 spring chinook and 421 white sturgeon for combined winter season total of 5,445 spring chinook and 3,166 white sturgeon.

The stock composition for the combined winter season was based on VSI and CWT analysis with a total of 2,699 chinook (50% of the catch) examined for fin marks and CWTs and 823 snouts being collected. Based on the VSI and CWTs analysis, the catch was estimated to include 3,866 lower river fish and 1,579 upriver fish for the 2001 winter season. The lower river spring chinook catch was estimated to be comprised of 2,790 destined for the Willamette River; 888 destined for Select Area sites; 107 destined for the Cowlitz, Kalama, or Lewis rivers; and 81 destined for the Sandy River. Based on run size proportions, there were an estimated 257 Snake River wild adults, or 0.38% of the river mouth run, were caught in the 2001 winter gillnet fishery.

2001 Experimental Tangle Net Gear Commercial Permit Fishery

At the April 20, 2001 hearing, the Compact adopted an experimental tangle net gear commercial permit spring chinook fishery for the mainstem Columbia River below Bonneville Dam during April 23 through May 18. The fishery was part of a BPA-funded study evaluating the use of live capture fishing gears and methods in lower Columbia River commercial fisheries and was allocated a 0.4% impact rate on upriver spring chinook. The fishery was limited to 20 participants which were selected by lottery procedure from interested commercial fishers. Participants were restricted by time, area, gear, and fish handling procedures as detailed in the "Permit to Use Experimental Tangle Net Gear to Live Capture Spring Chinook". Participating fishers were limited to one eight-hour fishing period per week and allowable sales were restricted to adipose fin-clipped salmon and shad only. The purpose of this permit fishery was to determine if the use of small mesh tangle nets was feasible in lower Columbia River commercial fisheries for spring chinook.

The permit fishery was initially restricted to 3½ and 4½ nets for the purpose of comparing species specific catch and mortality rates associated with these two mesh sizes. At the commercial industries request, the study was expanded to also evaluate the effects of the use of stringers or slackers on catch and mortality rates. When it became apparent that impacts associated with this fishery would be well below the 0.4% impact limit the fishery was expanded to include 5"-6" mesh nets. During the last two weeks of the fishery all participating fishers were allowed to fish one additional 8-hour fishing period per week with 5"-6" mesh tangle nets to determine catch and mortality rates associated with larger size tangle nets.

During the 4-week fishery a total of 2,010 spring chinook were landed, of which 1,283 were kept and 727 were released, including 31 immediate mortalities. Based on CWT and VSI data the kept catch was comprised of 801 upriver spring chinook, 376 lower river spring chinook, and 106 upriver summer chinook. Based on CWT recovery data the lower river stock included 193 from the Willamette River; 87 from Select Areas; 54 from the Cowlitz, Lewis, and Kalama rivers; and 42 from the Sandy River. Impact rate on wild upriver adult spring chinook was 0.06% which is well below the 0.4% allocated for this fishery.

2001 Lower Columbia Spring Chinook Sport Fishery

Under permanent regulations, the main-stem Columbia River is open to angling for salmonids through March 31 downstream of the I-5 Bridge (RM106) for the purpose of targeting earlier migrating Willamette spring chinook. The area upstream of the I-5 Bridge to the

Oregon/Washington border above McNary Dam is permanently closed January 1-July 31 and the area below the I-5 Bridge is permanently closed April 1-July 31 to protect upriver spring and summer chinook. During 1995-1999, recreational fisheries for spring chinook were all but eliminated to protect a weak return of upriver spring chinook in 1995 and low Willamette spring chinook runs during 1996-1999. During 2000, projections for the largest upriver run since 1977 (134,000 preseason projection), and an improved Willamette run size forecast of 59,900, prompted the OFWC to formally allocate 1,200 Willamette spring chinook for main-stem Columbia River sport fisheries; however, problems with the issuance of a Biological Opinion from the NMFS resulted in an early (March 16) closure date and a poor catch of only 322 adult spring chinook.

An unprecedented forecast for a return of 364,600 upriver spring chinook to the Columbia River in 2001 coincided with negotiations by the parties to *US vs Oregon* for a new management agreement regarding the harvest of upriver spring chinook in Columbia River fisheries. The *"Interim Management Agreement for Upriver Spring Chinook, Summer Chinook, and Sockeye"* was signed on February 16, 2001 and allowed for a 15% total impact to listed upper Columbia and Snake River wild spring chinook incidental to the harvest of surplus hatchery spring chinook in all freshwater fisheries in 2001, of which 2% was allocated to non-Indian fisheries. Managers expected to use about 0.8% of the upriver impact in the lower river recreational fishery. In addition to the record high run size expectation of 364,600 upriver spring chinook, biologists expected almost 70,000 lower river origin spring chinook (including 61,000 Willamette, 4,800 Cowlitz-Kalama-Lewis (CKL), and 4,000 Sandy River spring chinook) to return to the Columbia during 2001. The total spring chinook run entering the Columbia River in 2001 was expected to be 434,400 fish, the largest run size of the post-Bonneville Dam era (since 1938). Approximately 84% of the total spring chinook run was expected to be of hatchery origin, and adipose fin-clipped fish were expected to comprise almost 50% of the total return and approximately 60% of the hatchery fish.

Columbia sport angling regulations were adopted at a Joint State hearing on February 20, 2001. The primary management objective for the sport fishery was to reinstate the fishery over its historically most important area and time frame, which essentially meant the lower Columbia River below Bonneville Dam through the month of April. Due to the high percentage of adipose fin-clipped fish returning in 2001, the states chose to restrict anglers to the retention of adipose fin-clipped chinook only beginning March 12, 2001 for the purpose of maximizing both the conservation of listed fish and the harvest of surplus hatchery fish while maintaining consistent sport fishing regulations for the lower Columbia and Willamette rivers. Although preseason modeling suggested that the sport fishery could be open three to four days per week through the entire month of April, public testimony at the Joint State hearing was overwhelmingly in favor of a seven-day per week fishery; therefore, the states adopted a seven-day per week fishery with a closing date of April 30 for the first time since 1977. Additionally, beginning March 12, the managers opened the area from the I-5 Bridge upstream to Bonneville Dam to spring chinook angling for the first time since 1977. Anglers were allowed to retain shad and adipose fin-clipped steelhead during the 2001 spring chinook fishery and state bag limits and other permanent rules remained unchanged. The states recognized that in-season changes to the adopted fishing season might be necessary to remain within the 0.8% upriver impact guideline allocated to the mainstem spring chinook sport fishery.

The 2001 spring chinook fishery began in typical fashion with low effort and catch during February when abundance of spring chinook in the lower Columbia is low. The total catch for February was 84 adult spring chinook and 195 winter steelhead kept from 5,017 angler trips. Angler interest increased after the lower river commercial fishery closed on March 9 and catch rates were excellent by the end of the month, particularly in the area just below Bonneville Dam (Section 1). The total catch for March was 4,550 adult spring chinook kept and 2,323 released from 44,356 angler trips. Over 42% of the March catch (1,820 kept and 1,099 released) occurred above the I-5 Bridge from 7,745 angler trips or 17% of the total effort.

The early success of anglers in the area above the I-5 Bridge surprised fishery managers, and because very few lower river spring chinook migrate past the I-5 Bridge the impacts to upriver stocks were more than modeled preseason. With impacts to listed upper Columbia and Snake River spring chinook ahead of preseason expectations, the fishery moved into April with record angler participation and catch rates. The fishery peaked on Saturday April 14, 2001 when the catch per unit effort (CPUE) averaged over a fish for every four anglers and over 3,200 boats and 2,700 bank anglers were counted on the flight between Bonneville Dam and Buoy 10. By the middle of the month, it became apparent that impacts to listed upriver spring chinook stocks would exceed the 0.8% expectation for the sport fishery and that other fisheries planned for later in the spring would be put at risk. The states chose to close the sport fishery on April 18, 2001 to ensure that other non-Indian fisheries, including the experimental tangle net commercial permit fishery, could occur. The estimated catch during April 1-17 was 18,253 chinook kept and 11,450 released from 97,600 angler trips.

On April 19 the TAC met and upgraded the run size expectations for upriver spring chinook to 440,300 based on the adult passage over Bonneville Dam. The increase in run size allowed the states to reopen the lower river sport fishery for five more days during April 25-29. Effort during the re-opener was high with over 1,400 boats and just under 1,000 bank anglers counted on the Saturday April 28 flight and CPUE for the period of just under one fish per five rods. The total catch for April 1-17 and April 25-29 was 21,077 chinook adults kept and 13,138 released from 122,939 angler trips. The total catch for February 1-April 29 was 41,172 adult spring chinook (25,711 kept and 15,461 released), 104 jacks kept, and 2,048 steelhead (1,631 kept and 417 released) from 172,312 angler trips.

Samplers from Oregon and Washington Departments of Fish and Wildlife interviewed 29,603 salmon anglers during February 1-April 29, 2001 and sampled 3,535 adult spring chinook, or 13.7% of the total kept catch. A total of 3,284 adult fish (13% of the total catch) were sampled for CWT's with 926 snouts being recovered. Based on VSI and CWT analysis it was estimated that upriver spring chinook comprised 84% of the total spring chinook catch.

2001 Middle Columbia River Spring Chinook Sport Fishery

On May 1, 2001 the Columbia River Compact reviewed the 2001 spring chinook return and performance of fisheries to date relative to the harvest impact rates provided in the Interim Management Agreement. The TAC updated the upriver run size forecast and projected a return of 400,000 adult fish and non-Indian fisheries impacts were estimated to total 1.81%, leaving 0.19% remaining on the 2.0% upriver wild spring chinook impact guideline.

While anglers on the Columbia River below Bonneville Dam had enjoyed the first April season since 1977, the middle Columbia River between Bonneville and McNary dams remained closed throughout the spring of 2001. With only a very small portion of the non-Indian impact

remaining, decision-makers at the May 1 hearing decided to provide a limited spring chinook angling season in the mainstem Columbia River upstream of The Dalles Dam. The two pools (John Day and The Dalles) between The Dalles and McNary dams were open for three days during Sunday May 6 through Tuesday May 8 which was the first time since 1977 this stretch of the Columbia River was open for spring chinook angling.

The catch during the 3-day fishery in the mid-Columbia was below expectations. The total estimated catch was 73 adipose fin-clipped spring chinook kept and 199 unmarked fish released from 1,432 angler trips.

2001 Youngs Bay Winter Gillnet Season

A winter commercial fishery in Youngs Bay to target the first arrivals of the 5-year old component of the spring chinook return was adopted for the fourth consecutive year. This fishery occurs prior to the time when significant numbers of non-local chinook stocks are present. The winter fishery consisted of three 54-hour periods as follows: noon February 21 to 6 PM February 23; noon February 28 to 6 PM March 2; and noon March 7 to 6 PM March 9. An 8-inch minimum mesh size restriction was enacted to target the larger 5-year old chinook while minimizing the handle of steelhead.

A total of 544 chinook and 10 white sturgeon were landed during the winter fishery. Based on VSI analysis of 205 fish (38% of the catch) an estimated 32 upriver fish were landed in this fishery. A total of 281 chinook (52% of the catch) were sampled for CWTs with 77 snouts being recovered. The 74 CWTs recovered included 45 Youngs Bay spring chinook, one Blind Slough spring chinook, three Tongue Point spring chinook, 22 Willamette River spring chinook, one Cowlitz River spring chinook, and two upriver spring chinook.

2001 Youngs Bay Spring Gillnet Season

The 2001 Youngs Bay spring chinook gillnet fishery was set to open with a 54-hour fishing period from noon April 18 to 6 PM April 20. The opener was followed by an increasing progression of fishing days as follows: noon April 25 to 6 PM April 27 (2 days); noon May 1 to 6 PM May 4 (3 days); noon May 7 to 6 PM May 11 (4 days); noon May 14 to 6 PM May 18 (4 days); noon May 21 to 6 PM May 25 (4 days); noon May 28 to 6 PM June 1 (4 days); noon June 4 to 6 PM June 8 (4 days); and noon June 11 to 6 PM June 14 (3 days). The slow progression of the season was designed to maximize the harvest of local stocks while minimizing impacts on non-local stocks. An 8-inch maximum mesh size restriction was also adopted to target on chinook instead of sturgeon.

The Youngs Bay spring fishery landed 4,426 spring chinook, 14 summer chinook, 20 SAB fall chinook, and 121 white sturgeon during the season. A total of 1,315 chinook (29%) were sampled for fin-marks and the presence of CWTs with 356 snouts being recovered. Based on VSI and CWT analysis, upriver spring chinook comprised less than 4% of the total chinook catch (140 fish) during the spring season. Of the 346 CWTs recovered, 289 were from Youngs Bay, Tongue Point, or Blind Slough

spring chinook releases and 33 recoveries were from Willamette River spring chinook releases. Other CWT recoveries included 11 upriver stock spring chinook; two Cowlitz, Kalama, or Lewis River spring chinook; two Sandy River spring chinook; two Deep River spring chinook; one Umpqua River spring chinook; five upriver summer chinook; and one SAB fall chinook.

2001 Youngs Bay Summer Gillnet Season

Results from test fishing in 1997 and 1998 and gillnet fisheries in 1999 and 2000 indicate that the catch in the Youngs Bay summer gillnet fishery is comprised primarily of local origin chinook with a minimal handle of steelhead; therefore, a summer gillnet season was set in Youngs Bay during June 18-July 31, 2001 to provide harvest opportunity on early returning SAB stock fall chinook and any remaining local spring chinook. The 2001 summer season opened for two days from noon June 18 through 6 PM June 20 and continued with six more fishing periods as follows: noon June 25 to 6 PM June 27 (2 days); noon July 2 to 6 PM July 3 (1 day); noon July 9 to 6 PM July 10 (1 day); noon July 16 to 6 PM July 17 (1 day); noon July 23 to 6 PM July 24 (1 day); and noon July 30 to 6 PM July 31 (1 day).

The Youngs Bay summer fishery landed 138 spring chinook, five summer chinook, 444 SAB fall chinook, and 171 white sturgeon during the season. Mark sampling of 315 chinook (54% of the catch) for the presence of CWTs recovered 50 snouts. Based on CWT analysis, no upriver spring chinook were caught during the summer season. The 47 CWT's recovered included 40 SAB fall chinook, two Youngs Bay spring chinook, two Willamette spring chinook, and three upriver summer chinook.

2001 Tongue Point Experimental Winter Gillnet Season

In 2001, an experimental winter gillnet season was set for the Tongue Point area to target early arriving age 5 chinook, similar to the experimental winter season that occurred in Tongue Point in 2000. The season was set for three 12-hour periods of 7 PM February 20 to 7 AM February 21, 7 PM February 27 to 7 AM February 28, and 7 PM March 6 to 7 AM March 7, with an 8-inch minimum mesh size restriction in place to target the larger 5-year old chinook while minimizing the handle of steelhead. A total of 124 spring chinook and one white sturgeon were caught. Based on VSI analysis of 54 fish (44% of the catch) an estimated 10 upriver spring chinook were landed in this fishery. A total of 54 chinook (44% of the catch) were sampled for CWTs with 18 snouts being recovered. The 16 CWT's recovered included seven Tongue Point and Youngs Bay spring chinook, one Cowlitz River spring chinook, six Willamette River spring chinook, and two upriver spring chinook.

2001 Tongue Point/South Channel Spring Gillnet Season

The 15-night Tongue Point/South Channel spring gillnet season opened with two 10-hour fishing periods from 7 PM April 17 to 5 AM April 18 and 7 PM April 24 to 5 AM April 25 followed by 7 PM Tuesday to 5 AM Wednesday (10 hours) and 7 PM Thursday to 5 AM Friday (10 hours) open fishing periods through June 13. For the third consecutive year the fishery was expanded to include the South Channel area to maximize harvest opportunity of locally released stocks. An 8-inch maximum mesh size restriction was also in place to target chinook and limit sturgeon catch.

The 2001 Tongue Point/South Channel spring gillnet fishery landed 1,490 spring chinook, four summer chinook, and 136 white sturgeon during the season. Based on VSI and CWT analysis, upriver spring

chinook comprised 13% of the catch (189 fish) in the spring season. Mark sampling of 576 chinook (39% of the catch) for the presence of CWTs recovered 173 snouts. The 165 CWTs recovered included 97 recoveries from Youngs Bay, Tongue Point, Blind Slough or Deep River spring chinook and 40 recoveries were from Willamette River spring chinook. Other recoveries included 19 upriver stock spring chinook; three spring chinook from the Cowlitz, Kalama, or Lewis River; three Sandy River spring chinook; one Umpqua River spring chinook; and two upriver summer chinook.

2001 Blind Slough Experimental Winter Gillnet Season

An experimental winter gillnet season was set for the Blind Slough area to target early arriving age 5 chinook, fashioned after the experimental winter season that occurred in Blind Slough in 2000. The season was set for three 12-hour periods of 7 PM February 19 to 7 AM February 20, 7 PM February 26 to 7 AM February 27, and 7 PM March 5 to 7 AM March 6, with an 8-inch minimum mesh size restriction in place to target the larger 5-year old chinook while minimizing the handle of steelhead. A total of 14 spring chinook were landed during the season. No upriver spring chinook were landed based on VSI and CWT analysis of six fish (43% of the catch). A total of six chinook (43% of the catch) were sampled for CWTs with no snouts being recovered.

2001 Blind Slough/Knappa Slough Spring Gillnet Season

The 18-night Blind Slough/Knappa Slough spring gillnet season opened with four 12-hour fishing periods from 7 PM April 2 to 7 AM April 3, 7 PM April 9 to 7 AM April 10, 7 PM April 16 to 7 AM April 17, and 7 PM April 23 to 7 AM April 24 followed by 7 PM Monday to 7 AM Tuesday (12 hours) and 7 PM Wednesday to 7 AM (12 hours) Thursday open fishing periods through June 14. The fishing area was initially limited to Blind Slough only during the first two fishing periods to limit impacts on non-local stocks and was expanded to include Knappa Slough thereafter to maximize harvest opportunity of locally released stocks. An 8-inch maximum mesh size restriction was also in place to target chinook and limit sturgeon catch.

Landings for the 2001 Blind Slough/Knappa Slough spring gillnet fishery included 2,029 spring chinook, one summer chinook, and 27 white sturgeon. Based on VSI and CWT analysis, 38 upriver spring chinook were caught during the spring season. Mark sampling of 1,005 chinook (50% of the catch) for the presence of CWTs recovered 346 snouts. The 338 CWTs recovered included 269 spring chinook from Youngs Bay, Tongue Point, Blind Slough or Deep River and 38 recoveries Willamette River spring chinook. Other recoveries included 12 spring chinook from the Cowlitz, Kalama, or Lewis River; four Sandy River spring chinook; 14 upriver spring chinook; and one upriver summer chinook.

2001 Columbia River Summer Steelhead Sport Fishery

The main-stem Columbia River is open to the retention of hatchery summer steelhead during May 16-December 31 from the Tongue Point/Rocky Point line upstream to the I-5 Bridge and during June 16-December 31 from the I-5 Bridge upstream to the Highway 395 Bridge at Pasco, Washington. The fishery is directed specifically toward the harvest of hatchery summer steelhead; however, beginning in 2001 the states allowed the retention of chinook jacks ($\leq 24''$) and sockeye salmon during the same time frame.

The 2001 main-stem summer steelhead sport catch below Bonneville Dam during May through July totaled 6,400 hatchery steelhead kept and 4,900 unmarked steelhead released from 37,600 angler trips. An additional 290 chinook jacks and 114 sockeye were also kept in this fishery while an estimated 945 adult chinook and 19 sockeye were released. The estimated release mortality from the main-stem summer steelhead fishery during May 16-July 31, 2001 totaled 485 wild summer steelhead, 6 spring chinook, 89 summer chinook, and 2 sockeye.

2001 Area 2S Shad Gillnet Season

The Compact adopted a 29-day commercial shad season for Area 2S in 2001 which included all weekdays (except Memorial Day) from May 21 to June 29 with the following modified gear specifications that have been in place since 1996: mesh size restriction of 5-3/8 to 6-1/4 inches, 10-lb. breaking strength, and net not to exceed 40 meshes in depth nor 150 fathoms in length. The shallower and shorter nets have substantially reduced the handle of salmonids compared to the traditional gear used in fisheries prior to 1996. The 2001 fishery was also restricted to daily periods of 3 PM to 10 PM only, as has also been the case since 1996. Only shad could be kept and sold. All salmon, steelhead, walleye, and sturgeon were immediately returned to the water, and those alive were returned to the water unharmed.

As has been the case in recent years, participation was low with only 7 boats participating during the 2001 season. A total of 16,971 shad (45,821 pounds) were landed in the Area 2S fishery, with a salmonid handle of 25 summer chinook, 124 summer steelhead, and 149 sockeye (Table 17). Immediate and delayed salmonid mortalities were estimated to be two adult summer chinook, 79 summer steelhead, and 15 sockeye. Monitoring of 16 drifts in the 2001 fishery provided the following shad per salmonid ratios and immediate mortality estimates:

- 684 shad per adult chinook (no immediate mortalities)
- 137 shad per steelhead (two immediate mortalities)
- 114 shad per sockeye (no immediate mortalities)

2001 Commercial Shad Miscellaneous

In 2001, the Compact allowed shad to be sold during the non-Indian experimental tangle net permit fishery targeting spring chinook. A total of 20 commercial fishers were chosen by lottery procedure to participate in this fishery which took place Mondays through Fridays from April 23 through May 18. The fishery took place in Zones 1 – 5 and fishers used 3-1/2 to 4-1/2 inch mesh gillnets and 5 to 6 inch mesh gillnets as required by permit. Landings of shad totaled 8,531 shad (23,031 pounds).

Until 2000, a long-standing Washougal Reef commercial shad fishery had been adopted annually. The physical characteristics of this area allowed shad to be harvested without incidental handle of salmonids. The number of interested participants actively fishing the area has dropped off over the last several years. In 1996 and 1997, only one fisher participated in this fishery and no fishers participated during 1998-2000. Due to lack of interest no Camas-Washougal Reef shad fishery was adopted in 2001 (Table 17).

2001 Sockeye Gillnet Season

The 2001 sockeye return of 116,600 exceeded preseason expectations and reached a harvestable level for only the second time since 1988. Initially a commercial sockeye fishery was not planned because the preseason forecast barely exceeded the harvestable threshold of 75,000 fish. At the June 22, 2001 Compact hearing the sockeye run size was updated to 135,000 and it became apparent that the return would exceed the harvestable threshold by a significant amount; therefore, a commercial fishery was considered and adopted at this Compact hearing. The season consisted of two 15-hour fishing periods as follows: 6 AM - 9 PM June 26 and 6 AM - 9 PM June 28 in Zones 1 and 2. Gear restrictions included a 4-1/2" maximum mesh size restriction and unslackened nets required to target on sockeye and limit handle of chinook. Additional restrictions included the requirement to release all adipose fin-clipped sockeye to reduce impacts on listed Snake River sockeye. Listed hatchery-produced sockeye destined for the Snake River were 100% marked with an adipose fin-clip. Retention of 48-60" sturgeon and jack chinook (≤ 24 ") was also allowed. Based on inseason catch and run size updates following the first fishing period it became apparent that a second 15-hour fishing period would result in impacts to listed Snake River sockeye that would exceed the ESA-related impact limit; therefore, the final fishing period was reduced from 15 to 10 hours (6 AM - 4 PM June 28) at the June 27, 2001 Compact hearing.

A larger run and increased notice time resulted in greater participation in this fishery with 25 fishers participating during the first fishing period and 15 fishers participating during the second fishing period, as compared to 2000 when only three fishers participated. A total of 1,558 sockeye and 21 chinook jacks were landed in this fishery. A total of 843 sockeye (54% of the catch) and 16 chinook jacks (76% of the catch) were sampled for the presence of CWT's with no snouts being recovered from sockeye salmon and 11 snouts being recovered from chinook jacks. Based on run reconstruction analysis a total of one Snake River sockeye was landed in this fishery. The eight CWT's recovered from chinook jacks included three upriver spring chinook and five summer chinook.

2001 Impacts to ESA Listed Stocks

Impacts to listed upriver spring chinook in non-Indian Columbia River fisheries were limited to 2.0% in 2001. Non-Indian fisheries below McNary Dam had a total impact of 1.4% and fisheries that occurred above McNary Dam had additional impacts of 0.1% in 2001. The mainstem sport fishery impact rate was 0.79% and the mainstem commercial fishery impact rate was 0.38%. Miscellaneous fishery impacts below McNary Dam totaled 0.14%, including Select Area fisheries and commercial test fisheries.

Impacts to summer chinook occurred in the mainstem steelhead sport fishery from hook and release mortality (89 adults), incidental release mortality in the commercial shad fishery (2 adults), and catches in Select Area and experimental tangle net gear commercial permit and test fisheries (130 adults). Total non-Indian impacts to Snake River wild summer chinook were 0.3%.

Total sockeye catch/mortality in lower river fisheries was 1,690 including 1,560 in the commercial fishery, 116 in the sport fishery, and 15 in the commercial shad fishery. Impacts to listed Snake River sockeye are estimated to be fewer than 1 fish or less than 1.3% of the Snake River sockeye run of 51 fish, compared to the impact limit of 1.0%.

Impacts to wild steelhead by ESU have not been estimated at this time. Most impacts to wild fish were non-retention mortalities of unmarked steelhead released during sport fisheries. During February through July a total of 5,268 steelhead were released in the steelhead sport fishery below Bonneville Dam, with an estimated 10% mortality rate from handling.

Treaty Indian Fisheries

2001 Treaty Indian Winter Commercial Season

The 2001 winter gillnet season was open 41 days from February 1 to March 14. The winter gillnet season commercial catches were similar to those observed during 1999 and 2000 with a total catch of 185 steelhead, 1,975 white sturgeon, 86 walleye, and 85 spring chinook (Table 19). The winter season steelhead catch has declined in recent years, due to fishers targeting sturgeon.

2001 Winter Commercial Landings					
Pool	Steelhead	White Sturgeon		Walleye	Chinook
		Setline	Gillnet		
Bonneville	117	11	554	44	85
The Dalles	21	12	1,246	1	0
John Day	47	12	175	41	0
Total	185	35	1,975	86	85

2001 Treaty Indian Mainstem Spring Chinook Fisheries

Tribal intent for 2001 spring chinook fisheries was to stay within impact rates allowed by the Interim Management Agreement. The preseason planning for the 2001 treaty mainstem harvest was 47,398 spring chinook (13% of the 364,600 forecasted run), 1,225 summer chinook (5.0% of 24,500 forecasted run), and 3,905 sockeye (5.0% of 78,105 forecasted run).

The four tribes issued permits for gillnet C&S fisheries for spring chinook during March, April, and the last three days of May and held a commercial gillnet fishery consisting of five weekly openings from April 17 to May 26. Fish were sold to commercial buyers and over the bank to the public. The estimated C&S gillnet permit catch was 7,387 spring chinook (1.8% of 416,500 upriver run). The commercial fishery landed 43,630 spring chinook (10.5% of 416,500 upriver run). Additionally, 85 spring chinook were caught during the winter commercial fishery. The estimated catches for the hook-and-line and dipnet C&S fisheries were 3,460 spring chinook (0.8% of 416,500 upriver run) and 680 summer chinook. During 2001 spring chinook harvest totaled 54,021 and summer chinook harvest was 830.

Estimates of stock composition are based on upriver run proportions determined by the TAC run reconstruction. Winter and spring fisheries harvested 13.1% of the upriver spring chinook return of 416,500 (Table 7). The TAC estimates that 8,886 Snake River wild spring chinook, or 13.1% of the estimated return of 67,800, were taken during spring fisheries (Table 8). The summer chinook catch of 830 was 1.1% of the actual 2001 summer chinook return of 76,300 (Table 10). The TAC estimates that 28 fish, or 1.1 % of the return of 2,600, were Snake River wild summer chinook (Table 11).

There were 1,720 sockeye caught in platform and hook-and-line C&S fisheries and 5,580 sockeye caught in commercial fisheries. The overall catch of 7,300 was 6.3% of the return of 116,623. The TAC estimated that three of the sockeye caught were Snake River sockeye (Table 12).

Steelhead harvest during spring and summer fisheries was more than in 2000 with tribal fishers harvesting 617 steelhead during spring fisheries and 8,220 steelhead during the summer fisheries. Most of the 8,837 total were Group A summer steelhead. These fish were not sampled to determine a hatchery to wild ratio; therefore, the proportion wild sampled at Bonneville Dam in 2001 is the best estimate available. Wild Group A summer steelhead comprised 38.8% of the steelhead return at Bonneville from April 1 through July 29. Applying this proportion to the catch of 8,837 results in an estimate of 3,428 wild Group A summer steelhead in 2001 spring and summer fisheries or 2.5% of the 137,300 wild Group A run passing Bonneville Dam in 2001.

2001 Ceremonial and Subsistence Entitlement

The Interim Management Agreement as well as the expired CRFMP identified a minimum C&S annual entitlement to the Columbia River treaty tribes of 10,000 spring and summer chinook, or fish of equivalent quality. After

2001 Ceremonial and Subsistence Entitlement Summary		
C&S permit gillnet spring fishery	7,387	spring chinook
Winter gillnet fishery	86	spring chinook
C&S platform spring fishery	3,460	spring chinook
Commercial gillnet fishery	43,630	spring chinook
C&S platform summer fishery	830	summer chinook
Total	55,393	Spring and summer chinook

spring and summer C&S platform and permit gillnet fisheries are accounted for, the balance of the entitlement is to be provided to the tribes by the states of Oregon and Washington. The full entitlement was achieved in 2001 without using surplus fish from ODFW or WDFW due to the record large upriver spring chinook return in 2001.

2001 Shad Fisheries

In recent years treaty Indian commercial harvest has occurred primarily at The Dalles Dam east fishway exit on the Oregon side of the river, with a few shad harvested during traditional dipnet fisheries. This past year we saw some additional shad harvested in the treaty Indian commercial sockeye fishery. In 2001, treaty Indian fishers caught a total of 9,014 shad (24,109 pounds). Harvest from fishing five days between June 13 – 21 at The Dalles east fish ladder exit totaled 8,327 shad (22,257 pounds), while 480 shad (1,294 pounds) were caught in four days between June 25 and July 1 during the treaty commercial sockeye fishery, and 207 shad (558 pounds) were sold in traditional dipnet fisheries throughout the year.

2002 MANAGEMENT GUIDELINES

Endangered Species Act Consultation

Salmon and Steelhead

Since 1991, the NMFS has identified the majority of Columbia River basin salmon and steelhead populations as requiring protection under the ESA. The table below describes the status of Columbia River basin ESU's. Unless otherwise noted, the listed component includes wild/natural populations only.

<i>Federally-listed Salmon, Steelhead, and Smelt of the Columbia River Basin. ¹</i>			
Species - ESU	Designation	Listing Date	Effective Date
<u>Chinook</u>			
Snake River Fall	Threatened	April 22, 1992	May 22, 1992
Snake River Spring/Summer	Threatened	April 22, 1992	May 22, 1992
Upper Columbia Spring	Endangered	March 24, 1999	May 24, 1999
Upper Columbia Summer/Fall	Not warranted	--	--
Middle Columbia Spring	Not warranted	--	--
Lower Columbia River Spring/Fall	Threatened	March 24, 1999	May 24, 1999
Upper Willamette Spring	Threatened	March 24, 1999	May 24, 1999
Deschutes River Fall	Not warranted	--	--
<u>Steelhead</u>			
Snake River	Threatened	August 18, 1997	October 17, 1997
Upper Columbia River²	Endangered	August 18, 1997	October 17, 1997
Lower Columbia River	Threatened	March 19, 1998	May 18, 1998
Middle Columbia River	Threatened	March 25, 1999	May 24, 1999
Southwest Washington	Not warranted	--	--
Upper Willamette	Threatened	March 25, 1999	May 24, 1999
<u>Sockeye</u> – Snake River	Endangered	November 20, 1991	December 20, 1991
<u>Chum</u> – Columbia River	Threatened	March 25, 1999	May 24, 1999
<u>Coho</u> – Columbia River ³	Candidate	--	--
<u>Smelt</u> - Columbia River	Petition not accepted	--	--

^{1.} The ESU's in bold are present in the Columbia River basin during the time when fisheries described in this report occur and therefore may be impacted by these fisheries.

^{2.} Includes hatchery fish.

^{3.} In 1991, the NMFS decided not to list wild coho of the lower Columbia River (Columbia River and its tributaries below Bonneville Dam, exclusive of the Willamette River) because the remaining small remnant runs are predominately hatchery-maintained and are not a species as defined in the ESA. In 1995, the NMFS combined Columbia River coho with Willapa Bay and Grays Harbor coho into a single evolutionarily significant unit (ESU) and identified it as a candidate species, worthy of further study. In 2000, the NMFS began another status review of lower Columbia River coho.

Fisheries considered in this report are in accordance with the *"Interim Management Agreement for Upriver Spring Chinook, Summer Chinook, and Sockeye"* and are included in the Section 7/10 Application submitted to the NMFS on November 3, 2000. The NMFS has provided a Biological Opinion on the Interim Management Agreement.

Marbled Murrelet ESA Consultation

There has been no change in the status of marbled murrelet since 1994. The winter, spring, and summer fisheries are still not likely to adversely affect the listed marbled murrelet.

Columbia River Fish Management Plan

The CRFMP expired on December 31, 1998, but was extended through July 31, 1999. The parties to *United States vs Oregon* are continuing re-negotiation discussions initiated in 1998. During the spring management period in 2001 the parties to *US vs Oregon* signed the *"Interim Management Agreement for Upriver Spring Chinook, Summer Chinook, and Sockeye"*. Details concerning the interim agreement are included in the "Interim Management Agreement" section of this report. The Interim Management Agreement covers the time period of 2001-2003, except for the sliding scale spring chinook harvest allocation which extends through 2005.

Interim Management Agreement

The Interim Management Agreement covers Columbia River mainstem fisheries for upriver spring chinook, summer chinook, and sockeye during 2001-2003. This agreement provides specific fishery management constraints with respect to upriver spring chinook, summer chinook, and sockeye. Steelhead harvest was not considered in the Interim Management Agreement but is included in the Section 7/10 Application.

Upriver Spring Chinook

Non-Indian and treaty Indian winter and spring season fisheries will be managed in accordance with "Table 1 of the Interim Management Agreement for Upriver Spring Chinook, Summer Chinook, and Sockeye".

Table 1 From the Interim Management Agreement For Upriver Spring Chinook, Summer Chinook, and Sockeye.

Schedule if Snake is =>7.5% of Total Run					States'
Total Columbia River Mouth Run Size	Snake River Run Size	Tribal Proposed Harvest Rate	States' Normal Harvest Rate	Total Harvest Rate	Wild Limited Rate
<25,000	<2,500	5.0%	<0.5%	<5.5%	<0.5%
25,000	2,500	5.0%	0.5%	5.5%	0.5%
30,000	3,000	5.0%	1.0%	6.0%	0.5%
40,000	4,000	6.0%	1.0%	7.0%	0.5%
50,000	5,000	7.0%	1.5%	8.5%	1.0%
75,000	7,500	7.0%	2.0%	9.0%	1.5%
100,000	10,000	8.0%	2.0%	10.0%	
130,000	13,000	9.0%	2.0%	11.0%	
200,000	20,000	10.0%	2.0%	12.0%	
250,000	25,000	11.0%	2.0%	13.0%	
300,000	30,000	12.0%	2.0%	14.0%	
350,000	35,000	13.0%	2.0%	15.0%	
400,000	40,000	14.0%	2.0%	16.0%	
450,000	45,000	15.0%	2.0%	17.0%	

Footnotes:

- ^{1.} *If the Snake River wild forecast is less than 7.5% of the total run size the more conservative harvest rate would be used.*
- ^{2.} *If the upper Columbia wild forecast is less than 1,000, then the total harvest rate would be restricted to 9% or less.*
- ^{3.} *Whenever the wild fish restrict harvest to 9% or less, then non-Indian fisheries would transfer 0.5% harvest rate to treaty fisheries. In no event would non-Indian fisheries go below 0.5% harvest rate.*
- ^{4.} *In the event the total forecast is less than 25,000 or the Snake River forecast is less than 2,500, the states would keep their harvest rate below 0.5% and attempt to keep the harvest rate as close to zero as possible while maintaining minimal fisheries targeting other harvestable species.*

The Interim Management Agreement provides for a minimum mainstem treaty Indian ceremonial and subsistence entitlement to the Columbia River treaty tribes of 10,000 spring and summer chinook. It is anticipated that the majority of this entitlement will be taken from the spring chinook run. Tributary harvest of spring and summer chinook is not included in this entitlement. It is understood that if the total mainstem Columbia River treaty Indian harvest of spring and summer chinook is greater than or equal to 10,000 spring and summer chinook, then this entitlement has been met. If the total mainstem Columbia River treaty Indian harvest of spring and summer chinook is less than 10,000, then the difference will be distributed to the tribes from spring chinook hatcheries below Bonneville Dam as first priority. If spring chinook are not available from hatcheries below Bonneville Dam, or by agreement of the parties, the entitlement may be filled from other hatchery sources of equivalent quantity and quality.

Summer Chinook

The Interim Management Agreement provides for an interim upriver summer chinook goal of 85,000 adults, as measured at Bonneville Dam, that the parties agree to manage for. Non-Indian combined commercial and recreational impacts of listed spring/summer chinook will be minimized to the degree possible, but shall not exceed 1% of the run to the Columbia River mouth. Fisheries conducted by the Columbia River treaty tribes will be managed such that the

harvest rate on upriver summer chinook, which includes the summer component of the listed spring/summer chinook, shall include all treaty fisheries and shall not exceed 5% of the run entering the Columbia River.

Sockeye

The Interim Management Agreement provides for a management goal for upriver sockeye of 65,000 adult sockeye, as measured at Priest Rapids Dam, which under average migration conditions requires 75,000 adult sockeye to pass Bonneville Dam. Combined non-Indian commercial and recreational impacts on listed sockeye will be minimized to the degree possible, but shall not exceed 1% of the run entering the Columbia River. Fisheries conducted by the Columbia River treaty tribes will be managed according to the following schedule:

Upriver Sockeye Run Size	Harvest Rate
<50,000	5%
50,000-75,000	7%
>75,000	7%, with further discussion

All fishery impacts on sockeye will be included in the specified harvest rates.

If the upriver sockeye run is projected to exceed 75,000 adults over Bonneville Dam then any party may propose harvest rates exceeding the aforementioned harvest rates. Parties shall prepare a revised Biological Assessment of proposed Columbia River fishery impacts on ESA-listed sockeye and shall submit the Biological Assessment to the NMFS for consultation under Section 7 of the ESA.

Non-Indian Allocation of Upriver Impacts

The Interim Management Agreement provides a sliding scale exploitation rate for upriver spring chinook which ranges from 0.5% to 2.0% for non-Indian sport and commercial fisheries. A policy decision concerning the allocation of non-Indian upriver spring chinook impacts between sport and commercial fisheries is required for 2002 and beyond. As part of the decision making process the Oregon and Washington Departments of Fish and Wildlife have asked their respective Commissions to provide policy guidance to their respective Director regarding mainstem Columbia River fisheries management with the intent of providing a basis for resolving the non-Indian sport/commercial allocation issue in the Columbia River Compact forum. Final policy guidance occurred at the December 7-8, 2001 WFWC meeting and at the December 14, 2001 OFWC meeting where both Commissions endorsed the staff recommendations concerning the non-Indian sport/commercial allocation issue. The following guiding principles and fisheries management objectives were supported with the intention of providing staff with guidance when shaping fisheries pre-season and managing fisheries in-season and will be in effect for two years, 2002-2003.

Mainstem Columbia River Spring Chinook Allocation For Non-Indian Fisheries, 2002-2003

Guiding Principles

- Meet conservation requirements for wild spring chinook, including populations listed under the federal Endangered Species Act.
- Manage non-Indian harvest of spring chinook within the provisions of the *U.S. v Oregon* Management Agreement for upriver spring chinook.
- Manage harvest to meet hatchery escapement goals.
- Focus sport and commercial fisheries' allocation on harvest of hatchery fish by implementing live capture and release of unmarked spring chinook.
- Allocate 15 percent of the non-Indian upriver spring chinook impacts to sport and non-treaty Indian fisheries upstream of McNary Dam and to provide for a lower river fisheries management buffer.

Fisheries Management Objectives

- Manage the mainstem Columbia River commercial fishery to attain the commercial allocation of Willamette spring chinook.
- Manage the combined mainstem Columbia River and lower Willamette River sport fisheries to attain the sport fishery allocation of Willamette spring chinook.
- Manage non-Indian upriver spring chinook impacts to provide for equitable sport and commercial hatchery spring chinook harvest opportunity in the mainstem Columbia River downstream of McNary Dam.
- Maximize the economic benefits of spring chinook harvested by the commercial fishery by focusing the majority of the commercial fishing effort early in the spring chinook season in years where there is sufficient Willamette spring chinook abundance. Commercial fishing later in the season would be dependent on remaining commercial upriver spring chinook impact allocation and would be structured to minimize effects on the sport fishery.
- Maximize sport fishing opportunity during late March through April, *and extending into May if possible,*¹ to provide angler opportunity during the period of peak spring chinook abundance. *Recognize associated economic benefits after mid-March*². The number of recreational fishing days in April will depend on the annual abundance of upriver spring chinook, fishing conditions, and the level of effort.
- Specific structure of sport and commercial fisheries will be set by the Columbia River Compact on an annual basis to meet adopted allocation policies and fisheries objectives after annual run size forecasts are available and after public discussions.
- Provide for in-season management flexibility to utilize the non-Indian upriver spring chinook impact allocation to meet the objectives of both fisheries, i.e. upriver impact sharing adjustments in response to in-season information pertaining to catch and run size.

¹. Additional language endorsed by WFWC.

². Additional language endorsed by OFWC.

Based on the aforementioned guiding principles and fishery objectives staff developed a 3 x 3 matrix for the sharing of allowable non-Indian upriver spring chinook impacts between sport and commercial fisheries. The matrix allocates impacts based on upriver and Willamette run sizes in recognition of the fact that as both run sizes change the ability to meet the needs of both fisheries also changes. The following matrix, endorsed by both Commissions, provides a high likelihood of achieving the sport fishery needs under most run sizes and a high to moderate likelihood of meeting the commercial fishery needs under most run sizes while the associated footnotes provide management flexibility necessary for making inseason fishery management decisions.

<i>Sharing of Non-Indian Upriver Spring Chinook Impacts Dependent on Willamette and Upriver Spring Chinook Annual Abundance</i>				
		Willamette Hatchery Fish Run Size		
		< 40,000	40-75,000	>75,000
Upriver Run Size (Impacts)	30-50,000 (0.85%)	Comm - 10% (0.08) Sport - 90% (0.77)	Comm - 30% (0.25) Sport - 70% (0.60)	Comm -25% (0.21) Sport - 75% (0.64)
	50-<75,000 (1.25%)	Comm - 40% (0.50) Sport - 60% (0.75)	Comm - 35% (0.44) Sport - 65% (0.81)	Comm - 30% (0.37) Sport - 70% (0.88)
	>75,000 (1.7%)	Comm - 50% (0.85) Sport - 50% (0.85)	Comm - 40% (0.68) Sport - 60% (1.02)	Comm - 35% (0.59) Sport - 65% (1.11)

Footnotes Concerning In-Season Management Adjustments

- *In years when the sport fishery upriver impact allocation will be used prior to May 15, and the commercial fishery does not need their entire upriver impact allocation to attain the Willamette allocation or an equitable catch share, commercial impacts may be transferred to the sport fishery. An assessment of upriver impact needs and Willamette allocation will be conducted after mid-April in conjunction with the upriver run size update.*
- *In years when the sport fishery does not need their entire upriver spring chinook allocation to continue the fishery through May 15, the remaining sport impacts may be transferred to the commercial fishery for late spring commercial fishing opportunity. The sport fishery impact needs will be updated after mid-April in conjunction with the upriver run size update.*

Consistent with guidance from the Oregon and Washington Fish and Wildlife Commissions the Compact should adopt the guiding principles, fishery management objectives, and allocation matrix with footnotes at the January 31, 2002 Compact hearing. Based on the matrix above, impacts for 2002 would be allocated 60% to sport fisheries, or 1.02 impact on listed upriver spring chinook, and 40% to commercial fisheries, or a 0.68% impact on listed upriver spring chinook.

Willamette Spring Chinook Management

Fishery Management and Evaluation Plan For Willamette Spring Chinook

On May 24, 1999 wild spring chinook destined for the Willamette River basin were listed as threatened under the ESA. In accordance with the threatened listing, the state of Oregon completed an FMEP to comply with Section 4(d) of the ESA. The FMEP sets forth wild Willamette spring chinook freshwater impact limits of 20% for 2001 and 15% for 2002 and beyond. The FMEP also addresses impacts associated with sport fisheries occurring in the Willamette River basin and sport and commercial fisheries occurring in the mainstem Columbia River. In addition to the impact limits the FMEP also requires that all wild Willamette spring chinook landed in freshwater fisheries be released. The ODFW will conduct a comprehensive review of this plan in 2004 to evaluate whether fisheries and wild populations are performing as expected. Comprehensive reviews will be repeated by the ODFW at 5-year intervals thereafter until such time as wild stocks are recovered or delisted. In accordance with the FMEP, sport and commercial fisheries occurring in 2002 will be managed such that cumulative

freshwater impacts from sport and commercial fisheries will not exceed a 15% impact on wild spring chinook destined for the Willamette River. Additionally, all wild Willamette spring chinook landed in 2002 sport and commercial fisheries in the Columbia River basin will be released.

Willamette River Basin Fish Management Plan

WFMP's were originally adopted in 1981, readopted in 1988, and revised in 1992 for the main-stem Willamette River, the Clackamas River basin, the Molalla and Pudding rivers, the Santiam and Calapooia River basins, the McKenzie River basin, and the Willamette River basin above the mouth of the McKenzie River. On February 27, 1998 the OFWC adopted revisions to spring chinook chapters of the WFMP and on February 19, 1999 the OFWC further revised the fishery matrix regime in the "Mainstem Willamette Spring Chinook" Chapter. Beginning in 2001 freshwater fisheries were managed in accordance with the FMEP, which superseded the fishery matrix regime in the "Mainstem Willamette Spring Chinook" Chapter. For mainstem Columbia River fisheries in 2001 impact limits of 6-7% for commercial fisheries and 1.7% for sport fisheries were adopted by the OFWC.

Most recently, the operating policies and objectives of the mainstem WFMP for spring chinook were revised in accordance with the recently completed FMEP for Willamette spring chinook and these revisions were adopted at the OFWC meeting on December 14, 2001. Revisions to the WFMP included adoption of escapement goals for hatchery-produced spring chinook over Willamette Falls and to the Clackamas River plus determination of the sport/commercial allocation of hatchery-produced spring chinook in excess of the escapement goal. These revisions to the WFMP are designed to allow for the orderly implementation of live capture selective fishing strategies for all freshwater fisheries beginning in 2002. Due to the selective nature of live capture fisheries, sport and commercial allocations will be focussed on the abundance of hatchery-produced Willamette spring chinook.

The escapement goals adopted by the OFWC are shown in the table below. These escapement levels provide for full selective fisheries in Willamette River tributaries and meet hatchery broodstock escapement goals. The increase in escapement goals as the hatchery run size increases allow tributary areas to share in increased fishery benefits created by an increased abundance of hatchery fish.

<i>Hatchery Spring Chinook Escapement Goals at Willamette Falls And the Clackamas River</i>			
Predicted Hatchery Return	Hatchery Fish Escapement		
	Falls	Clackamas	Total
<40,000	20,000	3,000	23,000
40,000-49,999	22,000	3,300	25,300
50,000-59,999	24,000	3,600	27,600
60,000-69,999	26,500	4,000	30,500
70,000-79,999	29,000	4,400	33,400
80,000-89,999	32,000	4,900	36,900
90,000-100,000	35,000	5,400	40,400
>100,000	39,000	6,000	45,000

The sport and commercial allocation of hatchery-produced Willamette spring chinook is shown in the table below. Sport fisheries included in the sport allocation are those occurring in the lower Columbia River (below Bonneville Dam), lower Willamette River (below Willamette Falls), and lower Clackamas River (below North Fork Dam). Commercial fisheries included in the commercial allocation are those occurring in the lower Columbia River. The sport/commercial allocation plan is designed to allow for full sport fisheries in the mainstem Willamette and Clackamas rivers at hatchery run sizes greater than 32,000 fish and allow the commercial share to gradually increase as the forecasted run and allowable catch increases.

Sport/Commercial Allocation of Willamette Hatchery Spring Chinook		
Predicted Hatchery Return	Allocation of Harvestable Numbers	
	Sport	Commercial
<23,000	<1%	<1% of predicted return as incidental for other fisheries
23,000-39,999	100%	<1% of predicted return as incidental for other fisheries
40,000-44,999	85%	15%
45,000-49,999	80%	20%
50,000-59,999	76%	24%
60,000-75,000	73%	27%
>75,000	70%	30%

Lower Columbia River Sturgeon Management

In October 1996, the directors of ODFW and WDFW signed “The Olympia Accord on Columbia River Sturgeon Fishery Management”. Major tenets of the Management Agreement for lower Columbia fisheries guided white sturgeon fishery management decisions during 1997-1999. During the late fall and winter of 1999, the Oregon and Washington Fish and Wildlife Commissions re-evaluated the major tenets of The Olympia Accord, especially the harvestable number and the sport/commercial allocation. These discussions culminated in February 2000 when the Directors of ODFW and WDFW signed a 3-year Joint State Management Agreement concerning sturgeon management for 2000-2002. A new harvestable number of 50,000, down from 67,300 in the previous Accord, was adopted but other major tenets of the previous Accord remained intact, including the 80% sport:20% commercial catch allocation. The major tenets of this Joint State Agreement are described in “*The Joint Staff Report Concerning Commercial Seasons for Sturgeon and Smelt in 2002*”.

The current Joint State Sturgeon Agreement calls for an average annual harvestable number of 50,000 white sturgeon (40,000 sport and 10,000 commercial) which equates to a 3-year total of 150,000 white sturgeon (120,000 sport and 30,000 commercial). With 2002 being the final year of the Joint State 3-year agreement, landings during 2000 and 2001 sport and commercial fisheries in excess of the respective guidelines will be applied to the 2002 catch guideline. Additionally, the Joint State Agreement allows for changes to the harvestable number based on new data collected during the period of the agreement. Population estimates for 1999 and 2000 indicate that the population of 4-6' white sturgeon has not increased as expected; therefore, conservative fishery management is appropriate

during the final year of this agreement. With this in mind the Compact adopted the following protocol for determining white sturgeon catch guidelines in 2002 at the December 12, 2001 Compact hearing.

- Overages during 2000 and 2001 will be applied to currently adopted 2002 catch guidelines.
- Sport and commercial fisheries will be managed to less than the maximum catch guideline for 2002 as a management buffer. Reduction will be 2,000 for sport and 500 for commercial.
- Based on the December 12, 2001 catch update 2002 sport fisheries would be managed for a catch target of 36,500 not to exceed 38,500 and commercial fisheries would be managed for a catch target of 9,200 not to exceed 9,700.
- 2002 catch guidelines may be further modified as 2001 catches are updated.

2001 WINTER, SPRING, AND SUMMER SEASON RECOMMENDATIONS

Fisheries considered in this report will be managed in accordance with the *"Interim Management Agreement for Upriver Spring Chinook, Summer Chinook, and Sockeye"*. A sliding scale harvest matrix is in effect for upriver spring chinook. Based on the aforementioned matrix and a river mouth run size forecast of 333,700 upriver spring chinook, the total harvest rate on Snake River wild spring chinook will be 14% with 2% allocated to non-Indian fisheries and 12% allocated to treaty Indian fisheries. In 2002 non-Indian fisheries will include selective sport and commercial spring chinook fisheries where the release of nonadipose fin-clipped chinook will be required, in accordance with the Willamette spring chinook FMEP. Release mortality impacts will be estimated and monitored inseason to ensure that impacts do not exceed 2% of the upriver spring chinook run. Summer chinook impacts are not to exceed 1% in non-Indian fisheries and 5% in treaty Indian fisheries. Impacts to listed sockeye will vary depending on run size which will be updated inseason.

Recognizing the complexities of managing a mixed stock fishery, the Compact will have to be cautious and creative in shaping and adopting 2002 seasons that minimize impacts on listed and depressed runs. Potential main-stem Columbia River commercial fisheries for the 2002 winter, spring, and summer season time frame listed here will be considered at the January 31, 2002 Compact hearing. Ongoing or other potential fisheries will be considered at future Compact hearings and other management forums.

2002 Non-Indian Fishery Recommendations

Commercial Winter Sturgeon Fishery

(adopted December 12, 2001 and Compact consideration January 31, 2002)

The currently adopted season consists of eight 30-hour fishing periods (noon Monday to 6 PM Tuesday and noon Thursday to 6 PM Friday) in all of Zones 1-5 during the time period of January 8, 2002 through February 1, 2002. Season dates, gear restrictions, and expected catches are listed in the document titled *"Joint Staff Report Concerning Commercial Seasons for Sturgeon and Smelt in 2002"*. This early target sturgeon fishery provides maximum protection to depressed and listed stocks, while allowing commercial fishers to access a portion of their white sturgeon allocation. This fishery is expected to harvest 1,500-2,500 white sturgeon and no more than 50 spring chinook. In past years

this fishery has typically extended into early February. As of the completion of this report, discussions are to occur with commercial fishing industry representatives concerning the commercial sturgeon harvest in 2002. Depending on the results of these discussions a recommendation to extend this fishery may be proposed by Joint Staff at the January 31, 2002 Compact hearing and any proposal will be included in the Fact Sheet developed for this hearing.

***Commercial Salmon Tangle Net Demonstration Fisheries
(Compact consideration January 31, 2002)***

As of this printing, decisions concerning sport/commercial allocations for mainstem Columbia River fisheries and modifications to the WFMP have just been endorsed by the Oregon and Washington Fish and Wildlife Commissions. With fishery allocation guidelines in place discussions regarding non-Indian commercial fishing options for spring chinook in the lower Columbia River can begin. Depending on the results of these discussions a salmon season will be proposed at the January 31, 2002 Compact hearing. In accordance with the Willamette spring chinook FMEP chinook retained in this fishery must be adipose fin-clipped. Additionally, any demonstration fishery will require adoption of restrictive regulations consistent with results of the "2001 Experimental Tangle Net Gear Commercial Permit Fishery". Restrictive regulations are likely to include: 1) 5½" maximum mesh size restriction, 2) 150 fathom net length restriction, 3) 45 minute or less soak time (1st net mesh in to last net mesh out), and 4) use of recovery box required on stressed or lethargic salmon or steelhead. Tangle net fisheries may occur during the timeframe of mid-February through mid-May. The initial winter season proposal will be included in the Fact Sheet developed for the January 31, 2002 Compact hearing after discussions with commercial fishing industry representatives. Additional fishing seasons will be considered at future Compact hearings occurring during the winter/spring fishery management period.

***Lower Columbia River Spring Chinook Sport Fishery
(Joint State consideration January 31, 2002)***

As of the completion of this report, decisions concerning sport/commercial allocations for mainstem Columbia River fisheries and modifications to the WFMP have just been endorsed by the Oregon and Washington Fish and Wildlife Commissions. With fishery allocation guidelines in place discussions regarding non-Indian fishing sport options for spring chinook in the lower Columbia River can begin. Depending on the results of these discussions, modifications to the current fishery will be proposed at the Joint State hearing scheduled to occur immediately following the January 31, 2002 Compact hearing. The fishery is currently scheduled to remain open for adipose fin-clipped chinook and adipose fin-clipped steelhead from Buoy 10 upstream to the I-5 Bridge through March 31, 2002. This fishery may extend up to Bonneville Dam and through May 15, 2002 depending on catch rates, effort levels, and impacts to listed species. Additionally, spring chinook fishing opportunity between Bonneville and McNary Dam will also be considered at the January 31, 2002 Joint State hearing. Proposed fishery regulations will be included in the Fact Sheet prepared for the January 31, 2002 Joint State hearing after discussion with sport fishing industry representatives.

Select Area Commercial Fisheries

(Compact and Oregon State consideration January 31, 2002)

Spring chinook fisheries will be proposed for the Tongue Point, Blind Slough, and Youngs Bay Select Areas and will be described in the "2002 Spring Select Area Fisheries Fact Sheet". Both winter and spring seasons will be proposed for all three fishing areas, similar to 2001. No fishery is planned for Deep River in 2002. The Compact will set seasons for Select Areas in concurrent jurisdiction waters and ODFW will set seasons for select areas in state waters. Impacts to listed salmonids in these fisheries will be included in the total non-Indian impacts. Season proposals will be completed following a public meeting concerning spring Select Area fisheries that is scheduled to occur in January.

Columbia River Steelhead Sport Fishery

(Adopted season as per permanent regulations)

Dates: May 16 to December 31, below I-5 bridge

June 16 to December 31, above I-5 bridge

Area: Main-stem Columbia River up to Highway 395 bridge at Pasco, WA

Expected catch (through July): 4,300 hatchery steelhead

Expected wild steelhead handle (through July): 3,500 fish (350 mortalities)

Expected summer chinook handle: 500 fish (50 mortalities)

Expected sockeye handle: 50 fish (40 kept and 1 release mortality)

The retention of sockeye in this fishery is allowed in Oregon waters but is not expected to be allowed in Washington waters during 2002.

Area 2S Shad Fishery

(Compact consideration January 31, 2002)

For 2002, it is recommended that the Area 2S shad fishery operate using modified gill nets and restricted hours as occurred during 1996-2001. Only shad may be kept and sold. All salmonids, walleye, and sturgeon must be returned immediately to the water, and those alive must be released unharmed (in effect since 1976). The number of incidental species that will be handled in the proposed 2002 Area 2S shad fishery is expected to be at the low levels observed during 1996-2001 fisheries.

Season: Daily 3 PM-10 PM
May 20-24 (5 days)
May 28-31 (4 days)
June 3-7 (5 days)
June 10-14 (5 days)
June 17-21 (5 days)
June 24-28 (5 days)

Area: True north/south line through Light #50 near Sandy River mouth upstream to boundary near Beacon Rock (in effect since 1976).

Gear: Single-wall, unslackened, floater gill net, 5-3/8 to 6-1/4" mesh, 10-lb breaking strength (in effect since 1976), may not exceed 150 fathoms in length nor 40 meshes in depth (in effect since 1996).

Expected catch: Up to 45,000 shad

Expected summer chinook handle: 30 fish (eight mortalities)

Expected sockeye handle: <10 fish (two mortalities)

Expected steelhead handle: <50 fish (33 mortalities)

Expected wild steelhead handle: up to eight fish (five mortalities)

Commercial August Sturgeon Fishery (Compact consideration, January 31, 2002)

This fishery has typically occurred during the first 10 days of August and consisted of one 12-hour fishing period in Zones 1-3 downstream of the Longview Bridge. This fishery does not impact spring or summer chinook, but does have limited impacts on fall chinook. All impacts associated with this fishery would be accounted for during the fall management time frame. Past August sturgeon fisheries have been designed to continue progress towards the commercial white sturgeon catch guideline while providing maximum protection for depressed or listed stocks.

In 2001, catches in this fishery greatly exceeded expectations and the white sturgeon catch guideline was reached in late August. With a reduced catch guideline of 9,200 white sturgeon in effect for 2002, the commercial fishing industry may reconsider adoption of this fishery for 2002. Based on input from industry representatives the Joint Staff will present recommendations concerning this fishery at the January 31, 2002 Compact hearing.

Summary of Recommended 2002 Non-Indian Salmonid Fisheries

Managers of the lower Columbia River non-Indian fisheries have indicated their intentions to manage 2002 winter, spring, and summer season fisheries consistent with the impacts outlined in the *"Interim Management Agreement for Upriver Spring Chinook, Summer Chinook, and Sockeye"*. It is expected that harvest related mortalities in non-Indian fisheries, collectively, will not exceed 2% of the upriver spring chinook return and 1% of the upriver summer chinook. No commercial sockeye fisheries are proposed at this time; however, commercial sockeye fisheries may be adopted at a future Compact hearing depending on inseason run size updates. Retention of sockeye will be allowed in Oregon waters during the steelhead sport fishery and impacts will not exceed 1%. Non-Indian sport fisheries will continue with wild steelhead release regulations throughout the basin. Non-retention steelhead mortalities are expected to continue to be less than 2% of listed wild stocks.

2002 Treaty Indian Fisheries Recommendations

Spring and summer chinook harvest occurs primarily in the C&S fisheries except in years of high abundance, such as 2000 and 2001. Additionally, a few spring chinook are incidentally harvested in the winter season gillnet fishery and very limited incidental handling mortality could occur if the tribal

experimental target shad fishery is pursued. Treaty Indian C&S fisheries, including dipnet fisheries, are managed individually by the four Columbia River treaty tribes through a

permit and catch monitoring system. The tribes have defined regulations concerning lawful gear, fishing area, notice restrictions, and other miscellaneous regulations concerning the tribal C&S fisheries. Tribal staffs will continue to monitor the C&S fishery and provide in-season accounting of this fishery. The tribes may implement commercial spring chinook fisheries depending on the run size and would bring any commercial proposal before the Compact. The tribes would monitor and provide accounting for any commercial salmon fishery as well as any proposed experimental shad fishery, if it occurs.

2002 Treaty Winter Gillnet Commercial Fishery (Compact consideration January 31, 2002)

The tribes plan to manage the winter gillnet fishery consistent with the expired CRFMP which states in section II.B.1. “The treaty Indian winter gillnet fishery shall commence on February 1 and shall terminate on March 21 to minimize the incidental harvest of upriver destined spring chinook.” Between 1993 and 2000, most of the winter gillnet harvest has been sturgeon with catches averaging 2,019 sturgeon, 960 steelhead, and 10 chinook. In 2001, the winter season gillnet fishery harvested 1,975 sturgeon, 85 chinook, and 185 steelhead. About 85% of the steelhead catch may be ESA-listed kelt and holdover summer steelhead and about 2.6% may be ESA-listed fresh actively migrating steelhead. The tribes will recommend winter gillnet season options at the January 31, 2002 Compact hearing.

2002 Treaty Indian Spring Ceremonial and Subsistence Fisheries

The treaty tribes have not yet determined the structure of their 2002 spring chinook fisheries, but the proposed fisheries, combined gillnet and platform spring chinook catch, and associated impacts to listed species will be within the limits set forth in the Interim Management Agreement. The tribes anticipate that no more than 2,000 steelhead will be caught in spring fisheries. The majority would be 2002 Skamania Hatchery returns with some holdovers and kelts from the 2001 run.

2002 Treaty Indian Summer Ceremonial and Subsistence Fisheries

The tribes intend to manage summer season fisheries consistent with the Interim Management Agreement as well as in a manner generally consistent with the expired CRFMP which allowed for the treaty Indian C&S platform fishery to remain open through the summer season. The Interim Management Agreement also anticipates that the platform fishery would remain open. Summer chinook, sockeye, and steelhead are expected to be caught in the summer platform fishery. The expired CRFMP specified that incidental impacts to summer chinook in treaty Indian fisheries directed at other species are to be minimized, and in no event exceed 5% of the summer chinook run. The expired CRFMP indicated that for small sockeye runs, between 25,000 and 50,000, the treaty Indian platform fishery shall remain open, and treaty Indian gillnet fisheries may occur.

The 1997-2001 average harvest rate on summer chinook for the treaty Indian C&S fisheries is 1.3% (range 0.9% to 1.7%) which corresponds to an average catch of 445. The average harvest rate of sockeye during the 1997-2001 period for treaty Indian C&S fisheries was 4.2%, including both platform and permit gillnet fisheries. During the 1993-2001 period, permit gillnet fisheries occurred only in 1993 and commercial fisheries occurred only in 2000 and 2001. The 2001 sockeye harvest rate was 6.3% based on the largest return since 1987. The average catch of steelhead, during the years 1996-

2000, in summer platform and permit gillnet fisheries was 3,146 summer steelhead and in 2001 the summer season steelhead catch was 8,220 based on an all time record return of summer steelhead. The treaty tribes have not yet determined the structure of their 2002 C&S fisheries (platform and gill net) or potential commercial fisheries, but the proposed fisheries, expected catches, and associated impacts will be within the limits set forth in the Interim Management Agreement.

2002 Treaty Indian Shad Fisheries

Implementation of a shad dipnet fishery at The Dalles Dam east ladder exit will depend on identifying a market. Any new gears or methods would be expected to have little or no adverse impact to listed salmonids. Run timing data indicate that shad fishing in Zone 6 should occur in the month of June. This is generally the period of maximum shad-to-chinook and shad-to-sockeye ratios, based on counts at Bonneville Dam (Figure 1). Daily fish ladder counts during this period average about 50,000 shad, 370 chinook, and 30 sockeye.

Summer chinook counting at Bonneville Dam begins on June 1. Results of the experimental fisheries in 1994-1996 suggest that trapnet and dipnet harvest methods will encounter very few salmonids. This information suggests that less than 20 chinook will be handled by the gear, and zero will be killed. Any chinook or sockeye mortalities will be counted as part of the allowable impacts for those species. Sockeye salmon will begin to enter the shad fishing area in mid-June. On average, 45% of the sockeye run will have passed The Dalles Dam by June 28.

Primary issues with the experimental shad fishery are related to safety, possible delay in upstream salmonid migration, and associated delayed mortality that may be caused if fishing activities are carried out in the immediate vicinity of fishway entrances and exits. Resolution of these issues and mutual agreement by the managing entities will be sought before exact fishing locations are established. Based on the 1996 experience, it is considered unlikely that significant numbers of salmonids will be encountered in dipnets or trapnets. However, in the event that a salmon is observed in the dip net or trap net, it will be immediately released unharmed upstream of the fishing area and gear. Impacts associated with experimental shad fisheries will be included in the total harvest of all treaty Indian fisheries.

The Joint Staff recommends that treaty Indian fishers continue to be allowed to sell shad caught incidentally to commercial salmonid seasons and in traditional dipnet fisheries, as well as the proposed trap and dipnet fisheries.

ANCHOVY AND HERRING FISHERY

The anchovy and herring fisheries primarily provide bait to the local recreational salmon and sturgeon fisheries.

The anchovy and herring season is open year round seaward of the Megler-Astoria Bridge, with seines of a mesh size not less than ½ inch and not over 1,400 feet in length. All other species must be released. The Joint Staff recommends no changes for the 2002 bait fisheries.

MISCELLANEOUS REGULATIONS

Miscellaneous regulations including dam sanctuaries, river mouth closures, gear requirements, sturgeon rules, etc., are usually adopted annually at the January Compact hearing.

During the fall of 2001 permanent rules concerning the use of monofilament gillnets in the Columbia River commercial fisheries were modified by emergency action. Based on emergency regulations adopted at the September 13, 2001 Compact hearing, effective September 16, 2001 the use of monofilament gillnets was allowed during 2001 fall commercial fisheries in the Columbia River below Bonneville Dam, including Select Areas. Based on public input received during 2001 and the results of 2001 fall fisheries the Joint Staff expects to recommend changes to the current permanent rules restricting the use of monofilament gear in Columbia River commercial fisheries, including Select Areas. Recommendations concerning this issue will be presented at the January 31, 2002 Compact hearing.

In 1991 the state of Washington adopted a permanent regulation to restrict the weight on the leadline to not exceed two pounds per every fathom. The regulation was adopted to: 1) reduce target sturgeon gear, 2) maintain consistency with regulations requiring a gillnet or drift net to not be weighted in such a manner that it cannot drift, and 3) maintain consistency with Oregon permanent regulations. With the advent of target sturgeon fisheries there is some interest among commercial fishers to modify this regulation. Discussions between the Joint Staff and commercial fishing industry representatives will occur in January. Depending on the results of these discussions the Joint Staff may consider modifications to the leadline weight restriction during target sturgeon fisheries. Additional information concerning this issue may be presented at the January 31, 2002 Compact hearing.

The Sturgeon Management Task Force (SMTF) will meet in January to discuss Zone 6 sturgeon management for 2002 and agree to a management plan for 2002 sturgeon fisheries in the Zone 6 management area. Results of the SMTF meetings are expected to be presented at the January 31, 2002 Compact hearing.

Oregon Department of Fish and Wildlife
Washington Department of Fish and Wildlife
January 18, 2002

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Table 1. Estimates of the Spring Chinook Stock Composition (in 1,000's) in Lower Columbia Fisheries, 1985-2001.

Year	Willamette River ¹		Other Lower River ²		Upriver		Total ³ Catch
	No.	%	No.	%	No.	%	
<u>Winter Commercial Season (Feb-Mar)</u>							
1985	10.0	79	1.5	12	1.1	9	12.7
1986	7.3	81	0.6	7	1.1	12	9.0
1987	8.5	76	1.7	15	1.0	9	11.2
1988	11.3	62	1.9	10	5.1	28	18.3
1989	10.9	78	1.5	11	1.5	11	13.9
1990	15.5	85	0.7	4	2.1	11	18.3
1991	11.2	89	0.5	4	0.9	7	12.6
1992	3.9	76	1.0	19	0.2	5	5.1
1993	0.8	55	0.4	29	0.2	16	1.5
1994	0.1	54	0.4	23	0.4	23	1.9
1995	--	--	--	--	--	--	0.0
1996	0.1	89	<0.1	6	<0.1	5	0.1
1997	0.1	91	0.0	0	<0.1	9	0.1
1998	<0.1	100	0.0	0	0.0	0	<0.1
1999	<0.1	81	<0.1	6	<0.1	13	<0.1
2000	0.4	76	<0.1	7	0.1	17	0.5
2001	2.8	51	1.1	20	1.6	29	5.4
<u>Main-Stem Sport Fishery (Feb-Mar)⁴</u>							
1985	1.0	72	0.1	7	0.3	21	1.4
1986	1.4	74	0.2	10	0.3	16	1.9
1987	1.9	68	0.5	18	0.4	14	2.8
1988	2.9	63	0.3	7	1.4	30	4.6
1989	0.9	75	0.2	17	0.1	8	1.2
1990	6.8	75	0.3	3	2.0	22	9.1
1991	3.5	62	0.6	11	1.5	27	5.6
1992	3.1	59	1.0	19	1.2	22	5.3
1993	0.3	56	0.2	29	0.1	15	0.6
1994	1.0	67	0.3	17	0.2	16	1.5
1995	--	--	--	--	--	--	0.0
1996	0.0	--	0.0	--	0.0	--	0.0
1997	0.0	--	0.0	--	0.0	--	0.0
1998	<0.1	85	<0.1	15	0.0	0	0.1
1999	0.0	--	0.0	--	0.0	--	0.0
2000	0.2	62	<0.1	11	0.1	27	0.3
2001	0.8	18	0.1	2	3.7	80	4.6
<u>Main-Stem Sport Fishery (April)⁴</u>							
1986	1.7	45	1.1	29	1.0	26	3.8
1989	1.1	61	0.3	17	0.4	22	1.8
1990 ⁵	2.0	63	<0.1	1	1.1	36	3.2
1993	0.6	49	0.3	26	0.3	25	1.2
1994	0.3	55	0.1	14	0.2	31	0.5
2001	2.8	13	0.4	2	17.9	85	21.1

^{1.} Includes only spring chinook destined for the Willamette River. Willamette stock spring chinook are released at other locations in the Columbia River Basin below Bonneville Dam.

^{2.} Includes spring chinook destined for the Cowlitz, Kalama, Lewis, and Sandy rivers plus Select Area sites in Youngs Bay (since 1992), Tongue Point (since 1998), and Blind Slough (since 1998).

^{3.} Individual catch columns may not add up to total catch because of rounding errors. Percentages calculated using unrounded numbers. Does not include 700 and 400 spring chinook catch from late January-early February 1986 and 1987 sturgeon seasons.

^{4.} Includes kept catch only. Only adipose fin-clipped chinook could be retained in sport fisheries effective in 2001.

^{5.} Includes the April 5-15 terminal fishery at the mouth of Multnomah Channel.

Table 2. Components (in 1000's) of the Minimum Willamette River Spring Chinook Run and Percentage Caught in Lower Willamette Sport Fishery, 1970-2001.

Year	Minimum Run Entering Columbia R. ¹	Mainstem Columbia River Catch		Run Entering Willamette R.	Lower Willamette R. Sport Catch		Willamette Falls Count	Run Entering Clackamas R.
		Comm. ²	Sport ³		Number	% of Run		
1970-1974 Average	71.6	10.1	2.6	58.9	18.2	31	38.3	2.1
1975-1979 Average	56.6	5.4	1.6	49.5	15.1	32	31.1	3.0
1980	43.3	0.3	0.6	42.4	7.0 ⁴	17 ⁴	27.0	8.2
1981	56.3	4.8	2.9	48.6	10.5	22	30.1	7.7
1982	78.0	3.6	1.9	72.5	18.9	26	46.2	6.9
1983	62.2	5.3	1.8	55.1	13.8	25	30.6	9.8
1084	84.2	8.2	1.5	74.5	19.4	26	43.4	10.9
1980-1984 Average	64.8	4.4	1.7	58.6	13.9	23	35.5	8.7
1985	68.1	10.0	1.0	57.1	15.5	27	34.5	6.2
1986 ⁵	73.6	8.0	3.1	62.5	15.0	24	39.2	7.4
1987 ⁵	93.6	8.8	1.9	82.9	18.9	23	54.8	8.4
1988	118.1	11.3	2.9	103.9	24.6	24	70.4	8.6
1989	114.9	10.9	2.0	102.0	24.2	24	69.2	7.9
1985-1989 Average	93.7	9.8	2.2	81.7	19.6	24	53.6	7.7
1990	130.6	15.5	8.8	106.3	23.0	22	71.3	11.1
1991	109.9	11.2	3.5	95.2	30.5	32	52.5	11.6
1992	75.0	3.9	3.1	68.0	13.5	20	42.0	11.4
1993	65.9	0.8	1.1	63.9	20.7	32	32.0	10.5
1994	49.6	1.0	1.3	47.2	11.5	24	26.1	7.4
1990-1994 Average	86.2	6.5	3.5	76.1	19.8	26	44.8	10.4
1995	42.6	0.1	0.0	42.6	14.7	35	20.6	6.4
1996 ⁶	34.8	0.1	0.0	34.6	6.1	18	21.6	5.9
1997 ⁶	35.3	0.3	0.0	35.0	1.9	5	26.9	5.8
1998 ⁶	45.1	0.1	0.0	45.0	2.8	6	34.5	7.4
1999 ⁶	54.2	0.3	0.0	53.9	5.5	10	40.4	7.4
1995-1999 Average	42.4	0.2	0.0	42.2	6.2	14	28.8	6.6
2000 ⁶	57.5	1.1	0.2	56.2	9.0	16	39.1	7.8
2001	80.3	3.5	3.8	72.9	7.6	9	54.0	10.8

^{1.} Includes small numbers of observed or estimated losses below Willamette Falls each year.

^{2.} Includes spring chinook destined for the Willamette River landed in Select Area commercial fisheries of Youngs Bay (since 1992), Tongue Point (since 1998), and Blind Slough (since 1998).

^{3.} Includes spring chinook destined for the Willamette River landed in Columbia River boat and/or bank fisheries on: April 1-10, 1986 (1,700); April 1-9, 1989 (1,100); April 1-4, 1990 (1,500); April 5-15, 1990 (500); April 1-7, 1993 (600); April 1-3, 1994 (300); April 1-17, and April 25-29, 2001.

^{4.} Early closure on April 28 reduced catch and harvest rate.

^{5.} Includes 700 and 400 spring chinook catch from late January-early February 1986 and 1987 sturgeon seasons.

^{6.} Lower Willamette sport fishery managed for quotas of 6,000 in 1996, 1,900 in 1997, 2,000 in 1998, 4,600 in 1999, and 7,850 in 2000. Additional fishing was allowed in 1998 and 1999 when run size was greater than expected and in 2000 during an adipose fin-clipped only experimental fishery.

Table 3. Predicted and Actual Spring Chinook runs (in 1,000's) Entering the Columbia River, 1980-2001 and 2002 Projections.

Year	Willamette River (All Age Classes)			Cowlitz, Kalama, & Lewis Rivers Combined (Adults)			Upriver (Age 4 & 5 Adults)		
	Preseason Forecast	Actual Return	% of Predicted	Preseason Forecast	Actual Return	% of Predicted	Preseason Forecast	Actual Return	% of Predicted
1980	42.5	43.3	102	--	--	--	25.6	<52.6	206
1981	52.0	56.3	108	--	--	--	64.9	<63.6	99
1982	65.0	78.0	120	--	--	--	48.7	71.1	146
1983	72.0	62.2	86	--	--	--	51.8	55.9	108
1984	65.0	84.2	130	--	--	--	44.2	47.1	107
1985	70.0	68.1	97	--	--	--	52.6	84.7	161
1986	65.0	73.6	113	--	--	--	115.0	120.6	105
1987	78.0	93.6	120	--	--	--	79.7	99.8	125
1988	97.0	118.1	122	32.0	24.8	78	53.4	97.0	182
1989	102.0	114.9	113	16.1	22.3	139	92.7	¹ 82.6	89
1990	128.0	130.6	102	18.6	18.9	102	120.8	99.1	82
1991	110.0	109.9	100	19.7	19.8	101	61.9	² 59.2	96
1992	106.0	75.0	71	26.6	18.4	³ 69	71.4	89.8	126
1993	70.0	65.9	94	21.3	19.0	³ 89	76.2	111.0	146
1994	75.0	49.6	66	12.3	7.4	³ 60	49.0	20.8	42
1995	49.0	42.6	87	4.6	6.6	144	12.0	9.8	82
1996	41.0	34.8	85	4.4	4.1	93	37.2	51.5	138
1997	30.0	35.3	118	4.5	4.6	102	67.8	114.0	168
1998	33.7	45.1	134	2.9	3.1	107	36.2	38.3	106
1999	46.5	¹ 54.2	117	3.9	4.4	113	24.6	38.7	157
2000	59.9	57.5	96	6.0	5.3	88	134.0	178.6	133
2001 ⁴	61.0	80.3	132	4.8	5.6	117	364.6	416.5	114
2002⁴	73.8	--	--	6.7	--	--	333.7	--	--

^{3.} New upriver predictor developed by Joint Staff and approved by TAC.

^{4.} New upriver predictor refined by Joint Staff and approved by TAC.

^{5.} Excludes Willamette stock released in Lewis River.

^{6.} Actual returns are preliminary.

Table 4. Willamette Falls Spring Chinook Escapement and Upper Willamette Sport Catch, Number Returning to Hatcheries, Surplus Sales, and Tribal Use, 1980-2001.

Year	Willamette Falls Count ¹	U. Willamette Sport Catch		U. Will. Hatchery Return		Clackamas Hatchery Return	Surplus Sales		Received by Columbia River Tribes ²
		Number	% of Will. Falls Count	Number	% of Will. Falls Count		U. Will. Hatcheries	Clackamas Hatchery	
1980	26,973	1,954	7	8,302	31	1,024	0	0	--
1981	30,057	2,241	7	9,198	31	1,065	6,614	0	--
1982	46,195	3,687	8	13,780	30	573	3,114	0	--
1983	30,589	1,877	6	10,372	34	1,923	2,186	0	--
1984	43,452	3,123	7	15,433	36	2,521	6,570	751	--
1985	34,533	2,510	7	10,785	31	944	119	101	--
1986	39,155	2,708	7	12,591	32	776	5,509	64	--
1987	54,832	6,442	12	16,517	30	1,005	7,175	282	--
1988	70,451	8,536	12	22,534	32	1,253	8,040	209	3,700
1989	69,180	9,375	14	27,349	40	865	12,704	103	2,520
1990	71,273	10,856	15	29,692	42	1,847	13,958	371	1,425
1991	52,516	8,323	16	20,685	39	2,776	4,681	1,201	2,992
1992	42,004	7,424	18	15,743	37	4,535	4,350	3,294	2,206
1993	31,966	8,161	26	14,636	46	4,635	1,676	2,577	1,386
1994	26,102	4,273	16	9,795	38	3,675	461	746	3,193 ³
1995	20,592	3,380	16	8,757	43	3,112	688	400	1,504 ⁴
1996	21,605	5,041	23	10,056	47	3,044	0	0	4,386 ⁵
1997	26,885	4,022	15	14,752	55	2,670	255	179	539
1998	34,461	6,125	18	16,414	48	4,530	960	859	7,590
1999	40,410	NA	--	18,725	46	4,562	0	551	7,689
2000	39,073	NA	--	16,158	41	4,296	0	1,847	0
2001	53,973	NA	--	20,256	38	6,155	0	3,711	0

^{1.} Includes jacks.

^{2.} Given toward the tribes' minimum ceremonial and subsistence entitlement per the Columbia River Fish Management Plan.

^{3.} Columbia treaty tribes at Willamette Falls also harvested 759 chinook and 396 marked summer steelhead May 9-28 and July 5, 1994.

^{4.} Columbia treaty tribes at Willamette Falls also harvested 29 chinook June 12-17 and 112 summer steelhead in mid-July, 1995.

^{5.} Columbia treaty tribes at Willamette Falls also harvested 12 chinook June 1, 1996.

Table 5. Minimum Adult Spring Chinook Run (in 1,000's) Entering Other Lower River Tributaries, 1980-2001.¹

Year	Cowlitz River	Kalama River	Lewis River	Sandy River	Total
1980	23.7	2.5	2.3	1.8	30.3
1981	27.9	3.3	3.0	2.8	37.0
1982	19.3	8.4	3.9	1.4	33.0
1983	21.4	4.9	3.7	1.8	31.8
1984	21.3	1.8	6.4	2.3	32.8
1980-1984 Average	22.7	4.2	3.9	2.0	32.8
1985	9.9	0.3	4.1	1.4	15.7
1986	7.3	1.1	8.3	1.3	18.0
1987	18.0	2.4	16.5	2.4	39.3
1988	12.3	1.9	10.6	2.9	27.7
1989	8.3	2.0	12.0	2.0	24.3
1985-1989 Average	11.2	1.5	10.3	2.0	25.0
1990	7.6	2.0	9.3	3.5	22.4
1991	8.9	2.6	8.3	3.7	23.5
1992	10.4	2.4	5.6	9.2	27.6
1993	9.5	2.9	6.6	6.4	25.4
1994	3.1	1.3	3.0	3.5	10.9
1990-1994 Average	7.9	2.2	6.6	5.3	22.0
1995	2.2	0.7	3.7	2.5	9.1
1996	1.8	0.6	1.7	4.1	8.2
1997	1.9	0.5	2.2	5.2	9.9
1998	1.1	0.4	1.6	4.2	7.3
1999	1.6	1.0	1.8	3.3	7.6
1995-1999 Average	1.7	0.6	2.2	3.9	8.4
2000	1.7	1.4	2.2	3.8	9.1
2001 ³	1.7	1.7	2.2	5.6	11.2

¹ Run includes hatchery returns or dam counts, sport catch estimates, and except for the Sandy River, estimates of natural spawning populations.

² Excludes Willamette stock released in Lewis River.

³ Preliminary

Table 6. Spring Chinook Adult Sport Catch and Run Size (in 1,000's), and Harvest Rates for the Cowlitz, Kalama, and Lewis Rivers, 1980-2001.

Year	Cowlitz River			Kalama River			Lewis River			Total		
	Sport Catch	Run Size	Harvest Rate (%)	Sport Catch	Run Size	Harvest Rate (%)	Sport Catch	Run Size	Harvest Rate (%)	Sport Catch	Run Size	Harvest Rate (%)
1980	7.7	23.7	32	0.3	2.5	14	1.2	2.3	52	9.2	28.5	32
1981	5.4	27.9	19	0.9	3.3	29	1.9	3.0	65	8.2	34.2	24
1982	6.9	19.3	36	2.2	8.4	26	2.4	3.9	62	11.5	31.6	36
1983	8.0	21.4	37	2.1	4.9	43	2.8	3.7	77	12.9	30.0	43
1984	7.5	21.3	35	0.9	1.8	48	4.4	6.4	69	12.8	29.5	43
1980-1984 Average	7.1	22.7	32	1.3	4.2	32	2.5	3.9	65	10.9	30.8	36
1985	2.9	9.9	29	0.2	0.3	72	3.2	4.1	78	6.3	14.3	44
1986	2.1	7.3	29	0.4	1.1	41	5.9	8.3	72	8.4	16.7	50
1987	4.2	18.0	24	0.9	2.4	38	9.5	16.5	57	14.6	36.9	40
1988	3.1	12.3	25	0.5	1.9	28	5.0	10.6	47	8.6	24.8	35
1989	2.1	8.3	25	0.7	2.0	36	7.7	12.0	64	10.5	22.3	47
1985-1989 Average	2.9	11.2	26	0.5	1.5	43	6.3	10.3	64	9.7	23.0	43
1990	2.6	7.6	35	0.9	2.0	45	7.1	9.3	77	10.6	18.9	56
1991	3.4	8.9	38	1.4	2.6	54	6.2	8.3	74	11.0	19.8	56
1992	2.1	10.4	21	0.7	2.4	31	4.4	6.1	73	7.2	18.8	38
1993	2.9	9.5	31	1.5	2.9	51	6.1	8.2	74	10.5	20.6	51
1994	1.1	3.1	34	0.2	1.3	18	1.9	3.1	61	3.2	7.5	43
1990-1994 Average	2.4	7.9	32	0.9	2.3	40	5.1	7.0	72	8.5	17.1	49
1995 ¹	0.2	2.2	7	<0.1	0.7	1	2.4	3.7	65	2.5	6.6	38
1996 ¹	<0.1	1.8	1	0.2	0.6	31	0.3	1.7	20	0.5	4.1	12
1997 ¹	0.1	1.9	8	0.1	0.5	3	0.8	2.2	36	1.0	4.6	21
1998 ¹	0.0	1.1	0	0.0	0.4	0	0.2	1.6	14	0.2	3.1	6
1999 ¹	0.5	1.6	31	<0.1	1.0	1	0.7	1.8	40	0.7	4.4	16
1995-1999 Average	0.2	1.7	9	<0.1	0.6	7	0.9	2.2	35	1.0	4.6	19
2000 ¹	0.3	1.7	17	0.4	1.4	29	1.0	2.2	45	1.7	5.3	32
2001 ¹	0.1	1.7	6	0.3	1.7	18	0.7	2.2	32	1.1	5.6	20

1. *Harvest rates reflect fishery restrictions due to extremely low returns.*

Table 7. Minimum Upriver Adult Spring Chinook Run, Catches, and Escapements (in numbers), 1980-2001.

Year	Minimum Upriver Run	Non-Indian Fisheries Mortality				Bonneville	Treaty Indian Catch			Escapement /		L. Granite
		Comm.	Sport ²	Misc. ³	Rate (%)	Dam Count ¹	Comm.	C&S	Rate (%)	Number	% of Run	Dam Count
1980	53,207	0	0	107	0.2	53,100	29	1,826	3.5	51,245	96.3	5,460
1981	63,766	611	207	121	1.5	62,827	1,595	1,803	5.3	59,429	93.2	13,115
1982	71,252	508	559	174	1.7	70,011	3,308	2,000	7.4	64,703	90.8	12,367
1983	57,826	2,225	548	155	5.1	54,898	31	2,500	4.4	52,367	90.6	9,517
1984	48,658	1,409	285	98	3.7	46,866	75	3,400	7.1	43,391	89.2	6,511
1985	86,498	2,831	364	121	3.8	83,182	111	3,001	3.6	80,070	92.6	25,207
1986	120,627	1,082	1,288	175	2.1	118,082	359	7,074	6.2	110,649	91.7	31,722
1987	100,164	987	395	209	1.6	98,573	279	6,400	6.7	91,894	91.7	28,835
1988	97,237	5,130	1,433	142	6.9	90,532	204	6,800	7.2	83,528	85.9	29,495
1989	83,402	1,508	542	85	2.6	81,267	86	6,640	8.1	74,541	89.4	12,955
1990	99,486	2,082	3,112	134	5.4	94,158	4	6,924	7.0	87,230	87.7	17,315
1991	59,883	897	1,536	111	4.2	57,339	5	3,864	6.5	53,470	89.3	6,623
1992	89,969	235	1,182	127	1.7	88,425	48	5,700	6.4	82,677	91.9	21,391
1993	111,758	238	407	293	0.8	110,820	0	7,255	6.5	103,565	92.7	21,035
1994	21,075	441	402	63	4.3	20,169	10	1,115	5.3	19,044	90.4	3,120
1995	10,197	0	2	1	0.0	10,194	13	606	6.1	9,575	93.9	1,105
1996	51,530	5	7	25	0.1	51,493	0	2,791	5.4	48,702	94.5	4,215
1997	114,124	9	6	38	0.0	114,071	14	8,264	7.3	105,793	92.7	33,855
1998	38,376	0	7	27	0.1	38,342	1	2,188	5.7	36,153	94.2	9,854
1999	38,700	2	4	25	0.1	38,669	1	1,961	5.1	36,707	94.9	3,296
2000	178,640	88	93	157	0.2	178,302	6	11,250	6.3	167,046	93.5	33,822
2001	416,468	1,579	22,689	833 ⁴	6.0	391,367	43,715	10,847	13.1	336,805	80.9	171,958

^{1.} Dam counts in 1980 and 1981 were not adjusted for fallback; run size and escapements are maximums in those years.

^{2.} Includes fish taken in April sport fishery extensions in 1986, 1989, 1990, 1993, and 1994.

^{3.} Includes fish caught in Youngs Bay spring chinook commercial fisheries, mortalities from Area 2S shad fisheries, and mortalities from Corbett, Woody Island, and Select Area test fisheries.

^{4.} Includes 484 fish landed in experimental tangle net gear commercial permit fishery.

Table 8. Columbia River Fisheries and Passage Loss Impacts on the Adult Snake River Wild Spring Chinook Run and Escapement, 1986-2001

Year	Snake River Wild Run Size	Non-Indian Catch and Mortalities					Total %	Treaty Indian Catch ³		Fisheries Total ²		Bonn.-L. Gr. Passage Loss		Snake River Escapement ⁴	
		Comm. No.	Sport No.	Misc. ¹ No.	Total ² No.	Total %		No.	%	No.	%	No.	% ⁵	No.	% ⁵
1986	12,371	111	132	14	257	2.1	762	6.2	1,019	8.2	3,781	33.3	7,567	66.7	
1987	12,251	121	48	22	191	1.6	817	6.7	1,008	8.2	2,736	24.3	8,504	75.7	
1988	14,355	757	212	18	986	6.9	1,034	7.2	2,021	14.1	3,332	27.0	8,999	73.0	
1989	6,987	126	45	6	177	2.5	563	8.1	741	10.6	2,857	45.7	3,388	54.3	
1986-1989 Average	11,491	279	109	15	403	3.3	794	7.1	1,197	10.3	3,177	32.6	7,115	67.4	
1990	6,069	127	190	6	322	5.3	422	7.0	745	12.3	1,611	30.3	3,710	69.7	
1991	5,441	82	140	8	229	4.2	351	6.5	581	10.7	2,396	49.3	2,463	50.7	
1992	16,210	42	213	17	272	1.7	1,036	6.4	1,308	8.1	3,355	22.5	11,542	77.5	
1993	7,740	16	28	18	62	0.8	502	6.5	565	7.3	992	13.8	6,180	86.2	
1994	2,066	43	39	7	90	4.3	110	5.3	200	9.7	352	18.9	1,514	81.1	
1990-1994 Average	7,505	62	122	11	195	3.3	485	6.2	680	9.6	1,741	27.0	5,082	73.0	
1995	1,813	0	0	0	1	<0.1	110	6.1	111	6.1	939	55.3	764	44.7	
1996	3,889	0	1	1	2	0.1	211	5.4	213	5.5	2,157	58.8	1,519	41.2	
1997	4,748	0	0	1	2	<0.1	345	7.3	346	7.3	2,115	48.2	2,286	51.8	
1998	9,692	0	2	7	9	0.1	553	5.7	561	5.8	3,956	43.3	5,174	56.7	
1999	2,535	0	0	2	2	0.1	128	5.1	131	5.1	1,297	53.5	1,107	46.5	
1995-1999 Average	4,535	0	1	2	3	<0.1	269	5.9	272	6.0	2,093	51.8	2,170	48.2	
2000	12,421	6	6	12	25	0.2	782	6.3	807	6.5	3,499	30.1	8,115	69.9	
2001	67,824	257 ⁶	536	153	946	1.4	8,886	13.1	9,832	14.5	5,444	9.9	49,407	90.1	

^{1.} Includes incidental mortalities in the mainstem steelhead sport fishery, Corbett and Select Area fisheries, Area 2S shad commercial fisheries, and 2001 Snake River sport fishery.

^{2.} Individual columns may not add up to total column because of rounding.

^{3.} Includes winter season commercial sales and spring C&S catches.

^{4.} Includes lower Granite Dam passage and Tucannon River wild escapement.

^{5.} Percentage of Zone 6 escapement.

^{6.} Includes experimental tangle net gear commercial permit fishery.

Table 9. Columbia River Fisheries and Passage Loss Impacts on the Adult Upper Columbia Wild Spring Chinook and Escapement, 1985-2001.

Year	Upper Columbia	Zone 1-5 Harvest		Zone 6 Harvest		Fisheries Total ¹		Bonn. - McN Passage Loss		Priest Rapids Dam Escapement	
	Wild Run Size	Total No.	Total %	Total No.	Total %	Total No.	Total %	No.	%	No.	%
1985	10,864	414	3.8	391	3.6	804	7.4	720	6.6	9,336	85.9
1986	7,853	163	2.1	484	6.2	647	8.2	1,487	18.9	5,716	72.8
1987	7,292	114	1.6	486	6.7	600	8.2	1,316	18.0	5,374	73.7
1988	5,504	378	6.9	397	7.2	775	14.1	850	15.4	3,878	70.5
1989	6,309	160	2.5	509	8.1	669	10.6	1,907	30.2	3,732	59.1
1985-1989 Average	7,564	246	3.4	453	6.4	699	9.7	1,256	17.8	5,607	72.4
1990	5,767	306	5.3	401	7.0	708	12.3	1,050	18.2	4,007	69.5
1991	2,656	112	4.2	171	6.5	284	10.7	635	23.9	1,736	65.4
1992	4,855	82	1.7	311	6.4	392	8.1	482	9.9	3,980	82.0
1993	5,127	41	0.8	333	6.5	374	7.3	73	1.4	4,678	91.2
1994	1,433	63	4.3	77	5.3	140	9.7	149	10.3	1,155	80.0
1990-1994 Average	3,970	121	3.3	259	6.3	380	9.6	478	12.7	3,111	77.6
1995	256	0	0.0	15	6.1	16	6.1	84	32.8	157	61.3
1996	329	0	<0.1	18	5.4	18	5.5	138	41.9	173	52.6
1997	1,124	0	0.0	81	7.3	82	7.3	387	34.4	655	58.3
1998	426	0	<0.1	24	5.7	25	5.8	118	27.7	284	66.7
1999	673	1	0.1	34	5.1	35	5.1	187	27.8	451	67.0
1995-1999 Average	562	<1	<0.1	34	5.9	35	6.0	183	32.9	344	61.2
2000	1,648	3	0.2	104	6.3	107	6.5	335	20.3	1,207	73.2
2001 ²	10,569	139	1.5	1,384	13.1	1,538	14.6	500	6.0	8,047	94.0

^{1.} Individual columns may not add up to total columns because of rounding.

^{2.} Zone 1-5 harvest includes catches in experimental tangle net gear commercial permit fishery. Catch of 15 upper Columbia wild spring chinook in Ringold/sport and Wanapum tribal fisheries included in fisheries total but not in Zones 1-5 or Zone 6 harvest.

Table 10. Estimated Numbers of Adult Summer Chinook Entering the Columbia River, Mainstem Harvest, and Escapement, 1980-2001.

Year	Unriver Run	Zones 1-5 Non-Indian				Bonneville Counts	Zone 6 Treaty		Escapement		Dam Counts	
		Comm	Sport ¹	Misc. ²	Rate (%)		Catch ³	Rate (%)	Number ⁴	% of Run	Priest Rapids	Lower Granite
1980	26,983	0	--	31	0.1	26,952	1,181	4.4	25,771	95.5	16,000	2,688
1981	22,381	0	--	18	0.1	22,363	1,364	6.1	20,999	93.8	11,600	3,306
1982	20,363	0	--	234	1.1	20,129	1,295	6.4	18,834	92.5	8,800	4,210
1983	18,231	0	--	185	1.0	18,046	297	1.6	17,749	97.4	8,500	3,895
1984	22,464	0	--	43	0.2	22,421	457	2.0	21,964	97.8	16,200	5,429
1985	24,308	0	--	72	0.3	24,236	1,376	5.7	22,860	94.0	15,910	5,062
1986	26,439	0	0	218	0.8	26,221	1,120	4.2	25,101	94.9	16,161	6,154
1987	33,323	0	6	283	0.9	33,033	1,694	5.1	31,339	94.0	14,131	5,891
1988	31,486	0	10	161	0.5	31,315	1,499	4.8	29,816	94.7	13,400	6,145
1989	28,830	0	22	19	0.1	28,789	100	0.3	28,689	99.5	19,659	3,169
1990	25,023	0	9	31	0.2	24,983	111	0.4	24,872	99.4	15,576	5,093
1991	18,919	0	4	18	0.1	18,897	178	0.9	18,719	98.9	14,815	3,809
1992	15,150	0	17	70	0.6	15,063	57	0.4	15,006	99.0	8,523	3,014
1993	22,226	0	21	161	0.8	22,045	369	1.7	21,676	97.5	16,377	7,889
1994	17,711	0	34	46	0.5	17,631	207	1.2	17,424	98.4	14,859	795
1995	15,052	0	21	1	0.1	15,030	431	2.9	14,599	97.0	12,162	692
1996	16,102	0	37	31	0.4	16,034	494	3.1	15,540	96.5	10,995	2,607
1997	27,977	0	26	12	0.1	27,939	315	1.1	27,624	98.7	13,107	10,709
1998	21,468	0	34	1	0.2	21,433	371	1.7	21,062	98.1	13,387	4,355
1999	26,229	0	58	2	0.2	26,169	433	1.7	25,736	98.1	22,898	3,260
2000	30,651	0	34	1	0.1	30,616	280	0.9	30,336	99.0	22,306	3,933
2001	76,377	0	89	132	0.3	76,156	830	1.1	75,326	98.8	53,170	19,287 ⁵

¹. "--" indicates data not available.

². Includes incidental non-retention mortality in commercial shad and sockeye fisheries.

³. Numbers listed for 1980 to present include commercial and C&S fisheries.

⁴. Bonneville counts minus Zone 6 catch.

⁵. Count at lower Monumental Dam.

Table 11. Columbia River Fisheries Impact on the Adult Snake River Wild Summer Chinook run and Escapement, 1986-2001.

Year	Snake River Wild Run Size	Non-Indian Catch And Mortalities ¹		Treaty Indian Catch ²		Fisheries Total ¹		Bonn.-L. Gr. Passage Loss		Snake River Escapements ³	
		No.	%	No.	%	No.	%	No.	% ⁴	No.	% ⁴
1986	3,478	29	0.8	147	4.2	176	5.1	618	17.8	2,684	77.1
1987	3,342	29	0.9	170	5.1	199	6.0	1,288	38.5	1,855	55.5
1988	3,286	18	0.5	156	4.8	174	5.3	1,305	39.7	1,807	55.0
1989	3,124	4	0.1	11	0.3	15	0.5	810	25.9	2,299	73.6
1986-1989 Average	3,308	20	0.6	121	3.6	141	4.2	1,005	30.5	2,161	65.3
1990	4,359	7	0.2	19	0.4	26	0.6	991	22.7	3,342	76.7
1991	3,550	4	0.1	33	0.9	38	1.1	546	15.4	2,967	83.6
1992	533	3	0.6	2	0.4	5	0.9	88	16.5	441	82.7
1993	4,169	29	0.7	58	1.4	87	2.1	0	0	4,082	97.9
1994	246	1	0.5	3	1.2	4	1.6	60	24.4	183	74.4
1990-1994 Average	2,441	9	0.4	23	0.9	32	1.3	207	12.1	2,203	86.7
1995	496	1	0.1	14	2.9	15	3.0	138	27.8	343	69.2
1996	2,717	12	0.4	83	3.1	95	3.5	706	26.0	1,916	70.5
1997	5,533	7	0.1	62	1.1	70	1.3	327	5.9	5,137	92.8
1998	4,166	7	0.2	72	1.7	79	1.9	1,175	28.2	2,913	69.9
1999	2,004	5	0.2	33	1.7	38	1.9	383	19.1	1,584	79.0
1995-1999 Average	2,983	6	0.2	53	2.1	59	2.3	546	21.4	2,379	76.3
2000	886	1	0.2	8	0.9	10	1.1	30	3.4	846	95.5
2001	2,607	8	0.3	28	1.1	31	1.4	98	3.8	2,473	96.2

^{1.} Includes mortalities incurred in the summer steelhead sport fishery and in the Area 2S commercial shad fishery.

^{2.} Includes commercial sockeye and C&S catches.

^{3.} Wild fish portion of passage at Lower Granite Dam.

^{4.} Percentage of Zone 6 escapement.

Table 12. Estimated Number of Sockeye Entering the Columbia River, Mainstem Harvest, and Escapement, 1980-2001.

Year	Columbia R. Run at River Mouth ¹	Harvest Impacts Zn 1-5	Bonn. Count	Comm. Harvest Zone 6	C. & S Harvest Zone 6	Priest Rapids Dam Count ²	Snake River Count ³	Est. No. Snake R. Sockeye			
								At River Mouth	Harvest Impacts Zn 1-5	Harvest Impacts Zone 6	Lower Granite Esc. ⁴
1980	58,886	4	58,882	14	622	52,055	36	41	0	0	96
1981	56,037	0	56,037	7	1,500	51,460	142	154	0	0	218
1982	50,319	100	50,219	130	645	40,461	174	215	0	1	211
1983	100,628	83	100,545	1,849	1,500	89,808	216	241	0	4	122
1984	161,886	9,345	152,541	22,485	2,131	114,757	105	148	9	21	47
1985	200,747	32,213	166,340	49,393	576	118,541	24	41	7	10	35
1986	59,963	1,840	58,123	4,272	2,400	43,084	20	28	2	2	15
1987	145,546	28,553	116,993	39,460	100	76,578	13	25	5	7	29
1988	99,779	17,632	79,714	30,990	0	51,135	22	43	8	13	23
1989	47,477	36	41,884	38	2,100	45,299	4	4	0	0	2
1990	49,754	173	49,581	2	2,714	46,331	1	1	0	0	0
1991	76,484	3	76,481	5	3,266	71,245	9	10	0	0	8
1992	85,000	8	84,992	5	2,180	77,737	2	2	0	0	1
1993	84,273	64	80,178	7	5,013	79,172	17	18	0	0	12
1994	12,679	1	12,678	0	472	11,800	3	3	0	0	2
1995	9,178	1	8,773	0	445	8,727	5	5	0	0	4
1996	30,280	25	30,255	0	1,414	27,981	4	4	0	0	0
1997	46,939	12	46,927	0	2,046	42,729	2	2	0	0	2
1998	13,220	2	13,218	0	425	10,015	3	4	0	0	3
1999	17,878	1	17,877	0	704	15,282	16	19	0	0	16
2000	93,754	363	93,391	145	2,765	83,587	400	447	2	1	400
2001	116,623	1,690	114,933	5,580	1,720	103,528	45	51	1	3	45

^{1.} Upriver run is larger of (Bonn. Count + Zones 1-5 harvest) or (Priest Rapids Dam count + Snake River count + Zones 1-6 harvest).

^{2.} Counts have been adjusted from the actual 24-hour counts to 16-hour counts in 1992-1998 to maintain a consistent database.

^{3.} Ice Harbor Dam counts. Since 1992, video counts at Lower Granite Dam were used (adjusted for 1989 and 1991 average conversion between Ice Harbor Dam and Lower Granite dams). Kokanee-size fish are not included.

^{4.} Prior to 1992, Lower Granite Dam counts may include kokanee. Beginning in 1992, video counts at LWG were used to identify true sockeye.

Table 13. Minimum Numbers (in Thousands) of Lower River Summer Steelhead Entering the Columbia River, 1969-2001.

Year	Lower Columbia Sport Catch (May-June) ¹	Tributary Dam Counts ²	Hatchery Returns ³	Tributary Sport Catch ⁴		Minimum Run
				OR	WA	
1969	0	0.0	3.6	--	14.7	18.3
1970	0.0	0.1	4.6	--	13.8	18.5
1971	0.0	2.3	4.4	--	17.3	24.0
1972	0.0	0.9	5.6	--	25.8	32.3
1973	0.0	1.8	2.7	--	24.6	29.1
1974	0.0	5.7	3.9	--	14.5	24.1
1975	0.0	5.2	4.2	0.5	11.4	21.3
1976	0.0	5.4	3.2	0.5	16.3	25.4
1977	0.7	12.7	6.8	1.2	21.7	43.1
1978	1.2	20.2	5.7	2.1	21.5	50.7
1979	0.6	13.9	4.0	2.1	12.2	32.8
1980	0.3	20.5	5.1	3.8	18.1	47.8
1981	1.9	23.0	6.3	2.5	22.9	56.6
1982	1.8	19.2	5.8	3.6	18.7	49.1
1983	0.8	8.6	2.0	1.5	6.8	19.7
1984	2.7	43.7	4.6	6.2	11.3	68.5
1985	1.8	32.3	3.0	3.9	15.9	56.9
1986	3.0	53.3	2.3	4.4	26.9	89.9
1987	1.6	33.6	1.6	4.2	17.4	58.4
1988	2.7	50.7	3.3	7.0	14.2	77.9
1989	1.7	13.4	3.8	3.5	12.6	35.0
1990	2.2	31.8	5.6	5.1	17.2	61.9
1991	1.2	10.4	2.2	3.0	15.0	31.8
1992	1.2	23.1	3.1	3.0	17.6	48.0
1993	1.8	17.3	4.7	3.2	20.0	47.0
1994	1.2	15.4	5.6	2.1	23.0	47.3
1995	1.4	15.1	7.8	1.5	13.0	38.8
1996	1.2	7.8	9.8	1.0	15.1	34.9
1997	1.9	17.5	3.7	1.4	5.9	30.4
1998	1.2	15.3	5.2	1.4	4.8	27.9
1999	1.3	12.4	4.0	(1.5)	(12.4)	(31.6)
2000	1.6	13.1	7.5	(1.4)	(10.2)	(33.8)
2001	(2.7)	(28.4)	(6.1)	(1.3)	(9.7)	(48.2)

^{1.} Beginning in 1977, May-June lower Columbia recreational catch determined to be mostly lower river stock.

^{2.} Willamette Falls (Willamette R.), North Fork Dam (Clackamas R.), and Marmot Dam (Sandy R.).

^{3.} Skamania, Lewis River, and Cowlitz hatcheries.

^{4.} From Oregon and Washington catch record estimates, Washington catches prior to 1975 not corrected for non-response bias.

^{5.} () Indicates preliminary.

Table 14. Minimum Numbers (in Thousands) of Group A and Group B Summer Steelhead Entering the Columbia River, 1969-2001

Year	Lower Columbia Catch				Ronneville Dam Counts		Minimum Run		Total
	Sport ¹		Commercial ²		Group A	Group B	Group A	Group B	
	Group A	Group B	Group A	Group B					
1969	9.3	2.0	11.4	9.9	103.1	36.2	123.8	48.1	171.9
1970	7.8	1.6	5.0	11.1	77.9	35.1	90.7	47.8	138.5
1971	9.1	1.7	6.7	13.9	140.6	52.5	156.4	68.1	224.5
1972	12.1	3.3	12.8	12.1	106.7	78.5	131.6	93.9	225.5
1973	6.7	1.8	6.3	16.4	99.2	57.5	112.2	75.7	187.9
1974	4.0	1.5	1.2	2.8	112.2	23.1	117.4	27.4	144.8
1975	0.0	0.0	--	--	70.5	13.6	70.5	13.6	84.1
1976	0.0	0.0	--	--	91.1	31.3	91.1	31.3	122.4
1977	2.2	1.5	--	--	112.5	79.2	114.7	80.7	195.4
1978	1.5	0.0	--	--	62.4	39.9	63.9	39.9	103.8
1979	1.2	0.0	--	--	78.1	34.2	79.3	34.2	113.5
1980	2.0	0.0	--	--	83.9	43.7	85.9	43.7	129.6
1981	2.7	0.5	--	--	120.7	37.2	123.4	37.7	161.1
1982	2.6	0.0	--	--	101.9	54.3	104.5	54.3	158.8
1983	2.8	0.1	--	--	148.4	69.2	151.2	69.3	220.5
1984	4.3	1.1	--	--	188.8	125.7	193.1	126.8	319.9
1985	4.1	2.0	--	--	250.7	91.6	254.8	93.6	348.4
1986	6.0	2.0	--	--	276.4	99.9	282.4	101.9	384.3
1987	3.4	1.5	--	--	222.8	78.3	226.2	79.8	306.0
1988	5.8	1.9	--	--	188.9	88.3	194.7	90.2	284.9
1989	4.7	1.7	--	--	170.8	115.6	175.5	117.3	292.8
1990	2.7	1.3	--	--	94.1	87.4	96.8	88.7	185.5
1991	3.2	2.8	--	--	149.9	123.3	153.1	126.1	279.2
1992	6.4	3.8	--	--	174.6	139.3	181.0	143.1	324.1
1993	3.8	4.7	--	--	99.2	88.1	103.0	92.8	195.8
1994	2.3	1.7	--	--	82.4	78.4	84.7	80.1	164.8
1995	4.7	2.1	--	--	123.3	78.2	128.0	80.3	208.3
1996	4.0	1.1	--	--	135.8	68.2	139.8	69.3	209.1
1997	4.6	0.6	--	--	174.8	82.0	179.4	82.6	262.0
1998	1.7	2.0	--	--	83.8	100.6	85.5	102.6	188.1
1999	3.8	2.1	--	--	137.9	67.8	141.6	69.9	211.5
2000	6.3	1.9	--	--	184.3	89.9	190.6	91.8	282.4
2001 ³	7.8	1.6	--	--	434.1	196.2	441.9	197.8	639.7

^{1.} Sport catch based on timing of the catch: Group A--May 1-Aug 15 (1969-1976) and July 1-Aug 15 beginning in 1977; Group B--Aug 16-Oct 31. Includes catches from estuary recreational (Buoy 10) fishery beginning in 1992.

^{2.} Commercial catch of steelhead by non-Indians (1969-1974) was based on timing of the catch: Group A--spring through first two fishing weeks of August; Group B--remainder of August through October. Sale of steelhead by non-Indians prohibited since 1975.

^{3.} Preliminary.

Table 15. Group A Index and Group B Index Returns of Summer Steelhead to Bonneville Dam During 1984-2001 and 2002 Projections.

Year	Group A Index (<78 cm)					Group B Index (>78cm)				
	Number Wild	%	Number Hatchery	%	Total	Number Wild	%	Number Hatchery	%	Total
1984	52,400	27	143,300	73	195,700	13,800	14	84,200	86	98,000
1985	51,900	18	229,600	82	281,500	13,000	32	27,900	68	40,900
1986	56,600	20	230,900	80	287,500	10,000	16	54,000	84	64,000
1987	106,700	45	131,600	55	238,300	14,000	31	31,000	69	45,000
1988	64,300	37	108,800	63	173,100	17,700	22	63,900	78	81,600
1989	57,500	30	135,600	70	193,100	12,400	16	65,200	84	77,600
1990	27,100	23	88,500	77	115,600	8,800	17	38,400	83	47,200
1991	60,300	26	173,800	74	234,100	6,200	22	22,100	78	28,300
1992	44,300	18	197,200	82	241,500	12,700	22	44,700	78	57,400
1993	28,600	21	108,100	79	136,700	4,400	12	31,800	88	36,200
1994	21,200	18	99,800	82	121,000	5,200	20	22,300	80	27,500
1995	26,000	14	154,000	86	180,000	1,800	14	11,400	86	13,200
1996	25,700	15	148,600	85	174,300	3,900	21	14,900	79	18,800
1997	30,900	15	177,400	85	208,300	3,900	11	32,700	89	36,600
1998	34,800	26	99,900	74	134,700	3,400	8	36,800	92	40,200
1999	56,600	32	119,800	68	176,400	3,700	17	18,400	83	22,100
2000 ¹	63,600	29	153,100	71	216,700	8,400	21	32,500	79	40,900
2001 ¹	137,200	27	377,900	73	515,100	12,100	14	74,300	86	86,400
2002²	105,000	28	264,700	72	369,700	21,600	36	39,000	64	60,600

^{1.} Preliminary.

^{2.} Projected.

Table 16. Steelhead Counts by Run Year at Lower Granite Dam with Wild Steelhead Estimates and Goals, 1984-2001.

Run Year	Run Year Totals	Wild ¹		Percent of 30,000 Goal
		Number	Percent	
1984-1985	104,400	24,500	23	82
1985-1986	116,300	26,700	23	89
1986-1987	130,000	22,000	17	73
1987-1988	71,300	25,500	36	85
1988-1989	87,100	21,000	24	70
1989-1990	131,400	25,000	19	83
1990-1991	56,900	9,300	16	31
1991-1992	99,100	17,300	17	58
1992-1993	128,300	19,400	15	65
1993-1994	59,800	7,400	12	25
1994-1995	47,300	7,500	16	25
1995-1996	79,100	8,000	10	27
1996-1997	83,300	7,300	9	24
1997-1998	87,000	8,600	10	29
1998-1999	70,700	9,300	13	31
1999-2000	73,800	12,100	16	40
2000-2001 ²	116,300	21,400	18	71

^{1.} The database has been updated since 1994 and is based on fin sampling data from the trap at Lower Granite Dam. Percentages are calculated before rounding.

^{2.} Preliminary

Table 17. Commercial Landings of Shad in Area 2S and Washougal Reef Fisheries and Minimum Shad Run Size (in 1,000's) 1977-2001.

Year	Area 2S		Washougal Reef		Total Zone 1-5 Commercial Catch ²	Run Size	% of Run Landed
	Days	Catch ¹	Days	Catch ¹			
1977	12	42.4	39	--	61.9	929.4	7
1978	19	101.7	28	--	113.6	1,369.8	8
1979	14	117.4	28	-	120.3	1,548.7	8
1980	19	21.9	32	--	23.2	1,223.8	2
1981	19	15.5	32	--	21.8	1,159.9	2
1982	19	72.5	29	--	75.0	1,133.4	7
1983	19	84.9	29	--	85.0	2,082.6	4
1984	14	14.4	24	--	18.1	1,336.1	1
1985	15	33.7	20	--	35.4	1,455.0	2
1986	19	80.5	24	7.6	88.2	1,474.9	6
1987	21	103.2	26	4.1	108.7	1,417.8	8
1988	19	97.4	24	8.9	108.4	2,156.1	5
1989	19	36.2	28	15.4	51.6	3,105.3	2
1990	19	161.8	29	6.0	167.8	4,011.6	4
1991	19	38.8	29	4.9	43.7	2,362.7	2
1992	17	130.2	22	11.1	141.3	3,070.3	5
1993	16	139.2	21	5.3	144.7	2,671.3	5
1994	15	46.9	30	10.8	57.7	1,996.2	3
1995	22	54.4 ³	29	6.7	61.1	2,159.5	3
1996	24	60.1	29	1.0	61.1	2,905.8	2
1997	24	20.3	30	4.6	24.9	2,748.1	1
1998	24	24.4	31	0.0	24.5	2,304.9	1
1999	24	39.7	31	0.0	39.7	1,880.5	2
2000	29	30.4	34	0.0	30.5	1,699.4	2
2001 ⁴	29	17.0	0	0.0	26.2 ⁵	2,888.4	1

1. Washougal Reef landings included in Area 2S landings until 1986.

2. Includes landings during sockeye seasons, Select Area fisheries, and John Day River shad fisheries in some years.

3. Experimental fishery with three boats.

4. Catch statistics preliminary.

5. Includes shad caught in experimental tangle net permit fishery for spring chinook.

Table 18. Season Dates, Gear Restrictions, and Commercial Landings (in thousands) During Non-Indian Winter Seasons, 1970-2001.

Year	Season	Fishing Days	Mesh Size	Salmon Seasons			Large Mesh Sturgeon Seasons	
				Chinook	Steelhead	White Sturgeon	Chinook	White Sturgeon
1970-1974 Average		13	7-1/4" min.	14.4	4.2	1.5	--	--
Range	Feb 19-Mar 10	9-15		12.5-17.2	2.1-8.5	0.8-3.4	--	--
1975-1979 Average		8	8" min.	7.9	-- ¹	2.1	--	--
Range	Feb 26-Mar 11	5-11		4.7-13.5	--	1.0-2.7	--	--
1980	Feb 27-Feb 28	1	"	0.4	--	0.9	--	--
1981	Feb 23-Mar 3	6	"	7.4	--	3.7	--	--
1982	Feb 24-Mar 4	8	"	5.1	--	1.9	--	--
1983	Feb 16-Mar 4	12	"	7.6	--	1.9	--	--
1984	Feb 19-Mar 6	12	"	9.6	--	3.2	--	--
1980-1984 Average		8	"	6.0	--	2.3	--	--
1985	Feb 18-Mar 7	13	"	12.7	--	1.4	--	--
1986	Feb 23-Mar 6	8	"	9.0 ²	--	1.0	700	1,100
1987	Feb 18-Mar 2	8	"	11.2 ²	--	1.0	400	700
1988	Feb 16-Mar 6	15	"	18.3	--	1.7	--	--
1989	Feb 15-Mar 9	17	"	13.9	--	0.5	--	--
1985-1989 Average		12	"	13.0	--	1.1	--	--
1990	Feb 11-Mar 9	20	"	18.3	--	0.7	--	--
1991	Feb 10-Mar 1	13	"	12.6	--	0.8	--	--
1992	Feb 16-28	10	"	5.1	--	1.2	--	--
1993	Feb 16-19 & Mar 2-5	6	8" min.-9-1/4" max.	1.5	--	1.0	--	--
1994	Feb 15-Mar 9	15	" "	1.9	--	3.0	--	--
1990-1994 Average		13		7.9	--	1.3	--	--
1995	None	0	--	--	--	--	--	--
1996	Feb 18-22	3	8" min.-9-1/4" max.	0.1	--	0.6	--	--
1997	None	0	--	--	--	--	90	2,700
1998	None	0	--	--	--	--	12	2,700
1999	None	0	--	--	--	--	16	1,800
1995-1999 Average		<1		<0.1	--	0.1		
2000	Feb 13-29	8	8" min.-9-3/4" max below Kelley Point	0.5	--	0.8	17	1,500
2001 ³	Feb 26-Mar 9	6	" "	5.9	--	0.5	71	2,700

¹. Sale of steelhead prohibited since 1974.

2. *Does not include 700 chinook in 1986 and 400 chinook in 1987 taken in the late January-early February, large-mesh, sturgeon fishery.*
3. *Catch statistics are preliminary.*

Table 19. Winter Season Commercial Gillnet Landings in the Zone 6 Treaty Indian Fishery, 1977-2001.

Year	Season ¹	Peak Net Count	Numbers of Fish Landed ²			
			Chinook	Steelhead	Sturgeon	Walleye
1977-1981 Average Range	Feb 1-Apr 1 ³	170 87-246	1,400 30-2,800	3,700 2,600-4,900	110 20-220	--
1982-1986 Average Range	Feb 1-Mar 21 ^{4,5}	107 61-180	50 5-100	4,700 3,000-7,800	670 70-1,700	--
1987-1991 Average Range	Feb 1-Mar 21 ^{4,5}	183 124-299	100 0-280 ⁶	6,700 2,100-10,800	2,100 1,300-3,100	500 130-1,030
1992	Feb 1-Mar 21 (49 days)	161 (Mar 9)	47	4,600	625 ⁷	350
1993	Feb 1-Mar 20 (47 days)	78 (Mar 18)	0	2,400	2,000	180
1994	Feb 1-Mar 19 (34 days)	120 (Mar 16)	10	2,100	1,500	190
1995	Feb 1-Mar 18 (33 days)	83 (Mar 16)	13	2,100	1,950	730
1996	Feb 1-Mar 16 (32 days)	--	0	90	480	230
1997	Feb 3-Mar 21 (35 days)	--	14	220	2,600	190
1998	Feb 2-Mar 14 (30 days)	--	1	150	2,800	120
1999	Feb 1-Mar 20 (40 days)	--	1	89	1,700	160
2000	Feb 1-Mar 21 (49 days)	--	31	2	2,251	307
2001 ⁸	Feb 1-Mar 14 (41 days)	--	85	185	1,975	86

1. Season dates during 1994-1999 (except March, 1999) include weekend closures of 42-48 hours.

2. Treaty Indian sales to licensed fish buyers.

3. The 1980 season ended on March 15. The ending date for all other years was April 1.

4. The 1989 season ended on March 26 due to unusually cold weather during regular season. The ending date for all other years was March 21.

5. Walleye sales not accounted for prior to 1989.

6. Includes two late fall chinook in 1991.

7. Sturgeon sales prohibited beginning noon March 5.

8. Catch statistics preliminary.