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Department of*
**FISH and
WILDLIFE**

**JOINT STAFF REPORT
CONCERNING COMMERCIAL SEASONS
FOR STURGEON AND SMELT IN 2005**

Joint Columbia River Management Staff

*Oregon Department of Fish and Wildlife
Washington Department of Fish and Wildlife*

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INTRODUCTION

This report describes winter season sturgeon and smelt fisheries in the mainstem Columbia River and includes summaries of stock status, current management plans and guidelines, and past management actions and strategies. Additionally, this report contains information concerning smelt abundances and fisheries in Columbia River tributaries. Fisheries and season proposals described in this report will be considered at a public hearing of the Columbia River Compact to be held at 10:00 A.M. on Thursday, December 16, 2004 at the Washington Department of Fish and Wildlife office, 2108 Grand Blvd., Vancouver, Washington. The purpose of this hearing is to consider fishing seasons for the commercial harvest of sturgeon and smelt within the mainstem Columbia River. The Technical Advisory Committee (TAC) has reviewed this report. The TAC functions under *U.S. v. Oregon* and is comprised of biologists from state and federal fish management agencies and the Columbia River treaty Indian tribes.

STURGEON MANAGEMENT AND FISHERIES DOWNSTREAM FROM BONNEVILLE DAM

Stock Status

Sturgeon abundance in the lower Columbia River collapsed at the end of the 19th century due to over fishing, and remained depressed through the first half of the 20th century. The population began to rebound only after the adoption of management actions aimed at protecting broodstock, particularly the 6-foot maximum size limit regulation. Since that time, white sturgeon abundance in the lower Columbia River has increased significantly. The current white sturgeon population is considered to be healthy with over 1 million fish larger than 2 foot in length. In general, indicators of sublegal (<42 inches) and oversize (>60 inches) white sturgeon abundance remain stable at this time. Since 1995, white sturgeon abundance in the lower Columbia River has declined slightly, in contrast to modeling results which predicted that recent management actions would result in increased abundance (Table 1).

Joint state tagging and recovery programs were initiated in 1989 to provide data necessary to estimate the annual abundance of white sturgeon inhabiting the lower Columbia River (downstream of Bonneville Dam). Since 1989, with the exception of 1994, annual abundance estimates have been produced. Abundance estimates for harvestable size (42-60 inches) fish steadily increased from 1990 through 1995, then declined by an average of 4% per year through 2001 (Table 1).

Abundance was likely overestimated in 1996 and 1997 due to a mass emigration of white sturgeon from the lower Columbia River. Mark/recapture estimators are sensitive to significant numbers of tagged fish leaving the river for extended periods of time and tend to overestimate abundance in these situations. Tag recoveries from outside the Columbia River Basin indicate that this emigration began in 1996 and recovery data indicate that the emigrated white sturgeon returned to the lower Columbia River within a couple of years.

The unexpected population decline led researchers to re-examine data on white sturgeon growth rates; especially since eulachon, an important food resource for sturgeon, experienced exceptionally low returns during the same period. The analysis indicated that white sturgeon growth slowed by more than half from 1994 to 1995 and a decline of this magnitude profoundly affects modeled projected population growth and associated optimum sustained yield (OSY) harvest rates. White sturgeon growth rates have since gradually returned to normal levels.

Tagging of white sturgeon to estimate abundance typically occurred from May through August dating back to the 1980's. Tagging effort by month tended to lack consistency from one year to the next. Abundance estimates based on fish tagged during May and early June appear to provide the most consistent trends from one year to the next. Abundance estimates based on fish tagged in July and August tend to fluctuate significantly from year to year. A decision was made in 1999 and 2000 to redirect tagging efforts to May and June and drop tagging in July and August in order to reduce variability and produce more precise estimates. One caveat of the estimates based on May and June tag groups is that, although they result in less annual variability, they are typically lower than estimates based on July and August tag groups. It may be that the May and July tag groups over emphasize the estuary component of the population so that only a portion of the total population is estimated.

Tagging operations in 2001 were expanded in both time and area to address the concern that the estuary component of the population was being over-emphasized. This approach was continued during the 2002 and 2003 tagging seasons. Sturgeon were tagged in May, June, and July of 2002 and 2003 and tagging operations were expanded to include sites throughout the lower Columbia River.

The decline in the 42-60 inch population estimates ended in 2002. The estimated number of harvestable size white sturgeon in the lower Columbia River was similar in 2001 and 2002 (Table 1). An estimated 121,100 legal-size white sturgeon resided in the lower Columbia River in 2002-03 based on the May 2002 tag group. Results indicate a slight decrease in the 42-48 inch size class with an increase in the 48-60 inch size class.

Tagging efforts conducted in 2003 produced mixed results. The mark and recapture methodology used since the mid-1990's relied on an 18-21 month period following tagging to collect recapture data through fishery sampling. Primary recreational and commercial fishing periods were sampled twice over a two year period to gather enough recapture data to produce reasonably reliable abundance estimates. The recapture period for the 2003 tag group was cut short in 2004 following implementation of the 45-inch minimum size limit for the estuary recreational fishery. The 2003 estimate of 42-48 inch abundance is limited to recapture data collected from June 2003 through April 2004. Reliability of this estimate is being further analyzed. Preliminary recapture data for the 48-60 inch size class is available through September 2004 and results indicate the number of white sturgeon in this size class increased for the third straight year (Table 1).

The number of sturgeon kept per angler trip in the sport fishery also declined by an average of four to five percent per year from 1995 through 2000; however, catch rates increased in 2001 and 2002 which suggested that the decline in legal size white sturgeon abundance stopped. Sport catch rates in 2003 were down slightly from the record high levels of 2002 with an average for 2003 of 0.223 sturgeon kept per rod. Preliminary catch rate data is available for most of the 2004 recreational fishery. Unfortunately, this data cannot be compared to prior years catch rate data due to the conversion from the 42-inch minimum size limit to the 45-inch minimum size limit for the estuary recreational fishery.

Fishery Management Actions

Sturgeon management began in the late 1800's when excessive harvest levels caused the Columbia River white sturgeon population to collapse. Fishery management focused on the commercial fishery during the early 1900's and expanded to encompass sport fisheries beginning in 1940. Regulations for sport and commercial fisheries became increasingly restrictive and complex as the popularity of sturgeon as a target species increased for both fisheries. Current management actions are based on Joint State Agreements that were initiated in 1997.

Past Management Actions

Sturgeon management actions were initiated in 1899 with the adoption of a 4-foot minimum size limit for commercially landed sturgeon. During 1899-1908 commercial sale of sturgeon was prohibited entirely and beginning in 1909 commercial sturgeon sales were allowed during salmon seasons only. Between 1940 and 1989 fishery management actions primarily consisted of modifying catch limits for the sport fishery and legal size restrictions for sport and commercial fisheries. Most notable was the adoption of a 6-foot maximum size limit regulation in 1950. The purpose of the maximum size limit restriction was to protect broodstock and aid recovery of the Columbia River white sturgeon population that had collapsed near the end of the 19th century. Additionally, commercial sturgeon setline seasons were established in 1975 only to be replaced by target sturgeon gillnet seasons beginning in 1983. In 1989 target sturgeon gillnet seasons were also eliminated.

Since 1989, lower Columbia River white sturgeon fisheries have been managed for OSY. This management target is modeled to optimize harvest while allowing for the rebuilding of the lower Columbia River white sturgeon population to achieve the goal of 2,500 white sturgeon annually recruiting to age 26 when the population reaches equilibrium. Significant management actions taken during 1985-1996 to restrict catch rates within OSY limits included: 1) increasing the minimum size limit in recreational fisheries, 2) reducing the maximum size limit in all fisheries, 3) reducing daily and annual catch limits for recreational fisheries, and 4) adopting catch guidelines for commercial fisheries.

In 1985, sport regulations allowed for a daily catch limit of three fish between 36 and 72 inches with no annual catch limit. By 1996 sport regulations allowed for a daily catch limit of one fish between 42 and 66 inches with a 10 fish annual catch limit in effect. Sport catches had dropped from a peak of 62,400 in 1987 to a low of 17,300 in 1990 due in large part to these angling regulation changes. During 1992-1996 sport catches ranged between 33,500 and 45,100 in response to a rebounding population and continued regulation changes. Coincidentally, commercial catches dropped from a peak of 11,600 in 1986 to a low of 3,800 in 1991 due to reductions in fishing opportunities (Tables 2-4). Catch guidelines were adopted for commercial fisheries which limited catch to 6,000 white sturgeon during 1993 and 1994 and 8,000 white sturgeon during 1995 and 1996 (Table 3). These regulation changes culminated in a Joint State Management Agreement concerning lower Columbia River white sturgeon which was intended to guide Columbia River sturgeon management for future years.

Joint State White Sturgeon Management Agreements

The first Joint State Agreement was adopted in October 1996 when the Directors of the Oregon Department of Fish and Wildlife (ODFW) and the Washington Department of Fish and Wildlife (WDFW) signed a management plan titled "The Olympia Accord on Columbia River Sturgeon Fishery Management". This plan contained a variety of fishery regulations including: 1) size limits for recreational and commercial fisheries, 2) daily and annual catch limits for recreational anglers, 3) gear restrictions for recreational fisheries, and 4) the allowance of target sturgeon seasons in the commercial fishery. The cornerstone of this plan was the adoption of a three-year average harvestable number, which was intended to ensure that fisheries impacts did not exceed OSY limits. This harvestable number was further allocated 80% for recreational fisheries and 20% for commercial fisheries. Other fishery management actions enacted in conjunction with the newly adopted Olympia Accord included a 9³/₄-inch maximum mesh size restriction to reduce handle of oversize sturgeon in commercial fisheries and a 9-inch minimum mesh size restriction for all commercial target sturgeon fisheries to minimize handle of non-target species. The tenets of the plan also allowed for modifications to the Olympia Accord if new information suggested that a change was warranted. During the spring of 1999, abundance estimates for the 1996 and 1997 tag groups were less than expected. Based on this new information the harvestable number was

subsequently reduced from 67,300 to 50,000 beginning with 1999 fisheries; however, the 80% sport /20% commercial allocation remained unchanged.

In February 2000 the Directors of ODFW and WDFW agreed to extend the Joint State Agreement for an additional three-year period, 2000-2002. Major tenets included in the original Olympia Accord remained intact and the harvestable number and sport/commercial allocation remained unchanged from 1999 levels. Prior to initiation of the 2002 season, a preliminary abundance estimate was available for the 2000 tag group and the estimate did not increase as expected. Fishery managers considered reducing the total harvestable number for 2002; however, sport and commercial fisheries occurring in 2001 exhibited significantly improved catch rates over 1997-2000 and abundance estimates for 1999 and 2000 were biased low due to tagging operations (times and areas fished) in place during those years. With this contradictory information on the trend in abundance, no 2001 abundance estimate available, and 2002 as the final year of the 3-year agreement, fishery managers chose not to modify the harvestable number or the 80% sport/20% commercial allocation for 2002.

In December of 2002 the ODFW and WDFW readopted the Joint State Agreement for a third consecutive 3-year period, 2003-2005. The abundance estimate for the 2001 tag group was completed prior to extending the agreement. The 2001 tag group continued a trend of declining abundance estimates; therefore, the harvestable number set forth in the Joint State Agreement was reduced from 50,000 to 40,000. The 80%/20% sport/commercial allocation remained unchanged, which resulted in catch guidelines of 32,000 for sport fisheries and 8,000 for commercial fisheries. Other tenets of the Joint State Agreement remained unchanged from previous agreements.

<i>Major Tenets of the Joint State Agreement on Columbia River Sturgeon Fishery Management</i>
<ul style="list-style-type: none">✓ 3-year plan extended through 2003-2005✓ Management based on optimum sustained yield approach.✓ Plan can be modified in-season if new information suggests a change is warranted.
<u><i>White Sturgeon</i></u>
<ul style="list-style-type: none">✓ Absent significant update, annual harvestable number averages 40,000 for the 3-year period.✓ Allocation for fisheries in the lower Columbia River are 20% commercial and 80% sport.<ul style="list-style-type: none">➢ 8,000 for commercial fisheries➢ 32,000 for recreational fisheries✓ Commercial target seasons allowed as necessary to access allocation and maximize economic benefit consistent with conservation objectives for other species✓ Commercial size limit is 48-60 inches.✓ Recreational size limit is 42-60 inches with one per day and ten per year catch limits plus barbless hooks are required.
<u><i>Green Sturgeon</i></u>
<ul style="list-style-type: none">✓ Green sturgeon-only commercial seasons are not allowed but they may be taken concurrently during white sturgeon seasons provided the green sturgeon catch rate does not exceed harvest rates observed in past fisheries.✓ Commercial size limit is 48-66 inches.✓ Recreational regulations are the same as those for white sturgeon.

Recent Management Actions

Since adoption of the initial Joint State Agreement in 1996 the white sturgeon harvestable number has decreased from 67,300 during 1996-1997 to 50,000 during 1998-2002 to 40,000 in 2003. The declining harvestable number has created a need for increased fishery management restrictions for both sport and commercial fisheries. Deciding on the appropriate methods of restricting fisheries has been a continuous process and has resulted in fishery management protocols being developed for

both sport and commercial fisheries.

Sport fishery management required sturgeon retention prohibitions in 1995 and again in 2002. With the sport white sturgeon catch guideline being reduced from 40,000 to 32,000 in 2003 it was expected that additional retention restrictions would be required in 2003. Public meetings were held and sport sturgeon regulations were considered at several OFWC and WFWC meetings; however consensus could not be reached regarding specific seasons for 2003-2005. The OFWC and WFWC did however reach consensus on sport fishery objectives that are intended to guide season development for 2003-2005. In addition to management objectives the OFWC and the WFWC also considered allocation of the sport fishery catch guideline between the areas downstream (estuary) and upstream (non-estuary) of the Wauna powerlines. Ultimately, the Directors of ODFW and WDFW reached agreement regarding sturgeon allocation for sport fisheries in the lower Columbia River.

<i>Protocol for Regulations Regarding White Sturgeon Retention in Sport Fisheries During 2003-2005.</i>
<p style="text-align: center;">Fishery Objectives</p> <ul style="list-style-type: none">✓ Minimize emergency inseason action.✓ Balance catch between estuary and non-estuary and maintain diverse sport fishing opportunities.✓ Maintain fishery monitoring and management capabilities. <p style="text-align: center;">Catch Guideline and Allocation</p> <ul style="list-style-type: none">✓ Manage sport fisheries for a 30,000 catch to provide a management buffer, provide management flexibility, and reduce need for inseason emergency actions.✓ Allocate the 30,000 catch guideline 60% (18,000 fish) for fisheries below the Wauna powerlines and 40% (12,000 fish) for fisheries above the Wauna powerlines.✓ Retention restrictions include Youngs Bay and the Willamette River upstream to Willamette Falls.

The reduced commercial catch guideline also required additional restrictions on commercial fisheries in 2003 to ensure that landings did not exceed the 8,000 white sturgeon catch guideline. Public meetings were held on December 2, 2002 and January 23, 2003 to discuss issues regarding white sturgeon retention during 2003-2005 commercial fisheries. Additionally, a commercial white sturgeon retention and fishery protocol was considered at the December 18, 2002 Compact hearing. Based on the results of the public meetings and instructions received from the Compact the Joint Staff developed a white sturgeon fishery proposal and commercial white sturgeon retention protocol for consideration at the February 6, 2003 Compact hearing. At the February 6, 2003 hearing the Compact adopted a protocol for sturgeon fishery management as described below.

<i>Protocol For Management of White Sturgeon Retention in Commercial Fisheries During 2003-2005.</i>
<ul style="list-style-type: none">✓ Fisheries should be managed for white sturgeon catch expectations of 2,000 for the winter-summer timeframe (January-July), 2,000 for the early fall timeframe (August), and 3,600 for the late fall timeframe (September-October).✓ Landings during SAFE fisheries are not to exceed 400 white sturgeon for the entire year with winter/spring/summer fisheries not to exceed 300.✓ Allow some level of incidental sturgeon harvest to occur during all target salmon seasons.✓ Conduct limited target sturgeon fisheries during winter and early fall timeframes if feasible.✓ Conduct target sturgeon fisheries during October if necessary to access commercial allocation.✓ Adopt white sturgeon possession and landing limits if necessary to remain within season specific catch expectation or to provide white sturgeon for harvest during subsequent salmon seasons.✓ Until further discussion occurs with the OFWC and the WFWC regarding sturgeon allocation among individual commercial fishers, landings and possession limits will be in the form of per vessel limits and these limits will include both mainstem and Select Area fisheries.

✓ Joint Staff will conduct an annual post season evaluation of white sturgeon with industry.

Catch of white sturgeon in Select Areas is included in the annual commercial allocation of the harvestable number. Past management practices regarding white sturgeon catch in Select Areas have varied and were developed in consultation with participants of the Select Area commercial fisheries. Prior to 1997 no catch restrictions were in place. Beginning in 1997, white sturgeon catch in Select Areas was limited to 5% of the commercial white sturgeon allocation and this limit was subsequently increased to 10% for 1998 and 1999. Sales of sturgeon were allowed in the Youngs Bay fisheries only prior to 1998 and in all Select Area fisheries thereafter. On April 12, 2000, commercial fishing industry leaders met to discuss the harvest of white sturgeon in Select Areas, as it relates to the commercial allocation, and arrived at the following consensus points:

- 1) Select Area fisheries should be managed as salmon directed fisheries.
- 2) Use of gear (mesh size) restrictions should be adopted to target salmon, not sturgeon. New gear restrictions should be phased in to limit economic impact on participating fishers.
- 3) Enforcement presence is encouraged to ensure compliance with gear restrictions.

The adoption of the sturgeon retention management protocol for 2003-2005 superceded previous agreements regarding Select Area fisheries and beginning in 2003 Select Area sturgeon retention was managed consistent with the adopted protocol for management or retention of white sturgeon in commercial fisheries during 2003-2005.

Sturgeon Fisheries

Reduced salmon fishing opportunities during the last few decades have greatly increased the popularity and importance of sturgeon for both commercial and sport fisheries. The healthy white sturgeon population allowed the commercial industry to develop stable, dependable fisheries in a time when commercial salmon fishing opportunities had been drastically reduced. Similarly, a lack of predictable, dependable salmon sport fisheries have resulted in a large increase in the popularity of sturgeon as a sport fish. In recent years reduced white sturgeon catch guidelines have impacted the stability of commercial and sport sturgeon fisheries with increased white sturgeon sport catch rates and increased commercial salmon fishing opportunities exacerbating the situation and resulting in increased complexity of adopted seasons for both fisheries.

Past Commercial Sturgeon Seasons

After the population collapsed in the late 19th century, the commercial catch of sturgeon remained very low until the mid-1940's. Catches did not exceed 5,000 fish annually until 1969 and since then have exceeded 5,000 fish annually in all years, except in 1991. Catches peaked in the late 1970's and early 1980's when annual landings ranged between 9,400 and 22,800. During the 1990's catches have ranged from a low of 3,800 in 1991 to a high of 13,900 in 1998 (Table 4).

Since the turn of the century the commercial sturgeon fishery has undergone many regulation changes beginning with a ban on sturgeon sales from 1899-1908. Beginning in 1909, regulations were liberalized to allow sturgeon sales, but only during salmon seasons. Sturgeon setline fisheries were instituted in the mid-1970's only to be phased out by the mid-1980's. Target sturgeon gillnet seasons were adopted in the mid-1980's to replace setline seasons but were subsequently eliminated in 1989. During the 1990's the maximum size limit for white sturgeon was reduced twice from 72 inches to 66 inches in 1993 and from 66 inches to 60 inches in 1997. Annual catch guidelines were adopted beginning in 1993 and were formalized with the adoption of the Olympia Accord in 1997. Under the Olympia Accord, target sturgeon seasons were once again allowed for the purpose of providing the commercial fishery access to the commercial catch guideline while minimizing impacts on listed or depressed salmon stocks and improving market stability for white sturgeon.

<i>Mainstem Commercial Seasons Harvesting White Sturgeon During 1997-2004 and Associated Catches.</i>
Winter
Target sturgeon fisheries consisted of two 30-hour fishing periods per week during the 2 nd week of January through mid-February in all of Zones 1-5 during 1997-2002. In 2003 only three 30-hour fishing periods (one per week) followed by one 12-hour period occurred during January. In 2004, five 24-hour fishing periods occurred from mid-January through mid-February. During 2002-2004, some sturgeon catch also occurred in spring chinook fisheries adopted for the mid-February through March time frame. Landings of white sturgeon during these fisheries have ranged between 1,500-3,100 fish.
Summer
During 2004, two 12-hour fishing periods occurred during late-June and early-July targeting sockeye and summer chinook. Only nine white sturgeon were harvested.
Early August
During 1998-2001 target sturgeon fisheries occurred during the first week of August and consisted of a 12-hour fishing period below Longview Bridge. In 2002 a catch of 1,390 white sturgeon occurred during chinook seasons in early August. Landings during 2002 were limited due to the adoption of a five white sturgeon per vessel per day possession and sales limit during the first three fishing periods and prohibition of sturgeon possession and sales during the final two fishing periods. In 2003, a seven sturgeon per vessel per calendar week possession and sales limit was in place during four 12-hour chinook fishing periods which resulted in a catch of 2,170 white sturgeon. In 2004, four 12-hour fishing periods occurred in Zones 1-5 with a five sturgeon per vessel per calendar week possession and sales limit resulting in a harvest of 1,550 white sturgeon. White sturgeon landings ranged between 1,300-4,700 during 1997-2004.
Late August
During 1997-2003, target chinook seasons occurred in Area 2S or expanded Area 2S during late August. White sturgeon catch occurs during this salmon fishery and landings are typically low. A seven sturgeon per vessel per calendar week possession and sales limit was in place during 2003. In 2004, four 12-hour fishing periods occurred during mid to late-August with varying area and possession limit restrictions (see Table 5) resulting in a harvest of 917 white sturgeon. White sturgeon landings during 1997-2004 ranged between 60-1,020 fish.
Late Fall
Fisheries occurred during mid-September through the end of October and included both salmon and sturgeon directed fisheries during most years. Target chinook and/or coho fisheries occurred through the late fall timeframe while target sturgeon seasons typically occurred during the last three weeks of October. Salmon seasons typically targeted on coho with chinook seasons varying depending on remaining impacts to listed species. Target sturgeon seasons were adopted in 1997-2000. Due to excessive landings earlier in the year sturgeon sales were prohibited in 2001. In 2002 a five white sturgeon per day per vessel possession and sales limit was in effect for nearly the entire late fall season except for the final 3-day fishing period when sturgeon possession and sales were prohibited. In 2003 sturgeon possession and sales limits ranging from three to nine per vessel per calendar week were in place during the entire late fall time period. A possession and sales limit of five white sturgeon per vessel per calendar week was in place for most of the 2004 late fall period but was increased to 10 fish during the final three fishing periods resulting in a 2004 late fall harvest of 3,219 white sturgeon. Late fall season landings have ranged between 3,200 and 8,100 during 1997-2004, excluding 2001 when sales were prohibited after late-August.

Since the adoption of the first Joint State Sturgeon Management Agreement in 1997, commercial fisheries have been managed to remain within catch guidelines while maximizing economic benefit consistent with conservation objectives for other species. Commercial fisheries have been developed with input from industry representatives and resulted in predictable and consistent commercial fishing opportunities during 1997-2000. Landings during the winter and early August seasons in 2001 exceeded past years' (1997-2000) landings, which in combination with the reduced catch guideline of 9,100 white sturgeon, resulted in the white sturgeon catch guideline being reached in late August and sturgeon retention being prohibited thereafter (Table 3). During 2002 individual vessel possession and sales limits were adopted during early and late fall seasons in an attempt to maintain moderate weekly landings of sturgeon through the end of October. No target sturgeon seasons were adopted during the fall of 2002 with all landings occurring during salmon fishing seasons. During 2003, non-Indian commercial fisheries were managed for an 8,000 white sturgeon catch guideline with catch expectations of 2,000 fish for the winter-summer timeframe (January-July), 2,000 for early fall fisheries (August), 3,600 for late fall (September-October), and a

maximum harvest of 400 white sturgeon in Select Area fisheries. To achieve this and maintain sales of sturgeon throughout the late fall season, possession and sales limits of three to nine white sturgeon per vessel per calendar week were implemented during most mainstem winter, early fall, and late-fall salmon fisheries and some Select Area fisheries.

2004 Commercial Fishery

Commercial fisheries in 2004 were initiated with a winter target sturgeon season that consisted of five 24-hour fishing periods between January 13 and February 11. Gear regulations included 9-inch minimum and 9³/₄-inch maximum mesh size restrictions to target the fishery on sturgeon and minimize handle of spring chinook and steelhead. The 2004 winter target sturgeon fishery resulted in a catch of 1,696 white sturgeon compared to the 1997-2003 average of 2,500 white sturgeon.

A commercial demonstration salmon season soon followed and consisted of nine fishing periods between March 2 and March 30, 2004 for the purpose of selectively harvesting hatchery-produced spring chinook. The demonstration fishery was restricted to a 9-inch minimum mesh size during the first six periods (through March 19) and a 4¹/₄-inch maximum mesh size for the final three periods. Limited soak times and use of recovery boxes were required during all fishing periods. In addition to salmon, the sale of sturgeon was allowed with a three sturgeon possession and sales limit per vessel during each calendar week. The catch of sturgeon in this fishery was 174 white sturgeon landed, bringing the mainstem winter season sturgeon catch total to 1,870 (Table 5).

A commercial gill net fishery took place during the summer season of 2004 for the purpose of harvesting sockeye, adipose fin-clipped summer chinook, adipose fin-clipped coho, shad and sturgeon. Two 12-hour fishing periods took place during daylight between June 30 and July 2 in Zones 1-3 up to the Longview Bridge. The fishery required use of 4¹/₂-inch maximum mesh size, single wall floater gill net, with the net length not to exceed 175 fathoms. Use of a recovery box and net soak times of less than 45 minutes were also required. During this fishery 700 sockeye, 200 chinook and 9 sturgeon were landed. No limits were set for the number of sturgeon landed for each vessel.

The early fall fishery consisted of eight fishing periods throughout August. The first season consisted of four nighttime fishing periods occurring during August 3-11 in the mainstem Columbia River in Zones 1-5. The second season occurred during August 16-26 with the first nighttime fishing period in Zones 2-5 and the second fishing period in Zones 3-5 of the mainstem Columbia River. The last two nighttime fishing periods occurred in Zones 4-5. All fishing periods utilized an 8-inch minimum and 9³/₄-inch maximum gear restriction, with the exception of the final two periods, which required a 9-inch minimum mesh size. August (early fall) sturgeon catch was to be managed for a catch of 2,000 white sturgeon for the purpose of reserving enough white sturgeon for other anticipated fall seasons. A five sturgeon possession and sales limit per vessel during each calendar week was imposed during the August seasons in an attempt to remain within the 2,000 fish catch limit. An estimated 11,255 fall chinook, 43 coho, 2,467 white sturgeon, and 6 green sturgeon were landed in August mainstem seasons (Table 5).

Late fall fisheries began on September 16 and were completed on October 29, 2004. Late fall fisheries targeted chinook and hatchery-produced coho salmon while managing sturgeon catch to remain within the 3,600 white sturgeon commercial catch set aside for this late fall season. Sturgeon possession and sales limits (five to ten per calendar week) were continued into late fall fisheries and as a result, sturgeon retention and sale was allowed throughout the entire late fall season. Late fall fisheries generally occurred in all five commercial fishing zones with area closures in place during some early and late fishing periods to minimize impacts on wild coho and chum. Late fall fishing seasons totaled 20 fishing days and resulted in estimated landings of 30,000 fall chinook, 70,000 coho, 55 chum, 3,200 white sturgeon, and 51 green sturgeon (Table 5).

Select Area fisheries, designed to target returning salmon reared and released from net pens in off-channel areas, were conducted throughout the year. Select Area salmon target fisheries occurred in Youngs Bay during winter, spring, summer, and fall time frames; in Blind Slough during winter, spring, and fall time frames; in Tongue Point and Deep River during spring and fall time frames; and in Steamboat Slough during the fall time frame. The Select Area fishery guideline for sturgeon allocation for the entire year was 400 sturgeon and not to exceed 300 sturgeon during winter, spring and summer combined. As in the mainstem fisheries, sturgeon sales were allowed throughout all Select Area fishery seasons. Weekly limit guidelines coincided with those set in the mainstem fisheries. Winter, spring and summer landings totaled 184 white sturgeon with an additional 117 white sturgeon landed during the fall season. No green sturgeon were harvested in Select Area fisheries during 2004.

An estimated 7,866 white sturgeon were landed in the combined mainstem and Select Area commercial fisheries in 2004, which is slightly less than the commercial catch guideline of 8,000 white sturgeon (Table 3). Mainstem fisheries landed 96% of the white sturgeon catch or 7,565 fish while Select Area fisheries landed 4% of the white sturgeon catch or 301 fish. An estimated 57 green sturgeon were landed during fall fisheries in 2004, with 6 from the August mainstem fishery, and 51 from the late fall mainstem fishery. Commercial fisheries occurring in the mainstem Columbia River and associated sturgeon catches are summarized below.

2004 Recreational Fishery

The 2003-2005 Joint State Sturgeon Fishery Management Agreement set the annual sport sturgeon catch guideline at 32,000 fish and allocated 60% of the catch to the estuary and 40% to non-estuary areas. Since a year-round sport fishery could potentially catch 50,000 fish, the Joint Staff met with sport fishing industry representatives during late fall of 2003 and early winter of 2004 to craft fishery proposals for 2004. The 2003 sport season had produced a catch of 31,932 white sturgeon below Bonneville Dam. Sport fishing industry representatives expressed the desire for a limited number of retention days per week to allow a retention fishery for as many months as possible. Representatives also expressed a desire to extend the estuary fishery into July for as long as possible. Testimony for the estuary fishery favored changing size limits in an attempt to extend the fishery over limiting days open to retention. The industry's preference was to increase the minimum size limit to 45". Staff modeled the effect of the size limit change on the recruitment of broodstock and determined a 17% reduction in the total allowable catch was necessary to offset the harvest of larger fish. This resulted in a decrease in the catch guideline for the estuary fishery from 19,200 to 16,000.

The Oregon and Washington Joint Sturgeon Staff developed options to manage the 2004 fishery for a catch of 27,000, not to exceed a maximum harvest guideline of 28,800 fish. The management protocol included in-season catch allocations of 15,000 for the area below Wauna and 12,000 for the area above Wauna, with an additional 1,800 fish buffer. This buffer was not allocated to either area, but was kept in reserve to allow for orderly management changes and to prevent exceeding the catch guideline. These sport fishery options were considered at the January 15, 2004 Joint State meeting when the states adopted sport sturgeon fishing regulations for 2004. Regulations for the Columbia River above the Wauna power lines (River Mile 40) included all adjacent Washington tributaries and the Willamette River downstream of Willamette Falls (including Multnomah Channel). During the periods February 1-July 31 and October 1-December 31, sturgeon retention was only allowed three days per week on Thursday, Friday, and Saturday. Sturgeon retention above Wauna was prohibited from August 1 through September 30. For the area below the Wauna power lines, adopted regulations allowed sturgeon retention seven days per week during the periods January 1-April 30 and May 15-July 23. For the May 15-July 23 retention season, the minimum size limit was increased from 42" to 45". Sturgeon retention below Wauna was prohibited from May 1 through May 14 and July 24 through December 31 (catch and release of sturgeon could continue during all

retention closures). The annual bag limit was reduced from 10 to 5 fish effective January 1, 2004 in Oregon and April 1, 2004 in Washington.

The 2004 sport sturgeon fishery got off to an unusually slow start in the Columbia with only 833 fish caught during the first three months of the season. This is about half of the 10 year average catch for the months of January through March. This low catch is probably the result of below average water temperatures in the Columbia during those months. However, the sturgeon catch in the Willamette River, where water temperatures were slightly higher, exceeded historic background levels by approximately 2,500 fish. By April, above Wauna catches had increased, and at the end of July, 4,733 sturgeon (not including the 2,500 Willamette fish) had been harvested in this area.

The season below Wauna began as expected with only 53 white sturgeon caught through the end of April. The estuary fishery reopened on May 15 and catch rates were excellent. The estuary fishery intensified in late May and by June 27, 13,400 fish had been harvested (compared to the area allocation of 15,000), and it was clear that modifications to the below Wauna regulations would be necessary. At a Joint State hearing on June 29, the states decided to close the fishery below Wauna to retention effective July 4. The cumulative estuary catch of 15,050 through July 3 slightly exceeded the target catch of 15,000.

The sport sturgeon season above Wauna reopened to the retention of sturgeon on October 1 and catch rates were very good, particularly in the Gorge area, resulting in an October catch of 3,744 fish. The projected catch for the above Wauna fishery through December 31 was 9,977 fish from 67,755 angler trips. The preliminary total catch estimate for the Columbia River below Bonneville Dam in 2004 was 27,527 white sturgeon (including the 2,500 fish caught in the Willamette) and 29 green sturgeon from 109,662 angler trips (Table 2).

Size Components of Catch and Harvest Shares

The 2004 sport catch in legal foot-length groups is projected to be 53% (14,600 fish) in the 3-4 foot size class (42-inch minimum allowable size, except 45-inch minimum below Wauna during May 15-July 3) and 47% (12,900 fish) in the 4-5 foot size class, as compared to the 1997-2003 averages of 77% and 23%, respectively (Table 6). The 4-5 foot size class that comprised 47% of the total catch is the largest percentage on record, more than doubling the recent 7-year average. The 12,900 sturgeon catch for this size group is also the highest on record. As has been the case since 1997, all commercial harvest of white sturgeon in 2004 was within the 4-5 foot size class due to size limit regulations.

The Joint State Agreement sets forth a harvestable number that is allocated 80% for sport fisheries and 20% for commercial fisheries. The harvestable number of 67,300, in effect during 1997 and 1998, was allocated 55,840 for sport fisheries and 13,460 for commercial fisheries. Sport fisheries during 1997 and 1998 were managed to maintain a year round retention fishery through reduced daily and annual catch limits; therefore, catches during these years did not reach the catch guideline. During these same years the commercial fishery did reach its catch guideline and sharing percentages averaged 75% sport and 25% commercial. The harvestable number was reduced to 50,000 in 1999 but the sport/commercial allocation remained unchanged which resulted in a 40,000 catch guideline for sport fisheries and a 10,000 catch guideline for commercial fisheries. In 2003 the harvestable number was reduced to 40,000, but the sport/commercial allocation in place since 1999 remained unchanged. Fishery-specific maximum catch guidelines in 2004 were 28,800 for sport fisheries and 8,000 for commercial fisheries. Sport fisheries were able to maintain a year-round retention fishery in 1999 but not during 2000-2004. Since 1999 sport and commercial fishery catch guidelines have been reached each year and sport and commercial shares have averaged 80% and 20%, respectively. During the eight years (1997-2004) of management under Joint State agreements, harvest shares have averaged 78.5% sport and 21.5% commercial (Table 4).

2005 Non-Indian Sturgeon Fisheries Recommendations

Commercial Fisheries

Due to the ongoing negotiations regarding the commercial sturgeon retention protocol the Joint Staff had not developed a commercial winter season target sturgeon fishery proposal for 2005 at the time this report was written. The currently adopted commercial sturgeon retention protocol allocates 2,000 white sturgeon to winter fisheries, which includes landings during spring chinook fisheries occurring in February and March. During 1999-2002 the winter season consisted of two 30-hour periods per week from the second week of January through mid-February; however, landings in those fisheries generally exceeded 2,000 white sturgeon. The 2003 white sturgeon season consisted of one 28-hour period per week and a reduced period of 12 hours during the final week of the season, which occurred from January 7 through January 28. Landings for the 2003 season totaled 1,500 white sturgeon. Like 2003, the 2004 white sturgeon season was managed in accordance with the commercial sturgeon retention protocol, which included a harvest allocation of 2,000 sturgeon for the commercial winter season. One 24-hour fishing period occurred each week between January 13 and February 11, 2004. Landings for the 2004 winter sturgeon season totaled 1,696 sturgeon with an additional 174 white sturgeon landed during the 9-day winter spring chinook fishery that occurred from March 2 through March 30. In accordance with the commercial white sturgeon retention protocol a post-season meeting will occur on December 2, 2004 to evaluate the currently adopted protocol and develop a white sturgeon fishing plan for 2005. Based on the results of this meeting the Joint Staff will provide a season recommendation and/or modifications to the currently adopted commercial sturgeon retention protocol for consideration at the December 16, 2004 Compact hearing.

Sport Fisheries

The management strategy adopted for 2004 sport fisheries was the result of negotiations between the Directors of the Oregon and Washington Departments of Fish and Wildlife. The retention restrictions resulting from these negotiations were in effect for 2004 only. Discussions regarding sport retention restrictions for 2005-2006 are ongoing; therefore, the Joint Staff has not developed proposals for the 2005 sport fishery at this time. The Joint Staff will propose sport fishery recommendations at the December 16, 2004 Joint State meeting. Fishery recommendations will be consistent with the aforementioned results of negotiations concerning 2005 sport fishery retention restrictions and fishery management objectives and catch allocations adopted by the Oregon and Washington Fish and Wildlife Commissions and the Directors of the Oregon and Washington Departments of Fish and Wildlife.

STURGEON MANAGEMENT AND FISHERIES UPSTREAM FROM BONNEVILLE DAM

Fisheries and Gear

Sturgeon fisheries between Bonneville and McNary dams (Zone 6) consist of treaty Indian commercial and subsistence fisheries and non-Indian sport fisheries. Non-Indian fishing is restricted to hook and line sport fishing only, while Treaty Indian commercial fishing is conducted with three types of gear: hook and line, setlines, and gill nets. Treaty Indian fishers may take sturgeon for subsistence purposes year-round.

Each year the Columbia River Compact and the tribes set specific seasons for commercial setline and gillnet fisheries. Setline seasons are considered target sturgeon fisheries, while gillnet seasons are usually set to target on salmon or steelhead. Although gillnet seasons typically target salmonids, in recent years the winter gillnet season has shifted to a target sturgeon season due to poor prices for steelhead. Treaty Indian subsistence seasons are open the entire year, as were sport seasons prior to 1994. Since 1994 the sturgeon sport fishery has been managed under a quota, and once the quota is reached catch-and-release regulations go into effect for the balance of the year.

Stock Status

The healthy white sturgeon population in the lower Columbia River historically ranged into Zone 6 waters; however, with the construction of Bonneville Dam in 1938 the population became segregated and fish residing above Bonneville Dam were no longer able to migrate between freshwater and marine environments. The population became further segregated with the completion of McNary Dam in 1953, The Dalles Dam in 1957, and John Day Dam in 1968 and functionally-separate populations now exist in Bonneville, The Dalles, and John Day pools. Inaccessibility to the marine environment and habitat alterations, primarily due to hydroelectric development, have rendered these populations less productive than those residing below Bonneville Dam.

Abundance of white sturgeon populations in the three Zone 6 reservoirs is estimated every three to five years to monitor the effects of hydro-system mitigation activities and OSY harvest strategies. Mark-recapture population estimates are derived using directed sampling with gill nets and set lines. Significant harvest reductions were enacted beginning in 1988 and populations in all three reservoirs increased as a result of reduced catch and other mitigation efforts. The most recent assessments estimated the abundance of 3-6 foot sturgeon to be 34,220 in Bonneville Reservoir, 20,600 in The Dalles Reservoir, and 14,200 in John Day Reservoir (Table 7).

Past Seasons, Landings, and Management

Commercial white sturgeon catch in the Zone 6 management area increased significantly from a catch of only 600 fish in 1977 to a catch of 11,100 in 1987. Coincidentally sport catches also peaked in 1987 with an estimated 6,700 white sturgeon kept (Table 8). Concern over increasing catch rates and declining white sturgeon abundance prompted representatives from Oregon, Washington, and the Columbia River treaty Indian tribes (Nez Perce, Umatilla, Warm Springs, and Yakama) to form the Sturgeon Management Task Force (Task Force) in 1987. The purpose of the Task Force is to review the status of sturgeon and provide harvest management recommendations for fisheries occurring in the Zone 6 management area. The Task Force's initial action was to recommend that treaty Indian seasons be shortened and the minimum size limit in the sport fishery be increased. The Task Force's recommendations were adopted and took effect in 1988.

Beginning in 1988 treaty Indian setline seasons were reduced from 10 months to four months and sturgeon sales were generally limited to winter seasons, as per the Task Force's recommendations. Sport fishery regulation modifications included a two fish daily catch limit and 40-72 inch size limit restrictions, which combined to reduce sport catch by 40%. Since 1991 Task Force recommended catch guidelines have been adopted for treaty Indian commercial fisheries and recreational fisheries in the Zone 6 management area. During 1991-1996, catch guidelines of 1,250 for Bonneville Pool, 300 for The Dalles Pool, and 100 for John Day Pool were in effect for treaty Indian commercial fisheries while Zone 6 recreational fisheries operated under catch guidelines of 1,350 in Bonneville Pool, 100 in The Dalles Pool, and 100 in John Day Pool (Table 9).

During 1991-1996 the management intent for Zone 6 was to limit harvest rates of 3-6 foot sturgeon in all fisheries to 15% in Bonneville Pool and 10% each in The Dalles and John Day pools. Fishery plans included providing treaty Indian subsistence catch accountability and limiting sturgeon sales in fisheries to levels consistent with the intended harvest rate reduction plan. Retention of sturgeon in Zone 6 sport fisheries was prohibited for the first time on September 16, 1994, after catch was projected to exceed Task Force guidelines. Sport fishery retention closures have been enacted every year since the first closure in 1994 (Table 10). Sport anglers may continue to fish for sturgeon and release them unharmed when catch guidelines are reached and retention is prohibited.

Guidelines are based on OSY harvest rates and current stock assessments. In March of 1997, the Task Force agreed to pool-specific management with catch guidelines, based on OSY, that are designed to allow for adequate survival of juvenile sturgeon through fisheries to increase the number of harvestable and broodstock fish. At this time the states and tribes reassessed the status of Zone 6 sturgeon stocks and modeled new minimum and maximum size limits for OSY management. Based on these analyses, the states and tribes elected to reduce the maximum size limit in all Zone 6 sturgeon fisheries to 60 inches in order to realize a larger catch; consequently, new OSY harvest guidelines were established. New catch guidelines were 1,300 in Bonneville Pool, 400 in The Dalles Pool, and 1,160 in John Day Pool for treaty Indian commercial fisheries and 1,520 in Bonneville Pool, 200 in The Dalles Pool, and 560 in John Day Pool for sport fisheries. Additional data concerning The Dalles Pool sturgeon population prompted adoption of increased catch guidelines of 1,000-1,200 for treaty Indian commercial and 600-800 for sport fisheries during 1998-2000. In 2001 guidelines for The Dalles Pool were reevaluated and the Task Force agreed to use the midpoint of the ranges that were in effect during 1998-2000. Based on the 2001 abundance estimate, the guidelines for John Day Pool were reduced to 335 for treaty Indian commercial and 165 for sport fisheries beginning in 2002 and based on the 2002 abundance estimate, the guidelines for The Dalles Pool were reduced to 900 for treaty Indian commercial and 400 for sport fisheries beginning in 2003. Overall Zone 6 allocation adjustments were made in response to the change in The Dalles Pool catch guidelines, which resulted in new guidelines for Bonneville Pool of 1,200 for treaty Indian commercial and 1,700 for sport fisheries beginning in 2003 (Table 8). Based on the 2003 abundance estimate and the low commercial harvest for the prior two years, the guidelines for Bonneville Pool were reduced to 400 for treaty Indian commercial and 700 for sport fisheries beginning in 2004. Current sturgeon size limits are 48-60" for all fisheries in The Dalles and John Day pools, 45-60" for treaty Indian fisheries in Bonneville Pool, and 42-60" for the Bonneville Pool sport fishery.

Allocation is approximately 44:56 between sport and tribal fisheries, although reservoir-specific guidelines are shaped to meet fishery demands. For instance, the sport fishery is allowed a greater share of the Bonneville Pool catch while the treaty Indian fishery is allowed a greater share of the catch in The Dalles and John Day pools. Treaty Indian fishers may continue to take sturgeon for subsistence purposes after commercial seasons have been completed and this catch is not included in the aforementioned commercial catch guidelines. Subsistence catch is estimated through a monitoring program conducted by the Yakama Nation and for the past decade catch has averaged 412 sturgeon annually.

2004 Sturgeon Fisheries

During 2004, Zone 6 commercial and sport fisheries were managed in accordance with catch guidelines set forth by the Task Force (Table 9). As has been the case since 1997, the Columbia River tribes adopted 48-60 inch size limit restrictions for sturgeon fisheries occurring in The Dalles and John Day Pools in 2004. In Bonneville Pool they adopted a 45-60 inch size limit. Fisheries occurring in Zone 6 in 2004 included treaty ceremonial and subsistence (C & S), treaty Indian commercial setline and gillnet, and non-Indian sport fisheries. All guidelines were met by mid July, and a total of 1,748 white sturgeon were landed in treaty Indian commercial fisheries and 1,248 white sturgeon were kept in non-Indian sport fisheries (Table 9).

2004 Setline Fisheries

The treaty Indian winter setline fishery was open from January 1-31 in all three reservoirs, but produced no catch of white sturgeon. By the completion of the winter commercial gillnet season, the sturgeon catch guideline was reached in all three pools, and no additional setline seasons were adopted (Table 11).

2004 Gillnet Fishery

The treaty Indian winter season commercial fishery was open during February 2 through March 10 in Bonneville and The Dalles pools, and February 2 through March 21 in John Day Pool. It produced white sturgeon landings of 464 in Bonneville Pool, 975 in The Dalles Pool, and 309 in John Day Pool. The catch guideline for Bonneville Pool was reduced in 2004 from 1,200 to 400, which resulted in the guideline being reached by the end of the winter season (Table 12). Sales of sturgeon caught during fall gillnet commercial fisheries were not allowed in 2004, as has been the case since 1990.

2004 Subsistence Fishery

Treaty Indian subsistence sturgeon fishing is open year-round, with small sanctuary closures around dams. Subsistence fishery catch in 2004 was 268 white sturgeon (Table 8).

2004 Sport Fishery

Sport retention seasons for each Zone 6 pool began January 1 and remained open until Task Force catch guidelines were projected to be reached. In 2004 the Task Force catch guideline was decreased from 1,700 to 700 in Bonneville Pool. Catch guidelines were reached in Bonneville Pool on June 26, in The Dalles Pool on June 28, and in the John Day Pool on July 12 with catches of 671,424, and 153, respectively (Table 9). In 2004, retention was prohibited in Bonneville Pool for just under six months, as compared to 2003 (just over 6 months), 2002 (2 months), 2001 (4½ months), and 1995-2000 (8-9 months). Retention was prohibited in The Dalles Pool effective June 28, which was one week later than in 2003 (June 21), resulting in the second longest sport season since 1994. The John Day Pool retention fishery occurred year-round during 1999-2001, for eight months in 2002, for seven months in 2003, and for 6.5 months in 2004.

2005 Treaty Indian Sturgeon Fisheries Recommendations

As per permanent regulations, treaty Indian commercial setline seasons are scheduled to begin January 1, 2005 and to end January 31, 2005. The Task Force is expected to meet in January to review 2004 harvests and agree to management options for 2005, including catch guidelines.

SMELT MANAGEMENT AND FISHERIES

Stock Status

Eulachon smelt annually ascend the Columbia River to spawn in the mainstem Columbia River and its tributaries downstream of Bonneville Dam. Typically, the fish enter the Columbia River in early to mid-January, followed by tributary entry in mid to late January. Smelt annually ascend the Cowlitz River, with inconsistent runs entering the Grays, Elochoman, Lewis, Kalama, and Sandy rivers. Peak tributary abundance is usually in February, with variable abundance through March, and an occasional showing in April.

Smelt return to freshwater at 3, 4, and 5 years of age. Soon after freshwater entry, spawning occurs in the lower Columbia River Basin. The majority of the tributary spawning occurs in the Cowlitz River, but has been known to occur in Grays, Elochoman, Kalama, Lewis, and Sandy rivers also. Smelt are broadcast spawners preferring areas with a coarse sandy bottom. Females produce 20,000-60,000 eggs and the adults die following spawning. Eggs, which are sticky, settle to the bottom, and incubate for about 30-40 days dependent on water temperature. Young smelt larvae are about 4 mm in length and drift with the current to sea.

Columbia River Returns

The smelt fishery can be traced back to the late 1800's and landings can be used to index relative annual abundance. Commercial landings do not necessarily lend themselves to developing annual population estimates because consumer demand for the fish and adopted seasons affect the effort put forth by the fishers, which in turn affects the total landings. Fisheries are valuable however; in ascertaining the relative strength of the run from year to year. Adopted fishing seasons and effort expended by commercial fishers can also affect catch per unit effort (CPUE) data, as measured in pounds per delivery from the commercial fishery; however, this data is still valuable for describing relative variations in annual run strength. For instance, smelt returns have increased dramatically since 2000 and this has been reflected in commercial landings and CPUE data collected during 2001-2003 (Tables 13-14). Commercial landings and CPUE data may also be affected by environmental conditions such as water temperature. Smelt are very sensitive to variations in water temperature, with water temperatures less than 40°F often stalling their upstream migration.

Run sizes, as indexed by commercial landings, remained relatively stable for several decades, with the exception of 1984, until landings dropped suddenly in 1993 and remained low for several years thereafter. The eruption of Mt. St. Helens severely impacted spawning in the Cowlitz River in 1980 and subsequent returns in 1984. Smelt returns in 1984 could also have been impacted by the record large El Niño event of 1982-1983. Commercial landings from 1938-1989 averaged 2.1 million pounds annually. In 1993, smelt strayed to many Washington coastal streams and bays due to cold Columbia River water temperature, as is evidenced by landings of only 500,000 pounds in the Columbia River Basin. Landings in 1994 were only 43,000 pounds and beginning in 1995, fishery restrictions were enacted. Due to reduced seasons during 1995-2000 landings are not completely comparable with previous years; however, it is apparent that the abundance of smelt in the Columbia River Basin was much reduced during 1993-2000 (Table 13).

Although total commercial landings remained low in 2000, other abundance indices suggested a significant improvement in the smelt return for 2000. Total landings were likely artificially low due to management constraints imposed on fisheries. Other abundance indices; such as 1) improved CPUE in the commercial fishery, 2) excellent sport dipping during a portion of the season, and 3) large larval abundance over wide areas during an extended period of time all suggested that the 2000 return was significantly improved in comparison to extremely poor returns of 1994-1999. The 2001 return continued the trend of increasing abundances that began in 2000 and is the first year since

1988 in which smelt returned to the Sandy River. The 2001 return, as indexed by commercial landings and CPUE data, was the largest return since 1993. In spite of limited fishing opportunities, landings from commercial fisheries in the Columbia and Cowlitz rivers were the third largest since 1993 and the CPUE in the Columbia River commercial fishery was a record high. Commercial fisheries in the Columbia River Basin increased in 2002, as compared to 2001, but were still far less than fishing opportunities available during 1938-1994. Total landings in 2002 were the largest since 1992 and CPUE in the Columbia River commercial fishery was the third highest on record (since 1988). During low abundance years, the Columbia River commercial fishing industry lost a significant portion of their smelt markets to other fisheries. In spite of limited market availability total landings in 2003 exceeded 2002, making it the largest total since 1992. Observed CPUE's were the fifth highest on record and were 4-20 times greater than those observed during 1994-2000 (Table 14). The 2003 season was also remarkable in that smelt were commercially landed from the Sandy River for the first time since the 1980's.

The 1999-2001 abundance and productivity indices pointed to a good return in 2004. The 2004 three years-old return was expected to be good, given the improved parental returns and larval production in 2001. Assuming that favorable ocean conditions could ameliorate the poor parental returns and larval production in 2000 and 1999, an average return of four and five years-old smelt was expected. However, as the 2004 season progressed the returns did not meet expectations. The commercial landings in 2004 are the lowest since 2000, and about a tenth of the 2003 landings (Table 13), despite a liberal season and favorable market. Likewise, the 2004 observed CPUE is the lowest since 2000, and less than half the 2003 observed CPUE (Table 14). The good parental returns in 2000-2002 (keeping in mind the 2000 return was likely higher than what Table 13 landings imply) should translate into a strong 2005 smelt run. In particular, the return of three year-old fish could be very strong, given that the 2002 parental return was the highest since 1993. These direct relationships between parent and progeny are confounded by the fact that smelt have very high fecundity rates and ocean rearing conditions are likely the overriding factor in determining stock abundance for the upcoming year, as was the case in 2001-2004. It is important to note that 1999-2001 ocean conditions off the Oregon and Washington coasts were favorable for early ocean survival of juvenile smelt; however, less favorable ocean conditions have existed since 2002.

Ocean Abundance

The Pacific Decadal Oscillation (PDO) index based on North Pacific sea-surface temperature and pressure correlates with changes in northeast Pacific marine ecosystem productivity. Warm PDO eras have coincided with enhanced coastal ocean biological productivity in Alaska and inhibited productivity off the west coast of the contiguous United States, while cold PDO eras have coincided with the opposite north-south pattern of marine productivity. Pacific climate changes observed from late 1998 through early 2002 indicate favorable productivity in the coastal waters where eulachon migrate. These conditions, especially during the first year of ocean residency, would improve larvae-spawner survival rates. The increased eulachon returns to the Columbia River during 2001-2003 support this hypothesis; however, this relationship did not hold true during 2004. Warmer ocean conditions since late 2002 probably had greater impacts on survival of the 1999-2001 broods than anticipated. These recent unfavorable ocean conditions may have significant impacts on the survival of the 2000-2002 broods that comprise the 2005 run.

Recent trends in eulachon abundance also follow another measure of ocean climate, the standardized traditional extra tropical based Southern Oscillation Index (SOI), denoted by El Nino and La Nina events. In 1977, the index changed from a regular oscillation of El Nino and La Nina anomalies to fairly persistent El Nino conditions continuing up through 1988. Eulachon returns were variable during this time. The period of 1990-1998 was dominated by extreme and persistent El Nino conditions and during this time eulachon returns saw a precipitous decline. Eulachon returns to the

Columbia River remained at record low levels during 1993-2000. Beginning in 1998, La Nina conditions developed and eulachon returns began increasing in 2001 in response to improved ocean rearing conditions. The sharp decline (1993-2000) and subsequent increase (2001-2003) in spawner abundance, lag the onset of persistent El Nino and La Nina conditions by about three to four years which is the dominant life cycle of eulachon. The unfavorable El Nino condition returned in April 2001, and has persisted through 2004. This may explain the poor returns in 2004. It is likely that the warm ocean conditions are going to negatively impact the 2005 smelt return.

Columbia River smelt are caught in the spring shrimp fisheries off the West Coast of Vancouver Island (WCVI); therefore, bycatch and test fishery information gathered by the Canadian Department of Fish and Oceans (CDFO) during their annual spring shrimp surveys can be used as a predictor for Columbia River returns. The eulachon biomass indices off the WCVI increased significantly during 2000-2002, but declined significantly during 2003 and 2004. The decline was most significant in the 124 and 125 offshore sectors, with the 2004 tonnage almost as low as the late 1990s. Declines in the 23 and 21 offshore sectors were less severe. While the high levels of Age 1+ and Age 2+ smelt in the 2002 and 2003 WCVI bycatch suggests that returns to the Columbia River in 2005 might be good (Table 15), the Joint Staff has not yet received the age-specific information for 2004. Lacking this piece of information, it is best to focus on the overall biomass indices rather than the data in Table 15. The overall rapid decline in biomass tonnage off the WCVI suggests poor returns to the Columbia River in 2005.

Other pelagic fish such as anchovy, sardine, and herring all exhibited significant abundance increases during the past few years. Additionally, salmonid returns to the Columbia River have generally been at near record high levels during 2001-2004, which also suggests an improvement in ocean rearing conditions.

Juvenile Production

Beginning in the early 1990's increased effort was expended to develop more direct measures of brood-year strength, rather than relying on landing of spawners in the commercial fishery. A smelt larval sampling program was initiated in 1994 for the Cowlitz River and was expanded to include the Kalama River in 1995, the mainstem Columbia River in 1996, Elochoman and Lewis rivers in 1997, and the Grays and Sandy rivers in 1998. Larval sampling was also conducted in the Cowlitz River in 1986 (Table 16). Larval sampling can help determine relative spawning success and when coupled with information on adult returns from sport and commercial fisheries helps provide some indication of the relative annual run strength. In past years the larval densities (averaged across stations and depths at selected index sites) have been used as a measure of relative brood strength. Years of high larval densities, such as 2000-2002, should correspond with good returns 3 to 4 years later; however, this is not always the case, especially in years when ocean rearing conditions change significantly. For example, the larval densities in 1999 were low relative to other years, yet returns in 2002 and 2003 were large.

In past years larval sampling techniques did not include multiple passes which could result in the data collected not accurately reflecting the overall abundance or peak out-migration. Beginning in 2003, multiple passes over the out-migration season were conducted at the Price Island and Clifton Channel sites, which will provide the data necessary to identify the peak out-migration as well as the duration of the out-migration from the bulk of the production areas. This new approach will be repeated in the coming years, providing the data necessary to develop a more meaningful method of comparing annual brood-year run strengths and possibly impacting comparison with past years data. Larval sampling may continue in the tributaries, but only to verify production. Improved larval density data need to be analyzed in conjunction with ocean climate condition data to improve the accuracy of abundance forecasts for future years. Unfortunately, the larval sampling program was not initiated until the runs had declined and therefore it is difficult to correlate larval catch rates to

relative run strength, as indexed by commercial landings and CPUE's, at this time. With increased run sizes and fisheries occurring in recent years the additional years of data collected may help define this relationship.

Larval densities at the Price Island index site (Mainstem Columbia column of Table 16) during the 2000-2002 winter out-migrations would suggest that the basin-wide production was consistently high across all brood years composing the 2005 run.

Fishery Management Actions

Prior to 1995 only minor regulation changes were adopted for Columbia River commercial and sport smelt fishing seasons. During 1960-1977 commercial smelt fisheries were open year round 3½ days per week, except for 1965 and 1966 when the season was expanded to 4½ days per week. Beginning in 1978 the commercial season was expanded to seven days per week. Prior to 1986 the season was open the entire year but beginning in 1986 the season was reduced to the December-March time frame to better reflect the run timing of Columbia River smelt (Table 17). Prior to 1997 the sport fishery was open seven days per week the entire year (Table 18).

Past Management Actions

As Columbia River smelt abundance began to decline during the early 1990's, fishery managers recognized the need to restrict fisheries to increase escapement to spawning areas. Lower Columbia River mainstem and tributary commercial fisheries were greatly reduced during the late 1990's, with 1995 being the first year of these restrictive fisheries. During 1995 and 1996, commercial fisheries were restricted to fewer fishing days per week, but the season extended through the end of March. During 1997-2000, commercial fisheries were further reduced to test fisheries, which ended in mid to late February. These test fisheries were intended to allow minimal smelt catch to provide fishery managers with data necessary to assess the annual run strength and provide an opportunity to sample catch for biological data. Seasons during these test fisheries were severely restricted in both days per week fished and duration of the fishing season. Sport fisheries in Washington tributaries were closed early during 1997, 1998, and 1999 in response to continued poor smelt returns to the Columbia River. Both commercial and sport fisheries were extended into late February during 2000 in response to a larger than expected return (Table 17 and 18).

Seasons were liberalized in 2001 when a strong return of smelt was observed for the first time since 1993. In 2001 both sport and commercial fisheries were extended through the end of March for the first time since 1996; however, the number of days open was again limited to one to two days per week for the purpose of assessing abundance. The trend of increasing abundance continued and fishing opportunities were expanded again in 2002 in response to the increased abundance. In 2002 the commercial fishery was expanded from two days per week in January to three days per week in February and March. Similarly, the 2002 Washington tributary sport fisheries were two days per week during January through late February and seven days per week thereafter with all Washington tributaries open during January through March. With extremely large returns expected in 2003 the commercial fishery expanded to four days per week during January-March and the sport fishery in Washington tributaries expanded to seven day per week during January-March. Fisheries were consistent with Level Three fisheries prescribed in the Joint State Eulachon Management Plan and season lengths were the maximum allowed under the Joint State plan. The 2004 season started out at the same maximum season lengths allowed, but was modified in late March when the run fell short of expectations (two days per week allowed in the sport fishery after March 19th; only two 18-hour commercial fishing periods occurred after March 21).

The Oregon and Washington Joint State's smelt management and stock assessment activities include commercial landings accounting, on-board monitoring of commercial fisheries, sampling of catch

for biological data and age structure, and indexing larval production. The commercial fishery monitoring program was initiated in 1997 and focuses primarily on the lower Columbia River commercial fishery. Data gathered during catch sampling and fishery monitoring includes daily landings, CPUE, length, weight, sex, and otolith collection and allows for analysis of catch trends by time and area, run timing trends, and sex and age composition through time. Otoliths were collected annually from 1987 until 1999, and aging of the entire collection will allow for better understanding of the population dynamics of Columbia River smelt and possible development of parent/recruit relationships. These data work in conjunction to provide managers with tools to monitor annual abundance and stock status.

Joint State Eulachon Management Plan

Beginning in 1999 the Washington and Oregon Departments of Fish and Wildlife began work on a Joint State Eulachon Management Plan to guide all aspects of smelt management for future years. During 1999, WDFW and ODFW developed an interim Eulachon Management Plan to guide fishery management decisions in the year 2000 because a draft plan had not been completed prior to adoption of sport and commercial fishing seasons for that year. The interim plan included recommended fishery restrictions for the year 2000 and was adopted by the Columbia River Compact at a hearing in mid-December. Fisheries adopted during 2000 were consistent with the interim Eulachon Management Plan.

The WDFW, with input from ODFW, has completed a eulachon management plan which contains recommended policies concerning smelt fishery management. These policies are considered wise-use management precepts that are consistent with the need to maintain an ecosystem approach to resource decisions. The ecological importance of eulachon is underscored in much of the body of research in the Northeast Pacific ecosystem and should be the fundamental consideration when making fishery management decisions affecting the health of this resource.

<i>Policy Recommendations for Eulachon Conservation and Fishery Management From the Joint State Eulachon Management Plan</i>	
<u>Conservation Policy</u>	
✓	Maintain healthy populations of eulachon while assuring the integrity of the ecosystem and habitat upon which they depend.
✓	Management actions will consider the role of eulachon in both the marine and freshwater ecosystems and the need to maintain sufficient populations of eulachon for proper ecosystem functioning.
✓	A precautionary approach to resource management shall be utilized.
✓	Consider the best scientific information available and strive to improve the information base for eulachon.
<u>Fishery Management Recommendations</u>	
✓	Maintain commercial and recreational fishing opportunity in the lower Columbia River, to include opportunities in both mainstem and tributaries for both fleets.

The management plan includes recommendations concerning fisheries occurring in the mainstem Columbia River and its tributaries below Bonneville Dam. Fishery recommendations have been separated into three separate levels depending on expected run size with run size expectations being based on: 1) parental run strength as indexed by fishery landings, 2) juvenile production as indicated

by larval sampling, and 3) estimates of ocean productivity. Columbia River smelt fishing seasons have been adopted in accordance with the Joint State Eulachon Management Plan since 2001.

<p align="center"><i>Excerpts From the Joint State Eulachon Management Plan Describing Fisheries Recommended at Varying Run Size Expectations.</i></p>
<p align="center">Level One Fisheries</p>
<p>Level One fisheries are recommended when there is great uncertainty in run strength or indications for a poor return. Level One fisheries would be the most conservative, similar to those adopted in 1997-2000, and should be scheduled to effect a harvest rate of 10% or less. Data obtained from these fisheries should give us a better index of run strength and productivity. The purpose of Level One fisheries would be to gain some insight on spawning returns to the lower Columbia River and its tributaries. The intent would be to capture some of the variability of eulachon returns and further develop a fishery database while minimizing the risk of overexploiting the return. The Joint Staff recommends one 12 - 24 hour fishing period per week for the mainstem Columbia River commercial fishery. Sport and commercial dipnet fisheries consisting of one 12-24 hour fishing period per week would be used to monitor returns to the Cowlitz River. The daily bag limit for Washington tributaries should be 10 pounds per person at these low levels of abundance. The Joint Staff recommends these fisheries be adopted for the January through March time frame with fisheries closed during the remainder of the year, except December as described below, as per permanent rules. These fisheries would be used to gain some real time insight of run size strength. Days and hours to be fished should be developed with the respective participants. The commercial fishery can be shaped to maximize marketing opportunities and the sport fishery could, for instance, be conducted during a weekend day to maximize opportunity. Fishery monitoring data would be one factor used to make in-season decisions about increase of the fisheries to Level Two or Three. December opportunity should be allowed 24 hours a day and seven days per week in the mainstem Columbia commercial and sport fisheries, as previously noted.</p>
<p align="center">Level Two Fisheries</p>
<p>When fishery data indicates a promising abundance in the spawning return and productivity indices are favorable, yet it is still uncertain whether the run is moderate or strong, then fishing time would be increased to collect additional data concerning relative eulachon abundance. The trigger to extend the fishery from Level One to Two should be carefully deliberated. The Joint Staff does not currently have a specific recommendation for a Level Two trigger. We believe evidence of increased run strength beyond what was observed solely in Level One fisheries (e.g., the presence of significant concentrations of birds and marine mammals attending the run) should be considered as well when ramping up fisheries.</p> <p>The Joint Staff recommends a two or three day commercial fishery in the mainstem Columbia River. The sport and commercial dipnet fisheries in the Cowlitz River should be similarly increased to two or three days. Managers could also consider whether to expand sport and commercial fisheries to lower Columbia tributaries other than the Cowlitz River. The Joint Staff recommends these fisheries be adopted for the January through March time frame with fisheries closed during the remainder of the year, except December in the mainstem, as per permanent rules. Fishery monitoring data would be one factor used to decide if it would be appropriate to increase fisheries to Level Three or decrease fisheries to Level One.</p>
<p align="center">Level Three Fisheries</p>
<p>Level Three fisheries are the most liberal that the Joint Staff would recommend. The decision to adopt Level Three fishing opportunity would be based on very positive indicators of strong abundance and productivity and therefore a very low risk of overexploitation. The Joint Staff recommends that Level Three fisheries be conducted up to four days per week in the Columbia River with additional commercial opportunity of up to four days per week in all lower Columbia River tributaries. Sport fishing would be open in all tributaries for four to seven days per week. The Joint Staff recommends these fisheries be adopted for the January through March time frame with fisheries closed during the remainder of the year, except for December in the mainstem when fisheries are open with no daily closures, as per permanent rules. Increasing the daily bag limit for Washington sport dippers from ten pounds per person per day is appropriate at this level of fishing. The increase could range from 15 to 25 pounds; the latter value would be consistent with Oregon regulations. Fishery monitoring data would be one factor used to decide if it would be appropriate to decrease fisheries to Level Two or One.</p>

Smelt Fisheries

Smelt fisheries occur in the mainstem Columbia River and several tributaries, primarily the Cowlitz River. Mainstem fisheries consist primarily of a commercial fishery using gill nets with some commercial fishers using small trawls. Sport dip net fishing is nearly non-existent in the mainstem Columbia River. Tributary fisheries include both sport and commercial fisheries with the Cowlitz River providing the most consistent fishing opportunities. Both fisheries use dip nets to capture smelt with most sport fisheries being bank fisheries and most commercial fisheries occurring by boat.

Past Commercial Seasons

Commercial fisheries operated 7 days per week in the lower Columbia River beginning in 1978 and in the tributaries beginning in 1976. Prior to that, weekly open periods of 4-5 days were in effect. In 1986, the year-round commercial smelt season was modified to open December 1 and close March 31 to more closely follow the actual presence of smelt in the Columbia River Basin. Large trawl gear was also prohibited in 1986. The seven-day per week fisheries remained in effect through 1994; however, poor landings in 1993 and 1994 prompted the states to reevaluate smelt fishing seasons in 1995 (Tables 14 and 17).

In 1995, following two consecutively poor smelt runs and with the outlook for another poor return, the commercial smelt season in the mainstem and tributaries was reduced from seven days to 3½ days per week. This emergency regulation was adopted at the December Compact hearing and became effective January 7, 1995 through March 31, 1995. In 1996, fishery restrictions enacted by the Columbia River Compact in late January modified the season from February 3 through March 31. The mainstem Columbia River and the tributary seasons were reduced to 4¼ days per week, with the fisheries operating during different days of the week. The 1997 commercial fisheries were modified to test fisheries by the Compact at hearings in January and February. The test fisheries included one 36-hour fishing period per week on Thursdays and Fridays from January 30 through February 21 in the mainstem Columbia River and on Tuesdays and Wednesdays from January 28 through February 19 in the tributaries. The 1998 commercial fishery was modified to a test fishery at the December Compact hearing. The mainstem Columbia River was open for twelve hours on Mondays and Fridays from January 2 through February 13, 1998 and the tributaries were open for twelve hours on Tuesdays and Wednesdays from January 6 through February 18, 1998. Washington tributaries were closed to commercial smelt fishing effective February 2, 1998.

For 1999 Washington tributaries were closed to commercial smelt fishing and two test fisheries were adopted for the lower Columbia River at the December Compact hearing; 1) a standard test fishery and 2) a reduced test fishery. The standard test fishery was open during daylight hours (7 AM - 7 PM) on every Wednesday between December 30 and February 10. The standard test fishery was open to all Columbia River commercial fishers with appropriate license and legal gear. The reduced test fishery was limited to 1-3 commercial fishers and was originally scheduled to be open during daylight hours on every Sunday between December 27, 1998 and February 7, 1999. The reduced test fishery was adopted as an experiment to determine if 1-3 boats fishing shorter drifts could provide data comparable to that produced by the standard test fishery. Fishers were allowed to sell the catch to help finance the program and were required to have an ODFW or WDFW biologist on board while fishing. The fishery was bogged down with several logistical problems but was finally initiated on Sunday January 31, 1999 and operated for two additional days on February 7 (Sunday) and February 18 (Thursday). In comparison to the standard test fishery, the reduced test fishery sampled less area which made results from the two fisheries difficult to compare. In general Joint Staff biologists felt that the data collected by the reduced test fishery were not adequate for use in stock status evaluation or for fishery management purposes.

Smelt fisheries in 2000 reflected the continued trend of conservative management that was initiated in 1995. At the December Compact hearing the 7-day per week mainstem commercial fishery was closed and a standard test fishery consisting of one 12-hour fishing period per week was adopted in its place. In mid-February, the Compact met to consider an extension of the ongoing mainstem fishery. Based on improved CPUE in the mainstem commercial fishery, compared to recent years, and an excellent sport fishery occurring in the Cowlitz River the Compact extended the mainstem commercial fishery for one 12-hour fishing period to gain additional information concerning the strength of the smelt run in 2000. CPUE in the mainstem commercial fishery and catch rate in the Cowlitz River sport fishery dropped considerably; therefore, no additional fishing periods were adopted and the mainstem fishery was completed on February 23, 2000. As was the case in 1999, Washington tributaries were closed to commercial fishing the entire season.

The poor parental returns in 1997 and 1998 and the moderate increase in abundance in 2000, suggested that the 2001 return would not be large in spite of improved ocean rearing conditions; therefore, a test fishery consistent with a Level One fishery was adopted at the December Compact hearing. The 2001 smelt test fishery began on January 3 with one 18-hour fishing period per week, but by late February the CPUE in the commercial fishery was high and smelt had entered the Cowlitz River. The ongoing mainstem smelt fishery was modified to a Level Two fishery with the addition of one 18-hour fishing period per week during March 12-26. Columbia River landings were the largest since 1985 and the CPUE was the largest in the database (Tables 13 and 14). Commercial smelt fishing occurred in the Cowlitz River for the first time since 1997. The Cowlitz River was originally open for one 12-hour fishing period per week, but in response to the unexpectedly strong return commercial fisheries were expanded to two 12-hour fishing periods per week during March 11-18 and three 12-hour fishing periods per week during March 19-31. All other Washington tributaries were closed to commercial smelt fishing for the season. Commercial landings in the Cowlitz River were the largest since 1995, but were well below the large catch years when landings reached 2-4 million pounds annually (Table 13).

The improved 2001 commercial fishery predicted a large abundance of returning spawners in 2002 and ocean productivity was favorable, but due to poor parental returns in 1998 and 1999 there was uncertainty in whether the run would be moderate or strong. In accordance with the newly finalized Joint State Eulachon Management Plan, a Level Two fishery consisting of two 18-hour fishing periods per week from January 2 through March 31 was adopted at the December Compact hearing. Significant smelt landings occurred during January for the first time since 1990. Catch rates improved each week and by the last week in January CPUE's were over 3,900 pounds per delivery. An additional 18-hour fishing period per week was adopted for February 1 through March 31, consistent with a Level Three fishery described in the Joint State Eulachon Management Plan. Landings in the 2002 fishery were estimated to be about 58,000 pounds (Table 13), which, along with the CPUE (Table 14), were the third largest since 1988.

Positive abundance indicators for the 2003 return included favorable ocean conditions, larger adult smelt returns in 2001 and 2002, large smelt by-catch in ocean shrimp fisheries, increased salmonid abundance in recent years, and strong abundance of other pelagic fish such as sardines. With the expectation of a large return, a Level Three fishery consisting of four 18-hour fishing periods per week (3 AM-9 PM Sunday, Tuesday, Thursday, and Friday) during January 1 through March 31 in the mainstem Columbia River was adopted at the December Compact hearing. Four days per week is the maximum allowed under the Joint State Eulachon Management Plan. The mainstem Columbia River was also open seven days per week during December 1-31 as per permanent regulations. Landings in the 2003 Columbia River mainstem fishery were larger than the previous year's landings, but only half the pounds landed in 2001. The season total CPUE of was less than the previous two years', but much higher than the average CPUE observed during 1994-2000 fisheries (Table 14). The Cowlitz, Kalama, and Lewis rivers were open January 1, 2003 to commercial smelt

dipping on Sunday, Tuesday, and Wednesday nights (6 PM to 6AM the next day). Additional days and hours were added to the tributary fisheries effective March 7, 2003 through March 31, 2003: 4 PM Sundays to 10 AM Mondays, 4 PM Tuesdays to 10 AM Wednesdays, 4 PM Wednesdays to 10 PM Thursdays, and 4 PM Fridays to 10 AM Saturdays. The Sandy River in Oregon was open year-round, 7 days a week, 24 hours a day, per permanent regulations. Early in the season, the Cowlitz River provided most of the catch. In February the run shifted more toward the Lewis River, and commercial operations were shifted accordingly. No commercial take occurred in the Kalama River, as fish were far fewer than what could be taken in the nearby Lewis River. Smelt were commercially harvested in the Sandy River for the first time since 1985 and only the third time since 1981.

2004 Commercial Fisheries

Due to improved adult eulachon returns during 2001-2003, increased salmonid abundances in recent years, high levels of smelt bycatch in Canadian ocean shrimp fisheries, and strong abundances of other pelagic fish such as sardines, the 2004 season started off at Level Three. The mainstem Columbia River was open 7 days per week during December 2003 (as per permanent regulations). Level Three restrictions took effect January 1, 2004. Fishing was allowed 3 AM to 9 PM Sunday, Tuesday, Thursday, and Friday through March 31st. The Cowlitz, Kalama, and Lewis rivers were open to commercial fishing 6 PM Sunday through 6 PM Tuesday and 6 PM Wednesday to 6 PM Friday. Effective 6 PM March 18th, the tributary fishery was reduced to two 12-hour fishing periods per week (6 PM Sunday through 6 AM Monday, and 6 PM Wednesday through 6 AM Thursday). The season terminated at midnight Wednesday March 31st. The Sandy River in Oregon was open year-round, 7 days a week, 24 hours a day, per permanent regulations. A small December “pilot” run resulted in some early mainstem catch. Nothing was further caught in the mainstem until late January. The landings faded to low levels by the first week of February (with sporadic landings continuing through March 9th). Tributary landings were made February 5 - 13, and March 8 – 12 in the Cowlitz River. No landings occurred in the Kalama, Lewis, or Sandy Rivers.

Recreational Fisheries

The sport smelt fishery is a longstanding fishery that occurs in tributaries using dip net gear and historically has been open year-round. Smelt dippers in Washington were allowed 20 pounds per person each day, but beginning in late 1998 the limit has sometimes been 10 pounds per person. In Oregon the limit remains 25 pounds per person each day. The sport dip net fishery is very popular, drawing thousands of participants. Smelt are used for human consumption and are also in great demand for sturgeon bait. Annual sport catch estimates are not available; however, limited past creel census information suggests that the sport catch may equal the commercial landings in years with long availability of smelt.

In 1997, sport dipping in the Cowlitz River was poor throughout the run and based on the low abundance indicated by commercial and sport test fisheries the sport fishery was closed effective February 28, 1997 (Table 18). Washington tributaries were closed for recreational smelt dipping again in 1998 with the closure effective February 2, 1998. In 1999 Washington tributaries were open to recreational smelt dipping, but only on Wednesdays and Saturdays from January 2, 1999 through February 13, 1999. During 2000 the Cowlitz River was open to recreational dipping on Fridays and Saturdays from January 1, 2000 through February 26, 2000 while all other Washington tributaries were closed to smelt dipping the entire year.

The Cowlitz River was the only Washington tributary initially open to sport smelt dipping in 2001. The sport fishery began slowly with no significant catches occurring prior to the end of February. The fishery improved significantly in early March when smelt entered the Cowlitz River, which prompted the WDFW to open all Washington tributaries, including the Cowlitz River, on Saturdays,

Sundays, and Wednesdays from March 7-31, 2001. Landings of smelt in the Sandy River sport fishery occurred for the first time since 1988.

All Washington tributaries were open from 6 AM to 10 PM on Saturdays, Sundays, and Wednesdays from January 1 through February 25, 2002 with a 10-pound daily limit. Beginning February 26, 2002 all Washington tributaries were open 7-days per week, 6 AM to 10 PM and the daily bag limit was increased to 20 pounds. All Oregon tributaries were open to sport dipping seven days per week the entire year as per permanent regulations; however, no sport fisheries occurred in Oregon waters due to lack of returns.

Due to favorable ocean conditions and good smelt bycatch in the shrimp fisheries, the 2003 season started off at Level Three. All Washington tributaries were open from 6 AM to 10 PM, seven days a week, from January 1 through March 31, 2003. The mainstem Columbia River was open to Oregon and Washington fishers seven days per week on a 24-hour basis. Initially, Washington recreational eulachon fisheries were restricted to a 10-pound daily limit, however; on February 12, 2003, the daily bag limit was increased to 20 pounds per person. Most dipping occurred in the Lewis and Cowlitz rivers, with some reports of dipping occurring in the Grays River also. All Oregon tributaries were open to sport dipping seven days per week the entire year as per permanent regulations. Sport dipping did occur in the Sandy River during 2003.

Due to improved adult eulachon returns during 2001-2003, increased salmonid abundances in recent years, high levels of smelt bycatch in Canadian ocean shrimp fisheries, and strong abundances of other pelagic fish such as sardines, the 2004 season started off at Level Three. The mainstem Columbia River was open to both Washington and Oregon sport fishers seven days per week on a 24-hour basis. All Washington tributaries were open from 6AM to 10 PM, seven days a week, from January 1 through March 31, 2004. The bag limit was set at 20 pounds per person. Effective 6 PM March 18th, the season was restricted to 6 PM Sunday through 6 AM Monday, and 6 PM Wednesday through 6 AM Thursday, with the season closing 6AM Monday March 30th. The Cowlitz, Kalama, and Lewis rivers were kept open, but all other Washington tributaries were closed. All Oregon tributaries were open to sport dipping seven days per week the entire year as per permanent regulations.

2005 Mainstem Commercial Smelt Fishery Recommendation

<i>Joint Staff Recommendation</i>	
The Joint Staff will recommend a Level Two commercial smelt fishing season at the December 16, 2004 Compact hearing.	
Season:	Open two 18-hour periods per week beginning January 1, 2005 and continuing through March 31, 2005.
Open Days:	To be determined
Hours:	3 A.M. to 9 P.M.
Gear:	As per permanent regulations

A fishery will be proposed that is consistent with Level Two fisheries described in the Joint State Eulachon Management Plan. Positive abundance indicators for 2005 include strong adult eulachon returns during 2001-2002, high mainstem Columbia River larval densities during the winters of 2001-2002, high levels of smelt age 1+ and age 2+ bycatch in Canadian ocean shrimp fisheries during 2002-2003, and strong abundances of salmonids and pelagic fish in recent years. Negative abundance indices for 2005 include a low 2000 run size, relatively low mainstem Columbia River larval densities during the winter of 2000, and potentially poor ocean survival rates due to

unfavorable ocean conditions since late 2001. Smelt bycatch in the Canadian ocean shrimp fisheries declined significantly in both 2003 and 2004. Participation in the mainstem fishery has declined in recent years due to large returns supporting full tributary fisheries that reduce markets for fish landed in mainstem fisheries. Reduced effort, in combination with the fishery structure and large run size expectation, will nearly eliminate the possibility of this fishery resulting in overexploitation of the return.

ENDANGERED SPECIES ACT (ESA)

Salmon and Steelhead

Since 1991 almost all Columbia Basin salmon and steelhead stocks have been listed under the Federal ESA. Chinook included in the upper Columbia spring, upper Willamette spring, Snake River spring/summer, and lower Columbia River spring/fall Evolutionarily Significant Units (ESU) plus steelhead included in the upper Willamette, lower Columbia River, mid-Columbia River, upper Columbia River, and Snake River ESU's may be present in the mainstem Columbia River during the time when fisheries described in this report occur and therefore may be impacted by these fisheries. Impacts associated with fisheries described in this report are included in the "Interim management agreement for upriver spring chinook, summer chinook, and sockeye" that was completed in 2001. Fisheries described in this report are also in accordance with the Fisheries Management and Evaluation Plan (FMEP) for upper Willamette spring chinook in freshwater fisheries of the Willamette basin and lower Columbia River mainstem, which was prepared by the ODFW and accepted by the NMFS. Impacts to listed species from fisheries described in this report are expected to be *de minimus*.

Smelt

Columbia River smelt are not listed under the ESA. In mid-1999 Columbia River smelt were petitioned for listing under the ESA and that petition was accepted and reviewed by the NMFS. The NMFS did not propose that smelt be listed under the ESA due to the lack of adequate information for stock status determination.

Green Sturgeon

In June 2001, the National Marine Fisheries Service (NMFS) was petitioned by the Environmental Protection Information Center, Center for Biological Diversity, and Waterkeepers Northern California, to list green sturgeon. Two Distinct Population Segments (DPS) were identified by the Biological Review Team. Uncertainties in the structure and status of the green sturgeon population lead NMFS to add both DPS to their List of Species of Concern, and to commit to reviewing the status again in 2008 (after five years of study by federal, state and tribal agencies). In March 2004, a U.S. District Court sat aside NMFS' finding and remanded the matter back to the agency for re-determination. The two DPS are now considered candidate species, as well as species of concern. NMFS is required to make a new green sturgeon status determination by March 2, 2005.

Marbled Murrelet

No change in status since 1994. The winter, spring, and summer fisheries are not likely to adversely affect the listed marbled murrelet.

FUTURE MEETINGS

Additional Compact hearings may be scheduled as necessary to make modifications to seasons that may be adopted from recommendations in this report. A Columbia River Compact hearing and Joint State sport hearing is scheduled for 10 AM Friday, January 28, 2005 at the Water Resources Education Center located at 4600 S.E. Columbia Way, Vancouver, Washington. The purpose of this meeting will be to review salmon, steelhead, sturgeon, shad and smelt stock status and consider commercial fishing seasons and miscellaneous regulations in the mainstem Columbia River and Select Areas and to consider recreational spring chinook fishing seasons in the mainstem Columbia River.

Table 1. Estimated Abundance of Harvestable White Sturgeon in the Lower Columbia River, 1989-2003.			
Year	Total Length Interval (inches)		
	42-48	48-60	42-60
1989	32,500	16,800	49,300
1990	26,100	12,000	38,100
1991	32,900	11,700	44,600
1992	59,900	8,700	68,600
1993	85,000	14,200	99,200
1994	N/A	N/A	N/A
1995	143,200	59,000	202,200
1996	131,700	33,500	165,200
1997	123,700	33,400	157,100
1998	161,600	24,700	186,300
1999	116,800	17,600	134,400
2000	119,200	17,000	136,200
2001	100,200	22,400	122,600
2002	87,200	33,900	121,100
2003	-- ¹	-- ¹	-- ¹

1. Abundance estimates for 2003 will be presented at the December 16, 2004 Compact.

Table 2. Annual Sport and Commercial Catches of White Sturgeon in the Lower Columbia River and Comparisons to Catch Guidelines, 1993-2004.				
Year	Sport		Commercial	
	Catch	Guideline	Catch	Guideline
1993	37,900	--	8,150	6,000
1994	33,500	--	6,400	6,000
1995	45,100	--	6,200	8,000
1996	42,800	--	8,400	8,000
1997	38,200	53,840	12,800	13,460
1998	41,600	53,840	13,900	13,460
1999	39,800	40,000	9,500	10,000
2000	40,500	40,000	10,870	10,000
2001	41,200	39,500	9,310	9,100
2002	38,300	38,300	9,620	9,800
2003 ¹	31,900	32,000	7,950	8,000
2004 ²	25,000	28,800	7,866	8,000

1. Commercial landings are preliminary.

2. Preliminary data

Table 3. Commercial Catch of White Sturgeon by Season, Annual Commercial Catch, and Comparisons to Catch Guidelines, 1993-2004.										
Year	Mainstem					Select Area			Grand Total	Guide-line
	Winter	Early August	Late August	Late Fall	Total	Spring/Summer	Fall	Total		
1993	990	0	0	7,010	8,000	30	20	50	8,150	6,000
1994	2,990	0	0	3,380	6,370	30	0	30	6,400	6,000
1995	0	0	0	5,980	5,980	110	70	180	6,200	8,000
1996	800	0	330	6,580	7,710	580	110	690	8,400	8,000
1997	2,710	1,740	140	7,790	12,380	350	100	450	12,800	13,460
1998	2,680	2,540	90	8,060	13,370	360	170	530	13,900	13,460
1999	1,780	2,770	60	4,180	8,790	520	190	710	9,500	10,000
2000	2,260	2,490	300	5,130	10,180	540	160	690	10,870	10,000
2001	3,060	4,720	1,020	0	8,800	490	20	510	9,310	9,100
2002	2,720	1,340	380	4,200	8,640	650	330	980	9,620	9,800
2003 ¹	1,520	2,170	410	3,430	7,530	250	170	420	7,950	8,000
2004 ¹	1,879 ²	1,550	917	3,219	7,565	184	117	301	7,866	8,000

1. Preliminary data

2. Includes nine white sturgeon landed during summer fisheries

Table 4. Sport and Commercial Sturgeon Catch (in 1,000's) and White Sturgeon Catch Sharing Percentages in the Lower Columbia River, 1977-2004.

Year	<i>White Sturgeon</i>					<i>Green Sturgeon</i>		
	Sport		Commercial ¹		Total	Sport	Commercial ¹	Total
	Catch	%	Catch	%	Catch	Catch	Catch	Catch
1977	25.8	73	9.7	27	35.5	0.0	0.8	0.8
1978	30.4	76	9.8	24	40.2	0.0	1.7	1.7
1979	31.4	61	20.5	39	51.9	0.0	1.2	1.2
1977-1979 Average	29.2	70	13.3	30	42.5	0.0	1.2	1.2
1980	27.0	74	9.4	26	36.4	0.0	1.7	1.7
1981	27.2	65	14.9	35	42.1	0.0	0.2	0.2
1982	25.1	68	11.6	32	36.7	0.0	0.8	0.8
1983	36.0	74	12.4	26	48.4	0.1	0.7	0.8
1984	42.0	71	17.5	29	59.5	0.1	2.7	2.8
1980-1984 Average	31.5	70	13.2	30	44.6	<0.1	1.2	1.3
1985	43.8	84	8.4	16	52.2	0.5	1.6	2.1
1986	49.8	81	11.6	19	61.4	0.4	6.0	6.4
1987	62.4	87	9.7	13	72.1	0.2	4.9	5.1
1988	43.1	86	6.8	14	49.9	0.1	3.3	3.4
1989	25.4	84	5.0	16	30.4	0.1	1.7	1.8
1985-1989 Average	44.9	84	8.3	16	53.2	<0.1	3.5	3.8
1990	17.3	77	5.3	23	22.6	0.1	2.2	2.3
1991	22.7	86	3.8	14	26.5	<0.1	3.2	3.2
1992	40.1	87	6.2	13	46.3	0.1	2.2	2.3
1993	37.9	82	8.1	18	46.0	<0.1	2.2	2.2
1994	33.5	84	6.4	16	39.9	0.1	0.2	0.3
1990-1994 Average	30.3	83	6.0	17	36.3	0.1	2.0	2.1
1995	45.1	88	6.2	12	51.3	<0.1	0.4	0.4
1996	42.8	84	8.4	16	51.2	0.1	0.6	0.7
1997	38.2	75	12.8	25	51.0	<0.1	1.6	1.6
1998	41.6	75	13.9	25	55.5	0.1	0.7	0.8
1999	39.8	80	9.5	20	49.3	0.1	0.8	0.9
1995-1999 Average	41.5	80	10.2	20	51.7	0.1	0.8	0.9
2000	40.5	79	10.9	21	51.4	<0.1	1.2	1.2
2001	41.2	82	9.3	18	50.5	0.1	0.3	0.4
2002	38.3	80	9.6	20	47.9	0.1	0.2	0.2
2003 ²	31.9	80	8.0	20	39.9	0.1	<0.1	0.1
2004 ³	25.0 ⁴	76	7.9	24	32.9	<0.1	0.1	0.1
2000-2004 ³ Average	35.4	79	9.1	21	44.5	<0.1	0.4	0.4

1. Includes Youngs Bay (1979-present) and other Select Area landings (1998-present).

2. Commercial landings are preliminary.

3. Preliminary data

4. An additional 2,500 white sturgeon over and above historic levels were harvested in the Willamette River

Table 5. Fishing Periods, Gear, and Associated Sturgeon Catch for Mainstem Columbia River Commercial Seasons, 2004.

Season	Fishing Period	Hours	Zones	Mesh	STG Limit ¹	WSTG	GSTG
Winter Sturgeon	6 AM Jan. 13 – 6 AM Jan. 14	24	1-5	9-9 ³ / ₄ "	na	407	0
	6 AM Jan. 20 – 6 AM Jan. 21	24	1-5	9-9 ³ / ₄ "	na	428	0
	6 AM Jan. 27 – 6 AM Jan. 28	24	1-5	9-9 ³ / ₄ "	na	375	0
	6 AM Feb. 3 – 6 AM Feb. 4	24	1-5	9-9 ³ / ₄ "	20	234	0
	6 AM Feb. 10 – 6 AM Feb. 11	24	1-5	9-9 ³ / ₄ "	20	252	0
						1,696	0
Winter Salmon	5 AM Mar. 2 – 9 PM Mar. 2	16	1-4	9-9 ³ / ₄ "	3	23	0
	3 PM Mar. 4 – 7 AM Mar. 5	16	1-4	9-9 ³ / ₄ "	3	28	0
	5 AM Mar. 9 – 5 AM Mar. 10	24	1-4	9-9 ³ / ₄ "	3	32	0
	10 AM Mar. 11 – 10 AM Mar. 12	24	1-4	9-9 ³ / ₄ "	3	22	0
	3 PM Mar. 15 – 6 AM Mar. 16	15	1-4	9-9 ³ / ₄ "	3	32	0
	6 PM Mar. 18 – 9 AM Mar. 19	15	1-4	9-9 ³ / ₄ "	3	22	0
	9 PM Mar. 23 – 5 AM Mar. 24	8	1-4	≤4 ¹ / ₄ "	3	8	0
	9 PM Mar. 25 – 5 AM Mar. 26	8	1-4	≤4 ¹ / ₄ "	3	6	0
7 PM Mar. 29 – 5 AM Mar. 30	10	1-4	≤4 ¹ / ₄ "	na	1	0	
						174	0
Summer	6 AM – 6 PM Jun. 30 and 6 AM – 6 PM Jul. 2	12	1-3 ²	≤4 ¹ / ₂ "	na	9	0
Early August	7 PM Aug. 3 – 7 AM Aug. 4	12	1-5	8-9 ³ / ₄ "	5	500	1
	7 PM Aug. 5 – 7 AM Aug. 6	12	1-5	8-9 ³ / ₄ "	5	302	1
	7 PM Aug. 8 – 7 AM Aug. 9	12	1-5	8-9 ³ / ₄ "	5	513	2
	7 PM Aug. 10 – 7 AM Aug. 11	12	1-5	8-9 ³ / ₄ "	5	235	2
						1,550	6
Late August	7 PM Aug. 16 – 7 AM Aug. 17	12	2-5	8-9 ³ / ₄ "	5	630	0
	7 PM Aug. 19 – 7 AM Aug. 20	12	3-5	8-9 ³ / ₄ "	0	na	na
	7 PM Aug. 23 – 7 AM Aug. 24	12	4-5	9-9 ³ / ₄ "	5	199	0
	7 PM Aug. 25 – 7 AM Aug. 26	12	4-5	9-9 ³ / ₄ "	5	88	0
						917	0
Late Fall	8 PM Sep. 19 – 6 AM Sep. 20	10	1-5	9 ³ / ₄ " max ³	5	449	4
	6 AM Sep. 21 - 6 PM Sep. 21	12	1-3 ²	6" max	5	39	0
	8 PM Sep. 21 - 1 AM Sep. 22	5	3-5 ⁴	8-9 ³ / ₄ "	5	91	2
	7 AM Sep. 27 - 7 PM Sep. 27	12	1-3	≤6" or 9-9 ³ / ₄ "	5	105	3
	7 AM Sep. 29 - 7 PM Sep. 29	12	1-3	≤6" or 9-9 ³ / ₄ "	5	109	13
	8 PM Sep. 27 – 1 AM Sep. 28	5	4-5	8-9 ³ / ₄ "	5	41	0
	8 PM Sep. 29 – 1 AM Sep. 30	5	4-5	8-9 ³ / ₄ "	5	31	0
	7 AM Sep. 30 - 7 AM Oct. 1	24	1-3	9 ³ / ₄ " max	5	124	9
	1 AM Sep. 30 – 7 AM Oct. 1	30	4-5	8-9 ³ / ₄ "	5	17	0
	7 AM Oct. 4 - 7 AM Oct. 5	24	1-5	9 ³ / ₄ " max	5	170	4
	7 AM Oct. 7 - 7 AM Oct. 8	24	1-5	9 ³ / ₄ " max	5	272	3
	7 AM Oct. 11 - 7 AM Oct. 12	24	1-5	9 ³ / ₄ " max	5	267	3
	7 AM Oct. 14 - 7 AM Oct. 15	24	1-5	9 ³ / ₄ " max	5	130	3
	7 AM Oct. 18 - 7 AM Oct. 19	24	1-5	9 ³ / ₄ " max	5	145	6
	7 AM Oct. 20 - 7 AM Oct. 22	48	1-5	9 ³ / ₄ " max	10	498	1
7 AM Oct. 25 - 7 AM Oct. 26	24	2-5	9 ³ / ₄ " max	10	296	0	
7 AM Oct. 27 - 7 AM Oct. 29	48	2-5	9 ³ / ₄ " max	10	435	0	
						3,219	51

1. Sturgeon possession and sales limit (per vessel per week)
2. Mouth to Longview Bridge
3. No minimum mesh size downstream of Longview Bridge and an 8" minimum upstream of Longview Bridge
4. Longview Bridge to Beacon Rock

Table 6. Estimated Catch of White Sturgeon (in 1000's) in Legal Foot-length Groups in Lower Columbia River Commercial and Sport Fisheries, 1977-2004.¹

Year	Sport Fisheries ²							Commercial Fisheries ³				
	3-4 Ft		4-5 Ft		5-6 Ft		Total	4-5 Ft		5-6 Ft		Total
	No.	%	No.	%	No.	%		No.	%	No.	%	
1977	20.1	78	4.4	17	1.3	5	25.8	9.1	94	0.6	6	9.7
1978	23.1	76	5.7	19	1.6	5	30.4	9.2	94	0.6	6	9.8
1979	23.5	75	6.1	19	1.8	6	31.4	19.2	94	1.3	6	20.5
1977-1979 Average	22.2	76	5.4	18	1.6	5	29.2	12.5	94	0.8	6	13.3
1980	21.3	79	4.1	15	1.6	6	27.0	9.1	97	0.3	3	9.4
1981	21.3	78	4.5	17	1.4	5	27.2	14.2	95	0.7	5	14.9
1982	19.7	78	4.3	17	1.1	4	25.1	10.8	93	0.8	7	11.6
1983	26.2	73	7.2	20	2.6	7	36.0	11.2	90	1.2	10	12.4
1984	34.2	81	6.5	15	1.2	3	42.0	16.1	92	1.4	8	17.5
1980-1984 Average	24.5	78	5.3	15	1.6	5	31.5	12.3	93	0.9	7	13.2
1985	37.0	84	5.3	12	1.5	3	43.8	7.6	90	0.8	10	8.4
1986	42.3	85	6.0	12	1.5	3	49.8	10.4	90	1.1	9	11.6
1987	55.0	88	5.9	9	1.6	3	62.4	8.8	91	0.8	8	9.7
1988	37.5	87	4.2	9	1.5	3	43.1	6.2	91	0.6	9	6.8
1989	20.8	82	3.5	14	1.0	4	25.4	4.5	90	0.5	10	5.0
1985-1989 Average	38.5	86	5.0	11	1.4	3	44.9	7.5	90	0.8	10	8.3
1990	14.0	81	2.5	14	0.7	4	17.3	4.6	87	0.6	11	5.3
1991	19.6	86	2.2	10	0.8	4	22.7	3.4	89	0.3	8	3.8
1992	34.9	87	4.2	10	1.0	3	40.1	6.0	97	0.2	3	6.2
1993	33.4	88	3.9	10	0.6	2	37.9	7.9	98	0.2	2	8.1
1994	25.9	77	7.0	21	0.6	2	33.5	6.3	98	0.1	2	6.4
1990-1994 Average	25.6	84	4.0	13	0.7	2	30.3	5.6	93	0.3	5	6.0
1995	35.9	80	8.9	20	0.3	1	45.1	6.1	98	0.1	2	6.2
1996	30.7	72	11.4	27	0.6	1	42.8	8.3	99	0.1	1	8.4
1997	29.0	76	9.1	24	<0.1	<1	38.2	12.8	100	0.0	0	12.8
1998	32.1	77	9.4	23	0.1	<1	41.6	13.9	100	0.0	0	13.9
1999	31.9	80	7.9	20	<0.1	<1	39.8	9.5	100	0.0	0	9.5
1995-1999 Average	31.9	77	9.3	22	0.2	<1	41.5	10.1	99	<0.1	<1	10.2
2000	33.3	82	7.2	18	<0.1	<1	40.5	10.9	100	0.0	0	10.9
2001	31.4	76	9.8	24	<0.1	<1	41.2	9.3	100	0.0	0	9.3
2002	29.1	78	8.4	22	<0.1	<1	37.5	9.8	100	0.0	0	9.8
2003 ⁴	21.0	65	10.9	35	<0.1	<1	31.9	8.0	100	0.0	0	8.0
2004 ⁵	13.3	53	11.7	47	<0.1	<1	25.0	7.9	100	0.0	0	7.9
2000-2004 Average ⁵	25.9	71	9.8	29	<0.1	<1	35.7	9.2	100	0.0	0	9.2

1. Individual columns may not add up to total column due to rounding errors.
2. White sturgeon legal size limits were 36"-72" during 1977-1988, 40"-72" during 1989-1993, 42"-66" during 1994-1996, and 42"-60" thereafter.
3. White sturgeon legal size limits were 48"-72" during 1977-1992, 48"-66" during 1993-1996, 48"-60" thereafter.
4. Commercial data is preliminary
5. Preliminary data

Bonneville Pool		The Dalles Pool		John Day Pool	
Year(s)	Abundance Estimate	Year	Abundance Estimate	Year	Abundance Estimate
1976-1978	5,400	1987	18,900	1990	2,200
1989	17,900	1988	6,300	1996	24,100
1994	19,800	1994	6,500	2001	14,200
1999	45,600	1997	46,800	2004	N/A
2003	34,220	2002	20,600		

Year	Treaty Indian Commercial			Treaty Indian Subsistence ¹	Non-Indian Sport ²
	Gill Net	Setline	Total		
1977	0.3	0.3	0.6	--	--
1978	0.4	0.3	0.7	--	--
1979	0.6	0.7	1.3	--	--
1980	0.4	1.4	1.8	--	5.0
1981	0.2	1.8	2.0	--	5.0
1982	0.2	1.1	1.3	--	5.0
1983	0.3	1.1	1.4	--	5.0
1984	1.1	1.7	2.8	--	5.0
1985	3.0	2.0	5.0	--	5.0
1986	6.2	3.3	9.5	--	5.0
1987	7.9	3.2	11.1	--	6.7
1988	3.8	0.4	4.1	--	3.3
1989	3.1	0.4	3.5	0.5	4.0
1990	3.1	0.3	3.4	--	3.1
1991	1.2	0.3	1.5	--	2.6
1992	0.6	1.0	1.6	0.2	2.0
1993	2.0	<0.1	2.0	0.3	2.6
1994	1.5	0.1	1.6	0.7	2.6
1995	2.0	0.1	2.1	1.1	1.5
1996	0.5	1.1	1.6	0.5	1.5
1997	2.6	1.0	3.6	0.2	2.1
1998	2.8	0.9	3.7	0.2	3.1
1999	1.7	1.4	3.1	0.2	2.4
2000	2.2	1.1	3.3	0.3	2.5
2001	2.4	0.9	3.3	0.5	2.4
2002	1.5	0.5	2.0	0.4	2.6
2003	1.3	0.2	1.5	0.4	2.1
2004 ³	1.7	0.0	1.7	0.3	1.2

1. Subsistence catch numbers prior to 1992 not available, except for fall season of 1989.
2. Sport catch was estimated to average 5,000 per year 1980-86, and since 1987, estimates are based on creel surveys and angler-returned catch records.
3. Preliminary.

Table 9. Annual Catch Estimates and Guidelines for Commercial and Sport Fisheries Occurring in the Zone 6 Management Area, 1991-2004.

Year	Bonneville Pool		The Dalles Pool		John Day Pool	
	Catch	Guideline	Catch	Guideline	Catch	Guideline
<i>Commercial Fisheries</i>						
1991	999	1,250	457	300	39	100
1992	1,146	"	431	"	23	"
1993	1,415	"	579	"	12	"
1994	1,176	"	309	"	117	"
1995	1,421	"	312	"	308	"
1996	1,005	"	230	"	360	"
1997	1,852	1,300	498	400	1,260	1,160
1998	1,462	"	1,108	1,000-1,200	1,100	"
1999	1,280	"	1,051	"	760	"
2000	1,165	"	1,342	"	788	"
2001	1,287	"	1,215	1,100	755	"
2002	472	"	1,152	"	326	335
2003	379	1,200	811	900	251	"
2004 ¹	464	400	975	"	309	"
<i>Sport Fisheries</i>						
1991	2,270	1,350	199	100	150	100
1992	1,717	"	139	"	147	"
1993	2,307	"	158	"	144	"
1994	2,223	"	154	"	234	"
1995	1,370	"	50	"	53	"
1996	1,353	"	80	"	62	"
1997	1,463	1,520	178	200	464	560
1998	1,626	"	857	600-800	593	"
1999	1,235	"	695	"	422	"
2000	1,262	"	809	"	434	"
2001	1,426	"	677	700	299	"
2002	1,560	"	878	"	187	165
2003	1,542	1,700	447	400	186	"
2004 ¹	671	700	424	"	153	"

1. Preliminary estimates.

Table 10. Sport Fishery Retention Restrictions in the Zone 6 Management Area, 1994-2004.¹

Year	Bonneville Pool	The Dalles Pool	John Day Pool
1994	All of Zone 6 closed to retention during September 16-December 31.		
1995	April 25-December 31	June 1-December 31	June 1-December 31
1996	April 1-December 31	May 1-December 31	May 1-December 31
1997	April 5-December 31	May 5-December 31	September 2-December 31
1998	April 20-December 31	June 8-December 31	November 23-December 31
1999	April 17-December 31	June 12-December 31	Retention allowed all year
2000	April 8-December 31	June 19-December 31	Retention allowed all year
2001	August 13-December 31	April 9-December 31	Retention allowed all year
2002	August 5-September 27	July 13-December 31	August 24-December 31
2003	July 7-December 31	June 21-December 31	July 28-December 31
2004	June 26 – December 31	June 28 – December 31	July 12 – December 31

1. Dates during which restrictions were in effect.

Table 11. Treaty Indian Commercial Setline and Gill Net Seasons and White Sturgeon Catch in the Columbia River, Between Bonneville and McNary Dams, 2000-2004.

Fishery	Date	Open Pools	Length	Mesh Size	Catch
2000					
Setline	January 1-31	All	1 month	--	60
"	March 20-June 10	BO	82 days	--	514
"	March 20-July 31	JD	133 days	--	156
"	August 8-August 20	JD	13 days	--	49
"	October 2-December 31	JD	91 days	--	160
Winter	February 1-March 18	All	46 days	None	2,388
Sockeye	Closed season	--	--	--	--
Fall	Closed Season	--	--	--	--
Total					3,327
2001					
Setline	January 1-31	All	1 month	--	35
"	June 1-August 18 ¹	BO, JD	79 days	--	638
"	October 1-December 31	BO, JD	3 months	--	293
Winter	February 1-March 14	All	42 days	None	1,961
Spring	Closed season	--	--	--	--
Sockeye	Closed season	--	--	--	4
Fall	November 14-20	BO, JD	7 days	8½" minimum	368
"	November 23-30	BO	8 days	Diver nets only	--
"	November 23-December 7	JD	15 days	--	--
Total					3,299
2002					
Setline	January 1-31	All	1 month	--	10
"	June 1-August 17	BO, TD	78 days	--	229
"	October 1-27	TD	27 days	--	101
"	October 1-December 15	BO	2½ months	--	108
Winter	February 1-March 21 ²	All	49 days	None	1,502
Spring	Closed season	--	--	--	--
Sockeye	Closed season	--	--	--	--
Fall	Closed season	--	--	--	--
Total					1,950
2003					
Setline	January 1-31	All	1 month	--	20
"	June 9-August 23 (Closed July 12-21)	BO, JD	68 days	--	127
"	October 13-December 31	BO, JD	80 days	--	43
Winter	February 1-March 21	All	49 days	None	1,339
Spring	Closed season	--	--	--	--
Sockeye	Closed season	--	--	--	--
Fall	Closed season	--	--	--	--
"	December 1-December 14	BO	14 days	8½" minimum	0
Total					1,529
2004 ³					
Setline	January 1-31	All	1 month	--	0
Winter	February 2-March 10	BO, TD	38 days	None	1,439
"	February 2-March 21	JD	49 days	None	309
Spring	Closed season	--	--	--	--
Sockeye	Closed season	--	--	--	--
Fall	Closed season	--	--	--	--
Total					1,748

1. Includes 38 sturgeon landed during hook and line fisheries.

2. John Day Pool closed March 15, 2002.

3. Preliminary.

Reservoir	January Setline	Winter Gill Net	Summer Setline	Fall Setline	Commercial Total	Guideline
Bonneville	0	464	0	0	464	400
The Dalles	0	975	0	0	975	900
John Day	0	309	0	0	309	335
Total	0	1,748	0	0	1,748	1,635

1. Preliminary.

Year(s)		Columbia River	Grays River	Cowlitz River	Kalama River	Lewis River	Sandy River	Total
1938-1949	Range	200-1,000	0-59	1-3,000	0-77	0-2,000	0-1,400	1,000-5,700
	Average	610	18	1,400	13	300	300	3,000
1950-1959	Range	400-1,300	0-16	0-2,000	0-44	0-900	0-500	1,300-2,600
	Average	800	3	700	11	200	100	1,800
1960-1969	Range	100-800	0-53	1,000	0-0	0-82	0-0	800-1,500
	Average	700	10	600	0	8	0	1,100
1970-1979	Range	900	0-6	100	0-300	0-900	0-800	500-3,200
	Average	300	1	1,400	4	100	100	2,000
1980-1989	Range	53-500	0-35	100-3,700	0-8	0-2,700	0-300	500-3,800
	Average	200	4	2,500	1	600	59	2,400
1990		6.4	0.0	2,756.2	0.0	21.6	0.0	2,784.2
1991		5.8	0.0	2,944.6	0.0	0.0	0.0	2,950.4
1992		0.8	0.0	3,673.0	0.0	0.0	0.0	3,673.8
1993		33.2	0.0	413.9	66.8	0.0	0.0	513.9
1994		0.2	0.0	43.2	0.0	0.0	0.0	43.4
1995		7.7	0.0	431.4	0.9	0.0	0.0	440.0
1996		7.1	0.0	2.0	0.0	0.0	0.0	9.1
1997		37.1	0.0	21.5	0.0	0.0	0.0	58.6
1998		11.9	0.0	0.2	0.0	0.0	0.0	12.1
1999		20.9	0.0	0.0	0.0	0.0	0.0	20.9
2000		31.0	0.0	0.0	0.0	0.0	0.0	31.0
2001		158.8	0.0	154.3	0.0	0.0	0.0	313.1
2002		58.0	0.0	169.6	0.0	493.6	0.0	721.2
2003		66.9	0.0	464.4	0.0	529.1	23.0	1,083.4
2004		14.8	0.0	120.1	0.0	0.0	0.0	134.9

Table 14. Weekly CPUE's Through mid-February and Total CPUE and Catch in Columbia River Commercial Fisheries, 1988-2004.¹										
Year	CPUE's By Statistical Week								Season Totals	
	1	2	3	4	5	6	7	8	CPUE	Catch ²
1988	0	0	125	702	78	214	0	0	535	14,500
1989	0	0	0	101	0	0	0	0	1,396	58,600
1990	0	409	445	1,650	0	0	0	0	709	6,400
1991	0	0	86	113	0	107	685	0	389	5,800
1992	0	0	0	0	0	232	290	0	192	2,300
1993	0	0	0	0	18	0	224	2,136	1,841	29,500
1994	0	53	0	0	0	0	0	0	59	235
1995	150	59	8	48	550	157	265	31	180	7,600
1996	50	46	41	151	124	0	445	59	95	7,100
1997	0	22	79	94	168	216	672	214	304	37,100
1998	0	0	40	223	94	30	17	0	134	11,800
1999	0	25	21	123	146	183	297	110	172	20,800
2000	151	37	195	63	371	123	312	266	185	31,040
2001	0	0	0	0	0	520	1,604	2,322	1,985	158,800
2002	27	371	733	3,925	1,433	1,041	164	0	1,567	57,990
2003	64	497	1,260	0	445	590	778	4,350	1,133	66,880
2004	0	0	0	0	100	845	70	26	477	14,788

1. CPUE-Catch per unit effort as measured by pounds per delivery. While statistical weeks may vary year to year, they essentially represent the first eight calendar weeks of the year (about January 1 through February 15).
2. Season total catch may include catch during the previous December (e.g. December 2003 through March 2004 would be the 2004 Season).

Table 15. Age Composition of Eulachon Bycatch in the West Vancouver Island Shrimp Fishery, 1999-2004.									
Ocean Year	No. of Age 1+ Smelt (millions)	Columbia River Return Year			No. of Age 2+ Smelt (millions)	Columbia River Return Year			
		Age 3	Age 4	Age 5		Age 3	Age 4	Age 5	
1999	11.8	2001	2002	2003	21.2	2000	2001	2002	
2000	208.9	2002	2003	2004	27.8	2001	2002	2003	
2001	102.6	2003	2004	2005	219.2	2002	2003	2004	
2002	311.7	2004	2005	2006	458.8	2003	2004	2005	
2003	215.6	2005	2006	2007	270.7	2004	2005	2006	
2004	N/A	2006	2007	2008	N/A	2005	2006	2007	

Table 16. Results of Larval Sampling Program in the Lower Columbia River Basin.¹							
Year	Catch (Larvae Per M ³)						
	Mainstem Columbia	Cowlitz River	Grays River	Elochoman River	Kalama River	Lewis River	Sandy River
1986	N/S	8.1	N/S	N/S	N/S	N/S	N/S
1994	N/S	0.7	N/S	N/S	N/S	N/S	N/S
1995	N/S	19.7	N/S	N/S	32.4	N/S	N/S
1996	0.8	1.2	N/S	N/S	0.2	N/S	N/S
1997	3.9	0.7	N/S	1.5	0.3	0.0	N/S
1998	0.9	0.5	2.8	22.1	0.3	0.0	0.1
1999	0.7	0.2	0.6	0.8	0.4	0.0	0.1
2000	1.3	41.6	25.7	3.5	0.1	0.2	0.1
2001	42.1	192.0	24.4	0.0	5.5	17.6	N/S
2002	28.2	283.0	N/S	N/S	0.5	0.6	N/S
2003	12.3	1.4	N/S	24.5	N/S	36.2	0.1
2004	3.5	0.9	20.4	N/S	N/S	N/S	N/S

1. Interannual comparisons of abundance are tentative as sampling has not been systematic from year to year. N/S = not sampled

Table 17. Mainstem Columbia River Commercial Smelt Seasons, 1960-2004.¹			
Year	Season	Weekly Period	Days Open
1960-1964	Jan. 1 – Dec. 31	12 PM Sat – 12 AM Wed	~255
1965-1966	Jan. 1 – Dec. 31	12 AM Sat – 12 AM Thu	~307
1967-1977	Jan. 1 – Dec. 31	12 PM Sat – 12 AM Wed	~255
1978-1984	Jan. 1 – Dec. 31	7 days/week	365
1985	Jan. 1 – Dec. 31 (Feb. 22 – Mar. 1)	7 days/week (Lower deadline at Cowlitz R)	365
1986-1994	Dec. 1 – Mar. 31	7 days/week	121
1995	Dec. 7 – Jan. 7 Jan. 7 – Mar. 31	7 days/week 8 PM Sat – 8 AM Wed	38 48
1996	Dec. 1 – Feb. 2 Feb. 3 – Mar. 31	7 days/week Noon Mon – 6 PM Fri	64 32
1997	Dec. 1 – Jan. 27 Jan. 30 – Feb. 21	7 days/week 6 AM Thu – 6 PM Fri	58 8
1998	Dec. 1 – Dec. 31 Jan. 2 – Feb. 13	7 days/week 6 AM – 6 PM Mon & Fri	31 13
1999	Dec. 1 - Dec. 23 Dec. 30 - Feb. 10	7 days/week 7 AM - 7 PM Wed	23 7
2000	Dec 1 - Dec 26 Dec. 29 Feb. 23	7 days/week 7 AM - 7 PM Wed	26 9
2001	Dec 1 - Dec 31 Jan. 3 - Mar. 7 Mar. 12 - Mar. 31	7 days/week 3 AM - 9 PM Wed 3 AM - 9 PM Mon & Wed	31 10 6
2002	Dec. 1 Dec. 31 Jan. 2 Jan. 31 Feb. 1 Mar. 31	7 days/week 3 AM - 9 PM Sun & Wed 3 AM - 9 PM Sun, Wed & Fri	31 9 26
2003	Dec. 1 Dec. 31 Jan. 1 Mar. 31	7 days/week 3 AM - 9 PM Sun, Tues, Thur, & Fri	31 51
2004	Dec. 1- Dec. 31 Jan. 1 - Mar. 21 Mar. 26 Mar. 28	7 days/week 3 AM – 9PM Sun, Tues, Thur, & Fri 3 AM – 9 PM 3 AM – 9 PM	31 34 1 1

1. Does not include commercial seasons in the Washington tributaries.

Table 18. Lower Columbia River Basin Sport Smelt Seasons, 1960-2004

1960-1996	Columbia River and tributaries open seven days per week the entire year.
1997	Columbia River and Oregon tributaries open seven days per week the entire year. Washington tributaries closed effective February 28.
1998	Columbia River and Oregon tributaries open seven days per week the entire year. Washington tributaries closed effective February 2.
1999	Columbia River and Oregon tributaries open seven days per week the entire year. Washington tributaries were open on Wednesdays and Saturdays from January 2, 1999 through February 13, 1999.
2000	The Oregon portion of the Columbia River and Oregon tributaries open 7 days per week the entire year. The Cowlitz River was open on Fridays and Saturdays from December 31, 1999 through February 26, 2000. The Washington portion of the Columbia River and all other Washington tributaries were closed the entire year.
2001	The Oregon portion of the Columbia River and Oregon tributaries open seven days per week the entire year and the Washington portion of the Columbia River was open 7 days per week during February 24-March 31, 2001. The Cowlitz River was open on Saturdays during January 6- March 6, 2001. All Washington tributaries, including the Cowlitz River, were open on Saturdays, Sundays, and Wednesdays during March 7-18, 2001 and Saturdays, Sundays, Mondays, and Wednesdays during March 19-31, 2001.
2002	The Columbia River and Oregon tributaries open 7 days per week the entire year. Washington tributaries open Saturdays, Sundays, and Wednesday from 6 AM to 10 PM during January 1-February 25, 2002. Washington tributaries open 7 days per week from 6 AM to 10 PM during February 26-March 31, 2002.
2003	The Columbia River and Oregon tributaries open 7 days per week the entire year. Washington tributaries open 7 days per week from 6 AM to 10 PM during January 1-March 31, 2003.
2004	The Oregon portion of the Columbia River and Oregon tributaries open seven days per week the entire year (25-lbs. daily limit), and the Washington portion of the Columbia River was open 7 days per week during January 1- March 31, 2004 (20-lbs. daily limit). Washington tributaries were open 7 days per week from 6 AM to 10 PM during January 1 – March 19, 2004, and on Wednesdays and Saturdays from 6 AM to 10 PM during March 19-31, 2004 (20-lbs. daily limit).