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Department of*  
**FISH and  
WILDLIFE**

**JOINT STAFF REPORT  
CONCERNING COMMERCIAL SEASONS  
FOR STURGEON AND SMELT IN 2006**

**Joint Columbia River Management Staff**

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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 15, 2005 at the Cowlitz County PUD building, 921 12<sup>th</sup> Avenue, Longview, 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 19<sup>th</sup> century due to over fishing, and remained depressed through the first half of the 20<sup>th</sup> 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 and currently is considered healthy. An estimated one million white sturgeon larger than two feet in length inhabited the lower Columbia River (downstream of Bonneville Dam) by the late 1980's. In general, indicators of sublegal (<42 inches) and oversize (>60 inches) white sturgeon abundance remain stable at this time. Since 1996, abundance of harvestable size white sturgeon in the lower Columbia River has declined slightly (Table 1), in contrast to modeling results which predicted that recent management actions would result in increased abundance.

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. With the exception of 1994, annual abundance estimates have been produced since 1987. Abundance estimates for harvestable size (42-60 inches) fish steadily increased from 1991 through 1995, then declined by an average of 4% per year through 2002 before increasing in 2003 (Table 1).

Abundance was likely overestimated in 1995 due to a mass emigration of white sturgeon from the lower Columbia River. The mark/recapture estimator used is sensitive to significant numbers of tagged fish leaving the river for extended periods of time and tends to overestimate abundance in these situations. Tag recoveries from outside the Columbia River Basin indicate that this emigration began in 1995 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 smelt, 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 to redirect tagging efforts to May and June and discontinue tagging in July and August in order to produce more precise estimates. One caveat of the estimates based on May and June tag groups is that, although the result is a more consistent trend, the estimates are typically lower than those based on July and August tag groups. It may be that the May and June 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 through 2003 were expanded in both time and area to address the concern that the estuary component of the population was being over-sampled. Tagging operations were conducted in May, June and July and were expanded in area to include sites throughout the lower Columbia River.

An estimated 135,300, 42-60 inch white sturgeon inhabited the lower Columbia River in 2003-04; however, new complications were encountered in making the estimate. 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 fisheries 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. Results suggest that numbers of fish in this size class declined in 2001 and 2002 before stabilizing in 2003 (Table 1). Recapture data was available through October 2004 for the 48-60 inch size class and results indicate the number of white sturgeon in this size class increased for the third straight year.

An estimate of legal size abundance is not available for tagging conducted in 2004. Tagging efforts were delayed until August and September, preventing an estimate comparable to previous years' estimates that relied on May through June tagging.

The number of sturgeon kept per angler trip in the sport fishery also declined by an average of 4-5% per year from 1996 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. Catch rate data for the 2004 and 2005 recreational fishery is not comparable to prior years' 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 the Columbia River white sturgeon population collapsed due to excessive harvest. 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 and importance 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. 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. 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. Catch guidelines were adopted for commercial fisheries beginning in 1993 and in 1997 for recreational fisheries (Table 3). These regulation changes culminated in a Joint State Management Agreement concerning lower Columbia River white sturgeon which was used to guide Columbia River sturgeon management for future years. 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.

## **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 commercial and 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. The tenets of the plan also allowed for modifications 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.

In December of 2002 the ODFW and WDFW readopted the Joint State Agreement for a third consecutive 3-year period, 2003-2005. A continuing trend of declining abundance estimates reduced the harvestable number from 50,000 to 40,000. The 80%/20% sport/commercial allocation remained in effect. Other tenets of the Joint State Agreement remained unchanged from previous agreements.

<b><i>Major Tenets of the Joint State Agreement on Columbia River Sturgeon Fishery Management</i></b>	
✓	<b>3-year plan extended through 2003-2005</b>
✓	Management based on optimum sustained yield approach.
✓	Plan can be modified in-season if new information suggests a change is warranted.
<b><u>White Sturgeon</u></b>	
✓	<b>Absent significant update, annual harvestable number averages 40,000 for the 3-year period.</b>
✓	<b>Allocation for fisheries in the lower Columbia River are 20% commercial and 80% sport.</b>
➤	<b>8,000 for commercial fisheries</b>
➤	<b>32,000 for recreational fisheries</b>
✓	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.
<b><u>Green Sturgeon</u></b>	
✓	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 number of harvestable white sturgeon declined steadily from 67,300 during 1996-1997 to 50,000 during 1998-2002 to 40,000 in 2003. The decline resulted in increased fishery management restrictions for both sport and commercial fisheries. To provide guidance for development of sport and commercial fisheries during 2003-2005, the Oregon Fish and Wildlife Commission (OFWC) and Washington Fish and Wildlife Commission (WFWC) established the following sturgeon management protocol. These protocol included management objectives for both fisheries and guidance on allocation of the sport fishery catch guideline between the areas downstream (estuary) and upstream (non-estuary) of the Wauna powerlines.

<b><i>Protocol for Regulations Regarding White Sturgeon Retention in Sport Fisheries During 2003-2005.</i></b>	
<b>Fishery Objectives</b>	
✓	Minimize emergency inseason action.
✓	Balance catch between estuary and non-estuary and maintain diverse sport fishing opportunities.
✓	Maintain fishery monitoring and management capabilities.
<b>Catch Guideline and Allocation</b>	
✓	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.



***Protocol For Management of White Sturgeon Retention in Commercial Fisheries During 2003-2005.***

- ✓ 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.

In 2005 the commercial industry chose to re-allocate sturgeon harvest for the fall season by increasing the allowable harvest guideline for August fisheries to 2,600 sturgeon, leaving 3,000 sturgeon available for the late fall time frame. In addition, the tenets of the 2003-2005 plan called for a total commercial harvest of 24,000 sturgeon over the three year period. This allowed for the unharvested balance of 183 white sturgeon from 2003 and 2004 fisheries to be added to the available harvest for 2005, resulting in a maximum allowable commercial harvest of 8,183 fish.

Catch of white sturgeon in Select Areas is included in the annual commercial harvest allocation. 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. In 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 superseded 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.

A new sturgeon management plan is being developed for 2006 and beyond which will provide guidance on season structure, allocation and other issues for mainstem Columbia River and SAFE fisheries for both recreational and commercial industries.

## **Sturgeon Fisheries**

Reduced salmon fishing opportunities during the mid-1970's through the late 1990's 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 increased 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. Increased white sturgeon sport catch rates and increased commercial salmon fishing opportunities has exacerbated the situation, resulting in increased complexity of adopted seasons for both fisheries.

### **Past Commercial Sturgeon Seasons**

Since the late 19<sup>th</sup> century, 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). Under the Olympia Accord, target sturgeon seasons were 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. 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 catch guideline being reached in late August and sturgeon retention 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 2003-2004, 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. In 2005 similar season catch expectations were used to manage harvest, however the 2005 guideline increased to 8,200 white sturgeon with the addition of fish remaining from the 2003 and 2004 catch guidelines. To achieve season catch expectations and maintain sales of sturgeon throughout the late fall season, possession and sales limits of three to fifteen 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.

<b><i>Mainstem Commercial Seasons Harvesting White Sturgeon During 1997-2005 and Associated Catches.</i></b>
<b>Winter</b>
Target sturgeon fisheries consisted of two 30-hour fishing periods per week during the 2 <sup>nd</sup> 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. Seven 24-hour fishing periods occurred during January through late February, 2005. During 2002-2005, 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 500-3,100 fish.
<b>Summer</b>
During 2004, two 12-hour fishing periods occurred during late-June and early-July targeting sockeye and summer Chinook with only nine white sturgeon harvested. In 2005, six 10-hour fishing periods occurred during late June through late July targeting summer Chinook with 1,370 white sturgeon landed.
<b>Early August</b>
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 and 2005, 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 and 1,130 white sturgeon respectively. White sturgeon landings ranged between 1,100-4,700 during 1997-2004.
<b>Late August</b>
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 and 2005, four fishing periods (11-12 hours each) occurred during mid to late-August with varying area and possession limit restrictions (see Table 5) resulting in a harvest of 920 and 970 white sturgeon respectively. White sturgeon landings during 1997-2005 ranged between 60-1,020 fish.
<b>Late Fall</b>
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. Possession and sales limits during 2005 ranged from 3 (during two 24-hour periods) up to 15 and resulted in the harvest of 3,800 white sturgeon. Late fall season landings have ranged between 3,200 and 8,100 during 1997-2005, excluding 2001 when sales were prohibited after late-August.

## **2005 Commercial Fishery**

Commercial fisheries in 2005 were initiated with a winter target sturgeon season that consisted of seven 24-hour fishing periods between January 18 and February 25 in Zones 1-5. Gear regulations included 9-inch minimum and 9¾-inch maximum mesh size restrictions to target sturgeon and minimize the handle of spring chinook and steelhead. Landings during the 2005 winter target sturgeon fishery were less than expected with a total catch of 473 white sturgeon compared to the 2000-2004 average of 2,300 white sturgeon.

A commercial salmon season to selectively harvest hatchery-produced spring chinook followed consisting of seven fishing periods between March 1 and April 1 from the mouth upstream to Kelley Point. Gear was restricted to a 9-inch minimum mesh size during the first five periods (through

March 16) and a 4¼-inch maximum mesh size for the final two periods (March 29-30 and March 31-April 1). In addition to salmon, the sale of sturgeon was also allowed. Because landings during the winter sturgeon target fishery were lower than expected, no weekly sturgeon limits were established during the winter salmon demonstration fishery. Only 70 white sturgeon were landed, bringing the mainstem winter season sturgeon catch total to 543 (Table 5).

A commercial gill net fishery occurred during the summer of 2005 for the purpose of harvesting summer chinook and sturgeon. Six 10-hour nighttime fishing periods took place between June 23 and July 26 in Zones 1-5. The fishery was restricted to the use of 8-inch maximum mesh size to minimize the handle of non-target species. In addition, weekly sturgeon landing limits were set at eight sturgeon per vessel for the first four fishing periods and three sturgeon per vessel for the final three fishing periods. During this fishery 1,369 white sturgeon, and 38 green sturgeon were landed.

The early fall fishery consisted of eight fishing periods throughout August. The first season consisted of four nighttime fishing periods during August 4-12 in the mainstem Columbia River in Zones 1-5. The second season occurred during August 14-26 with the first two nighttime fishing periods in Zones 2-5 and the last two nighttime fishing periods in Zones 4-5. All fishing periods utilized an 8-inch minimum gear restriction, with the exception of the final two periods, which required a 9-inch minimum mesh size. August (early fall) sturgeon catch was managed for a catch of 2,600 white sturgeon. Weekly sturgeon landing limits were set at five white or green sturgeon per vessel during the August seasons in an attempt to remain within the catch guideline. An estimated 2,094 white sturgeon, and 32 green sturgeon were landed in August mainstem commercial fisheries (Table 5).

Late fall fisheries began on September 19 and were completed on October 28. Late fall fisheries targeted chinook and hatchery-produced coho salmon while managing sturgeon catch within the 3,000 white sturgeon guideline for this season (plus the 183 fish balance remaining from prior seasons). Sturgeon possession and sales limits (three to ten per vessel per calendar week) were continued into late fall fisheries and as a result, sturgeon retention and sales were 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 to wild coho and chum. Late fall fishing seasons totaled 20 fishing days and resulted in estimated landings of 3,793 white sturgeon, and 20 green sturgeon (Table 5).

Select Area commercial fisheries targeted returning salmon reared and released from net pens in off-channel areas throughout the year. Select Area salmon fisheries occurred in Youngs Bay during winter, spring, summer, and fall timeframes; in Blind Slough during winter, spring, and fall; in Deep River during spring and fall; and in Tongue Point during the fall. The sturgeon guideline for Select Area fisheries was 400 sturgeon for the entire year and not to exceed 300 sturgeon during winter, spring and summer seasons combined. As in the mainstem fisheries, sturgeon sales were allowed throughout all Select Area commercial seasons and weekly landing limits generally coincided with those set for concurrent mainstem fisheries. Select Area winter, spring and summer season landings totaled 279 white sturgeon with an additional 74 white sturgeon landed during the fall season. One green sturgeon was harvested in the Youngs Bay fall Select Area fishery during 2005.

An estimated 8,152 white sturgeon were landed in the combined mainstem and Select Area commercial fisheries in 2005, which is slightly less than the maximum commercial catch limit of 8,183 white sturgeon (Table 3). Mainstem fisheries landed 96% of the white sturgeon catch or 7,799 fish while Select Area fisheries landed 4% or 353 fish. An estimated 91 green sturgeon were landed during summer and fall fisheries in 2005, with 38 from the mainstem summer season, 32 from the August mainstem fishery, 20 from the late fall mainstem fishery, and one from Select Area fall fisheries (Table 5).

## **Past Recreational Sturgeon Fisheries**

The 2003-2005 Joint State Sturgeon Fishery Management Agreement set the average annual sport sturgeon catch guideline at 32,000 fish and allocated 60% of the catch to the estuary and 40% to non-estuary areas. Prior to the 2004 sport sturgeon season, the Joint Staff met with sport fishing industry representatives to craft fishery proposals for 2004 which would provide a variety of recreational fishing opportunities and maintain the sturgeon catch within the guidelines and allocations set forth in the Management Agreement. The 2004 sport sturgeon season was structured for a total catch of 27,000, with guidelines of 12,000 above Wauna and 15,000 below Wauna. The non-estuary fishery (above Wauna) was open for retention three days per week (Thursday, Friday, and Saturday) during February-July and October-December, with a retention closure during August-September. Catch rates in the fishery above Wauna were less than expected and the fishery proceeded as scheduled without the need for inseason management. The total catch for the sport fishery above Wauna during 2004 was 10,519 from 72,729 angler trips. The estuary fishery (below Wauna) was scheduled to be open for retention seven days per week during January-April and May 15-July 23, with a retention closure during May 1-14 and July 24-December 31. In addition, the minimum size limit increased from 42" to 45" in the estuary fishery during the May 15-July 23 retention period to extend the fishery for as long as possible. Catch rates in the estuary fishery greatly exceeded expectations and the fishery was closed to the retention of sturgeon on July 4. The total catch below Wauna during January 1-July 3, 2004 was 15,050 from 42,179 trips. The 2004 season produced a total catch of 25,569 white sturgeon (compared to a guideline of 27,000) from 114,908 angler trips.

## **2005 Recreational Sturgeon Fishery**

Prior to the start of the 2005 recreational sturgeon fishery, the Joint Staff met with sport fishing industry representatives during the fall of 2004 and developed options to manage the fishery for a total catch of 30,600 fish. The management protocol included catch guidelines of 17,800 for the area below Wauna and 12,800 for the area above Wauna. Since the Joint State Agreement considers total harvest for the 2003-2005 management period, 2005 catch guidelines were adjusted to include any unharvested fish from 2003 and 2004 fisheries. Accordingly, an additional 1,818 unharvested sturgeon were added to the 2005 allowable harvest for the sport fishery below the Wauna Powerlines. No additional fish remained from 2003-2004 sport fisheries above Wauna for rollover to 2005. Sport fishery options were considered at the December 16, 2004 Joint State hearing when the states adopted sturgeon fishing regulations for 2005. Based on the overall success of the 2004 sport sturgeon season and a similar catch guideline for 2005, regulations adopted for 2005 were very similar to those implemented in 2004. Regulations for the Columbia River above the Wauna power lines (River Mile 40), including all adjacent Washington tributaries and the Willamette River downstream of Willamette Falls (including Multnomah Channel), allowed the retention of sturgeon three days per week (Thursday-Saturday) during the periods January 1-July 31 and October 1-December 31. 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 14-July 4. For the May 14-July 4 retention season, the minimum size limit was increased from 42" to 45". Sturgeon retention below Wauna was prohibited from May 1 through May 13 and July 5 through December 31 (catch and release of sturgeon could continue during all retention closures).

The 2005 Columbia River sport sturgeon fishery above Wauna got off to an exceptionally slow start with 15,254 angler trips producing only 53 fish during the first three months of the season. Although effort was down from recent years, both total catch and catch rates were the lowest on record for the period January-March. Low water temperatures combined with a poor smelt run in the Columbia River, contributed to the poor catch rates during the early season. After the spring

chinook fishery closed on April 21, sturgeon angler effort and catch rates increased, particularly in the gorge, and catches improved in other areas of the lower river through the month of May. By the end of July, 4,975 sturgeon had been harvested in the area above Wauna from 47,213 trips.

The season below Wauna also began slower than expected with no white sturgeon caught through the end of April. The estuary fishery reopened on May 15 and catch rates were good during the later half of May. Angler effort in the estuary was high; however, catch rates during May and June of 2005 lagged behind catch rates observed for those months in 2004. By the end of June, 10,831 white sturgeon had been harvested in the area below Wauna (compared to the area allocation of 17,800), and it was clear that the fish remaining on the guideline would not be utilized by the original season end date of July 4. At a Joint State hearing on June 28, the states extended the retention season below Wauna through July 10 and after a brief closure during July 11-14, also during July 15-17. Angler effort in the estuary in July was lower than expected, so at a Joint State hearing on July 13, the fishery was extended from July 17 through August 15. The cumulative catch during May 14-July 10 and July 15-August 15, in the estuary was 17,911, which slightly exceeded the catch guideline of 17,800. The angler trip total in the estuary was 62,314.

The sport sturgeon season above Wauna reopened to the retention of sturgeon on October 1 and catch rates were excellent in the gorge area, particularly for bank anglers, resulting in a record October catch of 5,375 fish. The projected catch for the above Wauna fishery through December 31 is 12,663 fish from 73,377 angler trips. The preliminary total catch estimate for the Columbia River below Bonneville Dam in 2005 was 30,574 white sturgeon and 119 green sturgeon from 135,691 angler trips (Table 2). The 2005 sport catch in legal foot-length groups is projected to be 54% (16,500 fish) in the 3-4 foot size class (42-inch minimum allowable size, except 45-inch minimum below Wauna during May 14-August 15) and 46% (14,100 fish) in the 4-5 foot size class, as compared to the 1997-2004 averages of 71% and 29%, respectively (Table 6). The frequency of fish in the 4-5 foot size class (46%) is similar to the record 47% in 2004 which more than doubled the recent 7-year average. The 14,100 sturgeon catch for this size group is the highest on record.

## **Harvest Shares**

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 at 80% (32,000) for sport and 20% (8,000) for commercial. Fishery-specific maximum catch guidelines in 2004 were 28,800 for sport fisheries (reduced due to increase to 45-inch minimum size limit during part of the estuary fishery) and 8,000 for commercial fisheries. In 2005 both the sport and commercial fisheries' guidelines were increased due to fish remaining from 2003-2004 fisheries, which resulted in a sport fishery guideline of 30,600 and a commercial fishery guideline of 8,183. Sport fisheries were able to maintain a year-round retention fishery in 1999 but not during 2000-2005. During the nine years (1997-2005) of management under Joint State agreements, harvest shares have averaged 78.4% sport and 21.6% commercial (Table 4).

## **2006 Non-Indian Sturgeon Fisheries Recommendations**

### **Commercial Fisheries**

Due to the expiration of the 2003-2005 Joint State Accord, negotiations are on-going to develop commercial sturgeon retention protocols for 2006 and beyond. A commercial winter season target sturgeon fishery proposal for 2006 has not been developed at the time this report was written. The 2003-2005 commercial sturgeon retention protocol allocated 2,000 white sturgeon to winter fisheries, which includes landings during spring Chinook fisheries and any summer season fisheries through the end of July. In 2004 and 2005 target sturgeon fisheries consisted of one 24-hour period (Tuesday) each week from mid-January through mid-February, with no landing limits in place.

In accordance with the commercial white sturgeon retention protocol a post-season meeting will occur on December 7, 2005 to evaluate the currently adopted protocol and develop a white sturgeon fishing plan for 2006. 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 15, 2005 Compact hearing.

### **Sport Fisheries**

With the 2003-2005 sturgeon management agreement expiring and the ongoing process to develop a new Joint State sturgeon management agreement, the Joint Staff has not developed proposals for the 2006 sport fishery at this time. The Joint Staff will propose sport fishery recommendations at the December 15, 2005 Joint State meeting. Fishery recommendations will be consistent with the results of negotiations concerning 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**

## **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 freely 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 setlines. 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 in 2003, 20,600 in The Dalles Reservoir in 2002, and 12,770 in John Day Reservoir in 2004 (Table 7).

## **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 target sturgeon fisheries, while gillnet seasons usually target salmon or steelhead; however, 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 reservoir-specific quotas, with catch-and-release regulations in effect for the remainder of the year once quotas are achieved.

## **Management, Past Seasons and Landings**

Commercial white sturgeon catch in the Zone 6 management area increased significantly from a catch of only 600 fish in 1977 to 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 recommendations to shorten treaty Indian seasons and increase the minimum size limit in the sport fishery were adopted and took effect in 1988.



Beginning in 1988, treaty Indian setline seasons were reduced from 10 months to 4 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 restriction, 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).

In 1997 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 440 sturgeon annually (Table 8).

## **2005 Sturgeon Fisheries**

Fisheries occurring in Zone 6 in 2005 included treaty ceremonial and subsistence (C & S), treaty Indian commercial setline and gillnet, and non-Indian sport fisheries. Zone 6 commercial and sport fisheries were managed in accordance with catch guidelines set forth by the Task Force (Table 9). Commercial guidelines in Bonneville and John Day Pools were met by mid-March. An ongoing fall setline fishery was established in The Dalles Pool, since the guideline had not been reached in the winter gillnet fishery. As of November 16, a total of 1,719 white sturgeon were landed in 2005 treaty Indian commercial fisheries. Sport fishery guidelines were met between mid-June and mid-July (progressing from Bonneville Pool up to John Day Pool) with a total of 1,104 white sturgeon kept in non-Indian sport fisheries (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 2005. In Bonneville Pool, a 45-60 inch size limit has been in place since 2004. Sport fishery size limits have been 42-60 inch in Bonneville Pool, and 48-60 inch in The Dalles and John Day pools, since 1997.

### **2005 Setline Fisheries**

The treaty Indian winter setline fishery was open from January 1-31 in all three reservoirs, but produced landings of only 7 white sturgeon from Bonneville Pool. By the completion of the winter commercial gillnet season, the sturgeon catch guideline was reached in Bonneville and John Day pools, but only 82% of the guideline had been reached in The Dalles Pool. Subsequently, an additional setline season was adopted for The Dalles Pool, for the period of October 12 – December 31 (i.e., still underway at the time of this document's preparation). At the current rate of harvest, it is unlikely the guideline will be met by the end of the year (Table 11).

### **2005 Gillnet Fishery**

The treaty Indian winter season commercial fishery was open during February 1 through March 16 in Bonneville and The John Day pools, and February 1 through March 19 in The Dalles Pool. It produced white sturgeon landings of 543 in Bonneville Pool, 741 in The Dalles Pool, and 360 in John Day Pool. The catch guidelines for Bonneville and John Day pools were reached by the end of the winter season (Table 12).

### **2005 Subsistence Fishery**

Treaty Indian subsistence sturgeon fishing is open year-round, with small sanctuary closures around dams. Subsistence fishery catch in 2005 is estimated to be 312 white sturgeon (Table 8).

### **2005 Sport Fishery**

Sport retention seasons for each Zone 6 pool began January 1 and remained open until catch guidelines were reached. Retention of fish was allowed through June 10<sup>th</sup> in Bonneville Pool, through June 24<sup>th</sup> in The Dalles Pool, and through July 10<sup>th</sup> in the John Day Pool with catches of 588, 384, and 132, respectively (Tables 9 and 10). In 2005, retention was allowed in Bonneville Pool for 5½ months, comparable to the 2004 season of nearly 6 months. Retention was allowed in The Dalles Pool until the last week of June, which was similar to 2004. The John Day Pool fishery was open to retention for 6½ months in 2005, similar to 2004.

## **2006 Treaty Indian Sturgeon Fisheries Recommendations**

As per permanent regulations, treaty Indian commercial setline seasons are scheduled to begin January 1, 2006 and to end January 31, 2006. The Task Force is expected to meet in January to review 2005 harvests and agree to management options for 2006, including catch guidelines. The tribes are expected to propose winter season commercial gillnet fisheries in January to begin in early February.

## **2006 Recreational Zone 6 Sturgeon Fisheries Recommendations**

As per permanent regulations, seasons are scheduled to begin January 1, 2006 and will continue until guidelines are met. As stated above, the Task Force is expected to meet in January to review 2005 harvests and agree to management options and catch guidelines for 2006.

# 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, Lewis, Kalama, 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 total landings. Fisheries are valuable in ascertaining the relative strength of the run from year to year. For instance, smelt returns increased during 2001-2004, and then dropped dramatically in 2005, which is reflected in both the commercial landings and CPUE data collected during 2001-2005 (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 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. 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 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 abundance and is the first year since 1988 in which smelt returned to the Sandy River. In spite of limited fishing opportunities in 2001, 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 again in 2002, as compared to 2001, and total landings in 2002 were the largest since 1992. In spite of a limited market, total landings in 2003 exceeded 2002, and observed CPUE's in 2003 were 4-20 times greater than those observed during 1994-2000 (Table 14). The 2003 season was also the first since 1988 that smelt were commercially

landed from the Sandy River.

The 1999-2001 abundance and productivity indices pointed to a good return in 2004. The return of three year-old smelt 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 age-four and age-five smelt was expected. However, as the 2004 season progressed the returns did not meet expectations. The commercial landings in 2004 were 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 was the lowest since 2000, and less than half the 2003 observed CPUE (Table 14).

The good parental returns in 2000-2002 suggested that a moderately strong smelt run would occur in 2005. In particular, the return of three year-old fish was expected to 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 ocean rearing conditions are likely the overriding factor in determining stock abundance for the upcoming year. With the 2005 commercial landings being the lowest recorded since 1938 (Table 13), poor oceanic conditions may have played a role in the poor performance of the run. A similar precipitous drop in the Fraser River eulachon run (based on record low catches in the Canadian Department of Fisheries and Oceans' New Westminster eulachon test fishery), further suggest that ocean survival was very low.

### **Ocean Abundance**

The Pacific Decadal Oscillation (PDO) index is 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 and 2005. Warmer oceanic conditions since late 2002 probably had greater impacts on survival of the 1999-2002 broods than anticipated. These recent unfavorable ocean conditions are likely to significantly impact the survival of the 2001-2003 broods that comprise the 2006 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 early 2005. This may explain the poor returns in 2004 and 2005. It is likely that the warm ocean conditions are going to negatively impact the 2006 smelt return.

Recent mixed-stock analysis of the British Columbian eulachon catch has shown that the stocks sort out into three genetic groups, which are separated geographically. The Columbia River and Fraser River stocks tend to mix in southern coastal waters, and compose one of these genetic groups.

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 2003-2005. The decline was most significant in the 124 and 125 offshore sectors, with the 2004 and 2005 tonnage almost as low as the late 1990s. Declines in the 23 and 21 offshore sectors were less severe. The high levels of Age 1+ and Age 2+ smelt in the 2002 and 2003 WCVI bycatch suggests that returns of age 4 and 5 smelt to the Columbia River in 2006 might be good (Table 15). However, preliminary low level estimates of Age 1+ and Age 2+ smelt in the 2004 and 2005 WCVI bycatch suggest poor returns of age 3 smelt to the Columbia River in 2006. Preliminary estimates were prepared by WDFW staff, using some data provided by CDFO. The Joint Staff has not yet received the official CDFO age-specific information for 2004 and 2005. Lacking valid abundance by age information for 2004 and 2005, 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 2006.

### **Juvenile Production**

Beginning in the early 1990's, monitoring of juvenile emmigration was initiated to identify timing of peak out-migration and relative spawning success to develop more direct measures of brood-year strength, rather than relying on landings in the commercial fishery. A smelt larval sampling program that measures larval densities (averaged across stations and depths at selected index sites) 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). Information on spawning success coupled with sport and commercial fisheries data provides some indication of the relative annual run strength.

In past years larval sampling techniques on the Columbia River did not include repeat sampling of the same area over the duration of the out migration period. This could result in the data not accurately reflecting the overall abundance or peak out-migration. Beginning in 2003, multiple passes over the out-migrant season were conducted at the Price Island and Clifton Channel sites, which will provide the data necessary to identify the peak timing and duration of the out-migration from the bulk of the production areas. This systematic 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. 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. 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 2001-2003 winter out-migrations would suggest that the basin-wide production was consistently high across all brood years composing the 2006 run. However, good productivity does not always guarantee high returns (for example, 2004 and 2005 returns were poor despite good 2000-2002 larval production).

## **Smelt Fishery Management**

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).

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 beginning in 1995. 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 1997-1999 in response to continued poor smelt returns to the Columbia River (Tables 17 and 18).

The Oregon and Washington Joint State's smelt management and stock assessment activities had included 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 focused primarily on the lower Columbia River commercial fishery. Data gathered during catch sampling and fishery monitoring included daily landings, CPUE, length, weight, sex, and otolith collection and allowed for analysis of trends in catch by time and area, run timing, and sex and age composition through time. Otoliths were collected annually from 1987-1999 with aging data providing a 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. Fisheries adopted during 2000 were consistent with the interim Eulachon Management Plan.

In 2001, the WDFW, with input from ODFW, 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.

*Policy Recommendations for Eulachon Conservation and Fishery Management  
From the Joint State Eulachon Management Plan*

**Conservation Policy**

- ✓ 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.

**Fishery Management Recommendations**

- ✓ 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.



***Excerpts From the Joint State Eulachon Management Plan Describing Fisheries Recommended at Varying Run Size Expectations.***

**Level One Fisheries**

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.

**Level Two Fisheries**

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.

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.

**Level Three Fisheries**

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.

## 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 seven 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 four to five 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. In 1996, the season was modified effective February 3, reducing the mainstem and tributary seasons to 4¼ days per week. The 1997 commercial fisheries were modified to test fisheries, including one 36-hour fishing period per week from January 30 through February 21 in the mainstem Columbia River and January 28 through February 19 in the tributaries. The 1998 commercial fishery was modified to a test fishery, consisting of two, 12-hour periods weekly from January 2 to February 13 in the mainstem. Tributary fisheries were restricted to one, 36-hour period weekly from January 6-30.

In 1999, Washington tributaries were closed to commercial smelt fishing and two test fisheries were adopted for the lower Columbia River. A standard test fishery was conducted during daylight hours once a week for 12 hours between December 30 and February 10. The standard test fishery was open to all Columbia River commercial fishers with appropriate license and legal gear. A reduced test fishery limited to 1-3 commercial fishers was initiated on Sunday January 31, and operated once a week during daylight hours. The fishery concluded on February 18.

Smelt fisheries in 2000 reflected the continued trend of conservative management that was initiated in 1995. At the December Compact hearing the seven 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 extended the mainstem commercial fishery for one additional 12-hour fishing period to gain additional information concerning the strength of the smelt run. No additional fishing periods were adopted and the mainstem fishery was completed on February 23. As was the case in 1999, Washington tributaries were closed to commercial fishing the entire season.

A test fishery consistent with a Level One fishery was adopted for the 2001 fishing season. The fishery began on January 3 with one 18-hour fishing period per week. 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 highest in the database (Tables 13 and 14). In 2001, 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 was 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 (Table 13).

In accordance with the 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 for 2002. 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.

With the expectation of a large return, a Level Three fishery, consisting of four 18-hour fishing periods per week in the mainstem Columbia River was adopted. The mainstem Columbia River was also open for commercial fishing seven days per week during December 1-31 as per permanent regulations. Landings in the 2003 Columbia River mainstem fishery were larger than 2002 landings, but only half of 2001 (Table 14). The Cowlitz, Kalama, and Lewis rivers were open January 1, 2003 to commercial smelt dipping. Additional days and hours were added to the tributary fisheries effective March 7. The Sandy River was open year-round, seven days a week, 24-hours a day, per permanent regulations. No commercial take occurred in the Kalama River. Smelt were commercially harvested in the Sandy River for the first time since 1985.

The 2004 season started off at Level Three. The mainstem Columbia River was open seven days per week during December 2003 (as per permanent regulations) but Level Three restrictions took effect January 1, 2004, with fishing allowed seven days per week through March 31. The Cowlitz, Kalama, and Lewis rivers were open to commercial fishing four days a week (two 48-hour periods). Effective March 18, the tributary fishery was reduced to two 12-hour fishing periods per week, with the season ending March 31. The Sandy River in Oregon was again open year-round, seven days a week, 24 hours a day, per permanent regulations. Tributary landings were made in the Cowlitz River but no landings occurred in the Kalama, Lewis, or Sandy rivers.

## **2005 Commercial Fisheries**

Positive abundance indicators for 2005 included strong adult eulachon returns during 2001-2002, high mainstem Columbia River larval densities during the winters of 2001-2002, and high levels of smelt age 1+ and age 2+ bycatch in Canadian ocean shrimp fisheries during 2002-2003. Negative abundance indices for 2005 included a low 2000 run size, relatively low mainstem Columbia River larval densities during the winter of 2000, potentially poor ocean survival rates due to unfavorable ocean conditions since late 2001, and declining smelt bycatch in the Canadian ocean shrimp fisheries in both 2003 and 2004. Based on the above information, staff proposed a conservative Level 2 fishery in 2005. The mainstem Columbia River commercial fishery was open from 3 AM to 9 PM on Mondays and Thursdays. The Cowlitz and Lewis rivers were open from 6 PM Sunday to 6 AM Monday and 6 PM Wednesday to 6 AM Thursday. Minor mainstem landings occurred on January 24 (25 pounds) and January 31<sup>st</sup> (56 pounds), but nothing materialized in the tributary fisheries. The lack of returns prompted a reduction of the fishery to Level 1 on February 23. The mainstem fishery was limited to 3 AM to 9 PM Thursdays, fishing in the Cowlitz River was restricted to 6 PM Wednesday to 6 AM Thursday, and the commercial fishery in the Lewis River was closed. A landing of 27 pounds on the last day of the season (March 31) brought the total harvest for the mainstem Columbia River to 108 pounds, the lowest annual landings total on record. Just one landing of 100 pounds occurred in the Cowlitz River (on March 9-10). The Sandy River was open year-round, seven days a week, 24 hours a day, per permanent regulations. Typical of low run years, no smelt were taken in the Sandy River.

## **Past 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 daily limit remains 25 pounds per person. 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 some years when smelt are abundant for a long period of time.

In 1997, sport dipping in the Cowlitz River was poor throughout the run and was closed effective February 28 (Table 18). Washington tributaries closed for recreational smelt dipping on February 2 in 1998. In 1999 Washington tributaries were open to recreational smelt dipping, but only two days per week from January 2, through February 13. During 2000 the Cowlitz River was open to recreational dipping two days a week from January 1 through February 26, 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 fishery improved significantly in early March and the WDFW opened all Washington tributaries three days per week from March 7-31. Landings of smelt in the Sandy River sport fishery occurred for the first time since 1988.

All Washington tributaries were open 16 hours per day, three days a week from January 1 through February 25 with a 10-pound daily limit in place. Beginning February 26, all Washington tributaries were open 16 hours per day, seven days per week, 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 due to lack of returns.

The 2003 season started off at Level Three with all Washington tributaries open 16 hours per day, seven days a week, from January 1 through March 31. The mainstem Columbia River was open seven days per week on a 24-hour basis. Initially, Washington recreational fisheries were restricted to a 10-pound daily limit, however; on February 12, the daily bag limit was increased to 20 pounds per person. 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.

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 16 hours a day, seven days a week, from January 1 through March 31. The bag limit was set at 20 pounds per person. Effective March 18, the season was downgraded to 12 hours a day, three days a week. 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 Recreational Fisheries**

The 2005 season started off at Level Two. The mainstem Columbia River was open to both Washington and Oregon sport fishers seven days per week on a 24-hour basis, with a bag limit of 25 pounds per person. This remained in effect through March 31, despite a reduction of the fishery to Level One on February 23. Most of the lower Columbia River Washington tributaries (Grays, Cowlitz, Kalama, and Lewis rivers) were open from 6 AM to 10 PM, Tuesdays and Saturdays, from January 1 through March 31. The tributary bag limit was set at 10 pounds per person. The Washington tributary season was restricted to the Cowlitz River, 6 AM to 6 PM Saturdays, starting February 26 (corresponding to setting the fishery at Level One on February 23). The Washington

recreational fisheries closed March 31. All Oregon tributaries were open to sport dipping seven days per week the entire year as per permanent regulations.

### **2006 Smelt Fishery Recommendations**

A fishery will be proposed that is consistent with Level One fisheries described in the Joint State Eulachon Management Plan. Positive abundance indicators for 2006 include strong adult eulachon returns (landings and CPUE) during 2001-2003, high mainstem Columbia River larval densities during the winters of 2001-2003, high levels of smelt age 1+ and age 2+ bycatch in Canadian ocean shrimp fisheries during 2002-2003, a low but improving level of age 2+ bycatch in the Canadian ocean shrimp fisheries during 2005 (preliminary data), and strong abundances of pelagic fish in recent years. Negative abundance indices for 2006 include a significant decline in smelt bycatch in the Canadian ocean shrimp fisheries since 2002, low levels of smelt age 1+ bycatch in Canadian ocean shrimp fisheries during 2004-2005 (preliminary data), low level of age 2+ bycatch in the 2004 Canadian ocean shrimp fisheries (preliminary data), a major decline in the Fraser River eulachon test fishery catch in 2004-2005, the unexpected low return of spring chinook to the Columbia River in 2005, and potentially poor ocean survival rates due to unfavorable ocean conditions since late 2001. Based on what we learned from the 2004 smelt return, it appears prudent that managers put more weight on indices of ocean survival than on indices of freshwater production.

<i><b>Mainstem Commercial Joint Staff Recommendation</b></i>	
The Joint Staff will recommend a Level One commercial smelt fishing season at the December 15, 2005 Compact hearing.	
Season:	Close ongoing 7-day per week fishery, and adopt Level One fishery beginning January 1 through March 31, 2006.
Hours	Level One allows for one weekly fishing period, open hours are expected to be 3AM to 9 PM (18 hours).
Area	Zones 1-5
Gear	As per permanent regulations

<i><b>Tributary Commercial Joint Staff Recommendation</b></i>	
The Joint Staff will recommend a Level One commercial smelt fishing season at the December 15, 2005 Compact hearing.	
Season:	Open one period per week in the Cowlitz River (below Peterson's Eddy), beginning January 1, 2006 and continuing through March 31, 2006.
Open Days:	Level One allows for only one fishing period per week.
Hours:	Level One allows for a 12-24 hour period.
Gear:	As per permanent regulations

<b>Mainstem Recreational Joint Staff Recommendation</b>	
The Joint Staff will recommend a Level One recreational smelt fishing season at the December 15, 2005 Compact hearing.	
Season:	January 1 through March 31, 2006.
Area	Zones 1-5
Open Days:	7 days per week
Hours:	24 hours per day
Gear/limit :	Dip nets only, daily limit to be determined.

<b>Tributary Recreational Joint Staff Recommendation</b>	
The Joint Staff will recommend a Level One recreational smelt fishing season at the December 15, 2005 Compact hearing.	
Season:	Open one period per week in the Cowlitz River beginning January 1, 2006 and continuing through March 31, 2006.
Open Day:	Level One allows for only one fishing period per week.
Hours:	Level One allows for a 12-24 hour period.
Gear/Limit:	Dip nets only; 10 pound daily limit per person.

## **ENDANGERED SPECIES ACT (ESA)**

### **Salmon and Steelhead**

Status reviews occurring since 1991 have resulted in the majority of Columbia Basin salmon and steelhead stocks being listed under the ESA. The *U.S. v Oregon* Technical Advisory Committee (TAC) has prepared biological assessments (BAs) for combined fisheries based on relevant *U.S. v Oregon* management plans and agreements. The TAC has completed BAs of impacts to all ESA-listed salmonid stocks (including steelhead) for all mainstem Columbia River fisheries since January 1992 and for Snake River Basin fisheries since January 1993. A Biological Assessment concerning Columbia River treaty Indian and non-Indian fisheries as described in the recently adopted “2005-2007 Interim Management Agreement for upriver Chinook, sockeye, steelhead, coho, and white sturgeon” was submitted to the NMFS during the spring of 2005, and a Biological Opinion (BO) was issued on May 9<sup>th</sup>, 2005. The Interim Management Agreement provides specific fishery management constraints for upriver spring chinook, summer chinook, steelhead, and sockeye. 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*.

### **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. The Biological Review Team identified two Distinct Population Segments (DPS). 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). On March 2, 2004, a U.S. District Court sat aside NMFS' finding and remanded the matter back to the agency for re-determination. A final draft of the BRT status review was submitted on January 24, 2005. On April 5, 2005 NOAA filed a proposed rule to list the southern population of the North American green sturgeon (those spawning in the Sacramento River, CA) as threatened (70 FR 17386). NOAA Fisheries determined that the northern population (those spawning north of and including the Eel River, CA) did not warrant listing. The northern population will be placed on NOAA's Species of Concern list and its status will be re-assessed within five years, if information warrants. The public comment period on the proposed green sturgeon listing closed on July 6, 2005. A final determination will be made to list the Southern DPS, as threatened, in April 2006.

Fish from both DPS are present in the Columbia River estuary during the summer months, but are typically off the coast from late fall through early spring. Winter and spring test fisheries over the last few decades have recorded an occasional catch of a lone green sturgeon. Three of these wandering fish were found above the lower estuary (as far up as Corbett). This is a rare event even in the summertime when green sturgeon are abundant in Zone 1 and 2. Even in the lower estuary during the summer, fishers only catch one green sturgeon for every 4-10 sturgeon caught. If green sturgeon are caught in the proposed fisheries, they are likely to be released, since the value is far less than white sturgeon. Given that green sturgeon are essentially absent from the Columbia River during the winter and spring months, and are likely to be culled, it is not likely that the proposed sturgeon fisheries will significantly impact the green sturgeon Southern DPS.

### **Marbled Murrelet**

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

### **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 Thursday, January 26, 2006 at the Museum of the Oregon Territory, 211 Tumwater Drive, Oregon City, Oregon. 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.

Year	Total Length Interval (inches)		
	42-48	48-60	42-60
1987	75,900	28,100	104,000
1988	34,400	33,700	68,100
1989	31,900	16,800	48,700
1990	25,800	12,000	37,800
1991	32,500	11,700	44,200
1992	70,400	8,700	79,100
1993	115,500	14,200	129,700
1994	N/A	N/A	N/A
1995	143,200	59,000	202,200
1996	137,100	33,500	170,600
1997	146,600	27,700	174,300
1998	116,800	23,900	140,700
1999	116,800	17,700	134,500
2000	117,300	17,400	134,700
2001	102,200	25,300	127,500
2002	87,400	34,200	121,600
2003	89,000	46,300	135,300
2004 <sup>2</sup>	N/A	N/A	N/A

1. Historical abundance estimates were reevaluated in 2005 for consistency in methodology and differ from estimates previously reported in Joint Staff Reports.
2. Abundance estimates for 2004 will not be developed due to data collection and modeling concerns.

	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 <sup>1</sup>	31,900	32,000	7,951	8,000
2004 <sup>1</sup>	25,600	28,800	7,866	8,000
2005 <sup>2</sup>	30,600	30,600 <sup>3</sup>	8,152	8,000 <sup>3</sup>

1. Commercial landings are preliminary.
2. Preliminary data
3. Guidelines for 2005 include fish remaining from the 2003 and 2004 guidelines, totaling 183 additional sturgeon.



**Table 3. Commercial Catch of White Sturgeon by Season, Annual Commercial Catch, and Comparisons to Catch Guidelines, 1993-2005.**

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 <sup>1</sup>	1,520	2,170	410	3,430	7,530	250	170	420	7,950	8,000
2004 <sup>1</sup>	1,879 <sup>2</sup>	1,550	917	3,219	7,565	184	117	301	7,866	8,000
2005 <sup>1</sup>	1,912 <sup>3</sup>	1,129	965	3,793	7,799	279	74	353	8,152	8,200

1. Preliminary data

2. Includes nine white sturgeon landed during the summer mainstem commercial fishery.

3. Includes 1,369 white sturgeon landed during the summer mainstem commercial fishery.

**Table 4. Sport and Commercial Sturgeon Catch (in 1,000's) and White Sturgeon Catch Sharing Percentages in the Lower Columbia River, 1977-2005.**

Year	<i>White Sturgeon</i>					<i>Green Sturgeon</i>		
	Sport		Commercial <sup>1</sup>		Total	Sport	Commercial <sup>1</sup>	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	1.3
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 <sup>2</sup>	31.9	80	8.0	20	39.9	0.1	<0.1	0.1
2004 <sup>2</sup>	25.6	76	7.9	24	33.5	<0.1	0.1	0.1
2000-2004 <sup>2</sup> Average	35.5	79	9.1	21	44.6	<0.1	0.4	0.4
2005 <sup>3</sup>	30.6	79	8.2	21	38.8	0.1	0.1	0.2

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

2. Commercial landings are preliminary.

3. Preliminary data.

**Table 5. Fishing Periods, Gear, and Associated Sturgeon Catch for Mainstem Columbia River Commercial Seasons, 2005.**

Season	Fishing Period	Hours	Zones	Mesh	STG Limit <sup>1</sup>	WSTG	GSTG
<b>Winter Sturgeon</b>	6 AM Jan. 18 – 6 AM Jan. 19	24	1-5	9-9¾”	na	80	0
	6 AM Jan. 25 – 6 AM Jan. 26	24	1-5	9-9¾”	na	40	0
	6 AM Feb. 1 – 6 AM Feb. 2	24	1-5	9-9¾”	na	106	0
	6 AM Feb. 8 – 6 AM Feb. 9	24	1-5	9-9¾”	na	144	0
	6 AM Feb. 15 – 6 AM Feb. 16	24	1-5	9-9¾”	na	23	0
	6 AM Feb. 22 – 6 AM Feb. 23	24	1-5	9-9¾”	na	35	0
	6 AM Feb. 24 – 6 AM Feb. 25	24	1-5	9-9¾”	na	45	0
						<b>473</b>	<b>0</b>
<b>Winter Salmon</b>	5 PM Mar. 1 – 5 AM Mar. 2	12	1-4 <sup>2</sup>	9-9¾”	na	5	0
	6 PM Mar. 3 – 6 AM Mar. 4	12	1-4 <sup>2</sup>	9-9¾”	na	4	0
	6 PM Mar. 8 – 6 AM Mar. 9	12	1-4 <sup>2</sup>	9-9¾”	na	21	0
	6 PM Mar. 10 – 2 PM Mar. 11	20	1-4 <sup>2</sup>	9-9¾”	na	12	0
	6 PM Mar. 15 – 6 AM Mar. 16	12	1-4 <sup>2</sup>	9-9¾”	na	16	0
	9 PM Mar. 29 – 5 AM Mar. 30	8	1-4 <sup>2</sup>	≤4¼”	na	3	0
	10 PM Mar. 31 – 6 AM Apr 1	8	1-4 <sup>2</sup>	≤4¼”	na	9	0
						<b>70</b>	<b>0</b>
<b>Summer</b>	7 PM Jun. 23 – 5 AM Jun. 24	10	1-5	8-9¾”	8	302	12
	7 PM Jun. 27 – 5 AM Jun. 28	10	1-5	8-9¾”	8	342	9
	7 PM Jul. 5 – 5 AM Jul. 6	10	1-5	8-9¾”	8	269	11
	7 PM Jul. 11 – 5 AM Jul. 12	10	1-5	8-9¾”	8	288	5
	7 PM Jul. 18 – 5 AM Jul. 19	10	1-5	8-9¾”	3	91	1
	7 PM Jul. 25 – 5 AM Jul. 26	10	1-5	8-9¾”	3	77	0
						<b>1,369</b>	<b>38</b>
<b>Early August</b>	7 PM Aug. 4 – 7 AM Aug. 5	12	1-5	8-9¾”	5	348	9
	7 PM Aug. 7 – 7 AM Aug. 8	12	1-5	8-9¾”	5	334	11
	7 PM Aug. 9 – 7 AM Aug. 10	12	1-5	8-9¾”	5	309	2
	7 PM Aug. 11 – 7 AM Aug. 12	12	1-5	8-9¾”	5	138	6
						<b>1,129</b>	<b>28</b>
<b>Late August</b>	7 PM Aug. 14 – 7 AM Aug. 15	12	2-5	8-9¾”	5	539	2
	7 PM Aug. 17 – 7 AM Aug. 18	12	2-5	8-9¾”	5	197	2
	8 PM Aug. 22 – 7 AM Aug. 23	11	4-5	9-9¾”	5	102	0
	8 PM Aug. 25 – 7 AM Aug. 26	11	4-5	9-9¾”	5	127	0
						<b>965</b>	<b>4</b>
<b>Late Fall</b>	6 AM - 6 PM Sep. 19	12	1-3 <sup>3</sup>	≤6”	10	46	1
	8 PM Sep. 19 - 1 AM Sep. 20	5	3-5 <sup>4</sup>	8-9¾”	10	147	0
	6 AM - 6 PM Sep. 20	12	1-3 <sup>3</sup>	≤6”	10	43	1
	8 PM Sep. 20 - 1 AM Sep. 21	5	3-5 <sup>4</sup>	8-9¾”	10	106	0
	6 AM - 6 PM Sep. 22	12	1-3 <sup>3</sup>	9¾” max	10	273	7
	8 PM Sep. 22 - 1 AM Sep. 23	5	3-5 <sup>4</sup>	8-9¾”	10	81	0
	6 AM - 6 PM Sep. 26	12	1-3 <sup>5</sup>	≤6” or 9-9¾”	15	825	6
	8 PM Sep. 26 - 1 AM Sept 27	5	3-5 <sup>6</sup>	8-9¾”	15	123	0
	6 AM - 6 PM Sep. 28	12	1-3 <sup>5</sup>	≤6” or 9-9¾”	15	623	4
	8 PM Sep. 28 - 6 AM Sept 29	5	3-5 <sup>6</sup>	8-9¾”	15	142	0
	2 PM Oct. 5 - 6 AM Oct. 6	16	1-5	9¾” max	3	128	0
	7 PM Oct. 6 - 5 AM Oct. 7	10	1-5	8-9¾”	3	36	0
	7 AM Oct. 11 - 7 AM Oct. 12	24	1-5	9-9¾”	10	483	0
	7 AM Oct. 13 - 7 AM Oct. 14	24	1-5	9-9¾”	10	279	1
	8 AM - 6 PM Oct. 18	10	1-5	9¾” max	5	41	0
	8 PM Oct. 18 - 6 AM Oct. 20	34	1-5	8-9¾”	5	170	0
	6 PM Oct. 21 - 6 AM Oct. 22	12	1-5	8-9¾”	5	22	0
6 PM Oct. 23 - 6 AM Oct. 25	36	1-5	9¾” max. <sup>7</sup>	5	154	0	
6 PM Oct. 25 - 6 AM Oct. 27	36	1-5	9¾” max. <sup>7</sup>	5	71	0	
6 PM Oct. 27 - 6 AM Oct. 28	12	1-5	9¾” max. <sup>7</sup>	5	0	0	
						<b>3,793</b>	<b>20</b>

1. Sturgeon possession and sales limit (per vessel per week).
2. Mouth upstream to Kelley Point.
3. Mouth upstream to Longview Bridge.

4. Lower Boundary Longview Bridge.
5. Mouth upstream to Kalama River.
6. Lower boundary Kalama River. .
7. No minimum mesh size in Zones 1-3 and an 8" minimum in Zones 4-5.

<b>Table 6. Estimated Catch of White Sturgeon (in 1000's) in Legal Foot-length Groups in Lower Columbia River Commercial and Sport Fisheries, 1977-2005.<sup>1</sup></b>													
Year	<b>Sport Fisheries<sup>2</sup></b>							<b>Commercial Fisheries<sup>3</sup></b>					
	<b>3-4 Ft.</b>		<b>4-5 Ft.</b>		<b>5-6 Ft.</b>		Total	<b>4-5 Ft.</b>		<b>5-6 Ft.</b>		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	22.2	76	5.4	18	1.6	5	29.2	12.5	94	0.8	6	13.3	
Average													
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	24.5	78	5.3	15	1.6	5	31.5	12.3	93	0.9	7	13.2	
Average													
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	38.5	86	5.0	11	1.4	3	44.9	7.5	90	0.8	10	8.3	
Average													
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	25.6	84	4.0	13	0.7	2	30.3	5.6	93	0.3	5	6.0	
Average													
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	31.9	77	9.3	22	0.2	<1	41.5	10.1	99	<0.1	<1	10.2	
Average													
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	29.9	78	8.4	22	<0.1	<1	38.3	9.8	100	0.0	0	9.8	
2003 <sup>4</sup>	21.0	65	10.9	35	<0.1	<1	31.9	8.0	100	0.0	0	8.0	
2004	13.6	53	12.0	47	<0.1	<1	25.6	7.9	100	0.0	0	7.9	
2000-2004	25.8	71	9.7	29	<0.1	<1	35.5	9.2	100	0.0	0	9.2	
Average													
2005 <sup>5</sup>	16.5	54	14.1	46	<0.1	<1	30.6	8.2	8.2	100	0.0	0	8.2

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	12,800
2003	34,220	2002	20,600		

Year	Treaty Indian Commercial			Treaty Indian Subsistence <sup>1</sup>	Non-Indian Sport <sup>2</sup>
	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	1.7	0.0	1.7	0.3	1.6
2005 <sup>3</sup>	1.6	0.1	1.7	0.3	1.1

1. Subsistence catch numbers prior to 1992 not available, except for fall season of 1989.
2. Sport catch estimated to average 5,000 per year 1980-86. Since 1987 estimates based on creel surveys.
3. Preliminary estimates through November 16, 2005. The Dalles Pool commercial fishery is scheduled to end December 31, 2005. The other pools are closed.

**Table 9. Annual Catch Estimates and Guidelines for Commercial and Sport Fisheries Occurring in the Zone 6 Management Area, 1991-2005.**

Year	Bonneville Pool		The Dalles Pool		John Day Pool	
	Catch	Guideline	Catch	Guideline	Catch	Guideline
<b><i>Commercial Fisheries</i></b>						
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	464	400	975	"	309	"
2005 <sup>1</sup>	550	"	809	"	360	"
<b><i>Sport Fisheries</i></b>						
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	852	700	530	"	229	"
2005 <sup>1</sup>	588	"	384	"	132	"

1. Preliminary estimates through November 16, 2005. The Dalles Pool commercial fishery is ongoing at time of report.

**Table 10. Sport Fishery Retention Restrictions in the Zone 6 Management Area, 1994-2005.<sup>1</sup>**

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
2005	June 11 – December 31	June 25 – December 31	July 11 – 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, 2000-2005.**

Fishery	Date	Open Pools	Length	Mesh Size	Catch
<b>2000</b>					
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	--	--	--	--
<b>Total</b>					<b>3,327</b>
<b>2001</b>					
Setline	January 1-31	All	1 month	--	35
"	June 1-August 18 <sup>1</sup>	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	--	--
<b>Total</b>					<b>3,299</b>
<b>2002</b>					
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	BO, TD	49 days	None	1,183
"	February 1-March 15	JD	43 days	None	319
Spring	Closed season	--	--	--	--
Sockeye	Closed season	--	--	--	--
Fall	Closed season	--	--	--	--
<b>Total</b>					<b>1,950</b>
<b>2003</b>					
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
<b>Total</b>					<b>1,529</b>
<b>2004</b>					
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	--	--	--	--
<b>Total</b>					<b>1,748</b>

Fishery	Date	Open Pools	Length	Mesh Size	Catch
			<b>2005<sup>2</sup></b>		
Setline	January 1-31	All	1 month	--	7
Winter	February 1-March 16	BO, JD	45 days	None	903
"	February 1-March 19	TD	48 days	None	741
Spring	Closed season	--	--	--	--
Sockeye	Closed season	--	--	--	--
Fall	October 12-December 31	TD	--	None	68
<b>Total</b>					<b>1,719</b>

1. Includes 38 sturgeon landed during hook and line fisheries.
2. Preliminary estimate through November 16, 2005. The Dalles Pool commercial fishery is scheduled to end December 31, 2005. The other pools are closed

Reservoir	January Setline	Winter Gill Net	Summer Setline	Fall Setline	Commercial Total	Guideline
Bonneville	7	543	0	0	550	400
The Dalles	0	741	0	68	809	900
John Day	0	360	0	0	360	335
Total	7	1,644	0	68	1,719	1,635

1. Preliminary through November 16, 2005. The Dalles Pool commercial fishery is scheduled to end December 31, 2005. The other pools are closed.

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		15.4	0.0	216.2	0.0	0.0	0.0	231.7
2005		0.1	0.0	0.1	0.0	0.0	0.0	0.2



**Table 14. Weekly and Total Smelt CPUE's and Smelt Catch in Columbia River Commercial Fisheries, 1988-2005.<sup>1</sup>**

Year	CPUE's By Statistical Week								Season Totals	
	1	2	3	4	5	6	7	8	CPUE	Catch <sup>2</sup>
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
2005	0	0	0	0	25	28	0	0	27	108

1. CPUE-Catch per unit effort as measured by pounds per delivery. Statistical 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

**Table 15. Age Composition of Eulachon Bycatch in the West Vancouver Island Shrimp Fishery, 1999-2005.**

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	<b>2006</b>	458.8	2003	2004	2005
2003	215.6	2005	<b>2006</b>	2007	270.7	2004	2005	<b>2006</b>
2004 <sup>1</sup>	132.2	<b>2006</b>	2007	2008	106.7	2005	<b>2006</b>	2007
2005 <sup>1</sup>	20.4	2007	2008	2009	137.8	<b>2006</b>	2007	2008

1. No. of Age 1+ smelt not official Canadian Department of Fisheries and Ocean values.

**Table 16. Results of Larval Sampling Program in the Lower Columbia River Basin, 1986-2005.<sup>1</sup>**

Year	Catch (Larvae Per M <sup>3</sup> )						
	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
2005 <sup>3</sup>	0.3	N/A	0.6	N/S	N/S	N/S	N/S

1. Inter-annual comparisons of abundance are tentative as sampling has not been systematic from year to year.
2. N/S = not sampled.
3. 2005 Mainstem Columbia value preliminary based on 28% of samples taken from February 22 – May 4, 2005.

**Table 17. Mainstem Columbia River Commercial Smelt Seasons, 1960-2005.<sup>1</sup>**

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	7 days/week	38
	Jan. 7 – Mar. 31	8 PM Sat – 8 AM Wed	48
1996	Dec. 1 – Feb. 2	7 days/week	64
	Feb. 3 – Mar. 31	Noon Mon – 6 PM Fri	32
1997	Dec. 1 – Jan. 27	7 days/week	58
	Jan. 30 – Feb. 21	6 AM Thu – 6 PM Fri	8
1998	Dec. 1 – Dec. 31	7 days/week	31
	Jan. 2 – Feb. 13	6 AM – 6 PM Mon & Fri	13
1999	Dec. 1 - Dec. 23	7 days/week	23
	Dec. 30 - Feb. 10	7 AM - 7 PM Wed	7
2000	Dec 1 - Dec 26	7 days/week	26
	Dec. 29 Feb. 23	7 AM - 7 PM Wed	9
2001	Dec 1 - Dec 31	7 days/week	31
	Jan. 3 - Mar. 7	3 AM - 9 PM Wed	10
	Mar. 12 - Mar. 31	3 AM - 9 PM Mon & Wed	6
2002	Dec. 1 - Dec. 31	7 days/week	31
	Jan. 2 - Jan. 31	3 AM - 9 PM Sun & Wed	9
	Feb. 1 - Mar. 31	3 AM - 9 PM Sun, Wed & Fri	26
2003	Dec. 1 - Dec. 31	7 days/week	31
	Jan. 1- Mar. 31	3 AM - 9 PM Sun, Tues, Thurs, & Fri	51
2004	Dec. 1- Dec. 31	7 days/week	31
	Jan. 1 - Mar. 21	3 AM – 9PM Sun, Tues, Thurs, & Fri	34
	Mar. 26	3 AM – 9 PM	1
	Mar. 28	3 AM – 9 PM	1
2005	Dec. 1 - Dec. 31	7 days/week	31
	Jan. 1- Feb. 23	3 AM - 9 PM Mon, & Thurs	15
	Feb. 24 – Mar. 31	3 AM – 9 PM Thurs	6

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

**Table 18. Lower Columbia River Basin Sport Smelt Seasons, 1960-2005**

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).
2005	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, 2005 (25-lbs. daily limit). Washington tributaries (Grays River, Cowlitz River, Kalama River, and Lewis River) were open on Tuesdays and Saturdays from 6 AM to 10 PM during January 1 – February 23, 2005 (10-lbs. daily limit), and in the Cowlitz River only, on Saturdays from 6 AM to 10 PM during February 26 – March 31, 2005 (10-lbs. daily limit).