JOINT STAFF REPORT
CONCERNING COMMERCIAL SEASONS
FOR STURGEON AND SMELT IN 2003

Joint Columbia River Management Staff

Washington Department of Fish and Wildlife
Oregon 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 Wednesday December 18, 2002 in the Commission room at the Oregon Department of Fish and Wildlife headquarters office located at 2501 S.W. First Avenue, Portland, Oregon. The purpose of this hearing is to consider fishing seasons for the commercial harvest of sturgeon and smelt within the mainstem Columbia River. This report has been reviewed by the Technical Advisory Committee (TAC). The TAC functions under *U.S. v. Oregon* and is comprised of biologists from state and federal fish management agencies and the Columbia River treaty Indian tribes.

STURGEON MANAGEMENT AND FISHERIES DOWNSTREAM FROM BONNEVILLE DAM

Stock Status

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

Joint state tagging and recovery programs were initiated in 1989 to provide data necessary to estimate the annual abundance of white sturgeon inhabiting the lower Columbia River (below Bonneville Dam). Since 1989, with the exception of 1994, annual abundance estimates have been produced. Abundance estimates for harvestable size (42-60 inches) fish steadily increased from 1990 through 1995 but since 1996 have declined by an average of about 4% per year through 2001 (Table 1). There is evidence that the 1996 and 1997 abundance estimates were negatively impacted by a mass emigration of white sturgeon from the lower Columbia River. Tag recoveries from outside the Columbia River Basin indicate that this emigration began in 1996 and recovery data indicate that the emigrated white sturgeon returned to the lower Columbia River within a couple of years. This emigration likely biased the abundance estimate for the 1995 tag group.

Table 1. Estimated Abundance of Harvestable White Sturgeon in the Lower Columbia River, 1989-2001.

	Total Length Interval (inches)		
Year	42-48	48-60	42-60
1989	32,500	16,800	49,300
1990	26,100	12,000	38,100
1991	32,900	11,700	44,600
1992	59,900	8,700	68,600
1993	85,000	14,200	99,200
1994	N/A	N/A	N/A
1995	143,200	59,000	202,200
1996	131,700	33,500	165,200
1997	123,700	33,400	157,100
1998	161,600	24,700	186,300
1999	116,800	17,600	134,400
2000	119,200	17,000	136,200
2001	100,200	22,400	122,600

Mark/recapture estimators are sensitive to significant numbers of tagged fish leaving the river for extended periods of time and tend to overestimate abundance in these situations, as was the case in 1995.

The harvestable size sturgeon abundance estimate of 122,600 for the 2001 tag group is the lowest estimate since 1993 but is still well above estimates for 1989-1992. Abundance estimates for the 1999 and 2000 tag groups may have been biased low due to timing of tagging operations. In 1999 and 2000 tagging operations occurred primarily during the months of May and June while previous tagging efforts occurred during May through August. Abundance estimates based on fish tagged during June through August tend to fluctuate significantly from year to year. During 1999-2000 tagging in July and August was dropped to reduce variability and produce more precise abundance estimates. Abundance estimates based on May and June tag groups are typically lower than estimates based on July and August tag groups and may have over emphasized the estuary component of the population so that only a portion of the total population was estimated.

Tagging operations in 2001 were expanded in both time and area to address this bias. Sturgeon were tagged in May, June, and July of 2001 and tagging operations were expanded to include areas outside of the estuary. For the 2001 tag group abundance estimates for legal size fish were 122,000 based on the May tag group, 121,200 based on the June tag group, and 124,500 based on the July tag group. Although tagging operations were conducted in 2002, tag recoveries to date have not been adequate for abundance estimation purposes.

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

The number of sturgeon kept per rod in the sport fishery also declined by an average of four to five percent per year from 1995 through 2000; however, catch rates during 2001 increased which suggests that the decline in legal size white sturgeon abundance has slowed or stopped. Sport catch rates in 2002 have been at record high levels with an average of 0.256 sturgeon kept per rod, through July 25, which is larger than the 1997-2000 average of 0.201 and exceeded the previous modern (since adoption of two fish bag limit and 40" minimum size limit in 1989) record high catch rates of 0.236 in 1995 and 0.238 in 1996.

Recent Fishery Management Actions

Since 1989, lower Columbia 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 minimum size limit in recreational fisheries, 2) reducing maximum size limit in all fisheries, 3) reducing daily and annual catch limits for recreational fisheries, and 4) adopting catch guidelines for commercial fisheries.

During 1986 through 1996, size and catch limits were changed frequently. 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. Sport catches had dropped from a peak of 62,400 in 1987 to a low 17,300 in 1990 due in large part to these angling regulation changes. Since 1992 sport catches have ranged between 33,500 and 45,100 in response to a rebounding population and continued regulation changes. Coincidentally,

commercial catches dropped from a peak of 11,600 in 1986 to a low of 3,800 in 1991 due to reductions in fishing opportunities (Table 2). Catch guidelines were adopted for commercial fisheries which limited catch to 6,000 white sturgeon during 1993 and 1994 and 8,000 white sturgeon during 1995 and 1996. These regulation changes culminated in a Joint State Management Agreement concerning lower Columbia River white sturgeon which was intended to guide Columbia River sturgeon management for future years.

Table 2. Sport and Commercial Sturgeon Catch (in 1,000's) and White Sturgeon Catch Sharing Percentages in the Lower Columbia River, 1977-2002.

	White Sturgeon					Green Sturgeon		
	Sport		Commercial[1]		Total	Sport	Commercial[1]	Total
Year	Catch	%	Catch	%	Catch	Catch	Catch	Catch
1977	25.8	73	9.7	27	35.5	0.0	0.8	0.8
1978	30.4	76	9.8	24	40.2	0.0	1.7	1.7
1979	31.4	61	20.5	39	51.9	0.0	1.2	1.2
1977-1979 Average	29.2	70	13.3	30	42.5	0.0	1.2	1.2
1980	27.0	74	9.4	26	36.4	0.0	1.7	1.7
1981	27.2	65	14.9	35	42.1	0.0	0.2	0.2
1982	25.1	68	11.6	32	36.7	0.0	0.8	0.8
1983	36.0	74	12.4	26	48.4	0.1	0.7	0.8
1984	42.0	71	17.5	29	59.5	0.1	2.7	2.8
1980-1984 Average	31.5	70	13.2	30	44.6	<0.1	1.2	1.3
1985	43.8	84	8.4	16	52.2	0.5	1.6	2.1
1986	49.8	81	11.6	19	61.4	0.4	6.0	6.4
1987	62.4	87	9.7	13	72.1	0.2	4.9	5.1
1988	43.1	86	6.8	14	49.9	0.1	3.3	3.4
1989	25.4	84	5.0	16	30.4	0.1	1.7	1.8
1985-1989 Average	44.9	84	8.3	16	53.2	<0.1	3.5	3.8
1990	17.3	77	5.3	23	22.6	0.1	2.2	2.3
1991	22.7	86	3.8	14	26.5	<0.1	3.2	3.2
1992	40.1	87	6.2	13	46.3	0.1	2.2	2.3
1993	37.9	82	8.1	18	46.0	<0.1	2.2	2.2
1994	33.5	84	6.4	16	39.9	0.1	0.2	0.3
1990-1994 Average	30.3	83	6.0	17	36.3	0.1	2.0	2.1
1995	45.1	88	6.2	12	51.3	<0.1	0.4	0.4
1996	42.8	84	8.4	16	51.2	0.1	0.6	0.7
1997	38.2	75	12.8	25	51.0	<0.1	1.6	1.6
1998	41.6	75	13.9	25	55.5	0.1	0.7	0.8
1999	39.8	80	9.5	20	49.3	0.1	0.8	0.9
1995-1999 Average	41.5	80	10.2	20	51.7	0.1	0.8	0.9
2000	40.5	79	10.9	21	51.4	<0.1	1.2	1.2
2001	41.2	82	9.3	18	50.5	0.1	0.3	0.4
2002[2]	37.5	79	9.8	21	47.3	<0.1	0.2	0.2

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

[2] *Preliminary.*

Joint State White Sturgeon Management Agreements

The first Joint State Agreement was adopted in October 1996 when the Directors of the Oregon Department of Fish and Wildlife (ODFW) and the Washington Department of Fish and Wildlife (WDFW) signed a management plan titled "The Olympia Accord on Columbia River Sturgeon Fishery Management". This plan contained a variety of fishery regulations including: 1) size limits for recreational and commercial fisheries, 2) daily and annual catch limits for recreational anglers, 3) gear restrictions for recreational fisheries, and 4) the allowance of target sturgeon seasons in the commercial fishery. The cornerstone of this plan was the adoption of a three-year average harvestable number, which was intended to insure that fisheries impacts did not exceed OSY limits. This harvestable number, 67,300 fish initially adopted for 1997-1999, was further allocated 80% (53,840 fish) for recreational fisheries and 20% (13,460 fish) for commercial fisheries. Other fishery management actions enacted in conjunction with the newly adopted Olympia Accord included a 9¾ inch maximum mesh size restriction to reduce handle of oversize sturgeon in commercial fisheries and a 9-inch minimum mesh size restriction for all commercial target sturgeon fisheries to minimize handle of non-target species.

The tenets of the plan also allowed for modifications to the Olympia Accord if new information suggested that a change was warranted. During the spring of 1999, abundance estimates for the 1996 and 1997 tagging years 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 (Table 3).

Table 3. Major Tenets of the Joint State Agreement on Columbia River Sturgeon Fishery Management

- ✓ 3 year plan extended through 2000-2002
- ✓ Management based on optimum sustained yield approach
- ✓ Plan can be modified in-season if new information suggests a change is warranted

White Sturgeon

- ✓ Absent significant update, annual harvestable number averages 50,000 for the 3-year period
- ✓ Allocation for fisheries in the lower Columbia River are 20% commercial and 80% sport
  - -- 10,000 for commercial fisheries
  - -- 40,000 for recreational fisheries
- ✓ Commercial target seasons allowed as necessary to access allocation and maximize economic benefit consistent with conservation objectives for other species
- ✓ Commercial size limit is 48-60 inches
- ✓ Recreational size limit is 42-60 inches with one per day and ten per year catch limits plus barbless hooks are required

Green Sturgeon

- ✓ 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

Prior to initiation of the 2002 season a preliminary abundance estimate was available for the 2000 tag group and the estimate did not increase as expected. Based on the population estimate for the 2000 tag group

fishery managers considered reducing the total harvestable number for 2002; however, contradictory information did exist. Sport and commercial fisheries occurring in 2001 exhibited significantly improved catch rates over 1997-2000 and abundance estimates for 1999 and 2000 were biased low due to tagging operations (times and areas fished) in place during those years. Additionally, an abundance estimate was not available for the 2001 tag group prior to adoption of 2002 fisheries. Due to the facts that contradictory information existed regarding the abundance trend, 2002 represented the final year of the 3-year agreement, and the 2001 abundance estimate was not available, fishery managers chose not to modify the harvestable number or the 80% sport/20% commercial allocation for 2002. However, because 2002 represented the final year of the 3-year Joint State Agreement and abundance estimates were exhibiting a declining trend, the ODFW and WDFW followed a conservative approach with respect to fisheries management during 2002. In keeping with the conservative management strategy the Compact adopted the following sturgeon fishery management protocols for 2002 Columbia River sport and commercial fisheries (Table 4).

Table 4. Sturgeon Fishery Management Protocol For 2002

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

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

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

The Joint State Management Agreement has been in effect for two 3-year intervals with the current agreement ending in 2002. In conjunction with the adoption of a new agreement, abundance trends are being evaluated to determine if a modification of the current total harvestable guideline of 50,000 white sturgeon is still appropriate. Based on recent abundance estimates it is likely the harvestable number will be reduced for the next Joint State Agreement. The Washington and Oregon Fish and Wildlife Commissions will meet on December 6 and December 13, respectively to reach decisions concerning the next Joint State Sturgeon Management Agreement. It is expected that the two Commissions will make decisions concerning the harvestable number, sport/commercial allocation, and guiding principles for sport fishery management. Based on guidance provided by the two Commissions it is expected that the Columbia River Compact will adopt a new Joint State Management Agreement, and associated sport fishery regulations, at the January 30, 2003 hearing.

Sturgeon Fisheries

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

Table 5. Annual Sport and Commercial Catches of White Sturgeon and Comparisons to Catch Guidelines, 1993-2002.

	Sport		Commercial	
	Catch	Guideline	Catch	Guideline
1993	37,900	--	8,100	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	40,200	39,500	9,430	9,100
2002 [1]	37,500	38,500	9,760	9,800

[1] *Preliminary. Sport catch includes projection for November 23 through December 31, 2002*

Past Commercial Sturgeon Seasons

After the population collapsed in the late 19th century, the commercial catch of sturgeon remained very low until the mid-1940's. Catches did not exceed 5,000 fish annually until 1969 and since that time 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 10-year period from 1975 through 1984. During the 1990's catches have ranged from a low of 3,800 in 1991 to a high of 13,900 in 1998 (Table 2).

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

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 2001 exceeded past years' (1997-2000) totals in all commercial fisheries which, in combination with the reduced catch guideline of 9,100 white sturgeon, resulted in the white sturgeon catch guideline being reached in late August and sturgeon retention being prohibited thereafter. 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 fall fishing periods with all landing occurring during salmon fishing seasons.

Table 6. Mainstem Commercial Seasons Harvesting White Sturgeon During 1997-2002 and Associated Catches.
Winter
Target sturgeon fisheries consisted of two 30-hour fishing periods per week during the 2nd week of January through mid-February in all of Zones 1-5. Some sturgeon catch also occurred in spring chinook fisheries adopted for the mid-February through March time frame. Landings associated with these fisheries ranged between 1,800-3,100 white sturgeon.
Early August
During 1998-2001 target sturgeon fisheries occurred during the first week of August and consisted of a 12-hour fishing period below Longview Bridge. In 2002 a catch of 1,390 white sturgeon occurred during chinook seasons in early August. Landings during 2002 were limited due to the adoption of a five white sturgeon per vessel per day possession and sales limit during the first three fishing periods and prohibition of sturgeon possession and sales during the final two fishing periods. White sturgeon landings ranged between 2,500-4,700 during 1998-2001.
Late August
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. White sturgeon landings during 1997-2002 ranged between 60-370 with the exception of 2001 when 1,020 white sturgeon were landed.
Late Fall
Fisheries occurred during mid-September through the end of October and included both salmon and sturgeon directed fisheries during most years. Target chinook and/or coho fisheries occurred through the late fall timeframe while target sturgeon seasons typically occurred during the last three weeks of October. Salmon seasons typically targeted on coho with chinook seasons varying depending on remaining impacts to listed species. Target sturgeon seasons were adopted in 1997-2000. Due to excessive landings earlier in the year sturgeon sales were prohibited in 2001. In 2002 a five white sturgeon per day per vessel possession and sales limit was in effect for nearly the entire late fall season except for the final 3-day fishing period when sturgeon possession and sales were prohibited. Late fall season landings ranged between 4,200 and 8,100 during 1997-2002, excluding 2001.

2002 Commercial Fishery

The 2002 commercial fisheries began with a winter target sturgeon season that consisted of eleven 30-hour fishing periods occurring between January 7 and February 15. During this season, 9-inch minimum and 9¾ inch maximum mesh size restrictions were enacted to target the fishery on sturgeon and minimize handle of spring chinook and steelhead. The 2002 winter target sturgeon fishery resulted in a catch of 2,710 white sturgeon compared to the 1997-2001 average of 2,500 white sturgeon. A commercial tangle net demonstration salmon season soon followed and consisted of fourteen fishing periods ranging from 15 to 48 hours during February 25 through March 27 for the purpose of selectively harvesting hatchery-produced spring chinook. The tangle net fishery was restricted to a 5½inch maximum mesh size along with shortened nets and drift lengths. The catch of sturgeon in this fishery was low with 84 white sturgeon landed, bringing the mainstem winter season sturgeon catch total to 2,794 (Table 7).

Table 7. Commercial Catch of White Sturgeon by Season, Annual Commercial Catch, and Comparisons to Catch Guidelines, 1993-2002.

	Mainstem					Select Area				
Year	Winter	Early August	Late August	Late Fall	Total	Spring/ Summer	Fall	Total	Grand Total	Guide-line
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	10,780	10,000
2001	3,060	4,720	1,020	0	8,800	490	20	510	9,310	9,100
2002 [1]	2,790	1,390	370	4,240	8,790	630	340	970	9,760	9,800

1 Preliminary

The early fall fishery consisted of two chinook salmon/sturgeon seasons. The first season consisted of five nighttime fishing periods occurring during August 4-12 in the mainstem Columbia River below the Longview Bridge, except for the final fishing period when the open area was restricted to between the Tongue Point/Grays Point line upstream to Warrior Rock. The second season also consisted of five nightime fishing periods, but occurred during August 18-28 in the mainstem Columbia River upstream of the I-205 Bridge. August sturgeon catch was managed for a catch of <2,000 white sturgeon by imposing a five white sturgeon possession or sales limit per vessel during each open fishing period. White sturgeon retention and sales was also prohibited during the last two fishing periods in the early August season when the catch neared 2,000 white sturgeon. The retention and sale of green sturgeon was prohibited throughout August. These management tools were effective in keeping the white sturgeon catch to less than 2,000 fish during August for the purpose of reserving enough white sturgeon for other anticipated fall seasons. An estimated 20,071 fall chinook, 61 coho, 1,753 white sturgeon, and zero green sturgeon were landed in August mainstem seasons (Table 7).

Late fall fisheries began on September 16 and were completed on October 31. Late fall fisheries targeted chinook and hatchery-produced coho salmon with sturgeon catch managed to remain within the 9,800 white sturgeon commercial catch guideline and spread catches throughout the remainder of the fall fishing period. White sturgeon possession and sales limits were implemented after September 19 and as a result, sturgeon retention and sale was allowed during all but the last 3-day fishing period in October. Late fall fisheries generally occurred in all five commercial fishing zones with area closures in place during September and late October to minimize impacts on wild coho and chum. Late fall fishing seasons totaled 21 fishing days and resulted in estimated landings of 15,996 fall chinook, 99,431 coho, 8 chum, 4,243 white sturgeon, and 161 green sturgeon (Table 7).

Select Area fisheries, designed to target returning salmon reared and released from net pens in off-channel areas, were conducted throughout the year. Select Area salmon target fisheries occurred in Youngs Bay during winter, spring, summer, and fall time frames; in Blind Slough during winter, spring, and fall time frames: in Tongue Point during spring and fall time frames; and in Deep River and Steamboat Slough during the fall time frame. Sturgeon sales were allowed during all Select Area fisheries in 2002 with an estimated 974 white sturgeon and zero green sturgeon landed (Table 7).

An estimated 9,764 white sturgeon were landed in the combined mainstem and Select Area commercial fisheries in 2002, which is similar to the commercial catch guideline of 9,800 white sturgeon (Table 7). Mainstem fisheries landed 90% of the white sturgeon catch or 8,790 fish while Select Area fisheries landed

10% of the white sturgeon catch or 974 fish. An estimated 161 green sturgeon were landed during fall fisheries in 2002, all of which were landed in mainstem fisheries during the late fall timeframe. Commercial fisheries occurring in the mainstem Columbia River and associated sturgeon catches are summarized in Table 8.

Table 8. Gear, Fishing Periods, and Associated Sturgeon Catch for Mainstem Columbia River Commercial Seasons, 2002.
Winter - Target Sturgeon
9-inch minimum and 9¾inch maximum mesh size restrictions 11 30-hr (Noon - 6 PM) fishing periods during January 7-February 15 2,710 white sturgeon and zero green sturgeon
Winter - Target Chinook
5½inch maximum mesh size restriction 14 (14 - 48 hr) fishing periods during February 25-March 27 84 white sturgeon and zero green sturgeon
Early August [1] – Chinook/Sturgeon [2]
8-inch minimum and 9¾inch maximum mesh size restrictions 5 nighttime (7 PM - 7 AM) fishing periods during August 4-12 1,388 white sturgeon and zero green sturgeon
Late August [1] (Extended Area 2S) – Chinook/Sturgeon [2]
9-inch minimum and 9¾inch maximum mesh size restrictions 5 nighttime (8 PM - 6 AM) fishing periods during August 18-28 365 white sturgeon and zero green sturgeon
Late Fall (Extended Area 2S) – Chinook/Sturgeon [3]
8-inch minimum and 9¾inch maximum mesh size restrictions 2 nightime (7 PM – 7 AM) fishing periods during September 19-20 and September 26-27 244 white sturgeon and zero green sturgeon
Late Fall – Target Coho
6-inch maximum mesh size restriction 2 daytime (7 AM - 7 PM) fishing periods on September 16 and 19 114 white sturgeon and 3 green sturgeon
Late Fall – Salmon/Sturgeon [2]
No minimum and 9¾inch maximum mesh size restrictions below Longview Bridge and 8-inch minimum and 9¾inch maximum mesh size restrictions in Zones 4 and 5 5 (24 – 36 hr) fishing periods during September 24 – October 10 1,556 white sturgeon and 64 green sturgeon
Late Fall – Salmon/Sturgeon [4]
No minimum and 9¾inch maximum mesh size restrictions 10 days during October 14-31 2,329 white sturgeon and 94 green sturgeon

[1] *No sales of green sturgeon allowed in August.*

[2] *A maximum of five white sturgeon possessed or sold by each participating vessel during each open fishing period.*

[3] *No sturgeon sales allowed during September 26-27.*

[4] *Each participating vessel may possess or sell a daily maximum of five white sturgeon, with a weekly (Monday-Friday) maximum of 15 white sturgeon during October 14-25. No sales of sturgeon allowed during October 28-31.*

Sport Fishery

Preseason expectations in 2002 were for a retained catch of up to 44,000 white sturgeon from as many as 210,000 angler trips. A catch of 44,000 white sturgeon would exceed the white sturgeon sport catch

guideline of 38,500 fish; therefore, the Joint Staff developed fishery restrictions to limit catch to 36,500 and not to exceed 38,500 fish. During the late fall of 2001 and early winter of 2002, the Joint Staff met with sport fishing industry leaders several times to develop recommendations for sport fisheries in 2002. Mainstem sport sturgeon regulations were initially considered at the January 31, 2002 Joint State meeting. At this time the Joint Staff provided three options for consideration; however, no decision occurred at this meeting. Subsequently on February 15, 2002 the states of Oregon and Washington adopted regulations that prohibited the retention of sturgeon in the Columbia River below Bonneville Dam, including Youngs Bay, on Sundays and Mondays during March 3 - May 13, 2002 and every day during July 25 – September 30, 2002. Size limits, daily and annual catch limits, and gear restrictions remained as set forth in the 2000-2002 Joint State Agreement.

The sport fishery began the year with high catches in the middle river (between Puget and Reed islands) during January and February, but slowed during March through April as a result of low, cool river flows. The effects of the Sunday/Monday retention restrictions during March 3 - May 13 were relatively minor as effort was low, catch rates were poor, and angler effort shifted to days open for retention. The estuary (below Puget Island) fishery began with higher than expected catch rates in mid-May, and June's catch of 13,200 was the highest monthly catch in the estuary on record. Effort and catch rates in the estuary remained above expectations through July 24 and the cumulative catch at the start of the July 25 – September 30 block closure was 36,200. In conjunction with a Compact hearing held on September 12, the states of Oregon and Washington expanded the previously adopted retention restrictions to include the time period of October 1 – November 22, 2002. This resulted in the retention of sturgeon being prohibited in the Columbia River below Bonneville Dam, including Youngs Bay, during July 25 – November 22, 2002 in addition to the Sunday/Monday retention restrictions in effect during March 3 – May 13.

The final catch for 2002 is projected to total 37,500 white sturgeon and 51 green sturgeon from 151,500 angler trips. Angler trips in 2002 will number fewer than the 1998-2001 average of 195,100. The catch of 37,500 white sturgeon in 2002 is less than the sport catch guideline of 38,500 white sturgeon remaining on the 2002-2005 Joint State Management Agreement (Table 5).

Size Components of Catch and Harvest Shares

The 2002 sport catch in legal foot length groups is projected to be 29,100 in the 3-4 foot size class (42-inch minimum allowable size) and 8,400 in the 4-5 foot size class. The sport catch was comprised of 78% in the 3-4 foot length group and 22% in the 4-5 foot length group, which were similar to 1998-2001 averages of 79% and 21% respectively (Table 9). As has been the case since 1997, all commercial harvest of white sturgeon in 2002 was within the 4-5 foot size class due to size limit regulations.

The Joint State Agreement sets forth a harvestable number that is allocated 80% for sport fisheries and 20% for commercial fisheries. The harvestable number of 67,300, in effect during 1997 and 1998, was allocated 55,840 for sport fisheries and 13,460 for commercial fisheries. Sport fisheries during 1997 and 1998 were managed to maintain a year round retention fishery through reduced daily and annual catch limits; therefore, catches during these years did not reach the catch guideline. During these same years the commercial fishery did reach its catch guideline and sharing percentages averaged 75% sport and 25% commercial. The harvestable number was reduced to 50,000 in 1999 but the sport/commercial allocation remained unchanged which resulted in a 40,000 catch guideline for sport fisheries and a 10,000 catch guideline for commercial fisheries. Sport fisheries were able to maintain a year-round retention fishery in 1999 but not during 2000-2002. Since 1999 sport and commercial fishery catch guidelines have been reached each year and sport and commercial shares have averaged 80% and 20%, respectively. During the six years (1997-2002) of management under Joint State agreements harvest shares have averaged 78% sport and 22% commercial (Table 2).

Table 9. Estimated Catch of White Sturgeon (in 1000's) in Legal Foot-length Groups in Lower Columbia River Commercial and Sport Fisheries, 1977-2002 [1].

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

[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.*

2003 Non-Indian Sturgeon Fishing Recommendations

Commercial Fisheries

Due to the ongoing negotiations concerning the Joint State Sturgeon Management Agreement the Joint Staff has not developed a commercial 2003 winter season target sturgeon fishery proposal at the time this report was written. The harvestable number and associated allocation shares for 2003 had not been adopted by the completion of this report. Traditionally the winter season consisted of two 30-hour periods per week from the second week of January through mid-February; however, the total harvestable number and the associated commercial allocation is expected to drop significantly for 2003 which will have a large impact on this season. A public meeting with the commercial fishing industry has been scheduled for December 2 to develop white sturgeon fishing plans for the next three years. Based on the results of this meeting and Commission decisions in December the Joint Staff will provide a season recommendation for consideration at the December 18 Compact hearing.

Sport Fisheries

Due to ongoing negotiations concerning the Joint State Sturgeon Management Agreement the Joint Staff has not developed proposals for the 2003 sport sturgeon fishery. The Joint Staff will propose sport fishery recommendations at the January 30, 2003 Joint State meeting that are consistent with results of negotiations concerning the Joint State Sturgeon Management Agreement. Fishery options will depend on the newly adopted total harvestable number, the associated sport catch guideline, and the following fishery management objectives:

1) Minimize need for in-season action
2) Balance catch between estuary and non-estuary seasons
3) Maintain fishery monitoring and management capabilities

STURGEON MANAGEMENT AND FISHERIES UPSTREAM FROM BONNEVILLE DAM

Fisheries and Gear

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

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

Stock Status

The healthy white sturgeon population in the lower Columbia River historically ranged into Zone 6 waters; however, with the construction of Bonneville Dam in 1938 the population became segregated and fish residing above Bonneville Dam were no longer able to migrate between freshwater and marine

environments. The population became further segregated with the completion of McNary Dam in 1953, The Dalles Dam in 1957, and John Day Dam in 1968 and 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 (optimum sustained yield) harvest strategies. Mark-recapture population estimates are derived using directed sampling with gill nets and set lines. Significant harvest reductions were enacted beginning in 1988 and populations in all three reservoirs increased as a result of reduced catch and other mitigation efforts. Assessments conducted during 1997-2001 estimated the abundance of 3-6 foot sturgeon to be 39,700 in Bonneville Reservoir, 46,800 in The Dalles Reservoir, and 13,900 in John Day Reservoir (Table 10).

Table 10. Annual 3-6 Foot Abundance Estimates by Reservoir in the Zone 6 Management Area of the Columbia River.

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	13,900
1999	39,700	1997	46,800		
		2002	N/A		

Past Seasons, Landings, and Management

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

Table 11. Treaty Indian Commercial and Subsistence and Non-Indian Sport Catch of White Sturgeon in the Columbia River, Between Bonneville and McNary Dams (in 1000's), 1977-2002.

Year	Treaty Indian Commercial			Treaty Indian Subsistence [1]	Non-Indian Sport [2]
	Gill Net	Setline	Total		
1977	0.4	0.2	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	6.1	3.4	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	3.2	0.3	3.5	--	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	0.8	3.7	0.2	3.1
1999	1.7	1.4	3.1	0.2	2.4
2000	2.3	1.1	3.4	0.3	2.5
2001	2.3	1.2	3.5	0.5	2.4
2002 [3]	1.7 [4]	0.2 [4]	1.9 [4]	0.4	2.4 [4]

[1] *Subsistence catch numbers prior to 1992 not available, except for fall season of 1989.*

[2] *Sport catch was estimated to average 5,000 per year 1980-86, and since 1987, estimates are based on creel surveys and angler-returned catch records.*

[3] *Preliminary*

[4] *Catch through November 3, 2002*

Beginning in 1988 treaty Indian setline seasons were reduced from 10 months to four months and sturgeon sales were generally limited to winter seasons, as per the Task Force's recommendations. Sport fishery regulation modifications included a two fish daily catch limit and 40-72 inch size limit restrictions, which combined to reduce sport catch by 40%. Since 1991 Task Force recommended catch guidelines have been adopted for treaty Indian commercial fisheries and recreational fisheries in the Zone 6 management area. During 1991-1996 catch guidelines of 1,250 for Bonneville Pool, 300 for The Dalles Pool, and 100 for John Day Pool were in effect for treaty Indian commercial fisheries while Zone 6 recreational fisheries operated under catch guidelines of 1,350 in Bonneville Reservoir, 100 in The Dalles Reservoir, and 100 in John Day Reservoir (Table 12).

Table 12. Annual Catch Estimates and Guidelines for Commercial and Sport Fisheries Occurring in the Zone 6 Management Area 1991-2002.

Year	Bonneville Pool		The Dalles Pool		John Day Pool	
	Catch	Guideline	Catch	Guideline	Catch	Guideline
			Commercial Fisheries			
1991	1,000	1,250	460	300	40	100
1992	1,150	"	430	"	20	"
1993	1,420	"	500	"	10	"
1994	1,180	"	310	"	120	"
1995	1,420	"	310	"	310	"
1996	1,000	"	230	"	360	"
1997	1,850	1,300	500	400	1,260	1,160
1998	1,460	"	1,100	1,000-1,200	1,100	"
1999	1,280	"	1,050	"	760	"
2000	1,180	"	1,340	"	790	"
2001	1,287	"	1,499	1,100	759	"
2002 [1]	432 [2]	"	1,138	"	322	335
			Sport Fisheries			
1991	2,270	1,350	200	100	150	100
1992	1,720	"	140	"	150	"
1993	2,310	"	160	"	140	"
1994	2,220	"	160	"	240	"
1995	1,370	"	50	"	90	"
1996	1,360	"	60	"	80	"
1997	1,470	1,520	180	200	480	560
1998	1,630	"	860	600-800	600	"
1999	1,240	"	690	"	400	"
2000	1,260	"	810	"	430	"
2001	1,430	"	680	700	300	"
2002 [1]	1,334 [3]	"	715	"	154	165

[1] *Preliminary.*

[2] *Catch through November 3, 2002.*

[3] *Catch through October 31, 2002.*

During 1991-1996 the management intent for the Zone 6 management area 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 13). Sport anglers may continue to fish for sturgeon and release them unharmed when catch guidelines are reached and retention is prohibited.

Table 13. Sport Fishery Retention Restrictions in the Zone 6 Management Area, 1994-2002 [1]

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

[1] *Dates during which catch and release only restrictions were in effect.*

Guidelines are based on OSY harvest rates and current stock assessments. In March of 1997, the Task Force agreed to pool-specific management with catch guidelines, based on OSY, that are designed to allow for adequate survival of juvenile sturgeon through fisheries to increase the number of harvestable and broodstock fish. At this time the states and tribes reassessed the status of Zone 6 sturgeon stocks and modeled new size slot 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 for treaty Indian commercial fisheries were 1,300 in Bonneville Pool, 400 in The Dalles Pool, and 1,160 in John Day Pool and for sport fisheries were 1,520 in Bonneville Pool, 200 in The Dalles Pool, and 560 in John Day Pool. 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 (Table 11). Current sturgeon size limits are 48-60" in all treaty Indian fisheries, 48-60" in sport fisheries in The Dalles and John Day pools, and 42-60" in Bonneville Pool sport fisheries.

Allocation is approximately 50:50 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. Subsistence catch is estimated through a monitoring program conducted by the Yakama Nation and annually averages less than 300 sturgeon. Subsistence catch is not included in the aforementioned catch guidelines.

2002 Sturgeon Fisheries

During 2002, Zone 6 commercial and sport fisheries were managed in accordance with catch guidelines set forth by the Task Force. Catch guidelines adopted for 2002 fisheries were similar to those that have been in place since 1998 with the exception of reduced guidelines for the John Day Pool. As has been the case since 1997, the Columbia River tribes adopted 48-60 inch size limit restrictions for all sturgeon fisheries occurring in 2002. Fisheries occurring in Zone 6 in 2002 included treaty ceremonial and subsistence (C & S), treaty Indian commercial setline and gillnet, and non-Indian sport fisheries. To date a total of 1,892 white sturgeon have been landed in treaty Indian commercial fisheries and 2,203 white sturgeon have been kept in non-Indian sport fisheries (Tables 14-16).

Table 14. Treaty Indian Commercial Setline and Gill Net Seasons and White Sturgeon Catch in the Columbia River, Between Bonneville and McNary Dams, 1999-2002.					
Fishery	Date	Open Pools	Length	Mesh Size	Catch
			1999		
Setline	January 1- 31	All	1 month	--	51
"	April 1 - June 5	BO	66 days	--	924
"	April 1 - July 31	JD	122 days	--	259
"	October 11 - December 31	JD	81 days	--	151
Winter	February 1 - March 20	All	35 days	None	1,706
Fall	Closed season	--	--	--	--
Total					**3,091**
			2000		
Setline	January 1-31	All	1 month	--	60
"	March 20-June 10	BO	82 days	--	514
"	March 20-July 31	JD	133 days	--	156
"	August 8-August 20	JD	13 days	--	49
"	October 2-December 31	JD	91 days	--	160
Winter	February 1-March 18	All	46 days	None	2,388
Sockeye	Closed season	--	--	--	--
Fall	Closed Season	--	--	--	--
Total					**3,327**
			2001		
Setline	January 1-31	All	1 month	--	35
"	June 1-August 18[1]	BO, JD	79 days	--	638
"	October 1-December 31	BO, JD	3 months	--	293
Winter	February 1-March 14	All	42 days	None	1,961
Spring	Closed season	--	--	--	--
Sockeye	Closed season	--	--	--	4
Fall	November 14-20	BO, JD	7 days	8½ minimum	368
"	November 23-30	BO	8 days	Diver nets only	
"	November 23-December 7	JD	15 days	--	--
Total					**3,299**
			2002[2]		
Setline	January 1-31	All	1 month	--	7
"	June 1-August 17	BO, TD	78 days	--	194
"	October 1-December 15[3]	BO, TD	2½months	--	162[4]
Winter	February 1-March 21[5]	All	49 days	None	1,529
Spring	Closed season	--	--	--	--
Sockeye	Closed season	--	--	--	--
Fall	Closed season	--	--	--	--
Total					**1,892[4]**

[1] *Includes 38 sturgeon landed during hook and line fisheries.*

[2] *Preliminary.*

[3] *The Dalles Pool closed October 27, 2002.*

[4] *Catch through November 3, 2002.*

[5] *John Day Pool closed March 15, 2002.*

2002 Setline Fisheries

The treaty Indian winter setline fishery was open from January 1-31 in all three reservoirs and produced a total catch of 7 white sturgeon, which is significantly less than recent years. Prior to the completion of the winter commercial gillnet season, the sturgeon catch guideline was reached in the John Day Pool which was closed effective March 15. The guidelines had not been achieved in Bonneville or The Dalles pools at the

end of the winter gillnet season; therefore, an additional setline season was adopted for these two pools (Table 14). Fisheries in Bonneville and The Dalles pools were open during June 1 - August 17 with landings totaling 104 in the Bonneville Pool and 90 in The Dalles Pool.

During recent fall fishing periods, setline seasons have been in place for the John Day Pool only because catch guidelines were reached in Bonneville and The Dalles pools prior to August 1. The opposite occurred in 2002 with catch guidelines being reached prior to August 1 in John Day Pool only. Following the completion of fall salmon fishing seasons, a setline season was adopted for October 1 through December 15 for Bonneville and The Dalles pools; however, The Dalles Pool catch guideline was reached early and The Dalles Pool closed effective October 28. Through November 3 an estimated 145 white sturgeon have been landed in Bonneville Pool during this season and based on current catch rates the catch guideline for Bonneville Pool will not be reached prior to December 15. A total of 117 white sturgeon were landed during the fall setline fishery in The Dalles Pool (Table 15).

Table 15. Treaty Indian Season Specific Landings by Pool and Associated Catch Guidelines, 2002 [1]

Reservoir	January Setline	Winter Gill Net	Summer Setline[2]	Fall Setline	Commercial Total	Guideline
Bonneville	1	282	104	45[3]	432	1,300
The Dalles	2	929	90	117	1,138	1,100
John Day	4	318	0	0	322	335
Total	7	1,529	194	162[3]	1,892	2,735

[1] *Preliminary.*
[2] *Includes catches during August 1-17.*
[3] *Fishery remains open. Catch estimate through November 3,2002*

2002 Gillnet Fishery

The treaty Indian winter season commercial fishery was open during February 1 through March 21 and produced white sturgeon landings of 282 in Bonneville Pool, 929 in The Dalles Pool, and 318 in John Day Pool. The John Day Pool catch guideline was significantly reduced in 2002 from 1,160 to 335 which resulted in the guideline being reached early and the John Day Pool closing on March 15 (Table 15). Sales of sturgeon caught during fall gillnet commercial fisheries were not allowed in 2002, as has been the case since 1990.

2002 Subsistence Fishery

Treaty Indian subsistence sturgeon fishing is open year-round, with small sanctuary closures around dams. Subsistence fishery catch in 2002 was 370 white sturgeon (Table 11).

2002 Sport Fishery

Sport retention seasons for each Zone 6 reservoir began January 1 and remained open until Task Force catch guidelines were projected to be reached. The Task Force catch guidelines were reached in The Dalles Pool on July 12 and in the John Day Pool on August 23 with catches of 715 and 154, respectively (Table 16). The Bonneville Pool was closed on August 6 when the catch was projected to reach the catch guideline. Subsequently, actual catch and effort data indicated that catch was well below the inseason projection; therefore, the fishery was reopened on September 28. The 2002 closure date of July 12 in The Dalles Pool was three months later than the 2001 closure date of April 9 and one month later than the 1998-2000 closure dates of June 8-19. The John Day Pool retention fishery was closed in 1997 and 1998, opened year-round during 1999-2001, and closed after eight months during the 2002 season. Through October an estimated 1,334 white sturgeon have been kept in the Bonneville Pool and the 1,520 fish catch guideline is not expected to be reached in 2002. The Bonneville Pool was closed for 1½ months in 2002 as compared to 2001 when it was closed for 5½ months and 1995-2000 when it was closed for 8-9 months.

Table 16. Non-Indian Sport Catch and Retention Restriction Dates in the Zone 6 Management Area, 1998-2002									
	1998 - 2000			2001			2002 [1]		
Reservoir	Closure Dates	Average Catch	Guide-line	Closure Dates	Catch	Guide-line	Closure Dates	Catch	Guide line
Bonneville	April 8-20	1,370	1,520	Aug 13	1,430	1,520	Aug 6-Sep 27	1,334[2]	1,520
The Dalles	June 8-19	790	600-800	April 9	680	700	July 12	715	700
John Day	Nov 23-None	490	560	None	300	560	Aug 23	154	165
Total		2,640	2,680-2,880		2,410	2,780		2,203	2,385

[1] *Preliminary.*
[2] *Fishery remains open. Catch estimate through October 31, 2002.*

2003 Treaty Indian Sturgeon Fishing Recommendations

As per permanent regulations, treaty Indian commercial setline seasons are scheduled to begin January 1, 2003 and to end January 31, 2003. The Task Force is expected to meet in January to review 2002 harvests and agree to management options for 2003, including catch guidelines.

SMELT MANAGEMENT AND FISHERIES

Stock Status

Smelt, less commonly known as eulachon, 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, 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.

The smelt fishery can be traced back to the late 1800's and landings can be used to index relative annual abundance. Commercial landings do not necessarily lend themselves to developing annual population estimates because consumer demand for the fish and adopted seasons affect the effort put forth by the fishers, which in turn affects the total landings. Fisheries are however valuable in ascertaining the relative strength of the run from year to year. Catch per unit effort (CPUE) data, as measured in pounds per delivery from the commercial fishery, can be used to describe relative annual run strength. CPUE data may be affected by environmental conditions such as water temperature. Smelt are very sensitive to variations in water temperature, with water temperatures less that 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 poor for several years thereafter. The eruption of Mt. St. Helens severely impacted spawning in the Cowlitz River in 1980 and subsequent

returns in 1984. Smelt returns in 1984 could also have been impacted by the record large El Nino event of 1982-1983. Commercial landings from 1938-1989 averaged 2.1 million pounds annually. In 1993, smelt strayed to many Washington coastal streams and bays due to cold Columbia River water temperature, as is evidenced by landings of only 500,000 pounds in the Columbia River Basin. Landings in 1994 were only 43,000 pounds and beginning in 1995, fishery restrictions were enacted. Due to reduced seasons during 1995-2000 landings are not completely comparable with previous years; however, it is apparent that the abundance of smelt in the Columbia River basin was much reduced during 1993-2000 (Table 17).

Table 17. Columbia River and Tributary Smelt Commercial Landings (in thousands of pounds), 1938-2002.

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	440.4
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	12.0
1999		20.9	0.0	0.0	0.0	0.0	0.0	20.8
2000		25.5	0.0	0.0	0.0	0.0	0.0	30.4
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

Although total commercial landings remained low in 2000, other abundance indices suggested a significant improvement in the smelt return for 2000. Total landings were likely artificially low due to management constraints imposed on fisheries. Other abundance indices; such as 1) improved CPUE in the commercial fishery, 2) excellent sport dipping during a portion of the season, and 3) large larval abundance over wide areas during an extended period of time all suggested that the 2000 return was significantly improved in comparison to extremely poor returns of 1994-1999. The 2001 return continued the trend of increasing abundances that began in 2000 and is the first year since 1988 in which smelt returned to the Sandy River. The 2001 return, as indexed by commercial landings and CPUE data, was the largest return since 1993. In spite of limited fishing opportunities, landings from commercial fisheries in the Columbia and Cowlitz rivers were the third largest since 1993 and the CPUE in the Columbia River commercial fishery was a record high. Commercial fisheries in the Columbia River Basin increased in 2002, as compared to 2001, but were still far less than fishing opportunities available during 1938-1994. Total landings in 2002 were the largest since 1992 and CPUE in the Columbia River commercial fishery was the third highest on record (since 1988).

Based on the poor parent returns observed in 1998-2000, the outlook for the 2003 smelt run could be well below average again; however, smelt have very high fecundity rates and ocean rearing conditions are likely the overriding factor in determining stock abundance for the upcoming year, as was the case in 2001 and 2002. It is important to note that ocean conditions off the Oregon and Washington coasts have improved significantly in the last three years.

The Pacific Decadal Oscillation (PDO) index based on North Pacific sea-surface temperature and pressure correlates with changes in northeast Pacific marine ecosystem productivity. Warm PDO eras have coincided with enhanced coastal ocean biological productivity in Alaska and inhibited productivity off the west coast of the contiguous United States, while cold PDO eras have coincided with the opposite north-south pattern of marine productivity. Pacific climate changes observed from late 1998 through the present indicate that the warm era that began in 1977 may have ended.

Recent trends in eulachon abundance also follow another measure of ocean climate, the tropical Southern Oscillation Index (SOI), dominated 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 to 1989-1990. Eulachon returns were variable during this time. The period of 1990-1997 was dominated by extreme and persistent El Nino conditions and during this time eulachon returns saw a precipitous decline starting in 1993-1994 and remained at record low levels through 2000. Since 1997 La Nina conditions have dominated and eulachon returns sharply increased beginning in 2001. The sharp decline and subsequent increase in spawner abundance lag the onset of persistent El Nino and La Nina conditions by about three years which is the assumed life cycle of most eulachon. Eulachon returns to the Columbia River in 2001 and 2002 were the largest since 1993.

The bycatch of eulachon in the West Coast Vancouver Island annual spring shrimp surveys increased significantly in 2000 and 2001 and the 2002 eulachon biomass indices were approximately 12-times the 1994-1999 average. Other pelagic fish such as anchovy, sardine, and herring all exhibited significant abundance increases during the summers of 1999-2001. Additionally, salmonid returns to the Columbia River have generally been at near record high levels during 2001 and 2002 which also suggest an improvement in ocean rearing conditions. The strong smelt returns to the Columbia River in 2001 and 2002, plus large abundances of other ocean rearing species during the same time period would suggest that smelt have recovered and would predict a large return in 2003.

Past Management Actions

As Columbia River smelt abundance began to decline during the early 1990's, fishery managers recognized the need to restrict fisheries to increase escapement to spawning areas. Lower Columbia River mainstem and tributary commercial fisheries have been greatly reduced in recent years, with 1995 being the first year of these restrictive fisheries (Table 18). During 1995 and 1996, commercial fisheries were restricted to fewer fishing days per week, but the season extended through the end of March. During 1997-2000, commercial fisheries were further reduced to test fisheries, which ended in mid to late February. These test fisheries were intended to allow minimal smelt catch to provide fishery managers with data necessary to assess the annual run strength and provide an opportunity to sample catch for biological data. Seasons during these test fisheries were severely restricted in both days per week fished and duration of the fishing season. Sport fisheries in Washington tributaries were closed early during 1997, 1998, and most of 1999 in response to continued poor smelt returns to the Columbia River. Both commercial and sport fisheries were extended into late February during 2000 in response to a larger than expected return. Seasons were liberalized in 2001 when a strong return of smelt was observed for the first time since 1993. In 2001 both sport and commercial fisheries were extended through the end of March for the first time since 1996; however, the number of days open was again limited to one to two days per week for the purpose of assessing

Table 18. Columbia River Basin Commercial and Sport Smelt Seasons, 1960-2002.

Commercial Smelt Seasons

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

Sport Smelt Seasons

1960-1996	Columbia River and tributaries open seven days/week the entire year.
1997	Columbia River and Oregon tributaries open seven days/week the entire year. Washington tributaries closed effective February 28.
1998	Columbia River and Oregon tributaries open seven days/week the entire year. Washington tributaries closed effective February 2.
1999	Columbia River and Oregon tributaries open seven days/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/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/week the entire year and the Washington portion of the Columbia River was open 7 days/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.

abundance. The trend of increasing abundance continued and fishing opportunities were expanded again in 2002 in response to the increased abundance. In 2002 the commercial fishery was expanded from two days per week in January to three days per week in February and March. Similarly, the 2002 Washington tributary sport fisheries were two days per week during January through late February and seven days per week thereafter with all Washington tributaries open during January through March (Table 18).

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

The larval sampling program was initiated in 1994 for the Cowlitz River and was expanded to include the Kalama River in 1995, the mainstem Columbia River in 1997, and other Columbia River tributaries in 1998. Larval sampling was also conducted in the Cowlitz River in 1986 (Table 19). Larval sampling can help determine relative spawning success and when coupled with information on adult returns from sport and commercial fisheries helps provide some indication of the relative annual run strength. Unfortunately, the larval sampling program was not initiated until the runs had declined and therefore it is difficult to correlate larval catch rates to relative run strength, as indexed by commercial landings and CPUE's, at this time. As additional years of data are collected this relationship may become more clearly defined; however, recent years returns suggest that there is not a strong correlation between larval production and subsequent adult returns.

Table 19. Results of Larval Sampling Program in the Lower Columbia River Basin [1].

	Catch (Larvae Per M^3)						
Year	Mainstem Columbia	Cowlitz River	Elochoman River	Grays River	Kalama River	Lewis River	Sandy River
1986	--	8.1	--	--	--	--	--
1994	--	0.7	--	--	--	--	--
1995	--	19.2	--	--	32.4	--	--
1996	--	1.2	--	--	0.2	--	--
1997	3.9	0.7	--	--	0.3	0.0	--
1998	0.9	0.5	2.8	22.1	0.3	0.0	0.1
1999	0.7	0.5	1.2	2.5	0.4	0.0	0.1
2000	1.3	54.9	26.6	3.5	0.1	0.2	0.1
2001	87.3	450.7	139.5	N/S	5.5	17.6	N/S
2002	28.2	283.0	N/S	N/S	0.5	0.6	N/S

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

Joint State Eulachon Management Plan

Beginning in 1999 the Washington and Oregon Departments of Fish and Wildlife began work on a Joint State Eulachon Management Plan to guide all aspects of smelt management for future years. During 1999 WDFW and ODFW developed an interim eulachon management plan to guide fishery management decisions in the year 2000 because a draft plan had not been completed prior to adoption of sport and

commercial fishing seasons for that year. The interim plan included recommended fishery restrictions for the year 2000 and was adopted by the Columbia River Compact at a hearing in mid-December. Fisheries adopted during 2000 were consistent with the interim Eulachon Management Plan.

The WDFW, with input from ODFW, has completed a eulachon management plan which contains recommended policies concerning smelt fishery management (Table 20). 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.

Table 20. 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 (Table 21). Columbia River smelt fishing seasons have been adopted in accordance with the Joint State Eulachon Management Plan since 2001.

Table 21. 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 lbs 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 7 days per week in the lower Columbia River beginning in 1978 and in the tributaries beginning in 1976. Prior to that, weekly open periods of 4-5 days were in effect. In 1986, the year-round commercial smelt season was modified to open December 1 and close March 31 to more closely follow the actual presence of smelt in the Columbia River Basin. Large trawl gear was also prohibited in 1986. The seven-day per week fisheries remained in effect through 1994; however, poor landings in 1993 and 1994 prompted the states to reevaluate smelt fishing seasons in 1995 (Tables 17 and 18).

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

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

Smelt fisheries in 2000 reflected the continued trend of conservative management that was initiated in 1995. At the December Compact hearing the 7-day per week mainstem commercial fishery was closed and a standard test fishery consisting of one 12-hour fishing period per week was adopted in its place. In mid-February, the Compact met to consider an extension of the ongoing mainstem fishery. Based on improved CPUE in the mainstem commercial fishery, compared to recent years, and an excellent sport fishery occurring in the Cowlitz River the Compact extended the mainstem commercial fishery for one 12-hour

fishing period to gain additional information concerning the strength of the smelt run in 2000. CPUE in the mainstem commercial fishery and catch rate in the Cowlitz River sport fishery dropped considerably; therefore, no additional fishing periods were adopted and the mainstem fishery was completed on February 23, 2000. As was the case in 1999, Washington tributaries were closed to commercial fishing in the entire season.

The poor parental returns in 1997 and 1998 and the moderate increase in abundance in 2000, suggested that the 2001 return would not be large in spite of improved ocean rearing conditions; therefore, a test fishery consistent with a level one fishery, as outlined in the draft Joint State Eulachon Management Plan was adopted at the December Compact hearing. The 2001 smelt test fishery consisted of one 18-hour fishing period per week, (3 AM to 9 PM Wednesdays) from January 3 through March 28. By late February, the CPUE in the commercial fishery was high and smelt had entered the Cowlitz River. At an early March Compact hearing the states took action to modify the ongoing mainstem smelt fishery to a level two fishery with three additional 18-hour fishing periods (3 AM to 9 PM Mondays) during March 12-26. Columbia River landings were the largest since 1985 and the CPUE was the largest in the database (Tables 17 and 22). Commercial smelt fishing occurred in the Cowlitz River for the first time since 1997. The Cowlitz River was originally open for one 12-hour fishing period per week, but in response to the unexpectedly strong return, commercial and sport fisheries were expanded to be open to commercial fishing for two 12-hour fishing periods per week during March 11-18 and expanded again to three 12-hour fishing periods per week during March 19-31. All other Washington tributaries were closed to commercial smelt fishing for the season. Commercial landings in the Cowlitz River were the largest since 1995, but were well below the large catch years when landings reached 2-4 million pounds annually.

2002 Commercial Fishery

The improved 2001 commercial fishery predicted a large abundance of returning spawners in 2002 and ocean productivity was favorable, but due to poor parental returns in 1998 and 1999 there was uncertainty in whether the run would be moderate or strong. In accordance with the newly finalized Joint State Eulachon Management Plan, the 7-day per week mainstem commercial fishery was closed effective January 1, 2002 and a level two fishery consisting of two 18-hour (3 AM to 9 PM Wednesdays and Sundays) fishing periods from January 2 through March 31 was adopted in its place at the December 12, 2001 Compact hearing.

Significant smelt landings occurred during January for the first time since 1990. Catch rates improved each week and by the last week in January CPUE's were over 3,900 pounds per delivery. At the January 31, 2002 Compact hearing an additional 18-hour fishing period per week (Fridays) was adopted for February 1 through March 31.

Landings in the 2002 fishery were estimated to be about 58,000 pounds. Columbia River landings were the largest since 1985 and the CPUE was the largest in the database (1988-2001). The season total CPUE of 1,500 lbs/delivery was the third largest in the database, exceeded only by the record high CPUE of 2,000 lbs/delivery in 2001 and the 1,800 lbs/delivery CPUE in 1993 (Table 22).

Table 22. Weekly CPUE' s Through mid-February and Total CPUE and Catch in Columbia River Commercial Fisheries, 1988-2002.[1]

	CPUE's By Statistical Week								Season Totals	
Year	1	2	3	4	5	6	7	8	CPUE	Catch
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	25,500
2001	0	0	0	0	0	520	1,604	2,322	1,985	158,800
2002	27	371	733	3,925	1,433	780	164	0	1,487	57,980

[1] *CPUE-Catch per unit effort as measured by pounds per delivery.*

Washington tributary commercial smelt fishing was originally open in the Cowlitz River only with two 12-hour fishing periods per week (6 PM Sunday to 6 AM Monday and 6 PM Wednesday to 6 AM Thursday) during January 1 through March 31, 2002, which is consistent with a level two fishery as described in the Joint State Eulachon Management Plan. In response to the strong return, Washington expanded their tributary commercial fishery by adding another 12-hour fishing period per week (6 PM Tuesday to 6 AM Wednesday) and expanding the open areas to include the Kalama and Lewis rivers beginning February 5 through March 31. Considerable landings were made in Washington tributary commercial fisheries during early February which led WDFW to expand these fisheries to level three with an additional 12-hour weekly period (6 PM Thursday to 6 AM Friday) during February 26 through the end of March, resulting in a 4-day per week fishery. Commercial landings in the Cowlitz River totaled 169,600 pounds while commercial landings in the Lewis River were nearly three times that high at 493,600 pounds which represents the largest catch since 1995 and 1988, respectively; however, these commercial landings were well below the large catch years when landings reached 2-4 million pounds annually (Table 17).

Recreational Fishery

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 May 1, 1998 the limit was changed to 10 pounds per person. In Oregon the limit remains 25 pounds per person each day. The sport dip net fishery is very popular, drawing thousands of participants. Smelt are used for human consumption and are also in great demand for sturgeon bait. Annual sport catch estimates are not available; however, limited past creel census information suggests that the sport catch may equal the commercial landings in years with long availability of smelt.

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

The Cowlitz River was the only Washington tributary initially open to sport smelt dipping in 2001. The sport fishery began slowly with no significant catches occurring prior to the end of February. The fishery improved significantly in early March when smelt entered the Cowlitz River, which prompted the WDFW to open all Washington tributaries, including the Cowlitz River, on Saturdays, Sundays, and Wednesdays from March 7-31, 2001. Landings of smelt in the Sandy River sport fishery occurred for the first time since 1988.

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

2002 Mainstem Commercial Smelt Fishery Recommendation

Joint Staff Recommendation	
The Joint Staff will recommend the following commercial smelt fishing season at the December 18, 2002 Compact hearing.	
Season:	Open four 18-hour periods per week beginning January 1, 2003 and continuing through March 31, 2003.
Open Days:	Sunday, Tuesday, Thursday, and Friday
Hours:	3 A.M. to 9 P.M.
Gear:	As per permanent regulations

This proposed fishery is consistent with level three fisheries described in the Joint State Eulachon Management Plan and four days are the maximum number of days allowed under the management plan. Positive abundance indicators for 2003 include adult eulachon returns during 2001 and 2002, increased salmonid abundances in recent years, high levels of smelt bycatch in Canadian ocean shrimp fisheries, and strong abundances of other pelagic fish such as sardines. Participation in this fishery declined in 2002 and that trend is expected to continue in 2003 which, in combination with the fishery structure and large run size expectation, will nearly eliminate the possibility of this fishery resulting in overexploitating the return.

ENDANGERED SPECIES ACT (ESA)

Salmon and Steelhead

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

prepared by the ODFW and accepted by the NMFS. Impacts to listed species from fisheries described in this report are expected to be *de minimus*.

Smelt

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

Marbled Murrelet

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

FUTURE MEETINGS

Additional Compact hearings may be scheduled as necessary to make modifications to seasons that may be adopted from recommendations in this report. A Joint State meeting is scheduled for Thursday January 30, 2003 at 10:00 a.m. at the Water Resources Center to consider sturgeon sport fishing seasons in the Columbia River downstream of Bonneville Dam. The next Columbia River Compact Hearing is scheduled for Wednesday, February 6, 2003 at 10:00 a.m. at the Water Resources Education Center located at 4600 S.E. Columbia Way, Vancouver, Washington. The purpose of this meeting will be to review salmon, sturgeon, steelhead, and smelt stock status and consider commercial fishing seasons and miscellaneous regulations in the mainstem Columbia River.