

THE 2005 LOWER COLUMBIA RIVER AND BUOY 10 RECREATIONAL FISHERIES

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The funding for the Oregon portion of the lower Columbia and Buoy 10 projects was by:

- * U.S. Fish and Wildlife Service, Federal Aid in Sport Fish Restoration Act (Wallop-Breaux), Project/Task Order Nos. F-115-R-22, F-115-R, F-167-R-01, and F-167-R.
- * Bonneville Power Administration (administered by Pacific States Marine Fisheries Commission) Contract No. 2002-034.
- * U.S. Department of Commerce, NOAA Fisheries, Contract No. NA87FPO051.

The funding for the Washington portion of the lower Columbia project was by:

- * U.S. Fish and Wildlife Service, Federal Aid in Sport Fish Restoration Act (Wallop-Breaux), Project/Task Order No. F-112-R-2.
- * Bonneville Power Administration (administered by Pacific States Marine Fisheries Commission) Grant No. DE-FG79-84-BP16458 (WDFW).

The funding for the Washington portion of the Buoy 10 project was by:

- * U.S. Department of Commerce, NOAA, Grant No. NA47FA0363, Joint Wash.-Ore. Segment 1, Task 1. Washington Ocean Fisheries Monitoring.

December 2006

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Bank Anglers Fish For Spring Chinook Near Woodson, Oregon

The 2005 Lower Columbia River and Buoy 10 Recreational Fisheries

ABSTRACT

Recreational fisheries on the lower Columbia River during 2005 ranked fifth all time in terms of total angler trips, despite declines in most salmon and steelhead runs from recent, modern day record returns. The spring chinook fishery extended into April above the I-5 Bridge for the fifth consecutive year, and the states adopted a summer chinook fishery during June and July for the fourth consecutive year. Selective regulations for hatchery summer steelhead (22nd consecutive year), winter steelhead (12th year), coho salmon (8th year), spring chinook (5th year), and summer chinook (4th year) required anglers to release fish without healed adipose fin clips. These selective regulations maximized the opportunity for anglers to harvest surplus hatchery fish while adhering to the recovery guidelines of the Endangered Species Act for 13 listed stocks of Columbia River salmon and steelhead. During February 1-April 20 and June 4-15, spring chinook anglers made 124,695 trips and caught 14,875 spring chinook (11,315 kept and 3,560 released) and 1,646 steelhead (1,379 kept and 267 released). During June 16-July 31, salmonid anglers made 38,505 trips and caught 5,729 summer steelhead (3,718 kept and 2,011 released) and 2,071 summer chinook (1,571 kept and 500 released). During August 1-October 31, Columbia River salmon anglers made 86,594 trips and kept 18,256 adult fall chinook, 586 adult coho, and 2,641 steelhead on the mainstem, while Buoy 10 anglers made 55,183 trips and kept 9,287 chinook and 6,878 fin-clipped coho. Sturgeon anglers made 137,761 trips and kept 29,802 white sturgeon, and shad anglers made 20,370 trips and kept 164,889 shad in 2005.

This report describes Columbia River recreational fisheries below Bonneville Dam for salmon, steelhead, sturgeon, cutthroat trout, shad, and walleye during 1969-2005, and reviews the recreational salmon fishery at Buoy 10 during 1982-2005. These two fisheries are referred to in this report as "lower Columbia" and "Buoy 10", respectively.

LOWER COLUMBIA FISHERIES

INTRODUCTION

The Columbia River creel program began in 1968 in response to the need for current catch and effort statistics from the recreational fishery. Before 1968, Columbia River fishery managers primarily focused their attention on salmon landings and escapement from the commercial fishery. The need for more detailed run-size accountability arose from the court case, U.S. v Oregon, and prompted the Oregon Game Commission (now merged with the Oregon Fish Commission into the Oregon Department of Fish and Wildlife) to develop a statistical sampling program for the Columbia River recreational fishery. The creel program was designed to estimate total effort and catch of salmon and steelhead in bank and boat fisheries by Oregon and Washington anglers below Bonneville Dam. This program, with modification and expansion, has been continued through the present. The Washington Department of Fisheries and Washington Department of Wildlife (now merged into the Washington Department of Fish and Wildlife) have been cooperators since 1969.

Fishery Development

Historically, an estimated 10-16 million adult salmon and steelhead returned to the Columbia River Basin annually. These fish migrated to spawning areas nearly 1,200 miles up the Columbia River to Lake Windermere, Canada and 600 miles up the Snake River near Twin Falls, Idaho. Access to the most productive spawning and rearing areas was blocked or flooded by dam construction beginning in the 1930s. Since that time, hydroelectric project operators were required to build and fund hatcheries to mitigate for habitat destruction and lost salmon production. As more dams were built, wild populations of salmon and steelhead collapsed or disappeared entirely, and hatchery-raised fish comprised an increasing majority of most salmon and steelhead runs. Ironically, it was in 1938 after the completion of Bonneville Dam and the commencement of accurate fish counting, that intensive fishery management and run size accountability became possible. Since 1938, the number of returning salmon and steelhead, including jacks, has fluctuated from a low of 750,000 in 1995 to a high of 3.2 million in 2001. Hatchery-raised fish comprise approximately 75% of present salmon and steelhead runs.

Native Americans fished for salmon for millennia prior to the arrival of Europeans who became interested in salmon in the 1830s. Non-Indian commercial fishing began during the 1860s and expanded rapidly in 1866 with the innovation of salmon canning. Recreational salmon angling began in the tributaries of the Columbia during the late 1800s. The mainstem Columbia River sport fishery became important after World War II. Bank angling from beaches and islands for spring and summer chinook, steelhead, and cutthroat trout was predominant through the mid-1970s. Season closures, restrictions to beach access, the emergence of the sturgeon fishery, and relatively strong runs of fall chinook resulted in a shift to boat angling as the more popular method after the mid-1970s.

Prior to 1975, angler interest was primarily in salmon and steelhead fishing. Since 1975, recreational salmon fishing opportunities have declined appreciably as seasons have been shortened or closed to protect depressed runs, and other non-salmonid fisheries have gained popularity. The sturgeon fishery emerged from background levels in the early 1970s and outgrew the salmon fishery in terms of angler participation during the 1990s. The first significant walleye fishery below Bonneville Dam occurred in 1982, and shad rapidly gained popularity as a sport fish in the late 1980s.

Management

Currently, the Oregon Department of Fish and Wildlife (ODFW) and Washington Department of Fish and Wildlife (WDFW) co-manage lower Columbia River fisheries for anadromous and semi-anadromous fish populations. Commercial fishing seasons are set jointly by the Columbia River Compact, but each state separately establishes its own angling regulations. Factors affecting the management of salmon and steelhead fisheries include: (1) expected stock abundance and escapement goals to hatcheries and natural production areas, (2) harvest-sharing with treaty Indian tribes per agreements between the parties of U.S. v. Oregon, (3) recovery guidelines of the Endangered Species Act (ESA) from the National Oceanic and Atmospheric Administration (NOAA Fisheries), and (4) opportunity for all user groups. White sturgeon management objectives are based on: (1) optimum sustainable yield (OSY), (2) broodstock protection and recruitment, and (3) the “Joint State Accord on 2003-2005 Columbia River Sturgeon Fishery Management”. Both states strive for concurrent angling regulations.

Columbia River Compact.

In 1918, the U.S. Congress ratified a compact agreement between the states of Oregon and Washington covering concurrent jurisdiction of Columbia River fisheries. The Columbia River Compact is comprised of the Oregon Fish and Wildlife Commission (OFWC) and the Washington Fish and Wildlife Commission (WFWC). The OFWC and WFWC have delegated Compact decision-making authority to the agencies’ directors or their designees. Compact hearings are held prior to all major fishing seasons to review technical data and establish season dates and gear restrictions for commercial fisheries. Additional hearings are often necessary when updated information on run sizes, achievement of escapement goals, or attainment of catch guidelines indicates a need to modify a season. Although the Compact was established to manage commercial fisheries, the Compact, acting in a Joint State forum, has been managing sport fisheries since the 1990s.

Columbia River Fish Management Plan (CRFMP).

Twenty years of legal tests and negotiations by the parties of the court case U.S. v. Oregon, (Oregon, Washington, the United States, and four treaty Indian tribes (Yakama, Warm Springs, Umatilla, and Nez Perce)), culminated in the CRFMP agreement in 1988. The purpose of the CRFMP was to provide a management framework to protect and rebuild weak upper Columbia River salmon runs and allocate the harvest of surplus fish between treaty Indian and non-Indian fishers. The CRFMP established specific escapement goals to hatcheries and natural production areas for upper Columbia River salmon stocks. Additionally, the plan constrained fisheries to certain time frames under the intent of harvesting healthy stocks while protecting weaker stocks. Under the CRFMP, non-Indian and treaty Indian fishers shared the harvestable surplus equally. The CRFMP expired in 1999 and left a void in the management framework for upper Columbia River salmon runs. The parties of U.S. v. Oregon were unable to reach an agreement for the management of spring fisheries in 2000, but did reach an agreement for fall fisheries management.

An unprecedented forecast for a return of 364,600 upriver spring chinook to the Columbia River in 2001 coincided with negotiations by the parties of U.S. v. Oregon for a new management agreement regarding the harvest of upriver spring chinook in Columbia River fisheries. After intensive negotiations, the states, federal government, and four treaty tribes signed the “Interim Management Agreement for Upriver Spring Chinook, Summer Chinook, and Sockeye” on February 16, 2001 for fisheries occurring during spring and summer in 2001-2003. The Management Agreement included a sliding harvest scale for upriver spring chinook fishery management for five years (2001-2005) based on the forecasted abundance of ESA-listed Snake

River and upper Columbia River wild spring chinook salmon. The parties negotiated a separate management agreements annually for fall fisheries during 2001-2004.

On May 11, 2005 the parties agreed to the “2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho, and White Sturgeon”. The Management Agreement covered spring, summer, and fall fisheries management and provided the basis for compliance with the conservation requirements of the Endangered Species Act and formed a platform for the renegotiation of the CRFMP to be completed by December 2007. The Technical Advisory Committee (TAC), a subcommittee of the CRFMP made up of tribal, state, and federal biologists, reviewed all the technical data on run sizes and fishery proposals to ensure adequate harvest-sharing, escapement, and protection for fish listed under the ESA. NOAA Fisheries subsequently issued the appropriate Biological Opinions and incidental take statements for the management of spring and fall fisheries in the Columbia River for 2005.

Endangered Species Act.

The U.S. Congress passed the ESA in 1973 to protect and recover imperiled native species. NOAA Fisheries conducts status reviews of anadromous fish species proposed for listing as “threatened” or “endangered” under the ESA. The ESA contains specific language regarding impacts to listed species. The TAC reviews fishery proposals that have the potential to impact listed species and submits biological assessments to NOAA Fisheries. Upon review, NOAA Fisheries may issue a Biological Opinion of “no jeopardy” that allows limited impact to a listed species in non-directed fisheries; however, if the impact is outside NOAA Fisheries’ guidelines for recovery, the agency may issue a “jeopardy” opinion that would require modification of the fishery proposal.

There are currently 13 stocks of Columbia River salmon and steelhead listed under the federal ESA, six of which were added during 1999. Lower Columbia River coho salmon were listed as “threatened” on August 26, 2005. The multitude and complexity of the listings reflect genetic differences among populations of the same species in different geographic areas of the Columbia River Basin, which are referred to as evolutionarily significant units, or ESUs. Appendix Table 1 summarizes the Columbia River Basin salmon and steelhead ESUs currently listed under the ESA.

State of Oregon ESA

The state of Oregon listed lower Columbia River wild coho as “endangered” under the state ESA in July 1999. The OFWC established a maximum impact rate for Oregon’s wild Columbia coho of 14% annually in ocean and freshwater fisheries combined, and issued incidental take permits for fisheries occurring in 1999-2005. These fish are primarily destined for the Sandy and Clackamas rivers in Oregon and have been a candidate species for listing under the federal ESA since 1995. Because lower Columbia River coho were listed under the federal ESA in 2005, the federal listing superseded the state listing, and a new recovery plan is currently being drafted.

Joint State Accord on 2003-2005 Columbia River Sturgeon Fishery Management.

The Joint State Accord established fishery management guidelines for white sturgeon populations in the lower Columbia River during 2003-2005. The Accord adhered to the major principles of the previous two management agreements, which governed sturgeon fishery management during 1997-1999 and 2000-2002 and established a formal allocation of white sturgeon between sport and commercial fisheries in the lower Columbia River (80% sport and 20% commercial). The Management Agreement established an average harvest guideline of 40,000 white sturgeon (32,000 sport and 8,000 commercial) for each year during 2003-2005 based on the projected abundance of white sturgeon at the outset of the agreement. The 2003-2005 Accord further allocated the recreational share of 32,000 white sturgeon between the estuary (60%) and non-estuary (40%) sport fisheries.

2005 Seasons and Bag Limits.

The species that support important recreational fisheries that warrant evaluation during the year are: spring chinook (February-June); summer chinook (June-July); fall chinook (August-October); coho (August-October); winter steelhead (November-April); summer steelhead (May-October); cutthroat trout (July-October); sturgeon (year-round); shad (May-June); and walleye (April-October). Recreational spring chinook seasons have been restricted since 1974. Summer chinook seasons were restricted during 1965-1969 and 2002-2004 and closed during 1974-2001. With the advent of mark-selective fisheries, recreational fishing opportunities have expanded for spring chinook beginning in 2001 and summer chinook in 2002. The specific seasons and closures for lower Columbia fisheries in 2005 are listed in Appendix Table 2. For more detailed information on angling closures, consult the individual species sections listed under Results and Discussion.

Oregon's daily bag limits in 2005 were: (1) two adult salmon (coho over 20" or other salmon over 24"), or two steelhead (over 20"), or two in combination; (2) five jack salmon (coho between 15" and 20" or other salmon between 15" and 24"); (3) two trout, with a 12" minimum size limit; (4) one sturgeon between 42" and 60" except during the summer retention season in the estuary when the minimum size was 45"; (5) no limit for shad; and (6) ten walleye, with no more than five over 18" and one over 24".

Washington's daily bag limits in 2005 were: (1) six salmon, with a 12" minimum size and not more than two adults (chinook over 24", coho over 20", pink salmon over 10") (2) two steelhead (over 20"); (3) two trout between 12" and 20"; (4) one sturgeon between 42" and 60" except during the summer retention season in the estuary when the minimum size was 45"; (5) no limit for shad; and (6) ten walleye, with no more than five over 18" and one over 24".

In both states, only adipose fin-clipped hatchery spring chinook, coho, steelhead, and cutthroat trout could be retained in lower Columbia River fisheries, although Washington also permitted anglers to keep steelhead with ventral fin clips. Only adipose fin-clipped summer chinook were allowed in the recreational fishery during June 16-30; however, any summer chinook could be kept during July 1-31. During the spring chinook fishery, the daily bag limit was restricted to one adipose fin-clipped chinook for anglers fishing between Rooster Rock and Bonneville Dam. Both states also limited the daily salmon limit to not more than one adult chinook during the fall salmon fishery (August 1-December 31) in the mainstem and at Buoy 10. Both states required the release of all sockeye and chum salmon in 2005.

Regulations were mostly concurrent in 2005. One major difference was that Washington separated salmon and steelhead bag limits, allowing Washington anglers to keep two steelhead in addition to the daily adult salmon limit; whereas, Oregon anglers could only keep two fish in combination. Washington anglers were also permitted to fish for salmon and steelhead at night (since 1997), but Oregon anglers were limited to fishing from one hour before sunrise to one hour after sunset. Where regulations differed, anglers were required to abide by the rules of the state in which they fished.

METHODS

Sampling Area Description

The lower Columbia River sampling area extends 146 miles downstream from Bonneville Dam to Buoy 10, which is the legal boundary of the Pacific Ocean. Fall salmon fisheries occurring from Buoy 10 upstream to a line projected from Tongue Point, Oregon to Rocky Point, Washington are monitored separately from the lower Columbia fishery (see the **Buoy 10 Fishery** section). The lower Columbia River is divided into ten recreational sampling sections (Table 1 and Figure 1). Each river section represents a distinct segment of the sampling area, and estimates of total effort and catch are made separately for each river section. This procedure allows for stratified sampling of each river section to account for variability in effort, catch rate, and stock composition of the catch.

Table 1. Lower Columbia River Recreational Sampling Sections

Section Number	Name	Description	River Mile	Length (mi)
1	Bonneville	The Columbia Gorge from Bonneville Dam downstream to the eastern tip of Reed Island	127-146	19
2	Troutdale	Eastern tip of Reed Island downstream to the western tip of Lemon Island (includes the mouth of the Sandy and Washougal rivers)	111-127	16
3	Portland	Western tip of Lemon Island downstream to light #40 on the eastern tip of Sauvie Island (includes the mouth of the Willamette River)	101-111	10
4	Sauvie Island	Light #40 at the eastern tip of Sauvie Island downstream to Warrior Rock Light at the western tip of Sauvie Island	87-101	14
5	St. Helens	Warrior Rock Light downstream to Deer Island light #62 (includes the mouth of the Lewis River and entrance to the Multnomah Channel)	79-87	8
6	Kalama	Deer Island light #62 downstream to Prescott Moorage (includes the mouth of the Kalama River)	72-79	7
7	Rainier	Prescott Moorage downstream to the Longview Bridge (includes the mouth of the Cowlitz River)	66-72	6
8	Longview	Longview Bridge downstream to the western tip of Wallace Island	48-66	18
9	Westport	Western tip of Wallace Island downstream to the western tip of Puget Island	38-48	10
10	Estuary	Western tip of Puget Island downstream to Buoy 10 (the legal boundary of the Pacific Ocean)	1-38	38
Total River Miles				146

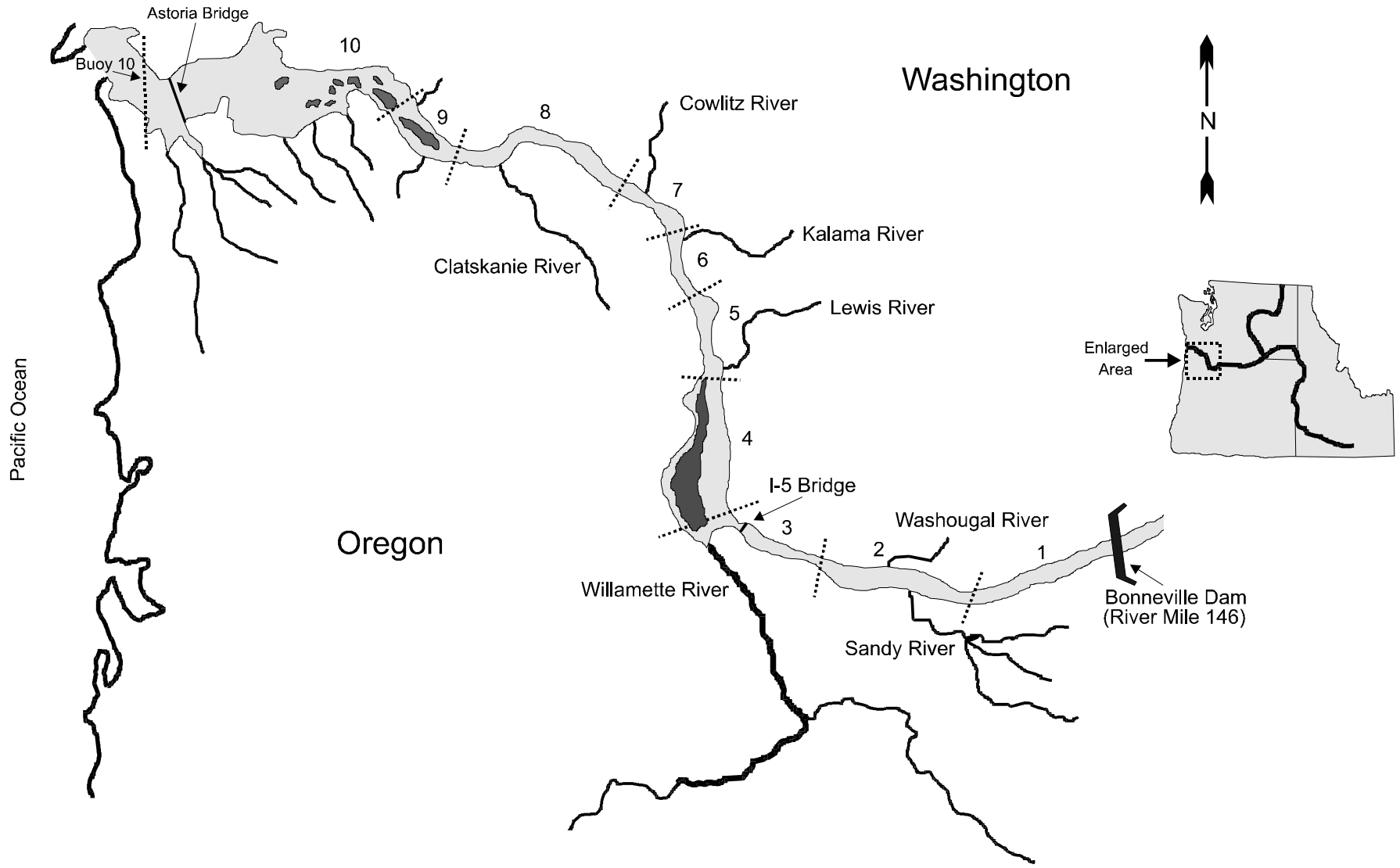


Figure 1. Recreational Sampling Sections on the Columbia River Below Bonneville Dam

Statistical Sampling

Using a computer program, total catch estimates for each species were made monthly by combining total effort estimates with the observed catch rates in each river section. Personnel from ODFW and WDFW conducted random angler interviews at their respective boat ramps, beaches, and on the river to determine catch rates for each species by angler type, per angler hour. Sampling is stratified by river section (1-10), angler type (salmonid, sturgeon, shad, or walleye), method (boat or bank), state (Oregon or Washington), and trip type (complete or incomplete). Catch rates for incomplete angler trips are extrapolated from expected quit times provided by the angler. Angler interviews were conducted regularly throughout each month to account for variability in catch rates. No estimates were made for catch by Washington anglers after dark.

Sampling of the lower Columbia River recreational fisheries was conducted from March-September in 1969-1975, March-October in 1976-1977, February-November in 1978-1979, and February-October since 1980. Since 1982, an informal sampling program has been conducted during the winter months of November-January to estimate sturgeon catch only.

Effort Estimates

Since 1969, a minimum of six aerial counts were made of all boat and bank anglers in each section of the lower Columbia River each month. Counts were made on both weekdays and weekends and expanded using a computer model. Average weekday and weekend effort totals were made and applied to the appropriate number of each day type in the month to determine total effort for each river section. The proportion of each angler type was determined from the sampling data (since 1977), as were the average angler trip lengths, average number of anglers per boat, and proportion of boat anglers from each state. During the informal sturgeon sampling period of November-January, angler effort estimates were made from boat and ground based counts and moorage/launch reports.

Expansion factors for aerial counts were developed during 1969-1983. During that time, river-based counts of all boat and bank anglers in a given river section were made at two-hour intervals to develop effort profile indices (EPI), from which total angler effort could be determined using area-under-the-curve calculations. Noontime aerial counts were correlated to EPI estimates of total effort in the same section. Expansion factors were developed for the airplane counts using a computer model that incorporated variables such as day length, day type (weekday or weekend), tides, wind and weather, hydrological conditions, season closures, and other variables. EPI counts were discontinued in 1984 after the computer model for expansion of the aerial counts was developed. No estimates were made for angler trips occurring after dark in Washington.

Biological Sampling

All salmonids and sturgeon encountered in the sampling program were examined for biological information. Salmonids were sampled for species, length, sex, marine mammal damage, and fin clips, which may indicate the presence of coded-wire tags (CWTs). Handheld metal detectors (wands) were used to determine the presence of coded wire tags in coho (since 1998), spring chinook (since 2001), and summer chinook (since 2002). Scales and CWTs were collected from salmonids for age and stock composition analyses. Sturgeon were sampled for total length and the presence of tags or tag scars and scute marks. Walleye were measured for length. Shad caught in the recreational fishery were not sampled for biological information.

RESULTS AND DISCUSSION

2005 Water Conditions

Aside from fish abundance, water conditions are the most important factor affecting angler catch rates for salmon and steelhead on the Columbia River. A high, clear river is best for bank angling, and a low, clear river is best for boat angling. Very cold water temperatures (<40°F), very high water temperatures (>70°F), or turbid water will delay salmon migration and substantially reduce angler success. Sturgeon angling is not as dependent on water conditions, except that very cold water temperatures and extremely high flows decrease angler success. High flows are best for shad angling, and walleye fishing is best in a low, clear river.

The Columbia River was low, clear, and cold at the beginning of 2005 as the result of a below average precipitation and snowpack during November-December 2004. Flows averaged 141 kcfs and 42°F with 6.4 feet of visibility at Bonneville Dam during January-March, 2005, and water temperatures were below 40°F for 19 consecutive days during January 16-February 3. Precipitation levels continued to be well below normal through April 2005 for the entire Columbia Basin. Despite the excellent water clarity, cold water temperatures resulted in low spring chinook abundance and poor catch rates for both spring chinook and sturgeon until April. Peak flows at Bonneville Dam were 240-290 kcfs during mid to late May in response to snowmelt and spilling at dams to aid juvenile salmonid migration. By early June flows were relatively low again as most of the basin's snowpack had melted.

The Columbia River was relatively low and warm in the second half of 2005 with July-August flows and temperature averaging 157 kcfs and 70°F respectively. Water temperatures at Bonneville Dam exceeded 70°F for 34 days during July 27-August 29 and peaked at 73°F for two days during early August. The lowest flow of the year at Bonneville Dam was 75 kcfs on September 19. Turbidity was low in late summer and early fall with visibility measuring between 5 and 7 feet. The high water temperatures during summer adversely affected angler catch rates for summer chinook and summer steelhead; however, good water clarity combined with cooling river temperatures during September were ideal for fall chinook angling. Figures 2-4 display five-day averages for temperature, turbidity, and flow at Bonneville Dam in 2005.

2005 Angling Effort and Catch

Oregon and Washington anglers made a total of 409,362 fishing trips on the lower Columbia River during 2005. Of the total trips, 249,794 (61%) were for salmonid angling, resulting in catches of 37,190 chinook adults (31,142 kept and 6,048 released), 262 chinook jacks, 586 adipose fin-clipped coho adults, 21 adipose fin-clipped coho jacks, 11,198 steelhead (7,738 kept and 3,460 released), and 2 adipose fin-clipped cutthroat trout. Sturgeon anglers made 137,761 (34%) trips to catch a total of 33,037 legal-size white sturgeon (29,802 kept and 3,235 released) and 119 green sturgeon. Shad anglers made 20,370 (5%) trips and caught 177,254 shad (164,889

kept and 12,365 released). Walleye anglers made 1,437 (<1%) trips and caught 684 walleye (646 kept and 38 released). Estimates of combined Oregon and Washington angler effort and catch are presented in Table 2 for 2005 and in Table 3 for 1969-2005. Appendix Table 3 lists the number and percentage of anglers sampled by month and compares annual sampling rates for 1977-2005. Figure 5 shows annual lower Columbia River trip totals for sturgeon, salmonid, and shad anglers for 1977-2005. Appendix Tables 4-7 break down catch and effort totals by method, state, and river section.

2005 Mark Sampling

Personnel from both states sampled a combined total of 8,510 salmon and steelhead for fin clips and/or the presence of CWTs. Handheld metal detectors (wands) were used to determine the presence of CWTs on mass-marked hatchery spring chinook, summer chinook, and coho. The level of mark sampling was 21.4% of the estimated 39,749 salmon and steelhead taken in the recreational fishery (Appendix Table 8). The mark sampling goal is 20% of the salmon and steelhead taken in the recreational fishery. Of the 8,510 salmon and steelhead that were mark-sampled, CWTs or CWT marks were observed on 688 fish (8.1%).

Personnel from both states sampled 11,348 kept legal-size white sturgeon for the presence of tags and recorded lengths of 9,465 fish. The level of tag sampling was 38% of the estimated 29,802 legal-size white sturgeon kept in the recreational fishery. Of the 11,348 white sturgeon sampled for tags, 352 (3%) had tags (Appendix Table 9). Additionally, 63 green sturgeon were measured and sampled for tags, which represents 53% of the green sturgeon catch. None of the green sturgeon observed had tags.

Personnel from both states sampled 155 walleye, or 24% of 646 walleye kept in the recreational fishery.

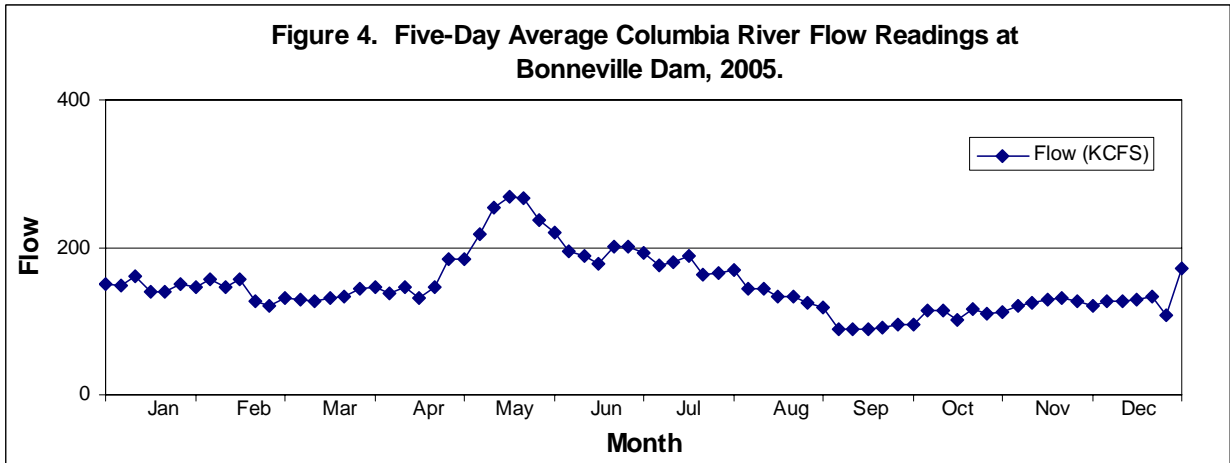
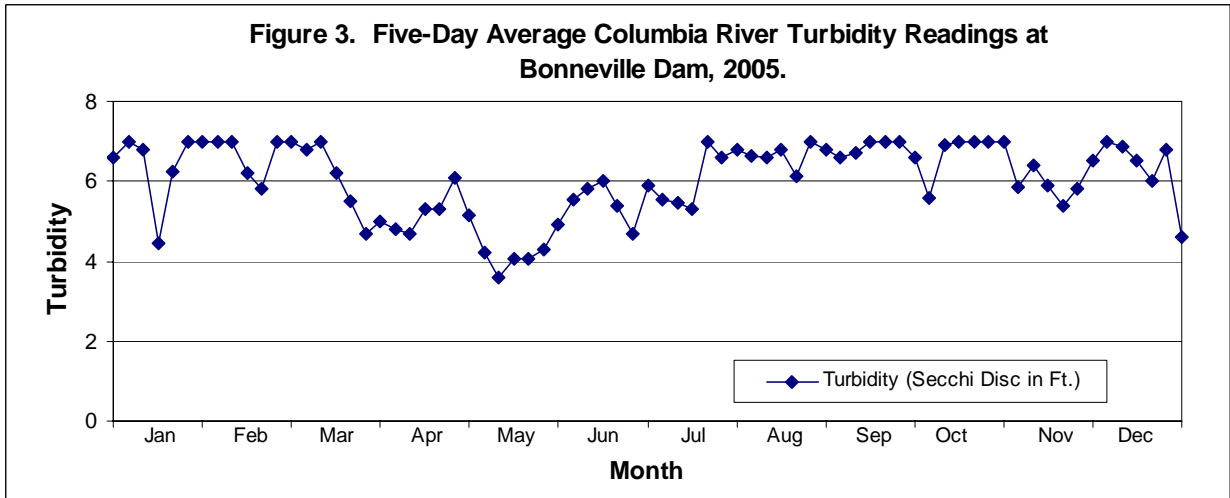
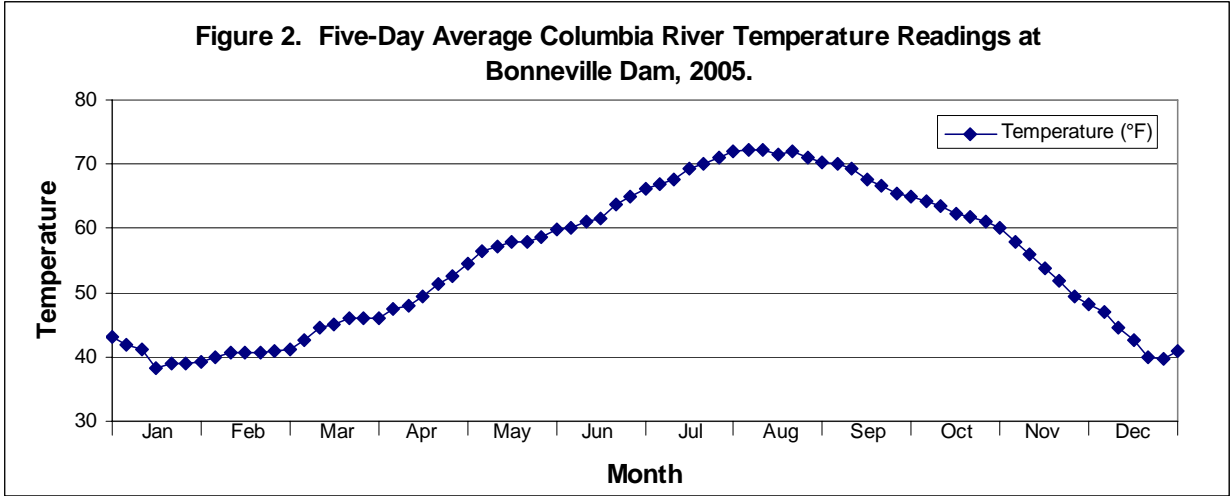


Table 2. Combined Oregon and Washington Angler Catch and Effort by Month on the Lower Columbia River, 2005. 1/

Month	Angler Trips				Chinook 2/		Steelhead 3/		Coho		White Sturgeon	Shad Kept	Cutthroat
	Salmonid	Sturgeon	Shad	Total	Adults	Jacks	Kept	Released	Adults	Jacks			
January	NS	3,056	NS	3,056	NS	NS	NS	NS	NS	NS	37	NS	NS
February	7,551	4,132	0	11,683	39	0	26	41	0	0	0	0	0
March	36,865	2,260	0	39,125	1,899	0	125	86	0	0	16	0	0
April	65,705	7,005	0	72,710	8,653	11	191	28	--	--	1,239	0	--
May	4,082	24,893	5,485	34,460	--	17	407	39	--	--	5,161	44,486	0
June	23,316	38,890	14,658	76,864	1,393	16	1,648	410	--	--	9,077	119,817	0
July	25,681	24,141	227	50,049	902	34	2,700	1,674	--	--	5,962	586	0
August	30,537	6,501	0	37,038	3,697	36	2,330	1,014	18	0	1,394	0	2
September	52,367	473	0	52,840	14,262	144	261	141	389	10	--	0	0
October	3,690	17,998	0	21,688	297	4	50	27	179	11	5,375	0	0
November	NS	6,043	NS	6,043	NS	NS	NS	NS	NS	NS	1,454	NS	NS
December	NS	2,369	NS	2,369	NS	NS	NS	NS	NS	NS	87	NS	NS
Total 4/	249,794	137,761	20,370	407,925	31,142	262	7,738	3,460	586	21	29,802	164,889	2

1/ Kept fish only unless noted otherwise. NS indicates no sampling. Dashes signify closed season.

2/ Catch of chinook stocks are differentiated by run timing as follows: spring chinook February 1-June 15; summer chinook June 16-July 31; fall chinook August-October.

3/ Catch of steelhead stocks are differentiated by run timing as follows: winter steelhead November-April; summer steelhead May-October.

4/ Total effort is incomplete due to no salmonid sampling during November, December, and January. Winter steelhead catches are also incomplete.

Table 3. Combined Oregon and Washington Angler Catch and Effort by Species on the Lower Columbia River, 1969-2005. 1/

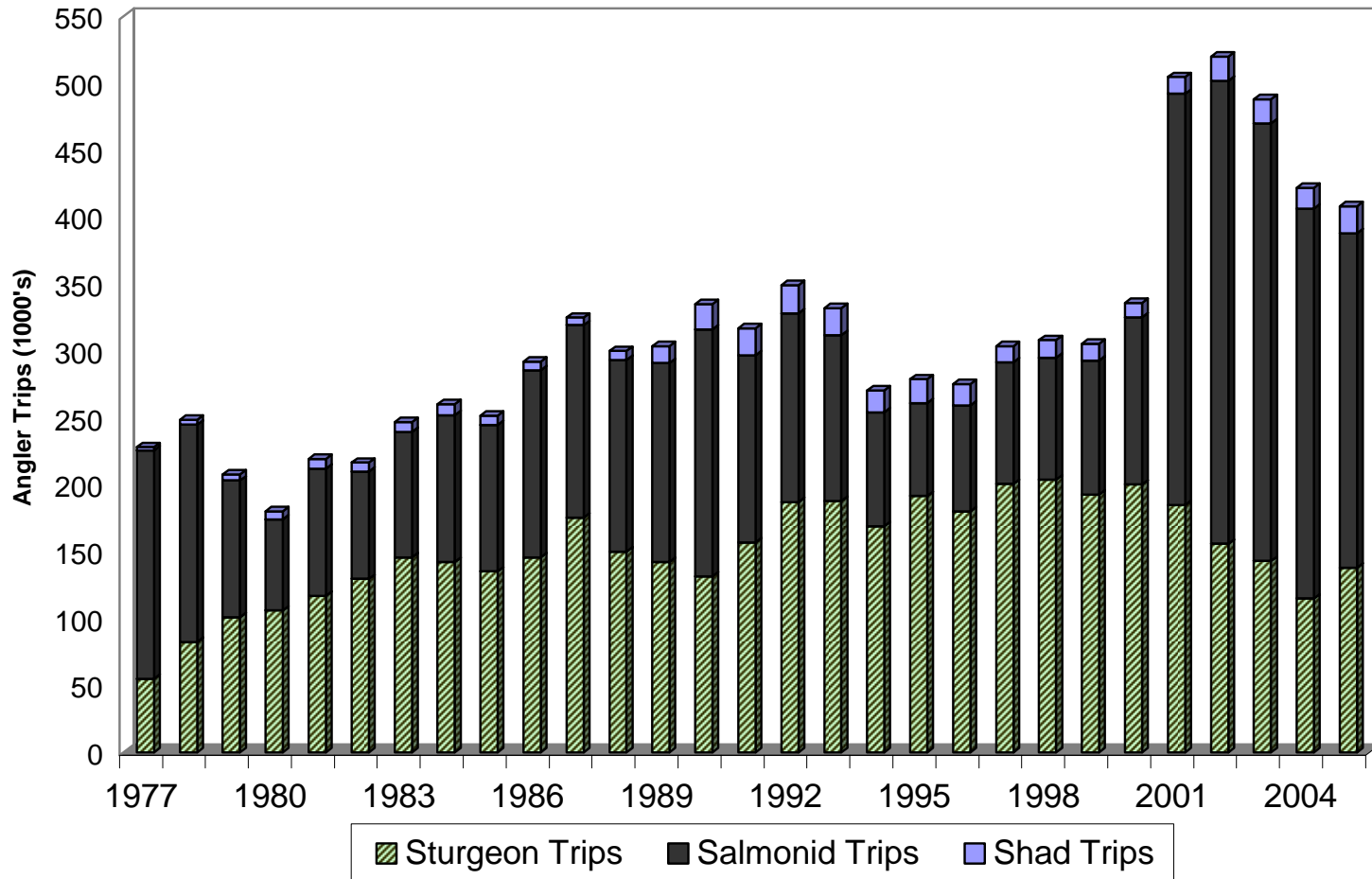
Year	Angler Trips 2/				Chinook 3/						Steelhead			Coho		White	Shad
	Total	Salmonid	Sturgeon	Shad	Spring		Summer		Fall		Winter	Summer	Cutthroat	Adults	Jacks	Sturgeon	Shad
					Adults	Jacks	Adults	Jacks	Adults	Jacks							
1969	(228,309)	NA	NA	NA	15,108	2,178	737	1,716	1,208	2,518	(2,488)	11,286	7,756	420	3,081	6,900	5,907
1970	(333,861)	NA	NA	NA	31,346	2,469	1,797	2,474	3,234	5,799	(1,169)	9,395	13,617	2,244	11,547	8,900	10,743
1971	(332,493)	NA	NA	NA	(22,043)	(4,412)	(3,326)	(3,845)	(3,833)	(2,676)	(2,682)	(10,823)	8,107	1,378	3,711	3,700	6,122
1972	(290,614)	NA	NA	NA	(22,951)	(1,765)	(1,985)	(1,461)	(3,668)	(1,877)	(2,991)	(15,363)	4,342	852	1,625	6,600	3,886
1973	(356,168)	NA	NA	NA	(37,074)	(617)	(1,524)	(803)	(2,415)	(2,107)	(1,586)	(8,466)	1,467	271	3,139	12,900	6,999
1974	(273,968)	NA	NA	NA	14,386	1,788	0	0	2,112	1,420	(1,292)	5,454	2,709	485	264	12,300	12,263
1975	(120,004)	NA	NA	NA	2,390	21	0	0	1,861	1,763	(1,026)	0	3,911	620	993	18,100	14,497
1976	(138,409)	NA	NA	NA	3,154	0	0	0	1,670	3,153	(364)	0	5,023	306	961	19,300	15,877
1977	(227,905)	170,580	55,122	2,203	17,289	663	0	163	1,701	2,212	(816)	4,392	1,405	507	6,404	25,836	2,804
1978	(248,429)	162,203	82,500	3,726	5,003	157	0	363	1,709	1,916	(1,354)	2,714	4,238	1,037	3,299	30,387	15,683
1979	(207,365)	102,024	101,000	4,341	1,719	0	0	249	1,080	1,474	(482)	1,808	3,474	168	2,875	31,422	12,442
1980	(180,931)	69,026	105,900	6,005	816	0	0	117	1,155	390	(810)	2,309	3,822	85	81	27,022	24,280
1981	(219,173)	95,106	116,800	7,267	3,645	32	0	200	1,022	1,174	(610)	5,052	5,336	139	579	27,207	28,689
1982	(216,294)	80,162	129,500	6,632	2,815	0	0	136	117	696	(1,150)	4,385	5,239	96	803	25,058	33,914
1983	(246,655)	93,681	145,700	7,274	2,767	0	0	240	962	1,250	(507)	3,689	7,379	174	2,329	35,980	28,744
1984	(259,842)	109,660	142,200	7,982	1,914	0	0	265	1,472	1,316	(594)	8,108	3,560	715	538	41,974	22,270
1985	(251,465)	109,334	135,082	7,049	1,440	8	0	296	2,032	5,449	(587)	7,872	3,355	1,106	444	43,822	13,666
1986	(291,534)	139,359	145,700	6,475	5,654	196	0	196	2,146	3,136	(1,752)	11,008	503	4,027	503	49,844	18,914
1987	(324,632)	143,812	175,300	5,520	2,687	86	0	130	4,357	1,437	(747)	6,479	500	930	3,047	62,447	14,349
1988	(299,681)	143,137	149,800	6,744	4,621	66	0	144	4,443	1,492	(1,036)	10,398	683	475	1,491	43,131	27,455
1989	(303,466)	148,542	142,100	12,824	2,996	51	0	135	5,523	935	(166)	8,093	826	184	382	25,380	64,351
1990	(334,804)	184,356	131,465	18,983	12,200	70	0	51	3,568	1,257	(775)	6,276	948	351	2,919	17,310	113,831
1991	(316,757)	139,761	156,675	20,321	5,597	39	0	67	2,640	530	(269)	7,161	497	1,090	1,277	22,655	100,557
1992	(349,162)	141,144	187,041	20,977	5,277	0	0	0	1,871	1,401	(492)	10,917	96	586	1,511	40,064	88,295
1993	(331,733)	123,676	187,760	20,297	1,862	3	0	0	3,694	512	(93)	9,847	114	551	52	37,887	111,446
1994	(270,167)	84,981	169,034	16,152	2,004	0	0	0	229	37	(152)	5,171	69	941	83	33,471	103,788
1995	(278,624)	69,421	191,381	17,822	0	0	0	0	4,563	1,172	(0)	8,148	110	199	85	45,137	101,361
1996	(274,812)	79,096	179,781	15,935	0	0	0	0	9,324	448	(5)	6,271	6	774	61	42,762	129,759
1997	(303,333)	91,009	200,465	11,859	0	0	0	0	8,447	389	(19)	7,116	10	813	504	38,157	98,949
1998	(307,907)	91,122	203,638	13,147	55	0	0	0	6,993	629	(0)	4,781	53	595	574	41,596	83,355
1999	(305,035)	100,270	192,329	12,436	0	0	0	0	8,652	322	(48)	7,090	38	1,276	502	39,799	79,347
2000	(335,659)	124,836	200,033	10,790	322	0	0	198	7,620	1,332	(124)	9,834	63	1,620	2,429	40,505	57,953
2001	(504,330)	307,207	184,617	12,506	25,711	104	0	292	9,355	804	(1,631)	11,412	45	3,068	381	41,216	98,566
2002	(519,413)	345,762	155,782	17,869	20,464	247	1,352	145	21,182	757	(1,518)	11,860	192	3,011	367	38,279	148,164
2003	(487,669)	326,913	142,864	17,892	16,892	492	1,854	254	26,195	465	(1,021)	9,557	41	1,145	21	31,932	115,867
2004	(421,686)	291,256	114,908	15,522	23,740	137	1,119	181	17,719	497	(1,425)	8,741	22	1,273	62	25,569	123,047
2005	(407,925)	249,794	137,761	20,370	11,315	39	1,571	39	18,256	184	(342)	7,396	2	586	21	29,802	164,889

1/ Kept fish only. Numbers in parentheses indicate estimates are incomplete due to no salmonid sampling during winter months, no catch data for Washington bank fisheries during July-September 1971-1973, no April sampling in 1975-1976, and no sturgeon sampling during November and December 2003.

2/ Angler trips by species are not available prior to 1977.

3/ Prior to 2005, chinook at or below Bonneville Dam were classified as spring chinook during February 1-May 31 and summer chinook during June 1-July 31. Beginning in 2005, chinook at or below Bonneville Dam were reclassified as spring chinook during February 1-June 15 and summer chinook during June 16-July 31.

**Figure 5. Angler Effort by Species
on the Lower Columbia River, 1977-2005.**



Spring Chinook

Historically, two-million spring chinook salmon returned to the Columbia River annually. These fish spawned in numerous tributaries throughout the Columbia and Snake River basins and contributed substantially to sport and commercial fisheries during February-May. Development within the basins (dams, logging, irrigation, mining, grazing, and road construction) has blocked or reduced the productive capacity of most of the spawning and rearing habitat for wild spring chinook. Dams without ladders for adult fish passage, Grand Coulee Dam on the Columbia (River Mile 545) and Hells Canyon Dam on the Snake (River Mile 597), blocked access to major portions of habitat in the upper watershed. Despite substantial hatchery production, the run has generally remained depressed, particularly from the mid-1970s through the late 1990s. Improvement in the survival rate of spring chinook smolts during 1998-2002 resulted in large spring chinook returns to the Columbia during 2000-2004, and the 2001 and 2002 spring chinook runs were the largest and second largest since 1938, respectively. The main reason for the improvement in the spring chinook run size during that time was a dramatic increase in the productivity of the ocean food chain after the abatement of a decade-long El Nino event. Additionally, high Columbia River flows and spill at mainstem dams during 1999 and 2000 improved the instream survival of upriver spring chinook smolts on their downstream migration. Since 1938, the total spring chinook return to the Columbia has ranged from a high of 526,200 in 2001 to a low of 64,600 in 1995.

Spring chinook begin to enter the Columbia River in substantial numbers during February and continue through May. The run is comprised of lower river stocks returning to tributaries below Bonneville Dam and upriver stocks returning to the river system above Bonneville Dam. Lower river spring chinook are earlier timed in their migration and generally contribute more to February and March fisheries than upriver stocks. Lower river spring chinook return to the Willamette, Lewis, Cowlitz, Kalama, and Sandy rivers, and were historically less abundant than upriver stocks. Hatchery programs have sustained or increased production of spring chinook in these rivers, and in most years these runs produce substantial, harvestable surpluses. Lower river run sizes during 1969-2005 ranged from a high of 192,200 in 2004 to a low of 43,600 in 1996 and averaged 99,200. The 2005 lower river spring chinook return to the Columbia was 88,500 fish, which is down considerably from the record return of 192,200 in 2004 (Table 4). The Willamette spring chinook run was 55,800 in 2005 and accounted for 63% of the total lower river spring chinook return. The wild portion of the Willamette River spring chinook run has comprised about 10% of the total Willamette return in recent years. Upper Willamette River wild spring chinook and lower Columbia River wild chinook were separately listed as “threatened” under the ESA in May 1999.

Table 4. Minimum Annual Lower River Spring Chinook Run Entering the Columbia River, 1969-2005. 1/

Year	Recreational Catch 2/	Winter Commercial Catch 3/	Tributary Runs					Minimum Run
			Willamette River	Cowlitz River	Kalama River	Lewis River	Sandy River	
1969	5,100	8,600	52,600	11,900	300	0	-	78,500
1970	5,000	12,500	53,500	10,100	200	200	-	81,500
1971	6,500	13,400	67,400	11,000	500	100	-	98,900
1972	200	15,800	47,100	9,300	400	100	-	72,900
1973	7,400	17,200	54,500	13,800	200	100	-	93,200
1974	2,200	13,300	71,800	27,700	500	100	-	115,600
1975	2,400	9,100	32,800	23,100	4,000	500	-	71,900
1976	3,200	4,700	40,800	30,900	4,400	3,200	-	87,200
1977	3,100	6,800	58,100	21,700	2,200	3,500	600	96,000
1978	5,000	13,500	71,400	16,300	1,900	4,000	700	112,800
1979	1,700	5,500	44,600	16,400	3,000	2,600	900	74,700
1980	800	400	42,400	31,500	2,800	2,400	1,800	82,100
1981	3,500	6,800	48,600	30,200	3,800	3,100	2,800	98,800
1982	2,200	4,600	72,500	24,900	9,100	4,100	1,400	118,800
1983	2,200	5,400	55,100	26,500	5,400	3,900	1,900	100,400
1984	1,600	8,200	74,500	22,700	1,900	6,700	2,400	118,000
1985	1,100	9,800	57,100	10,400	400	4,600	1,400	84,800
1986	4,400	8,600	62,500	11,300	1,200	9,400	1,300	98,700
1987	2,400	10,600	82,900	20,200	2,700	17,400	2,400	138,600
1988	3,300	13,200	103,900	12,800	2,100	11,000	2,900	149,200
1989	2,500	12,400	102,000	9,100	2,100	12,500	2,000	142,600
1990	9,100	16,200	106,300	7,600	2,000	9,300	3,500	154,000
1991	4,100	11,700	95,300	8,900	2,600	8,300	3,700	134,600
1992	4,100	5,100	68,000	10,400	2,400	6,000	9,200	105,200
1993	1,400	2,100	63,900	9,500	2,900	8,200	6,400	94,400
1994	1,600	1,600	47,200	3,100	1,300	3,100	3,500	61,400
1995	0	200	42,500	2,100	700	3,700	2,700	51,900
1996	0	900	34,600	1,800	600	1,700	4,000	43,600
1997	0	1,900	35,000	1,900	500	2,200	4,600	46,100
1998	100	2,200	45,100	1,100	400	1,600	3,800	54,300
1999	0	1,900	53,900	2,100	1,000	1,800	4,000	64,700
2000	200	6,900	56,100	2,200	1,400	2,500	3,800	73,100
2001	4,400	12,700	73,000	1,600	1,800	3,800	5,700	103,000
2002	5,700	18,200	109,100	5,000	2,900	3,600	6,400	150,900
2003	8,200	9,700	117,600	15,900	4,500	5,100	5,800	166,800
2004	7,300	18,600	131,300	16,700	4,600	11,100	13,300	202,900
2005	4,400	4,600	55,800	9,300	3,100	3,400	9,300	89,900

- 1/ Mini-jacks not included. Includes estimates for non-retention mortality in sport and commercial fisheries beginning in 2001. The spring chinook management period extended from May 31 to June 15 beginning in 2005.
- 2/ Recreational catch of lower river chinook based on timing (February-March) 1969-1980, CWT analysis 1981-1989, and visual stock identification (VSI) analysis 1990-present.
- 3/ Commercial catch of lower river chinook based on timing (February-March) 1969-1980; CWT, genetic stock identification (GSI), and/or VSI analyses 1981-present. Includes Youngs Bay landings since 1992, Blind Slough landings since 1998, and Tongue Point landings during 1998-2003.

Upriver stocks of spring chinook return to the Snake River system (Salmon, Clearwater, Grand Ronde, Wallowa, Tucannon, and Imnaha rivers), upper Columbia tributaries above McNary Dam (Methow, Wenatchee, Entiat, Chewuch, Okanogan, and Yakima rivers), and mid-Columbia tributaries between Bonneville and McNary dams (White Salmon, Wind, Klickitat, Little White Salmon, Hood, Deschutes, John Day, and Umatilla rivers). The largest component of the upriver spring chinook run historically spawned in the Salmon River in Idaho. Upriver spring chinook begin their migration later than lower river spring chinook and reach peak abundance in the lower Columbia during April. Upriver spring chinook populations have remained depressed despite extensive hatchery programs and recovery efforts. Although habitat loss has affected the productivity of wild upriver spring chinook populations, the primary obstacle to recovery and protection of these fish is dam-induced mortality of juveniles during their downstream migration on the mainstem Columbia and Snake Rivers. In April 1992, the wild portion of the Snake River spring chinook run was combined with the wild portion of the Snake River summer chinook run and listed as “threatened” under the ESA. Upper Columbia River spring chinook were listed as “endangered” in May 1999. Beginning in 2005, the management period for upriver spring chinook at or below Bonneville Dam was re-classified from January 1-May 31 to January 1-June 15 to include the early portion of the summer chinook run, which contains a significant number of listed Snake River spring/summer chinook.

Since 1938, the upriver spring chinook adult run size has ranged from a high of 416,700 in 2001 to a low of 10,200 in 1995 (Table 5). The 2005 upriver spring chinook run was 106,900 adults entering the Columbia, which was the lowest return since 1999, and the Bonneville Dam count was 97,400 adult spring chinook. A total of 13,064 ESA-listed Snake River wild spring/summer chinook adults entered the Columbia and 8,445 passed Lower Granite Dam. The return of “endangered” Upper Columbia wild spring chinook was about 2,500 adults in 2005.

The beleaguered status of the upriver spring chinook run has factored heavily into management strategies for spring chinook fisheries, even prior to the ESA listing of Snake River wild spring chinook in 1992. Partial recreational season closures (April and/or May) were enacted as early as 1967, and every year since 1974, with the exception of 1977. During 1980-1992 the Columbia River above the I-5 Bridge closed prior to March 31, and during 1993-2000, the Columbia River above the I-5 Bridge closed on January 1 to eliminate any direct catch of upriver spring chinook in the sport fishery. The upriver spring chinook run reached its nadir (10,200 fish) in 1995. The disastrous run size in 1995 resulted in a complete closure of the Columbia River winter season commercial salmon fishery and the earliest ever (February 16) closure of the recreational fishery.

During 1996-1999, the upriver run ranged from 39,000 to 115,000 fish and management agreements allowed for a 1% impact to upriver spring chinook in non-Indian fisheries. Lower river spring chinook returns during 1996-1999 were at or near record low run sizes, and the OFWC restricted the harvest of Willamette River spring chinook to 6,000, 2,000, 2,000, and 4,600 fish respectively in those years. In order to maximize the opportunity in the Willamette River recreational fishery, the Columbia River recreational spring chinook fishery was closed on March 11 in each of those years. No spring chinook were caught in the 1996, 1997, or 1999 recreational fisheries during March 1-10, and only 55 fish were caught in 1998.

With the improved outlook for a Willamette River spring chinook return of 59,900 fish in 2000, the OFWC approved a 15% harvest rate (~9,000 fish) on Willamette spring chinook, which included an allocation of 1,200 spring chinook for the lower Columbia sport fishery. No agreement; however, was reached between the parties of U.S. v. Oregon regarding the management of upriver spring chinook in 2000. Complications and delays with the NOAA Fisheries’ issuance of an incidental take permit regarding impacts to listed Snake and upper Columbia River spring chinook forced the states to close the mainstem sport fishery effective March 16, 2000. Prior to the March 16, 2000 closure date for the Columbia River sport fishery, salmon anglers made an estimated 9,900 trips and caught 322 spring chinook.

Table 5. Minimum Annual Upriver Spring Chinook Run Entering the Columbia River, 1969-2005. 1/

Adults	Jacks	Adults	Jacks	Adults	Jacks	Adults	Jacks
10,000	2,200	30,100	600	159,900	13,700	200,000	16,500
26,400	2,400	30,800	600	103,100	7,900	160,300	10,900
15,500	4,400	21,500	1,100	109,500	16,000	146,500	21,500
22,700	1,700	68,500	1,400	178,300	7,800	269,500	10,900
29,700	600	58,700	1,800	135,400	6,700	223,800	9,100
12,200	1,800	8,200	200	79,400 4/	6,700 4/	99,800	8,700
0	0	0	0	97,900 5/	6,200 5/	97,900	6,200
0	0	0	0	63,900 4/	14,400 4/	63,900	14,400
14,200	600	8,600	700	115,600	4,000	138,400	5,300
0	100	0	0	127,000 4/	1,900 4/	127,000	2,000
0	0	0	0	48,600	2,800	48,600	2,800
0	0	0	0	53,100 5/	7,900 5/	53,100	7,900
200	0	600	0	62,800 5/	2,200 5/	63,600	2,200
600	0	500	0	70,000	6,000	71,100	6,000
400	0	600	0	54,900	1,900	55,900	1,900
100	0	500	0	46,800	4,300	47,400	4,300
300	0	1,200	0	83,200	7,800	84,700	7,800
1,300	100	1,100	0	118,100	5,000	120,500	5,100
400	0	1,000	0	98,600	3,200	100,000	3,200
1,400	0	5,100	0	90,500	4,200	97,000	4,200
500	0	1,500	0	81,300	6,000	83,300	6,000
3,100	0	2,100	0	94,200	2,100	99,400	2,100
1,500	0	900	0	57,300	3,900	59,700	3,900
1,200	0	200	0	88,400	2,200	89,800	2,200
400	0	300	0	110,800	1,400	111,500	1,400
400	0	400	0	20,200	400	21,000	400
0	0	0	0	10,200	2,500	10,200	2,500
0	0	<100	0	51,500	4,700	51,500	4,700
0	0	<100	0	114,000	900	114,100	900
0	0	<100	0	38,300	800	38,300	800
0	0	<100	0	38,600	8,700	38,600	8,700
100	0	<100	0	178,300	21,300	178,400	21,300
22,900	100	2,400	500	391,400	14,200	416,700	14,800
16,200	200	10,000	100	268,800	6,500	295,000	6,800
9,600	200	3,500	<100	194,300	14,500	207,400	14,700
17,100	100	5,300	<100	170,200	8,900	192,600	9,000
7,200	<100	2,100	0	97,400	5,300	106,700	5,300

Includes non-retention mortality for released fish beginning in 2001. Beginning in 2005, the spring chinook management was changed from January 1-May 31 to January 1-June 15 for fish at or below Bonneville Dam. Upriver catch was based on timing 1969-1981, CWT analysis 1981-1989, and VSI analysis 1990-present. Catch of upriver chinook since 1981 based on CWT, GSI, or VSI analysis, not timing of catch as in 1969-1980. Includes landings from Youngs Bay since 1992, Blind Slough since 1998, and Tongue Point during 1998-2003. Counts corrected for fallback. Fallback occurred this year, but was not estimated.

An unprecedented forecast for a return of 364,600 upriver spring chinook to the Columbia River in 2001 coincided with negotiations by the parties of U.S. v. Oregon for a new management agreement regarding the harvest of upriver spring chinook in Columbia River fisheries. The "Interim Management Agreement for Upriver Spring Chinook, Summer Chinook, and Sockeye" was signed on February 16, 2001 and allowed for a 15% impact to listed upriver spring chinook based on the expected upriver run size and abundance of ESA-listed Snake River wild spring chinook. A total of 2% of the impact was allocated to non-Indian fisheries and managers expected to use about 0.8% of the upriver impact in the lower river recreational fishery. Including lower river spring chinook stocks, the total expected return of 434,000 adult spring chinook to the Columbia during 2001 was the largest predicted run size of the post-Bonneville Dam era (since 1938). The high percentage of adipose fin-clipped fish returning in 2001 allowed the states to adopt the first-ever selective recreational fishery for adipose fin-clipped spring chinook on the lower Columbia River. Selective regulations began on March 12, 2001 and required the release of non-adipose fin-clipped spring chinook for the purpose of maximizing both the conservation of ESA-listed fish and the opportunity to harvest surplus hatchery fish while maintaining consistent sport fishing regulations for the lower Columbia and Willamette rivers. Additionally, beginning March 12, the states opened the area of the Columbia from the I-5 Bridge upstream to Bonneville Dam to spring chinook angling and established a closure date of April 30 for the fishery. The recreational fishery had not been open upstream of the I-5 Bridge during the month of April since 1977. The 2001 recreational spring chinook fishery was both extremely popular and productive, with record high angler effort and catch rates. In-season management was necessary to maintain the fishery within ESA guidelines and resulted in a brief closure during April 18-24; however, the fishery was reopened during April 25-29. During February 1-April 29, 2001, anglers made 172,312 trips and caught an estimated 41,172 adult spring chinook (25,711 kept and 15,461 released).

Selective spring chinook fisheries also occurred in 2002-2004. The 2002-2004 recreational spring chinook fisheries were characterized by high effort and catch rates, as well as excellent compliance among anglers with the selective fishery regulations. In-season management action was necessary in each year to maintain the fishery within ESA and harvest-sharing guidelines. The 2002 fishery occurred during February 1-April 28 and May 5-15 below the I-5 Bridge and during March 16-April 28 and May 5-15 between I-5 and Bonneville Dam with a catch of 34,442 adult spring chinook (20,464 kept and 13,978 released) from 175,052 angler trips, the highest effort on record in the spring chinook fishery. The 2003 spring chinook fishery occurred during February 15-April 5 between the I-5 Bridge and Bonneville Dam and during February 1-April 5, April 9-12, April 16-19, April 23-26, April 30-May 3, May 7-10, and May 14-15 below I-5 with a catch of 26,019 adult spring chinook (16,892 kept and 9,127 released) from 160,765 angler trips. The 2004 recreational fishery occurred during February 1-April 30 below I-5 and March 16-April 21 between I-5 and Bonneville Dam with a catch of 30,980 spring chinook (23,740 kept and 7,240) released from 156,101 angler trips. In 2004, a new regulation prohibited the removal of unmarked fish from the water to provide additional protection for released fish.

In 2005, the forecast for upriver spring chinook was 254,100 adults to the mouth of the Columbia River. In addition, biologists predicted a good return of 159,300 lower river spring chinook in 2005, which included a forecast for 116,900 Willamette spring chinook. The "Interim Management Agreement for Upriver Spring Chinook, Summer Chinook, and Sockeye" allowed a 2% impact to ESA-listed upriver spring chinook in all non-Indian fisheries during 2005. The non-Indian impact was allocated between the sport and commercial fisheries with 1.20% for the sport fishery (including fisheries above McNary Dam) and 0.80% for the commercial fishery (including Select Areas). Of the total sport impact, the states planned to use an impact rate of 0.79% in the lower Columbia fishery.

Sport fishing regulations for the 2005 spring chinook fishery were adopted at the January 28 Compact hearing. The adopted sport season was February 1-May 15 for the Columbia River from Buoy 10 to the I-5 Bridge and March 16-May 15 for the Columbia River from I-5 to Bonneville Dam, Tower Island upstream to McNary Dam, and the Oregon bank between

Bonneville Dam and Tower Island. Regulations adopted for the 2005 season included a seven day per week fishery with a two fish bag limit for the Columbia River from Buoy 10 to Rooster Rock (RM 128) and from Bonneville Dam to McNary Dam. The Columbia River from Rooster Rock to Bonneville Dam was open three days per week (Sunday, Monday, and Tuesday) with a one fish bag limit in attempt to extend angling opportunity through a greater portion of the season. Table 6 shows regulations for the Columbia River recreational spring chinook fishery during 2000-2005.

The Columbia River was low, clear, and cold at the start of 2005 with below average flow and temperature well into March. The first spring chinook was sampled on February 11, 2005 at Dibblee Beach, but effort and catch were light during February and early March. In February, anglers caught 39 spring chinook (all kept) and 67 steelhead (26 adipose fin-clipped fish kept and 41 unmarked fish released) from 7,551 trips. VSI sampling indicated that all of the February spring chinook catch were lower river fish. Angler effort and catch increased during March as more fish entered the river, but the fishery continued to be limited by cold water conditions for most of the month. In addition, heavy rains in late March discolored the Willamette and Cowlitz rivers, leaving much of the lower Columbia unfishable. The total catch in March was 2,441 spring chinook (1,899 kept and 542 released) and 211 steelhead (125 kept and 86 released) from 36,865 angler trips. The 2005 spring chinook catch for March was only about half of the 2001-2004 average for that month. Based on VSI sampling, the March catch consisted of 51% lower river fish.

As water conditions in the Columbia River improved during April, catch rates increased significantly, particularly in the area below Bonneville Dam. The catch rate for boat anglers in the Bonneville area during April was 1.02 chinook per boat, or nearly four times the average catch rate for boats in the rest of the river. By April 17, only 36% of the upriver impact reserved for the mainstem sport fishery below Bonneville Dam had been utilized; however, record low counts of upriver spring chinook at Bonneville Dam raised concerns that the upriver run would be significantly smaller than originally forecast. Through April 18, the Bonneville Dam count was only 1,545 adult spring chinook, the lowest cumulative total count for that date on record. In absence of a run-size update from TAC, the states decided to close the entire Columbia River to salmon and steelhead angling effective April 21 because a reduced upriver run size would translate into higher impacts for fisheries that had already occurred. During April 1-20, 2005 salmon anglers made 65,705 trips and caught 11,042 spring chinook (8,653 kept and 2,389 released) and 219 steelhead (191 kept and 28 released) on the lower Columbia. Upriver fish comprised 69% of the spring chinook catch during April.

Counts of spring chinook at Bonneville Dam totaled 52,115 adult spring chinook through May 9, when typically 71% of the run has passed upriver, and TAC revised the upriver run size to 78,800. For runs under 82,000, the non-Indian impact rate for upriver spring chinook is reduced to 1.5% under the "Interim Management Agreement". As a result, the cumulative non-Indian impact rate for upriver spring chinook was 133% of the 1.5% management guideline, and the states were forced to delay the traditional May 16 opening of both the lower river summer steelhead and shad fisheries to avoid further impacts to upriver spring chinook from incidental hooking mortality. On May 16, TAC revised the upriver run size to 82,400 which lowered the cumulative impact to 1.935%, or 96.8% of the allowable 2% impact, and the states reopened the shad and summer steelhead fisheries effective May 22, 2005.

Table 6. Columbia River Spring Chinook Sport Fishing Regulations, 2000-2005.

Buoy 10 to Tongue Point	Tongue Point to I-5 Bridge	I-5 Bridge to Bonneville Dam	Bonneville Dam to McNary Dam
Open January 1-March 15. Two adult spring chinook daily bag limit.	Open January 1-March 15. Two adult spring chinook daily bag limit.	Closed	Closed
Open January 1-April 17 and April 25-29. Two adult spring chinook daily bag limit. Adipose fin-clipped spring chinook only beginning March 12.	Open January 1-April 17 and April 25-29. Two adult spring chinook daily bag limit. Adipose fin-clipped spring chinook only beginning March 12.	Open March 12-April 17 and April 25-29. Two adult spring chinook daily bag limit. Adipose fin-clipped spring chinook only.	Open May 6-8 from The Dalles Dam upstream to McNary Dam. Two adult spring chinook daily bag limit. Adipose fin-clipped spring chinook only.
Open January 1-April 28 and May 5-15. Two adipose fin-clipped adult spring chinook daily bag limit.	Open January 1-April 28 and May 5-15. Two adipose fin-clipped adult spring chinook daily bag limit.	Open March 16-April 28 and May 5-15. Two adipose fin-clipped adult spring chinook daily bag limit.	Open March 16-May 15 from The Dalles Dam upstream to McNary Dam and April 3-May 15 from Tower Is. Powerlines to The Dalles Dam. Two adipose fin-clipped adult spring chinook daily bag limit.
Open January 1-April 5 and April 9-12, 16-19, 23-26, 30-May 3, May 7-10 and May 14-15. Two adipose fin-clipped adult spring chinook daily bag limit.	Open January 1-April 5 and April 9-12, 16-19, 23-26, 30-May 3, May 7-10 and May 14-15. Two adipose fin-clipped adult spring chinook daily bag limit.	Open February 15-April 5. Two adipose fin-clipped adult spring chinook daily bag limit.	Open February 15-May 3, May 7-10, and May 14-15 from Tower Is. Powerlines upstream to McNary Dam plus the Oregon Bank from Bonneville to Tower Is. Two adipose fin-clipped adult spring chinook daily bag limit.
Open January 1-April 30. Two adipose fin-clipped adult spring chinook daily bag limit. Unlawful to remove unclipped fish from the water.	Open January 1-April 30. Two adipose fin-clipped adult spring chinook daily bag limit. Unlawful to remove unclipped fish from the water.	Open March 16-April 21. Two adipose fin-clipped adult spring chinook daily bag limit. Unlawful to remove unclipped fish from the water.	Open March 16-May 6 from Tower Is. Powerlines upstream to McNary Dam plus the Oregon Bank from Bonneville Dam to Tower Is. Two adipose fin-clipped adult spring chinook daily bag limit. Unlawful to remove unclipped fish from the water.
Open January 1-April 20. Two adipose fin-clipped adult spring chinook daily bag limit. Unlawful to remove unclipped fish from the water.	Open January 1-April 20 and June 4-15. Two adipose fin-clipped adult spring chinook daily bag limit. Unlawful to remove unclipped fish from the water.	Open March 16-April 20 and June 4-15. Open Sunday, Monday and Tuesday only with a one-fish daily salmonid limit during March 16-April 20 between Rooster Rock and Bonneville Dam. Otherwise, two adipose fin-clipped adult spring chinook daily bag limit. Unlawful to remove unclipped fish from the water.	Open March 16-April 20 and June 4-15 from Tower Is. Powerlines upstream to McNary Dam plus the Oregon Bank between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring chinook daily bag limit. Unlawful to remove unclipped fish from the water.

On May 31, TAC revised the upriver run size to 95,000 spring chinook. Conservative management of the recreational fishery earlier in the season allowed managers to reopen the spring chinook sport fishery during June 4-15 from Tongue Point to the Hwy 395 Bridge near Pasco, Washington seven days per week with two fish bag limit. During June 4-15 anglers made 10,134 trips and caught 1,195 spring chinook (724 kept and 471 released) and 680 steelhead (609 kept and 71 released). The total catch for the spring chinook sport fishery below Bonneville Dam during February 1-April 20 and June 4-15, 2005 was 14,875 adult spring chinook (11,315 kept and 3,560 released), 39 spring chinook jacks, and 1,646 steelhead (1,379 kept and 267 released) from 124,695 angler trips. Both effort and catch were the lowest since selective spring chinook fisheries were initiated in 2001. Upriver spring chinook comprised 65% of the total catch. The 2005 final upriver run size was 106,900, which was 42% of the preseason forecast, resulting in a final impact rate to ESA-listed upriver spring chinook of 0.82%, or 104% of the planned preseason impact for the lower river sport fishery. Approximately 65% of the total upriver impact occurred in the area below the I-5 Bridge.

The final catch for the fishery above Bonneville Dam was 166 spring chinook (116 kept and 50 released) from 2,300 angler trips during March 16-April 21 and June 4-15. Both effort and catch in 2005 were well below the 2001-2004 average for the Zone 6 fishery. Few fish were available above Bonneville Dam prior to the April 21 closure of the fishery, and the majority of the run had passed when the fishery reopened on June 4.

Summer Chinook

Historically, summer chinook salmon comprised the majority of “spring run” commercial landings, which peaked at catches of two-million fish annually during the early 1880s. These fish were referred to as “June Hogs” because of their large size and run timing. Specimens exceeding 80 pounds were occasionally landed in the commercial fishery during the early part of the 20th Century. Summer chinook begin to enter the Columbia River in late May, and most of the run passes Bonneville Dam by early July.

The summer chinook run is almost entirely of upriver origin and consists of two components. The earlier migrating race enters the Snake River and is primarily destined for the Salmon River in Idaho. The later migrating race is destined for Columbia River tributaries above Priest Rapids Dam including the Methow, Similkameen, and Okanogan rivers. Historically, most summer chinook spawned in the mainstem Columbia River above the present location of Grand Coulee Dam, which blocked access to the most important summer chinook habitat beginning in 1941. As a result, the summer chinook run has remained depressed for six decades. While hatcheries currently contribute substantially to the summer chinook run, the greatest obstacle to the recovery of summer chinook salmon is dam-induced mortality of smolts during their downstream migration. Since 1938, the summer chinook run has ranged from a high of 207,000 fish in 1957 to a low of 17,100 fish in 1995, and runs during 1980-1999 generally remained at record low levels. The old CRFMP escapement goal of 80,000-90,000 adult summer chinook passing Bonneville Dam has been met only four times since 1969. In May 1992, NOAA Fisheries combined the Snake River wild portion of the summer chinook run with the Snake River wild portion of the spring chinook run into a single ESU and listed it as “threatened” under the ESA.

No commercial fishing seasons for summer chinook occurred during 1964-2003, except for incidental catches allowed during commercial shad and sockeye seasons through 1973. Partial sport fishery closures for summer chinook occurred as early as 1965 and no adult summer chinook catch was allowed during 1974-2001. During 1977 through 1991, the states allowed anglers to keep summer chinook jacks during the mainstem Columbia River summer steelhead fishery. After Snake River wild spring/summer chinook were listed as “threatened” in 1992, the states prohibited the retention of chinook jacks during June and July. Beginning June 28, 2000, summer chinook jacks (≤ 24 ”) were allowed to be kept again during the mainstem summer steelhead fishery. This action was consistent with NOAA Fisheries’ Biological Opinions for

2000-2003. In Oregon only adipose fin-clipped summer chinook jacks could be retained. Despite conservative management strategies for summer chinook, including near-total fishery closures on the lower Columbia River for over three decades, the run has only recently begun to improve. In 2001, 76,200 adult summer chinook passed Bonneville Dam, which was the largest return since 1969 (Table 7). Increased hatchery production at several facilities on the upper Columbia and improved ocean survival are the primary reasons for the recent improvement in the summer chinook run size.

The 2002 forecast for summer chinook was 77,700 adults returning to the mouth of the Columbia, and the TAC upgraded the run size to 145,000 in-season. With the higher than expected summer chinook run size, the states opened the recreational fishery to the retention of summer chinook on June 28, 2002 for the first time since 1973. The high mark rate for hatchery summer chinook prompted the states to adopt selective fishery regulations for adipose fin-clipped chinook in 2002, providing the opportunity to harvest surplus hatchery fish while maintaining the impact to ESA-listed summer chinook to less than the 1% allowed in the 2001-2003 Management Agreement. During June 28-July 31, 2002, lower Columbia River salmonid anglers made 35,329 trips and caught 2,297 adult summer chinook (1,352 adipose fin-clipped fish kept and 945 unmarked fish released) and 25 chinook jacks. The total summer chinook run to the Columbia in 2002 was 128,600 adults, which was the highest adult return since 1959.

Selective recreational fisheries for summer chinook also occurred in 2003 and 2004. During both years, the Management Agreements allowed a 1% non-Indian impact to ESA-listed summer chinook, and the states adopted selective summer chinook fisheries for the Columbia River from Tongue Point upstream to McNary Dam during June 16-July 31 to match the summer steelhead season above the I-5 Bridge. During the June 16-July 31, 2003 summer chinook fishery, anglers made 39,167 trips below Bonneville Dam and caught 3,525 adult summer chinook (1,854 adipose fin-clipped fish kept and 1,671 unmarked fish released) and 200 chinook jacks. During June 16-July 31, 2004 anglers below Bonneville Dam made 39,804 trips and caught 2,385 adult summer chinook (1,119 kept and 1,266 released), 169 chinook jacks. The states also allowed the sale of summer chinook in a non-Indian commercial sockeye fishery during June 30 and July 2, 2004 in which 233 summer chinook were landed and sold.

Beginning in 2005, the management period for summer chinook at or below Bonneville Dam was reclassified from June 1-July 31 to June 16-July 31, because the early portion of the run contained significant numbers of listed Snake River spring/summer chinook and the later, upper Columbia portion of the summer chinook run was not listed under the ESA. This reclassification allowed significantly higher harvest rates on the healthy, upper Columbia portion of the summer chinook run including wild fish. The "2005-2007 Interim Management Agreement" was signed in May 2005 and allocated 50% of the harvestable surplus of summer chinook above the minimum desired escapement goal (20,000 wild and hatchery summer chinook combined) to non-treaty fishers including sport and tribal fishers above McNary Dam.

Expectations for 2005 were for a summer chinook run of 62,400 adults entering the Columbia River, which allowed for a non-treaty harvest of approximately 15,000 summer chinook. On June 2, 2005, the states adopted a recreational summer chinook fishery for the Columbia River from Tongue Point upstream to McNary Dam during June 16-July 31 with a daily bag limit of two adipose fin-clipped summer chinook. While selective regulations were no longer required during the summer chinook management period, the states initially adopted a conservative approach for the lower Columbia sport fishery because the spring chinook run was only about half of the preseason forecast; however, by late June the summer chinook run appeared on target.

Table 7. Minimum Annual Summer Chinook Run Entering the Columbia River, 1969-2005.

Year	June-July Recreational Catch 1/		Summer Season Commercial Catch		Bonneville Dam Count		Minimum Run	
	Adults	Jacks	Adults	Jacks	Adults	Jacks	Adults	Jacks
1969	700	1,700	800	800	88,700	13,500	90,200	16,000
1970	1,800	2,500	1,500	1,600	51,900	13,600	55,200	17,700
1971	3,300	3,800	2,300	2,200	66,300	11,600	71,900	17,600
1972	2,000	1,500	2,200	1,000	63,600	7,200	67,800	9,700
1973	1,500	800	800	400	35,300	10,000	37,600	11,200
1974	0	0	0	0	28,900 2/	5,100 2/	28,900	5,100
1975	0	0	0	0	33,000 3/	11,400 3/	33,000	11,400
1976	0	0	0	0	26,700 2/	15,400 2/	26,700	15,400
1977	0	200	200	0	34,100	6,900	34,300	7,100
1978	0	400	200	0	38,500 2/	4,500 2/	38,700	4,900
1979	0	200	100	0	27,700	6,500	27,800	6,700
1980	0	100	0	0	27,000	4,100	27,000	4,200
1981	0	200	0	0	22,400	4,600	22,400	4,800
1982	0	100	0	0	20,100	6,500	20,100	6,600
1983	0	200	0	0	18,000	5,400	18,000	5,600
1984	0	300	0	<100	22,400	5,900	22,400	6,200
1985	0	300	0	100	24,200	5,600	24,200	6,000
1986	0	200	0	200	26,200	4,800	26,200	5,200
1987	0	100	0	500	33,000	4,700	33,000	5,300
1988	0	100	0	100	31,300	5,200	31,300	5,400
1989	0	100	0	0	28,800	4,200	28,800	4,300
1990	0	100	0	0	25,000	3,000	25,000	3,100
1991	0	100	0	0	18,900	3,100	18,900	3,200
1992	0	0	0	0	15,100	4,200	15,100	4,200
1993	0	0	0	0	22,000	1,600	22,000	1,600
1994	0	0	0	0	17,600	1,900	17,600	1,900
1995	0	0	0	0	15,000	2,000	15,000	2,000
1996	0	0	0	0	16,000	2,000	16,000	2,000
1997	0	0	0	0	27,900	2,000	27,900	2,000
1998	0	0	0	0	21,400	2,700	21,400	2,700
1999	0	0	0	0	26,200	4,000	26,200	4,000
2000	0	200	0	<100	30,600	13,600	30,600	13,800
2001	0	300	0	<100	76,200	14,700	76,200	15,000
2002	1,600	100	0	0	127,400	8,000	129,000	8,100
2003	2,000	300	0	0	114,700	13,400	116,700	13,700
2004	1,300	200	200	0	92,100	12,900	93,600	13,100
2005	1,600	<100	2,600	0	55,900	3,400	60,100	3,400

1/ Recreational catch of summer chinook adults prohibited since 1974 and jacks beginning in 1992. Effective June 28, 2000 the retention of chinook jacks was re-allowed during summer steelhead seasons. Beginning in 2002 the states adopted selective fisheries for adipose fin-clipped adult summer chinook, and catches include estimates for non-retention mortality. Beginning in 2005 the summer chinook management period was changed from June 1-July 31 to June 16-July 31 for fish at or below Bonneville Dam.

2/ Counts corrected for fallback.

3/ Fallback occurred this year, but was not estimated.

On June 28 the states allowed the retention of unclipped summer chinook during July 1-31. From June 16 to July 15, 2005 anglers on the lower Columbia River made 38,505 trips and caught 2,071 summer chinook (1,571 kept and 500 released), 39 summer chinook jacks, and 5,729 summer steelhead (3,718 kept and 2,011 released). The states also adopted a commercial summer chinook fishery over 6 fishing periods during June 23-July 25 in which 2,552 summer chinook were landed and sold. The final estimated summer chinook run size entering the Columbia was 60,100 adults in 2005.

Fall Chinook

Fall chinook have generally fared better than other stocks of Columbia River chinook salmon, and the fall chinook run has remained relatively stable during the last half of the 20th Century. Stock diversity, extensive hatchery production, and a healthy component of natural spawning upriver fall chinook have contributed to the stability of the fall chinook run. Fall chinook populations continue to provide substantial opportunity for Columbia River sport, commercial, and treaty Indian fishers. Since 1938, fall chinook runs have ranged from a high of 1,175,700 fish in 1941 to a low of 231,900 in 1954. Runs during the late 1980s and early 2000s were the highest since the late 1940s.

From August 1 until the end of the year, all chinook salmon at or below Bonneville Dam are classified as fall chinook. The fall chinook run is comprised of two racial components, tules and brights. Tules enter the Columbia River in an advanced state of sexual maturity during August and September and spawn by early October. Although tules contribute substantially to recreational fisheries in the ocean and at Buoy 10, they exhibit poor biting behavior once they leave the estuary and contribute only minimally to the recreational fishery on the mainstem. Bright stocks of fall chinook enter the Columbia River early in their maturation process during August through October and spawn from late October through January. Bright fall chinook stocks exhibit better biting behavior in the mainstem and are highly prized by anglers for their superior meat quality.

The fall chinook run is comprised of six major stocks, which utilize a variety of habitats ranging from small tributaries in the lower Columbia system to the mainstems of the Columbia and Snake rivers. The six major stock components of the fall chinook run are upriver bright (URB), mid-Columbia bright (MCB), Bonneville Pool hatchery (BPH), lower river hatchery (LRH), lower river wild (LRW), and select area bright (SAB) fall chinook. There is considerable overlap in the run timing of the six stock components. Prior to 1980, chinook caught below Bonneville Dam in August were considered upriver fish and those caught below Bonneville Dam in September-November were considered lower river fish. Since 1980, the six stock components of the fall chinook run have been managed separately based on CWTs. For each stock, estimates of run size, harvest, and escapement are calculated.

Upriver bright fall chinook are typically the most abundant and important stock of fall chinook in terms of contribution to Columbia River fisheries. The majority of URB fall chinook historically spawned in the mainstem Columbia River between the present locations of Bonneville and McNary dams. Construction of Bonneville, The Dalles, and John Day dams flooded the primary spawning and rearing habitat of URBs, and the run declined by about two-thirds during the early 1950s. The displaced URBs found suitable habitat in the remaining free-flowing area of the Columbia River between McNary and Priest Rapids dams, the Hanford Reach, where most of the natural production now occurs. Additional natural production occurs in the Deschutes River, with limited production also occurring in the free-flowing stretch of the Snake River between Lower Granite Dam and Hells Canyon Dam. In May 1992, NOAA Fisheries listed the Snake River wild (SRW) portion of the upriver bright fall chinook run as “threatened” under the ESA. Hatchery production of URBs occurs at several facilities on the Columbia and Snake rivers, including Priest Rapids, Turtle Rock, and Lyons Ferry hatcheries, but the majority of the URB run is wild. The escapement goal for URBs is 46,000 adult fish

passing McNary Dam. The 2005 URB run was 268,700 adults, and the McNary Dam count was 134,800 adults, the fifth highest escapement total since 1960.

Mid-Columbia brights are hatchery-reared upriver bright fall chinook, which are raised to mitigate for production lost after development of the mainstem hydro system. The hatchery production of MCBs began during the 1980s and has increased steadily. MCBs are classified as either Pool upriver brights (PUBs) or Bonneville upriver brights (BUBs) depending upon the location of their release in relation to Bonneville Dam. PUBs are released in the reservoirs above Bonneville Dam, and BUBs are released into Tanner Creek, just below Bonneville Dam. MCBs are currently produced at several hatchery facilities including Bonneville, Irrigon, Little White Salmon, and Klickitat hatcheries. The escapement goal for MCBs is enough fish entering hatcheries to satisfy egg-take requirements. The 2005 Columbia River return of MCB fall chinook was the fourth largest run since 1980 at 98,000 adult fish.

Bonneville Pool hatchery fish are a tule stock of fall chinook raised at Spring Creek National Fish Hatchery near Cook, Washington since 1901. Historic runs of BPH fish spawned in the White Salmon and Wind rivers in Washington, but naturally spawning populations in these rivers have been depressed for several decades. BPH fall chinook contribute substantially to treaty Indian and lower river commercial fisheries and are also important in ocean troll fisheries off Washington and British Columbia. BPH contribution to the Buoy 10 recreational fishery can be substantial, but contribution to the mainstem recreational fishery is minor. The escapement goal for BPH fall chinook is 7,000 adult fish at Spring Creek Hatchery. In 2005, the Columbia River return of BPH fall chinook was 93,100 adult fish, which was half of the 2002-2004 average.

Lower river hatchery fish are a tule stock of fall chinook developed from naturally spawning populations of chinook in lower Columbia River tributaries. Logging, dam building, and other development on tributaries in the lower Columbia basin have severely depressed the natural production capacity of tule fall chinook, and most wild runs have been extirpated. In 1996, Mitchell Act funding cuts caused four hatcheries (Bonneville, Grays, Fallert Creek, and Abernathy) to discontinue production of LRH fall chinook. Currently, six hatcheries produce LRH fall chinook on the Cowlitz, Kalama, Washougal, Toutle, and Elokom rivers in Washington, and on Big Creek in Oregon. LRH fall chinook are similar to BPH fall chinook with respect to their contribution to fisheries, except that LRH fish do not pass above Bonneville Dam into the treaty Indian fishing area. The 2005 escapement goal for LRH fish was 14,000. Prior to Mitchell Act cuts, 33,600 fish were required to meet production goals. In 2005 the LRH fall chinook return to the Columbia River was 78,200 adults.

Lower river wild fall chinook are a bright stock of naturally spawning fish in lower Columbia tributaries. The primary component of the LRW fall chinook run spawns in the North Fork of the Lewis River (RM 87) in Washington. Smaller populations of LRW fall chinook also return to the Cowlitz, Coweeman, and East Fork of the Lewis rivers in Washington, and to the Sandy River in Oregon. The escapement goal for LRW fall chinook is 5,700 spawners in the North Fork Lewis River. Since 1980, LRW fall chinook runs have ranged from a high of 38,800 in 1980 to a low of 3,300 in 1999. The 1999 LRW fall chinook run suffered from extensive local flooding during the winters of 1996 and 1997. In 1999 and 2000, the states closed a three-mile area of the Columbia River around the mouth of the Lewis River to recreational fishing during August-December to protect LRW fall chinook. Runs have rebounded since 1999, and the 2005 run was 16,800 adult fish. Lower Columbia River chinook were listed as "threatened" under the ESA in May 1999.

Select Area Bright fall chinook originated from Rogue River stock and have been raised at Big Creek and Klaskanine hatcheries since 1982. These fish are acclimated in net pens located in Select Areas (primarily Youngs Bay) where they eventually return to provide a harvest opportunity for sport and commercial fishers without the impacts to listed stocks associated with mainstem fisheries. Select Area fisheries are managed to maximize the harvest of hatchery fish

returning to those areas. SAB contribution to the mainstem fishery is generally minor, but in recent years the Buoy 10 fall chinook catch has averaged 8% SABs. There is no firm escapement goal for SAB fall chinook, but managers desire approximately 800 females to achieve an egg-take of two-million. In 1998, production releases of SAB fall chinook were moved exclusively to Klaskanine Hatchery because of concerns about straying from direct releases into Big Creek. Since 1985, the SAB return has ranged from 1,100 to 8,100 adults. The 2005 return of SAB fall chinook was 6,600 adults, which was the third highest return on record.

The total adult fall chinook return to the Columbia River in 2005 was 561,900 fish, the sixth largest run since 1980 and the fifth consecutive run over 500,000. The bright portion of the run was about 390,100 adults and the tule portion of the run was about 171,800 adults. Table 8 lists adult returns of the six fall chinook stocks for 1980-2005.

Treaty Indian fishing rights above Bonneville Dam figure heavily into the management of ocean and lower river (non-Indian) recreational and commercial fisheries for upriver stocks of fall chinook. Specific language in the CRFMP guaranteed the tribes 50% of the harvestable surplus of upriver fall chinook returns. Prior to 1992, lower river fisheries were managed to ensure that enough fall chinook passed upstream of Bonneville Dam to fulfill the tribal harvest allocation and meet escapement guidelines. Recreational seasons were shortened during 1981-1985 to meet harvest-sharing obligations with the tribes. Since 1992, the ESA has limited the harvest of Snake River wild fall chinook, and treaty Indian fishers have been allocated the majority of the SRW impacts. In 1994 and 1995 the states delayed the traditional August 1 opening date for fall chinook retention in the mainstem recreational fishery until October 8 and September 1, respectively to meet conservation and harvest-sharing obligations. In 1996 and 1997 anglers enjoyed uninterrupted fall salmon seasons on the lower Columbia River and both catch and effort totals during those years were near record highs. In 1998 and 1999 the fall salmon fishery opened on August 1, but was later closed to chinook retention to ensure that non-Indian impacts to SRW fall chinook remained within conservation guidelines.

In 2000-2004, the parties of U.S. v. Oregon negotiated annual management agreements for fall salmon fisheries, including lower Columbia River and Buoy 10 recreational fisheries. These agreements allowed a maximum impact rate of 8.25% on the aggregate URB run in non-Indian fisheries and an overall URB impact of 31.29%. Chinook catch expectations were established for the mainstem and Buoy 10 recreational fisheries each year to ensure fairness in angling opportunity and allow for URB impacts in non-Indian commercial fisheries. In all four years, the mainstem lower Columbia and Buoy 10 recreational fisheries opened on the traditional date of August 1. In order to extend chinook retention as late in the season as possible, managers reduced the daily salmon bag limit to not more than one chinook at Buoy 10 during all or part of the 2000-2004 fisheries and in the mainstem fishery during 2004. In spite of this, chinook retention was suspended during a portion of the 2000, 2001 and 2004 Buoy 10 fisheries. Chinook retention was allowed for the duration of the 2002 and 2003 Buoy 10 fisheries and on the mainstem during all five years.

Table 8. Columbia River Adult Fall Chinook Returns, by Stock, 1980-2005.

Year	Lower River Hatchery (LRH)	Lower River Wild (LRW)	Bonn. Pool Hatchery (BPH)	Upriver Bright (URB)	Mid-Columbia Bright (MCB)	Select Area Bright (SAB) 1/	Non Columbia Origin 2/	Total 3/
1980	105,600	38,800	97,800	76,800	300		200	319,500
1981	94,900	25,000	86,300	66,600	4,400		200	279,100
1982	139,500	13,000	120,700	79,000	8,800		200	363,300
1983	88,100	16,800	28,900	86,100	14,400		0	237,600
1984	102,400	13,300	47,500	131,400	11,800		1,200	307,600
1985	111,000	13,300	33,200	196,400	6,100	1,600	300	361,900
1986	154,800	24,500	16,600	281,600	17,400	2,000	1,000	497,900
1987	344,100	37,900	9,100	420,700	57,000	2,300	4,000	875,100
1988	309,900	41,700	12,000	339,900	78,000	3,200	3,200	787,900
1989	130,900	38,600	26,800	261,300	93,300	1,200	1,700	553,700
1990	60,000	20,300	18,900	153,600	59,100	1,100	1,700	314,700
1991	62,700	19,800	52,400	103,300	35,900	2,000	1,900	278,000
1992	62,600	12,500	29,500	81,000	31,100	2,300	1,300	220,400
1993	52,300	13,300	16,800	102,900	27,400	2,100	800	215,700
1994	53,600	12,200	18,500	132,800	33,700	3,200	2,000	256,000
1995	46,400	16,000	33,800	106,500	34,100	6,000	2,600	245,300
1996	75,500	14,600	33,100	143,200	59,700	4,700	1,100	331,900
1997	57,400	12,300	27,400	161,700	58,900	3,800	2,000	323,500
1998	45,300	7,300	20,200	141,600	37,300	3,300	1,800	256,800
1999	40,000	3,300	50,200	165,900	50,900	2,900	1,800	315,000
2000	27,000	10,200	20,500	156,600	37,200	3,500	800	255,800
2001	94,300	15,700	125,000	232,500	76,500	4,900	1,100	549,900
2002	156,500	25,200	160,800	277,300	107,800	5,700	3,200	736,400
2003	155,000	26,000	180,600	373,200	150,200	8,100	2,800	895,900
2004	108,900	22,300	175,300	363,500	121,900	7,100	3,300	802,300
2005	78,200	16,800	93,100	268,700	98,000	6,600	500	561,900

1/ Select Area Bright chinook have been acclimated and released in Youngs Bay since 1984.

2/ Includes strays from Washington, California, and Oregon watersheds.

3/ Totals may not equal the sum of the individual stocks due to different accounting methods.

In May 2005, the parties of U.S. v. Oregon signed the “2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho and White Sturgeon”, which covered spring, summer, and fall fisheries. The “Interim Management Agreement” allowed a maximum impact rate of 31.29% on the aggregate URB run of which 8.25% was allocated to non-Indian fisheries. The non-Indian impact of 8.25% was further allocated 50-50 between the sport and commercial fisheries during the North of Falcon management process. In 2005, the expected URB run size was a strong return of 354,600 adults to the Columbia River, of which about 14,600 were allocated to recreational fisheries. The states placed chinook catch expectations of 16,540 on the mainstem and 12,360 on the Buoy 10 recreational fisheries to ensure fairness in angling opportunity. Additional regulations limited anglers in both fisheries to one adult chinook in the daily salmon limit to maintain chinook retention in both fisheries for as long as possible. Both the 2005 mainstem and Buoy 10 recreational fisheries for fall salmon (chinook and coho) opened on the traditional date of August 1. Chinook retention was expected to last through Labor Day in the Buoy 10 fishery and through September 30 in the mainstem fishery.

The 2005 fall chinook fishery on the mainstem lower Columbia was very productive with high effort and catch rates from the last two days of August through the first half of September. Effort peaked with nearly 1,900 salmon boats on Saturday September 3 and remained over 1,000 boats per day through September 11. Catch rates exceeded a chinook per boat average river-wide on August 31 and September 1 and 7. Prior to mid-September it was apparent that the mainstem fishery would exceed the chinook catch expectation of 16,540. Additionally, on September 15 TAC downgraded the URB run size from the preseason forecast of 354,600 to 280,000, and the states prohibited the retention of chinook effective September 18. Subsequent upgrades of the URB run size allowed chinook retention to resume on October 20 through the end of the year. During August 1-October 31, 2005 anglers made 86,594 trips and kept 18,256 adult fall chinook and 184 chinook jacks on the mainstem lower Columbia, which was the third highest adult fall chinook catch on record in spite of the one chinook bag limit and four-week retention prohibition. Anglers also released 1,988 adult fall chinook in 2005, which included fish caught in excess of the one chinook bag limit, fish caught during the September 18-October 19 chinook retention prohibition, and a few dark tules.

During August 1-October 31, 2005, Buoy 10 anglers made 55,183 trips and caught 9,287 chinook and 6,878 adipose fin-clipped coho. Chinook retention was prohibited in the Buoy 10 fishery during October 1-19 because the URB run size was smaller than predicted and the mainstem recreational fishery exceeded its catch expectation. Appendix Table 12 shows stock and age composition for fall chinook caught in the lower Columbia and Buoy 10 recreational fisheries in 2005.

The popularity of the fall salmon fishery on the mainstem has grown considerably over the years, and anglers continue to fish new areas of the Columbia for fall chinook. Historically, high water temperatures on the mainstem during August and September hurt anglers’ ability to catch fall chinook in the shallows, and the majority of the catch occurred at or below tributary mouths where water temperatures were cooler. Beginning in the late 1990s; however, anglers began targeting fall chinook in deeper areas of the river with excellent results, especially in and around shipping lanes. Since 2000, the fall chinook catch on the mainstem has averaged 16,700 annually compared to 5,000 during the 1990s and 2,300 during the 1980s.

Coho

Historically, coho salmon spawned in numerous tributaries throughout the Columbia and Snake River basins, with the bulk of the population centered in tributaries of the lower Columbia. High harvest rates combined with habitat degradation from logging, road building, irrigation projects, and other development, as well as the construction of dams on both tributaries and the mainstem, caused the gradual decline of natural spawning coho populations from the late 1920s to the early 1960s. During the late 1960s, the production of coho at hatcheries became very successful and

coho runs increased. During the late 1960s through early 1990s, high harvest rates on surplus hatchery coho contributed to the further decline of natural runs in many of the smaller, lower Columbia tributaries. During the 1990s, both hatchery and wild coho suffered from poor ocean survival, and coho returns were near all-time lows. Wild lower Columbia River coho were listed as “threatened” under the ESA in August 2005, although they were originally petitioned for listing in 1995 and had been listed under the State of Oregon ESA since 1999. Hatcheries on the lower Columbia and tributaries are currently producing about 95% of coho runs, which have averaged about 400,000 fish annually since 1969. The 2005 coho run into the Columbia consisted of 346,800 adults and 13,500 jacks (Table 9).

Columbia River coho returns are comprised of early and late stocks. Both stocks are predominately hatchery produced and their run timing overlaps. Early stock coho migrate into the Columbia during August through October, and late stock coho enter the Columbia from late September through November. In general, early stock coho are more southerly distributed in the ocean and late stocks are more northerly distributed. While the majority of the Buoy 10 catch consists of early coho, both runs contribute substantially ocean fisheries off the mouth of the Columbia. Beginning in 1998, only adipose fin-clipped hatchery coho could be retained in the lower Columbia, Buoy 10, and ocean recreational fisheries.

The recreational catch of coho in the lower Columbia above the Buoy 10 area is small and generally includes a higher proportion of jacks than is reflected in the total run size. Poor response to anglers' lures and baits, rather than low fish abundance, is responsible for the low catch of adults. Anglers have the most success targeting coho in October when water temperatures are cooler, and most of the August and September coho catch occurs incidentally to fall chinook angling. During 2005, anglers on the lower Columbia kept 586 adipose fin-clipped coho adults and 21 jacks and released 198 unmarked coho adults. The adult coho catch was the lowest since 1998, and the jack catch was the lowest on record.

Table 9. Minimum Annual Coho Run Entering the Columbia River, 1969-2005.

Year	BELOW BONNEVILLE DAM												Minir Adults
	Buoy 10 Adults	Recreational Catch			Commercial Catch		Hatcheries		Tributary Dam Counts 2/		Bonneville Dam Counts		
		L. Columbia River Adults	Jacks	Trib. Adults	Adults	Jacks 1/	Adults	Jacks	Adults	Jacks	Adults	Jacks	
1969	-	400	3,100	-	190,100	-	9,200	109,300	4,700	14,400	24,200	25,200	311,400
1970	-	2,200	11,500	21,700	520,800	-	275,400	126,900	20,100	20,000	54,900	25,200	895,100
1971	-	1,400	3,700	16,000	264,300	-	187,600	71,400	21,300	6,900	53,800	22,200	544,400
1972	-	900	1,600	9,200	131,300	-	91,300	44,100	11,000	7,200	34,200	31,700	277,900
1973	-	300	3,100	7,400	183,700	-	68,200	98,000	5,800	1,700	25,800	28,800	291,200
1974	-	500	300	12,600	261,000	-	152,800	39,600	2,400	4,000	31,600	29,300	460,900
1975	-	600	1,000	10,000	156,600	-	85,400	111,600	7,000	7,000	32,800	25,500	292,400
1976	-	300	1,000	10,800	168,400	-	117,300	27,500	3,600	2,200	36,700	16,500	337,100
1977	-	500	6,400	5,700	39,000	-	37,100	86,500	2,200	2,200	9,300	10,100	93,800
1978	-	1,000	3,300	8,700	132,700	-	131,800	45,600	2,900	4,000	30,300	22,300	307,400
1979	-	200	2,900	12,100	127,600	-	102,600	33,900	4,400	1,700	29,600	15,700	276,500
1980	-	100	100	11,100	150,100	-	122,200	30,800	5,100	1,400	13,000	9,100	301,600
1981	-	100	600	7,600	60,000	-	77,900	26,000	2,800	2,500	21,900	8,600	170,300
1982	18,900	100	800	17,600	201,700	-	154,100	42,700	5,000	3,900	55,800	18,000	453,200
1983	3,600	200	2,300	5,100	7,100	-	73,600	30,900	2,500	2,800	8,400	1,600	100,500
1984	74,400	700	500	14,900	201,500	-	101,700	16,800	4,200	2,700	16,800	4,000	414,200
1985	25,400	1,100	400	9,400	190,000	-	94,200	47,600	7,500	2,900	38,600	18,200	366,200
1986	120,400	4,000	500	20,700	981,000	-	284,100	21,100	8,900	2,500	108,700	1,800	1,527,800
1987	47,200	900	3,000	6,100	165,200	2,600	66,100	62,000	4,200	3,800	17,900	7,300	307,600
1988	143,400	500	1,500	11,800	361,500	1,500	113,600	41,000	6,900	5,300	27,100	9,600	664,800
1989	81,900	200	400	15,100	387,300	1,900	183,300	34,600	6,400	2,000	27,400	7,000	701,600
1990	18,500	400	2,900	9,700	66,200	9,000	87,800	38,700	2,000	2,000	11,600	13,100	196,200
1991	208,700	1,100	1,300	29,300	407,500	1,800	223,300	14,300	5,500	1,100	58,900	5,200	934,300
1992	43,100	600	1,500	8,400	54,100	3,700	85,100	16,800	5,200	900	14,400	3,800	210,900
1993	20,900	600	100	6,300	35,600	500	39,100	2,500	800	300	10,600	1,100	113,900
1994	1,800	900	100	3,400	60,700	3,100	77,700	3,300	4,200	300	20,300	2,500	170,300
1995	5,000	200	100	2,700	21,400	1,200	32,300	10,600	2,900	700	10,400	1,700	74,900
1996	4,500	800	100	3,600	26,100	2,000	60,200	9,900	600	1,000	15,700	3,000	111,500
1997	20,400	800	500	10,800	20,500	100	69,900	7,000	2,900	500	24,100	3,200	149,400
1998	6,300	600	600	3,000	23,000	800	83,800	19,300	1,300	400	46,300	3,600	164,300
1999	9,000	1,300	500	18,600	79,000	1,500	123,900	22,400	1,000	600	40,700	4,500	273,500
2000	21,500	1,600	2,400	36,100	171,000	2,800	232,000	58,900	5,600	900	85,800	11,400	553,600
2001	132,000	3,100	400	74,900	253,100	100	378,500	11,900	8,200	600	259,800	6,700	1,109,500
2002	6,200	3,000	400	24,100	163,000	1,200	215,200	31,900	3,600	2,600	88,600	6,800	503,700
2003	54,400	1,100	<100	22,000	257,300	800	205,400	19,400	11,200	2,100	125,700	8,100	677,100
2004	15,200	1,300	100	12,400	119,600	4,400	172,300	10,400	5,600	600	115,000	4,800	441,400
2005	6,900	600	<100	14,800	94,800	800	143,300	6,700	3,200	500	83,200	5,500	346,800

1/ Jack catch from lower Columbia River Select Area Fisheries: Youngs Bay since 1987, Blind Slough since 1996, Tongue Point since 1996, and Deep River since 1996.

2/ Willamette Falls (Willamette River), North Fork Dam (Clackamas River), and Marmot Dam (Sandy River).

Sockeye

Historic Columbia River sockeye salmon runs numbered as many as four-million fish and spawned in the uppermost reaches of the Columbia and Snake River watersheds. The construction of Grand Coulee Dam blocked access to the most important sockeye production areas in the upper Columbia in 1941. Additional dam construction has reduced the historic spawning area for sockeye by about 96%. Very little hatchery production of sockeye occurs in the Columbia Basin and the run has remained depressed. Since 1938, Columbia River sockeye returns have ranged from a high of 335,300 in 1947 to a low of 9,200 in 1995.

The sockeye migration into the Columbia River generally peaks at Bonneville Dam by July 1. The majority of the current sockeye run is destined for the Wenatchee and Okanogan rivers in the upper Columbia. The minimum escapement goal for sockeye is 75,000 fish at Bonneville Dam, which is expected to provide 65,000 fish to production areas above Priest Rapids Dam. A small remnant of the Snake River sockeye population returns to Redfish Lake in Idaho. In December 1991, NOAA Fisheries listed the Snake River portion of the Columbia River sockeye run as “endangered” under the ESA. During the 1990s, the number of wild Snake River sockeye returning to the Columbia River averaged 12 fish annually. A captive brood hatchery program was initiated during the mid-1990s to save the Snake River portion of the sockeye run from extinction, but success has been very limited.

Sockeye are not an important species in the Columbia River recreational fishery. Bank anglers catch some sockeye incidentally to summer steelhead angling during June and July, but the catch is rarely more than 100 fish. The sport fishery was closed to the retention of sockeye salmon July 3, 1991 after the Snake River fish were listed; however, beginning in 2000 non-Indian fisheries could target sockeye on runs larger than 75,000 as long as the catch did not exceed one percent of the total run size. This action was consistent with NOAA Fisheries’ Biological Opinions for 2000-2005, as well as ongoing renegotiation of the CRFMP with the treaty tribes.

The expected sockeye return in 2005 was 70,800 fish and the states prohibited the retention of sockeye in the lower Columbia sport fishery at the outset of 2005. A total of 54 sockeye were caught and released by salmonid anglers on the lower Columbia during June and July 2005. The final 2005 Columbia sockeye run was 72,500 fish, and the Bonneville Dam count was 72,448 sockeye. The ESA-listed Snake River portion of the run was 20 sockeye, including fish returning from the captive brood program. A total of 10 sockeye passed Lower Granite Dam in 2005. Appendix Table 13 lists the lower Columbia recreational catch of sockeye for 1982-2005.

Steelhead

Historic populations of steelhead were very prolific and spawned in almost every tributary accessible to anadromous fish in the Columbia and Snake River systems. Because steelhead migrate into the Columbia River throughout the year under a wide variety of river flows, fish that enter during the winter months are able to utilize habitat inaccessible to fish returning during the summer when flows are low. Natural spawning populations of steelhead have declined due to habitat destruction resulting from a wide range of human development within the basin. Several ESUs of wild steelhead in the Columbia Basin have been listed under the ESA, including upper Columbia and Snake River steelhead in 1997, lower and mid-Columbia steelhead in 1998, and upper Willamette steelhead in 1999. Selective (fin-clipped only) regulations require anglers to release wild fish in order to minimize impacts to listed steelhead. Extensive hatchery production of steelhead throughout the Columbia Basin has maintained or increased most steelhead runs since 1938, but these runs have only been 10-20% of historic, pre-development wild returns.

Steelhead returns to the Columbia River are separated into two major runs, winter-run and summer-run, but their migration timing overlaps especially during March and April. For

management purposes, steelhead caught below Bonneville Dam during November-April are considered winter-run fish, and steelhead caught below Bonneville Dam during May-October are considered summer-run fish. At Bonneville Dam, steelhead passing during April-October are considered summer-run fish.

Winter Steelhead

Winter steelhead enter the Columbia River during November-April and spawn during January-May. The run is comprised primarily of hatchery fish returning to tributaries of the lower Columbia, but a few winter steelhead enter the Hood, Wind, and Klickitat rivers above Bonneville Dam. No winter steelhead populations exist above The Dalles Dam. Some natural production occurs in nearly every major stream below Bonneville Dam, but in general, wild runs remain depressed. The total number of winter steelhead is undetermined, but some tributary index counts indicate that runs entering the Columbia River may have exceeded 300,000 winter fish in the better years. Index counts since the 1990s have been 15-30% of the better years.

Winter steelhead angling occurs primarily in tributaries of the lower Columbia, but a few anglers on the mainstem fish successfully from beaches during the late fall and winter. The majority of the Columbia River winter steelhead catch occurs during February-April in conjunction with the spring chinook fishery. Since 1994, anglers have only been allowed to keep adipose fin-clipped (and ventral fin-clipped in Washington) winter steelhead. In 2005 angling for winter steelhead remained open in conjunction with the spring chinook fishery through April 20. Anglers kept a total of 342 fin-clipped winter steelhead and released 155 unmarked fish on the lower Columbia during February 1-April 20, 2005.

Summer Steelhead.

Summer steelhead enter the Columbia River during March-October and spawn in the spring of the following year. The return is comprised of upriver and lower river stocks. The lower river run consists primarily of hatchery produced Skamania stock steelhead originally from the Washougal River in Washington. The Skamania stock of summer steelhead enters the Columbia earlier than the upriver runs, and was successfully introduced into numerous streams below Bonneville Dam and a few streams above, including the Wind and Hood rivers. Since the hatchery proliferation of Skamania stock summer steelhead began in the late 1960s, lower river steelhead returns have produced large surpluses that may be harvested selectively in the lower Columbia recreational fishery during May and June. Runs since 1969 have ranged from a low of 18,300 in 1969 to a high of 120,800 in 2004. The preliminary return of lower river summer steelhead in 2005 was 70,700 fish, which was similar to the strong returns during 2000-2004 and nearly double the average return of the 1990s. Table 10 lists lower river summer steelhead returns to the Columbia River for 1969-2005.

Upriver stocks of summer steelhead migrate above Bonneville Dam during April 1-October 31 and are separated into three groups. Summer steelhead passing Bonneville Dam prior to June 30 are considered to be Skamania stock, and steelhead passing Bonneville between July 1 and October 31 are classified as either Group A or Group B fish. The Group A segment generally passes Bonneville Dam prior to August 26 and primarily consists of smaller, one-salt fish returning to tributaries throughout the upper Columbia and Snake river systems. The Group B fish generally pass Bonneville Dam after August 25 and are predominantly larger, two-salt fish returning to the Clearwater River in Idaho. Since 1999, random sampling of summer steelhead passing Bonneville Dam during July 1-October 31 has been used to determine the proportion of Group A and Group B steelhead, with fish less than 78 cm fork length classified as Group A Index and fish greater than or equal to 78 cm fork length classified as Group B Index. The total upriver summer steelhead run was 317,900 fish in 2005, and the Bonneville Dam count was 312,500 (Table 11). Based on timing of the passage and sampling, the Bonneville count was comprised of 11,900 Skamania, 251,600 Group A, and 49,000 Group B summer steelhead.

Concerns about the status of wild, upriver summer steelhead populations have prompted a number of conservative management strategies to protect wild fish. The states have prohibited the sale of steelhead in the non-Indian commercial fishery since 1975 after the fish were successfully petitioned for game fish status. Sport seasons during 1975-1983 were closed or severely shortened. In the mid-1980s, hatcheries began clipping the adipose fins on all steelhead smolts so hatchery and wild fish could be easily distinguished. Selective regulations for hatchery summer steelhead began during the 1984 fishery and required anglers to release unmarked summer steelhead unless the fish had a stubbed dorsal fin. Dorsal stubs have not been used to identify hatchery steelhead since 1985 in Oregon and 1986 in Washington, and currently only adipose (and ventral fin in Washington) fin-clipped steelhead are allowed. Since 1984, no closures for summer steelhead have occurred outside of those adopted in conjunction with closures of the recreational spring chinook fishery. The 2005 summer steelhead fishery was the 22nd year of the selective steelhead fishery on the lower Columbia River; however, wild runs of upriver steelhead have not recovered. Juvenile steelhead mortality incurred at mainstem dams during the downstream migration continues to be the limiting factor in rebuilding wild upriver steelhead runs.

Under permanent regulations, the lower Columbia River recreational fishery for hatchery summer steelhead opens May 16 from Tongue Point upstream to the I-5 Bridge and June 16 from the I-5 Bridge upstream to the Oregon/Washington Border above McNary Dam, with the delay in the fishery above I-5 intended to provide additional protection for upriver spring chinook. During 2005, the states were forced to delay the traditional May 16 opening of the summer steelhead fishery below the I-5 Bridge because the non-Indian impact to upriver spring chinook exceeded the management guideline. On May 16, TAC upgraded the upriver spring chinook run size forecast, which lowered the cumulative impact rate to upriver spring chinook enough to reopen the summer steelhead fishery below the I-5 Bridge effective May 22, 2005. The summer steelhead fishery above the I-5 Bridge opened on June 4, 2005 in conjunction with the reopening of the recreational spring chinook fishery. During May 22-October 31, 2005, lower Columbia anglers kept 7,396 fin-clipped summer steelhead and released 3,305 unmarked summer steelhead. Based on the timing of the catch, it was estimated that 2,100 summer steelhead were Skamania stock, 4,800 were Group-A, and 500 were Group-B stocks. Appendix Table 14 lists summer steelhead catches by month for 1969-2005 and Appendix Table 15 lists the number of unmarked hatchery or wild steelhead released by month for 1984-2005.

Table 10. Minimum Annual Lower River Summer Steelhead Run Entering the Columbia River, 1969-2005.

Year	May-June L. Columbia Recreational Catch 1/	Tributary Dam Counts 2/	Hatchery Returns 3/	Tributary Sport Catch 4/		Minimum Run
				OR	WA	
1969	0	0	3,600	-	14,700	18,300
1970	0	100	4,600	-	13,800	18,500
1971	0	2,300	4,400	-	17,300	24,000
1972	0	900	5,600	-	25,800	32,300
1973	0	1,800	2,700	-	24,600	29,100
1974	0	5,700	3,900	-	14,500	24,100
1975	0	5,200	4,200	500	11,400	21,300
1976	0	5,400	3,200	500	16,300	25,400
1977	700	12,700	6,800	1,200	21,700	43,100
1978	1,200	20,200	5,700	2,100	21,500	50,700
1979	600	13,900	4,000	2,100	12,200	32,800
1980	300	20,500	5,100	3,800	18,100	47,800
1981	1,900	23,000	6,300	2,500	22,900	56,600
1982	1,800	19,200	5,800	3,600	18,700	49,100
1983	800	8,600	2,000	1,500	6,800	19,700
1984	2,700	43,700	4,600	6,200	11,300	68,500
1985	1,800	32,300	3,000	3,900	15,900	56,900
1986	3,000	53,300	2,300	4,400	26,900	89,900
1987	1,600	33,600	1,600	4,200	17,400	58,400
1988	2,700	50,700	3,300	7,000	14,200	77,900
1989	1,700	13,400	3,800	3,500	12,600	35,000
1990	2,200	31,800	5,600	5,100	17,200	61,900
1991	1,200	10,400	2,200	3,000	15,000	31,800
1992	1,200	23,100	3,100	3,000	17,600	48,000
1993	1,800	17,300	4,700	3,200	20,000	47,000
1994	1,200	15,400	5,600	2,100	23,000	47,300
1995	1,400	15,100	7,800	1,500	13,000	38,800
1996	1,200	7,800	9,900	1,000	15,100	35,000
1997	1,900	17,500	3,700	1,400	6,000	30,500
1998	1,200	15,300	5,400	1,400	5,000	28,300
1999	1,300	12,400	4,500	1,500	6,300	26,000
2000	1,600	13,100	9,600	1,900	15,100	41,300
2001	2,000	28,400	16,400	4,100	19,800	70,700
2002	4,400	39,000	34,000	8,100	(33,300)	118,800
2003	2,700	17,500	23,400	3,600	(26,100)	73,300
2004	3,000	36,500	33,600	(5,300)	(42,400)	120,800
2005	2,100	14,600	(23,200)	(4,500)	(26,300)	70,700

1/ Beginning in 1977, May-June lower Columbia recreational catch determined to be mostly lower river (Skamania) stock.

2/ Willamette Falls (Willamette River), North Fork Dam (Clackamas River), and Marmot Dam (Sandy River).

3/ Skamania, Kalama, Lewis River, and Cowlitz Trout hatcheries.

4/ Catch record estimates from nine Oregon and 23 Washington tributaries excluding areas above the three tributary dams listed in footnote 2.

Numbers in parentheses are preliminary.

Table 11. Minimum Annual Upriver Summer Steelhead Run Entering the Columbia River, 1969-2005.

Year	Lower Columbia		Buoy 10		Bonneville	Minimum Run
	Recreational Catch 1/ Group A	Group B	Recreational Catch	Commercial Catch 2/	Dam Count	
1969	9,300	2,000	-	21,300	139,300	171,900
1970	7,800	1,600	-	16,100	113,000	138,500
1971	9,100	1,700	-	20,600	193,100	224,500
1972	12,100	3,300	-	24,900	185,200	225,500
1973	6,700	1,800	-	22,700	156,700	187,900
1974	4,000	1,500	-	4,000	135,300	144,800
1975	-	-	-	-	84,100	84,100
1976	-	-	-	-	122,400	122,400
1977	2,200	1,500	-	-	191,700	195,400
1978	1,500	-	-	-	102,300	103,800
1979	1,200	-	-	-	112,300	113,500
1980	2,000	-	-	-	127,600	129,600
1981	2,700	500	-	-	157,900	161,100
1982	2,600	-	-	-	156,200	158,800
1983	2,800	100	-	-	217,600	220,500
1984	4,300	1,100	-	-	314,500	319,900
1985	4,100	2,000	-	-	342,300	348,400
1986	6,000	2,000	-	-	376,300	384,300
1987	3,400	1,500	-	-	301,100	306,000
1988	5,800	1,900	-	-	277,200	284,900
1989	4,700	1,700	-	-	286,400	292,800
1990	2,700	1,300	-	-	181,500	185,500
1991	3,200	2,800	-	-	273,200	279,200
1992	6,200	3,500	500	-	313,900	324,100
1993	3,700	4,400	400	-	187,300	195,800
1994	2,300	1,700	-	-	160,800	164,800
1995	4,700	2,100	-	-	201,500	208,300
1996	4,000	1,100	-	-	204,000	209,100
1997	4,600	600	<100	-	256,800	262,000
1998	1,700	2,000	<100	-	184,400	188,100
1999	3,800	2,100	-	-	205,700	211,600
2000	6,300	1,900	<100	-	274,200	282,400
2001	7,800	1,700	<100	-	630,200	639,700
2002	6,700	800	<100	-	478,000	485,500
2003	6,000	900	<100	-	357,200	364,100
2004	5,500	300	<100	-	309,000	314,800
2005	4,800	500	100	-	312,500	317,900

1/ Recreational catch by group based on timing of catch: Group A-May 1-August 15 (1969-1976) and July 1-August 15 (1977-1990); Group B-August 16-October 31 (1969-1990). Since 1991, the catch of Group A and B steelhead during August has been relative to the proportion of the September catch to the July catch.

2/ Sale of steelhead by non-Indians prohibited since 1975.

Cutthroat Trout

Sea-run cutthroat trout enter the Columbia River during July through November, returning to spawn in numerous tributaries in the lower river. Few cutthroat pass above Bonneville Dam. Naturally produced sea-run cutthroat populations have shown considerable decline, and beginning in 1994, only adipose fin-clipped hatchery cutthroat could be retained. The majority of the cutthroat catch takes place at or below the mouth of the Cowlitz, where considerable hatchery production occurs. Very few anglers currently pursue angling for sea run cutthroat, and most catch occurs incidentally to steelhead angling. The lower Columbia recreational catch is the best available indicator of cutthroat abundance. Catch estimates have ranged from a high of 13,600 in 1970, to an all-time low of two fish in 2005.

White Sturgeon

Historically, white sturgeon were abundant throughout the Columbia and Snake River basins. Commercial exploitation peaked in 1892 at 5.2 million pounds, and the fish were large, averaging seven feet in length and 150 pounds. Over-fishing decimated the Columbia River white sturgeon population by 1899, and the recovery of the population did not begin until 1950 when a six-foot maximum size limit protected broodstock-age fish from sport and commercial harvest. Because sturgeon are such a long-lived, slow-growing species, the white sturgeon population below Bonneville Dam recovered slowly after 1950 and substantial recruitment of broodstock did not begin until the 1970s, 20 years after the six-foot maximum size limit was adopted. Since the 1970s, the abundance of legal size white sturgeon below Bonneville Dam has been healthy, and the number of oversize sturgeon has been stable or increasing.

Construction of mainstem dams on the Columbia and Snake rivers during 1933-1975 divided the white sturgeon population into discrete populations below Bonneville Dam and in reservoirs behind each dam. Interchange between the populations above Bonneville Dam and the lower river population appears to be limited as sturgeon seldom use fish ladders. The productivity of sturgeon populations in the reservoirs remains low because of the lack of suitable spawning and rearing habitat. The white sturgeon population below Bonneville Dam is diadromous, meaning individual sturgeon can move between river and marine environments. Sturgeon tagged in the Columbia River have been recovered in Puget Sound, Grays Harbor, and Willapa Bay in Washington, and Nehalem, Tillamook, Nestucca, Yaquina, Winchester, and Coos bays in Oregon. One Columbia-tagged white sturgeon was recovered in the Sacramento River in California.

White sturgeon grow slowly, with females reaching sexual maturity at about 23 years of age and a length of six feet. Males may reach maturity at 17 years of age and a length of five feet. Spawning in the lower river occurs over rocky substrate in the fast-flowing, five-mile reach immediately below Bonneville Dam during the high flow period of April-July. Sturgeon are opportunistic bottom feeders, gorging themselves on whatever is most abundant. Food items include smelt, anchovies, lamprey, shad, clams, sand shrimp, crayfish, and other marine and freshwater invertebrates.

Angling for white sturgeon became popular in the mid-1970s, coincidental with the onset of the recovery of the sturgeon population and the decline in salmon fishing opportunity. Sturgeon provide year-round angling opportunity and the fishery has become very popular during the winter months. Since 1980, lower Columbia River anglers have made more sturgeon trips than salmon trips every year except 1989-1990 and 2001-2004, when strong salmon returns provided increased opportunity for salmon fishing. Since 1982, sturgeon angler effort and catch for January, November, and December have been estimated using moorage reports, effort counts, and creel sampling to provide total annual estimates of catch and effort. As the recreational catch of sturgeon increased, managers became concerned that over-harvest could cause a reduction in the recruitment of broodstock and lead to another decline of the sturgeon population. Beginning in 1983, a tagging program was initiated to determine the abundance and harvest rate of white sturgeon in the lower Columbia River. Since the mid-1980s, white sturgeon have been managed for optimum sustainable yield, which equates to a 15% maximum annual

harvest rate on the 3-6' segment (or 22% of the 42-60" segment) of the white sturgeon population.

The states have enacted a number of management strategies over the last 25 years to maintain the harvest of white sturgeon at sustainable levels and ensure adequate recruitment and protection for broodstock (Appendix Table 16). Most of the management actions were related to size or bag limit restrictions following periods of over-harvest, because managers were unwilling to preempt the year-round sturgeon fishing season on the lower Columbia. Size and bag limit restrictions were generally effective over the short term, until sufficient recruitment or growth of sturgeon into the new size limit would necessitate additional regulation changes. The states prohibited sturgeon retention for the first time in 1995, when anglers caught 45,000 sturgeon during the first eight months of the year. The 1995 retention prohibition had the most effect on anglers in the Bonneville area, as the majority of catch in other areas of the lower Columbia had already occurred. Beginning in 1996, the states reduced the daily bag limit to one sturgeon 42-66".

Beginning in 1997, the states entered successive, three-year management agreements for white sturgeon fisheries on the lower Columbia River. Each agreement established average annual harvest guidelines for white sturgeon based on OSY and allocated the harvest of white sturgeon between sport (80%) and commercial (20%) fisheries. The annual catch guidelines for recreational white sturgeon fisheries were 53,840 in 1997 and 1998; 40,000 in 1999-2002; and 32,000 in 2003-2005. Recreational sturgeon fisheries during 1997-2000 remained within harvest guidelines and provided year-round opportunity with only minor season restructuring despite record high effort; however, both the 2001 and 2002 recreational fisheries required extensive retention prohibitions during the fall to prevent exceeding catch guidelines. In both years, the retention closures had the greatest effect on sturgeon anglers in the Gorge and the least effect on anglers in the estuary. To maintain fairness of harvest-sharing within the various sectors of the recreational sturgeon fishery, the "Joint State Accord" for 2003-2005 included the first formal allocation of the recreational catch guideline between estuary (60%) and non-estuary (above Wauna) sturgeon (40%) fisheries.

Sport fishery options for 2005 were considered at the December 16, 2004 Joint State hearing. Since the "Joint State Accord" considered total harvest for the 2003-2005 management period, the 2005 catch guidelines were adjusted to include fish remaining from 2003 and 2004 fisheries. Accordingly, an additional 1,818 sturgeon were added to the 2005 allowable harvest for the estuary sport fishery resulting in a guideline of 17,818; however, no additional fish remained from 2003-2004 sport fisheries above Wauna and the guideline remained 12,800 sturgeon in 2005. Regulations for the Columbia River above the Wauna powerlines (River Mile 40) including all adjacent Washington tributaries and the Willamette River downstream of Willamette Falls (including Multnomah Channel) allowed the retention of sturgeon three days per week (Thursday-Saturday) during the periods January 1-July 31 and October 1-December 31. Sturgeon retention above Wauna was prohibited four days per week (Sunday-Wednesday) during January 1-July 31 and October 1-December 31 and everyday during August 1-September 30. For the area below the Wauna powerlines, regulations allowed sturgeon retention seven days per week during the periods January 1-April 30 and May 14-July 4. For the May 14-July 4 retention season, the minimum size limit increased from 42" to 45". Sturgeon retention below Wauna was prohibited from May 1 through May 13 and July 5 through December 31, but catch and release sturgeon angling was allowed during all retention closures.

The 2005 Columbia River sport sturgeon fishery above Wauna got off to an exceptionally slow start with 15,254 angler trips producing only 53 fish kept during the first three months of the year. Although effort was down from recent years, both total catch and catch rates were the lowest on record for January-March. Low water temperatures and a poor smelt run contributed to the poor catch rates during the early season. Sturgeon angler effort and catch rates increased after mid-April, particularly in the Gorge, and catches improved in other areas of the lower river during the month of May. When the retention season closed at the end of July, 4,975 sturgeon

had been harvested in the area above Wauna from 47,213 trips. The sport sturgeon season above Wauna reopened to the retention of sturgeon on October 1 and catch rates were excellent in the Gorge area, particularly for bank anglers, resulting in a record catch of 5,375 fish for the month of October. Effort and catch rates remained high through mid-November, but dropped off substantially by the end of the month. The final November white sturgeon catch totaled 1,454 and the December catch was 87 fish. The final catch for the above Wauna fishery for 2005 was 11,891 fish or 93% of the management guideline from 75,447 angler trips.

The season below Wauna also began slower than expected with no white sturgeon caught through the end of April. The estuary fishery reopened on May 14 with good catch rates and high effort; however, catch rates were not as high as those observed during May and June 2004. By the end of June, 10,831 white sturgeon had been harvested in the area below Wauna, and it became apparent that the fish remaining on the guideline would not be utilized by the original season end date of July 4. At a Joint State hearing on June 28, the states extended the retention season below Wauna through July 10. After a brief closure during July 11-14, the fishery reopened during July 15-17 and subsequently was extended through August 15 at a July 13 Joint State hearing. The total catch in the estuary during May 14-July 10 and July 15-August 15 was 17,911 white sturgeon and 119 green sturgeon from 62,314 angler trips, which slightly exceeded the white sturgeon management guideline of 17,800 for the area.

The total catch estimate for the Columbia River below Bonneville Dam in 2005 was 29,802 white sturgeon (compared to the management guideline of 30,600) and 119 green sturgeon from 137,761 angler trips. During January 1-December 31, 2005, anglers released 270,432 sublegal, 3,235 legal-size, and 5,847 oversize white sturgeon on the lower Columbia River. Figure 6 and Table 12 show the catch of white sturgeon in commercial and recreational fisheries on the lower Columbia for 1977-2005 and 1969-2005, respectively. Appendix Tables 17 and 18 list annual effort and catch totals by area on the lower Columbia for 1974-2005. Appendix Tables 19-26 show sturgeon angler effort and catch totals by month and area for 1977-2005. Appendix Tables 27-34 list the number of sublegal, legal, and oversize white sturgeon released by month and area for 1977-2005. Appendix Tables 35 and 36 compare the catch per unit effort of sublegal and oversize white sturgeon released on the lower Columbia River for 1982-2005.

Of the 29,802 legal-size white sturgeon kept in 2005, samplers obtained the lengths of 9,465 fish (32%). The average length of kept white sturgeon in 2005 was 48 inches, which the second highest average length on record. However, it should be noted that most of the increase in the average length can be attributed to the increase in the minimum size from 42" to 45" in the estuary fishery during May 14-August 15, 2005. The average length for kept sturgeon above Wauna was similar to the recent average. A total of 17,172 fish (57.6% of the catch) were in the 42-<48" size group, 12,580 fish (42.2% of the catch) were in the 48-<60" size group, and 50 fish (0.2% of the catch) were slightly >60" as compared to the 2000-2004 average of 70%, 30%, and 0.1% respectively. Appendix Tables 37-40 list the length frequency information for legal white sturgeon kept in the recreational fishery on the lower Columbia River by area for 1977-2005.

Historically, the majority of the total annual sturgeon effort on the lower Columbia River occurred in the Gorge area below Bonneville Dam (Section 1). The close proximity to the Portland metropolitan area and excellent bank access contributed to the popularity of the Section 1 fishery. The popularity of the Gorge bank fishery declined during the 1990s as the sturgeon fishery became more boat-oriented and the popularity of the fisheries in the estuary (Section 10) and middle river (Sections 2-9) areas increased. In 2005 sturgeon anglers in the Bonneville area made 39,745 trips, or 29% of the total effort for the lower Columbia sturgeon fishery, and kept 9,878 legal-size sturgeon, which was 33% of the total catch. Both effort and catch of legal-size sturgeon in the Gorge fishery peaked in October after the fishery had been closed to retention for two months. The average size of legal sturgeon kept in the Bonneville area was 47.8" in 2005.

**Figure 6. Sturgeon Effort and Catch
on the Lower Columbia River, 1977-2005.**

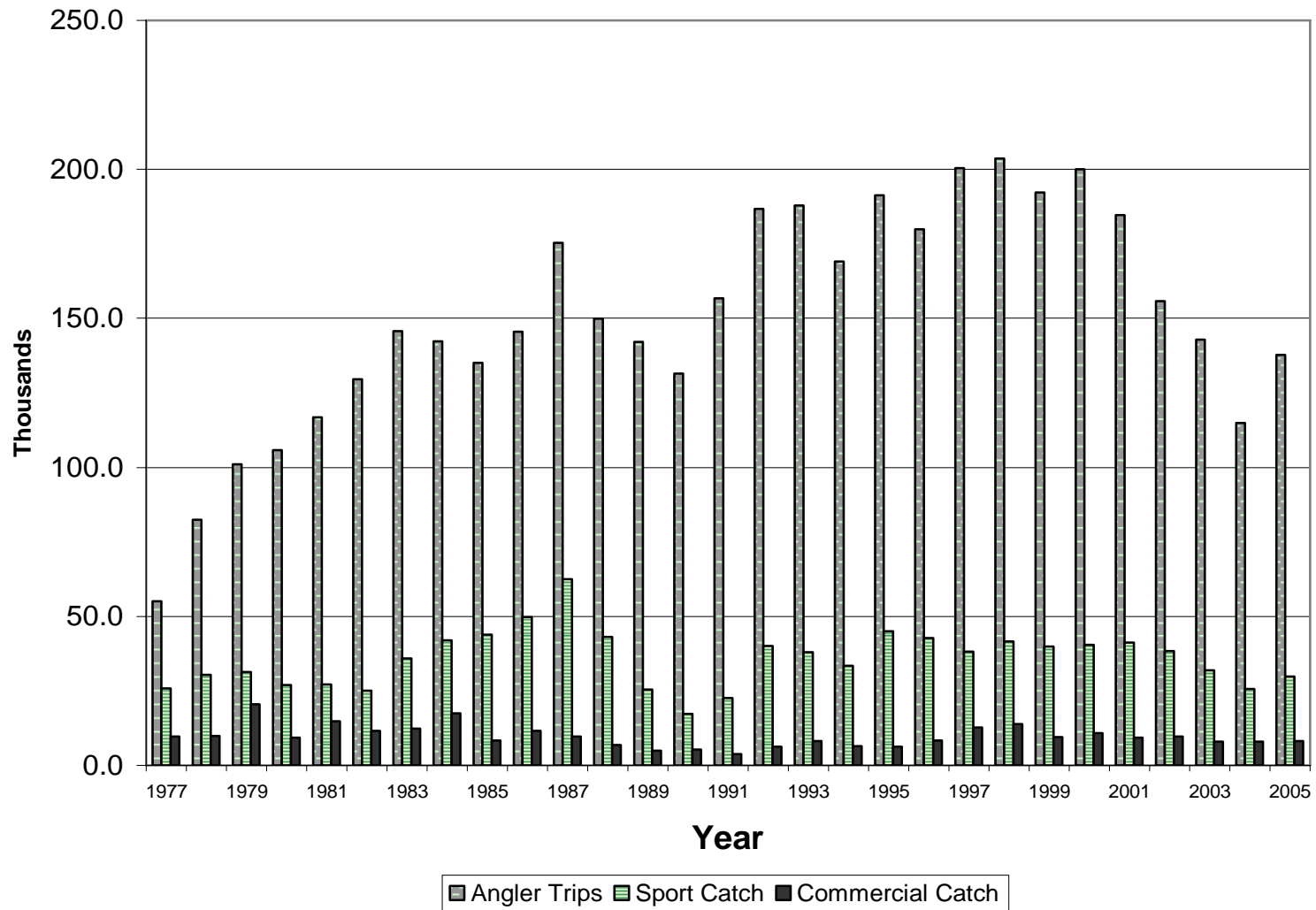


Table 12. Kept White Sturgeon Recreational and Commercial Catch on the Lower Columbia River, 1969-2005.

Year	Recreational Catch	Commercial Catch		Total Catch
		Setline 1/	Gill Net 2/	
1969	6,900	0	7,500	14,400
1970	8,900	0	6,300	15,200
1971	3,700	0	7,200	10,900
1972	6,600	0	7,600	14,200
1973	12,900	0	10,700	23,600
1974	12,300	0	10,700	23,000
1975	18,100	1,000	13,000	32,100
1976	19,300	4,700	18,100	42,100
1977	25,800	800	8,900	35,500
1978	30,400	1,000	8,800	40,200
1979	31,400	2,000	18,500	51,900
1980	27,000	2,600	6,800	36,400
1981	27,200	4,100	10,800	42,100
1982	25,100	4,600	7,000	36,700
1983	36,000	2,900	9,500	48,400
1984	42,000	1,800	15,700	59,500
1985	43,800	800	7,600	52,200
1986	49,800	-	11,600	61,400
1987	62,400	-	9,700	72,100
1988	43,100	-	6,800	49,900
1989	25,400	-	5,000	30,400
1990	17,300	-	5,300	22,600
1991	22,700	-	3,800	26,500
1992	40,100	-	6,200	46,300
1993	37,900	-	8,100	46,000
1994	33,500	-	6,400	39,900
1995	45,100	-	6,200	51,300
1996	42,800	-	8,400	51,200
1997	38,200	-	12,800	51,000
1998	41,600	-	13,900	55,500
1999	39,800	-	9,500	49,300
2000	40,500	-	10,900	51,400
2001	41,200	-	9,300	50,500
2002	38,300	-	9,600	47,900
2003	31,900	-	8,000	39,900
2004	25,600	-	7,900	33,500
2005	29,800	-	8,200	38,000

1/ Setline sturgeon fishing prohibited beginning in 1986.

2/ Target sturgeon gill-net fishing eliminated in 1989 and re-allowed beginning in 1997.

The catch and release fishery for large sturgeon in the Gorge became prominent among boat anglers in 1992. Prior to 1992 most sturgeon anglers were seeking legal-size white sturgeon and only hooked oversize sturgeon unintentionally. During May-July 1992, boat anglers above Beacon Rock (RM141) began targeting large sturgeon using whole shad for bait. Sturgeon anglers below Beacon Rock continued to hook large sturgeon unintentionally, but anglers above Beacon Rock handled 2-3 times as many oversize sturgeon per trip. Refinements in angling techniques combined with a large pool of oversize sturgeon contributed to the success of anglers fishing for large sturgeon throughout the Gorge. Since the mid-1990s, a growing proportion of the boat fleet in the Gorge has targeted oversize sturgeon, and sturgeon angler effort during May-July increased rapidly thereafter. Beginning in 1994, the states initiated systematic carcass surveys to help assess the impact of the sport fishery on oversize sturgeon. In 1996 managers closed the area from Beacon Rock to Bonneville Dam to sturgeon angling from boats during May and June, but sturgeon angler effort and oversize handle continued to increase. In 2000, a tagging program was initiated to collect additional data on the abundance of oversize sturgeon and gather additional data on the effects of the catch and release fishery on the broodstock population. Also beginning in 2000, the boat angling closure from Beacon Rock to Bonneville Dam was extended through July 15. Beginning in 2004, the sturgeon sanctuary above Beacon Rock was extended through July 31 and expanded to include bank anglers. During 2005, anglers released 4,181 oversize sturgeon in the Gorge, which was the second lowest total since 1991. The Gorge oversize catch of 4,181 represented 72% of the total number of oversize handled in the lower river recreational fishery during 2005, which was fairly typical for the Gorge fishery. During 2005 surveyors examined the carcasses of 12 oversize sturgeon, of which four fish (33%) were identified as having either ingested hooks or potentially lethal hook wounds.

The majority of the sturgeon catch in the middle river fishery from Troutdale to Westport (Sections 2-9) typically occurs during the winter and early spring in conjunction with the smelt run and warming river temperatures; however, temperatures were below normal at the start of 2005 and the smelt run was poor. Sturgeon catches in the middle river during January-March were the lowest on record with only 17 fish landed from 5,600 angler trips. The total catch in the Troutdale to Westport area during 2005 was 2,055 white sturgeon, or 7% of the total catch from 36,070 trips (26%), which was the lowest trip total in the middle river since 1978. The sturgeon population in Sections 2-9 seems to be predominately sublegal and small legal-size fish. This fact is evident in the smaller, average size of legal sturgeon (45.8") and the high ratio of sublegal to legal-size fish (32:1) for this area in 2005. In 2005 anglers in Sections 2-9 released 182 legal-size sturgeon, 72,570 sublegal sturgeon, and 482 oversize sturgeon.

The majority of the legal-size catch was taken in the Columbia River estuary (Section 10) where anglers kept 17,869 legal-size white sturgeon or 60% of the total catch in 2005. Anglers made 61,946 trips in the estuary during 2005, which represented 44% of the total effort for the lower Columbia River sturgeon fishery. The estuary catch rate of 0.29 legal sturgeon per angler trip was nearly double the combined catch rate for the rest of the river. Anglers in the estuary also released 1,105 legal-size sturgeon, 100,047 sublegal sturgeon, and 1,184 oversize sturgeon in 2005.

Catch rates for legal-size sturgeon in the estuary are high for two reasons. The primary reason is that legal-size fish from upriver and marine areas congregate in the estuary during the summer months to feed on abundant prey items such as anchovies, sardines, and clams. The second reason can be attributed to the growth of the sturgeon charter and guide boat industries. Washington does not allow guided trips in the estuary but has a large charter fleet. Charter boats (6-16 passenger vessels) began offering sturgeon fishing trips in 1984 to make up for reductions in ocean salmon seasons. Since 1984, the number of charter boat anglers fishing for sturgeon has risen dramatically, and the catch rate for charter anglers is very high. In 2005, 8,729 anglers fished aboard charter boats and kept 4,121 legal white sturgeon for a catch rate of 0.47 legal sturgeon per angler trip. Trips made by charter boat anglers represented only 6% of the total

effort in the lower Columbia River recreational sturgeon fishery in 2005, but charter anglers accounted for 14% of the legal white sturgeon catch. The guide boat industry (4-7 passenger vessels) entered the fishery during the 1990s and has grown considerably during the last several years. Guide boat statistics are included in the private totals. Separate catch and effort statistics are not available for guide boats, as staff cannot distinguish guided boats from private boats during aerial counts; however, staff estimated that guided anglers accounted for approximately 14% of the total estuary sturgeon catch in 2005. Appendix Tables 41 and 42 compare monthly and annual totals for sturgeon catch and catch rate for charter and private boats in the estuary.

Green Sturgeon

Green sturgeon populations reproduce in the Klamath, Rogue, and Sacramento rivers. No green sturgeon spawning has ever been documented in the Columbia River, and they do not exist above Bonneville Dam. Green sturgeon move freely to and from the ocean and take up temporary residence in the Columbia River estuary during the summer months. Because of their poor "biting behavior" and lower relative abundance, green sturgeon are of little importance to the recreational fishery. A minor recreational catch of 119 green sturgeon occurred during May-July, 2005 incidental to boat angling for white sturgeon in the estuary (Section 10). This catch number is in addition to the previously reported catch of 17,869 white sturgeon for the area. Appendix Table 43 lists the recreational catch of green sturgeon for 1982-2005.

Shad

American shad were first introduced from the East Coast into the Sacramento River in California in 1871. Commercial landings of shad were documented in the Columbia River before the first shad were released into the Columbia in 1885. Columbia River shad runs increased steadily after construction of the mainstem dams was completed in the 1970s. The slack-water pools behind the dams created ideal habitat for shad. Minimum run size estimates do not include shad spawning below Bonneville Dam in the mainstem Columbia or in tributaries, but do include shad caught below the dam and in the Willamette River. In 2005, the minimum shad run entering the Columbia River was 6,303,200 fish, the highest return on record (Table 13).

Shad migrate from the ocean into the Columbia River during May-July, with June being the primary month. Spawning occurs in lower Columbia tributaries such as the Willamette, Grays, and Deep rivers, John Day Slough, and in the Columbia River below Bonneville Dam. However, the majority of the run migrates above Bonneville Dam and spawns in mainstem Columbia and Snake River reservoirs. Counts of shad at The Dalles Dam are frequently higher than counts at Bonneville Dam as a result of shad passing through the Bonneville navigation lock.

Shad can be caught in many areas of the lower Columbia River, but the bulk of the fishery occurs in the three-mile stretch below Bonneville Dam. During 2005 shad anglers made 20,370 trips and caught 177,254 shad, of which 164,889 (93%) were kept and 12,365 (7%) were released. The 2005 shad catch and catch per unit effort were the highest on record and effort was third highest. Anglers in the Bonneville area contributed 17,323 trips or 85% of the total effort and caught 164,424 shad (154,490 kept and 9,934 released) or 93% of the total catch. Bank anglers in the Bonneville area made 14,824 trips or 73% of the total effort and caught 134,911 shad (130,434 kept and 4,477 released) or 76% of the total catch on the lower river.

Under permanent regulations, the recreational shad fishery opens May 16 below Bonneville Dam. During 2005, the states delayed the shad season until May 22 because of concerns that the non-Indian impact guideline for upriver spring chinook had been exceeded. Shad retention had been allowed during the recreational spring chinook fishery during February 1-April 20, but none were caught. Appendix Table 44 lists shad angler trips, catch, and catch per trip from 1974-2005.

Table 13. Minimum Annual Shad Run Entering the Columbia River, 1969-2005.

Year	Kept Recreational Catch		Zones 1-5 Commercial Catch	Bonneville Dam Count	The Dalles Dam Count	Minimum Run 1/
	L. Columbia River	Willamette River				
1969	5,900	-	45,500	317,400	305,900	368,800
1970	10,700	-	59,100	329,300	308,700	399,100
1971	6,100	-	40,300	189,600	187,500	236,000
1972	3,900	-	55,300	214,700	273,400	332,600
1973	7,000	-	49,000	519,200	781,000	837,000
1974	12,300	-	45,900	99,000	315,400	373,600
1975	14,500	-	64,500	264,200	438,200	517,200
1976	15,900	10,700	60,900	305,200	508,900	596,400
1977	2,800	8,200	61,900	495,700	856,500	929,400
1978	15,700	5,800	113,600	861,200	1,234,700	1,369,800
1979	12,400	17,800	120,300	1,039,900	1,398,200	1,548,700
1980	24,300	15,500	23,200	939,400	1,160,800	1,223,800
1981	28,700	20,400	21,800	881,200	1,089,000	1,159,900
1982	33,900	21,700	75,000	780,200	1,002,800	1,133,400
1983	28,700	36,900	85,000	1,420,000	1,932,000	2,082,600
1984	22,300	19,900	18,100	1,275,800	1,190,000	1,336,100
1985	13,700	16,400	35,400	975,000	1,389,500	1,455,000
1986	18,900	5,900	88,200	858,200	1,361,900	1,474,900
1987	14,300	5,100	108,700	943,900	1,289,700	1,417,800
1988	27,500	11,500	108,400	1,164,300	2,008,600	2,156,000
1989	64,400	18,300	51,600	1,877,400	2,971,000	3,105,300
1990	113,800	23,500	167,800	2,947,900	3,706,900	4,012,000
1991	100,600	28,300	43,100	1,914,400	2,191,100	2,363,100
1992	88,300	16,300	141,400	2,551,400	2,824,300	3,070,300
1993	111,400	20,800	144,700	2,166,700	2,394,400	2,671,300
1994	103,800	33,200	57,700	1,557,600	1,801,500	1,996,200
1995	101,400	37,400	61,100	1,716,200	1,959,600	2,159,500
1996	129,800	66,400	61,100	1,924,700	2,648,600	2,905,900
1997	99,000	53,000	24,900	2,171,600	2,571,300	2,748,200
1998	83,400	37,900	24,500	1,891,000	2,149,100	2,294,900
1999	79,300	32,800	39,700	1,638,300	1,718,700	1,870,500
2000	58,000	54,300	30,500	1,244,300	1,556,600	1,699,400
2001	98,600	58,600	26,200	2,298,000	2,724,900	2,908,300
2002	148,200	26,800	37,100	3,164,600	3,218,100	3,430,200
2003	115,900	36,500	79,200	4,559,600	4,258,800	4,791,200
2004	123,000	34,500	48,400	5,355,700	5,472,400	5,678,300
2005	164,900	22,500	48,800	4,242,200	6,067,000	6,303,200

1/ Greater dam count used in minimum run.

Walleye

Walleye were first introduced into Lake Roosevelt, Washington (behind Grand Coulee Dam) in the 1940s or 1950s and gradually spread down river. The first walleye documented below Bonneville Dam was caught at Oneonta in 1966, and fairly large populations of walleye are now present in the lower Columbia River and in the Willamette River below Willamette Falls. The first significant sport fishery for walleye in the lower Columbia occurred in 1982 in the Gorge (Section 1), and since then walleye anglers have been observed as far down river as Longview (RM 65). Walleye catches in the lower Columbia have ranged from a low of 126 in 1982 to a high of 3,124 in 1995 and generally reflect the abundance of walleye in the lower river. In 2005 walleye anglers made 1,437 trips and caught 684 walleye (646 kept and 38 released). Appendix Table 45 lists walleye catch and effort for 1982-2005.

BUOY 10 FISHERY

INTRODUCTION

The recreational fishery at the mouth of the Columbia River became important during the late 1930s and has been monitored and reported annually since 1946. Since 1982, the in-river (Buoy 10) portion of the fishery has been monitored and reported separately from the ocean fishery off the mouth of the Columbia.

Through the early 1950s, the fishery at the mouth of the Columbia was generally centered in-river between Chinook and Megler, Washington. Large wooden lures were used to target mature chinook salmon. During 1946-1952, anglers averaged 41,400 trips with catches of 13,500 chinook and 3,800 coho annually. With the availability of larger, safer boats (around 1953), the fishery shifted from the river to the ocean. About the same time, anglers began using herring as bait instead of lures, and the composition of the catch changed to predominantly coho and feeder chinook. Between 1953 and 1962, anglers averaged 72,700 trips with catches of 22,900 chinook and 45,700 coho at the mouth of the Columbia River.

During the mid-1960s through 1976, the production of hatchery coho in the Columbia increased, and the ocean area off the mouth of the Columbia became the center for recreational salmon fishing in the Pacific Northwest. The ports just inside the mouth of the Columbia averaged about 250,000 angler trips with catches of about 100,000 chinook and 300,000 coho annually. By 1977, high ocean harvest rates had precipitated the decline of several coastal stocks of coho. At the same time, federal court decisions mandated greater escapement from ocean fisheries to inland areas with treaty Indian fisheries, and ocean seasons were shortened.

In 1982 the Buoy 10 fishery became distinguished from the ocean fishery off of the mouth of the Columbia, and the Buoy 10 fishery has been monitored and reported separately since that time. The ocean fishery closed on August 2, 1982, and the Columbia River estuary from Buoy 10 upstream to the Astoria-Megler Bridge opened for fall salmon angling on August 16. That year Buoy 10 anglers made 17,400 trips and caught 700 chinook and 18,900 coho. In nine of the 12 years during 1982-1993, the Buoy 10 recreational fishery was open during August while the adjacent ocean area was closed. The popularity of the Buoy 10 fishery increased dramatically during this period and resulted in a shift of the recreational salmon fishery at the mouth of the Columbia back inside the river. Angler trips at Buoy 10 during 1982-1993 averaged 94,400 with catches of 67,000 coho and 12,800 chinook annually.

During 1994-1996, Columbia River fisheries were constrained by limited allowable non-Indian impacts to ESA-listed Snake River wild (SRW) fall chinook, and the states disallowed the retention of chinook at Buoy 10 until October 8, September 5, and August 30, respectively in those years. Additionally, coho returns to the Columbia River during 1994-1996 were at or near record low run sizes. During 1994-1996, anglers averaged 17,500 trips with catches of 3,800 coho and 700 chinook at Buoy 10.
success.

In 1997, the Columbia River coho return was again poor and Buoy 10 anglers began to target chinook salmon between Chinook and Megler, Washington with excellent success. In 1998, with both a poor Columbia River coho return and limited non-Indian SRW impacts, the states limited the Buoy 10 season to 16 days (during August 8-23) and then closed the fishery up to the Astoria-Megler Bridge. After the Buoy 10 season had closed, however, anglers moved upstream of the Astoria-Megler Bridge and experienced excellent success for both fall chinook and coho, which left almost no SRW impacts for other non-Indian fisheries planned for the fall of 1998. Beginning in 1999, managers placed a chinook catch expectation on the Buoy 10 fishery to ensure fairness for the mainstem Columbia River recreational fishery and allow for some

chinook impacts in non-Indian commercial fisheries. In order to prevent a repeat of the 1998 fishery, when the 1999 Buoy 10 chinook catch guideline was reached the states also closed the area above the Astoria-Megler Bridge upstream to Tongue Point to the retention of chinook.

Beginning in 2000, the states permanently expanded the Buoy 10 management area to include the portion of the river between the Astoria-Megler Bridge and the Tongue Point/Rocky Point line because the fishery expanded into the area above the bridge with catch rates and catch composition more similar to those in the Buoy 10 fishery than in the adjacent river fishery.

During the 2000-2004 Buoy 10 fisheries, the states limited anglers to one chinook in the daily salmon limit, except during August 1-24 of the 2002 Buoy 10 fishery. The states also established chinook catch expectations every year to ensure the Buoy 10 fishery did not exceed its URB allocation. During the 2000-2004 Buoy 10 fisheries, anglers averaged 88,200 trips with catches of 14,100 chinook and 45,900 coho. The 2000, 2001, and 2004 Buoy 10 fisheries exceeded their respective chinook catch expectation, and chinook retention was suspended during a portion of the season in each of those years; however, chinook retention was allowed for the duration of the 2002 and 2003 Buoy 10 fisheries. Because of large coho runs in 2001 and 2003, the states increased the daily salmon limit at Buoy 10 after August 16 to allow the harvest of additional hatchery coho, but maintained the daily bag limit for chinook at one fish. Coho catches were 132,000 fish in 2001 and 54,400 in 2003.

METHODS

The Buoy 10 fishery is sampled in the same manner as the ocean fishery. Total effort is determined from boat counts (sport and charter) made throughout the day as they exit the ports or by counting boat trailers and vacant moorage slips. Returning boat anglers are interviewed for the number of anglers per boat, trip length, and catch by species. Charter boat catches are tabulated separately from private boats. The catch is sampled for biological data, including CWTs. Each state samples their respective ports and performs their own catch and effort estimates, and the data is then shared and combined. A bank fishery located on Clatsop Spit in Oregon (RM 6) was sampled intermittently in 1984 and 1985, and catch and effort estimates were calculated using data from several sources. Since 1986, the Clatsop Spit bank fishery and the North Jetty bank fishery in Washington were formally sampled and included in the Buoy 10 and/or ocean fishery totals.

RESULTS AND DISCUSSION

2005 Fishery

Expectations for the 2005 Buoy 10 Fishery included a forecast for a modest coho return of 206,400 and a strong return of 671,400 fall chinook including 354,600 URBs. Non-Indian impacts were limited to 8.25% of the aggregate URB run in Columbia fisheries during 2005, of which 4.125% was allocated to recreational fisheries including Buoy 10. The states established a catch expectation of 12,360 fall chinook, including 3,200 URBs, for the Buoy 10 fishery through Labor Day and restricted the daily salmon limit to not more than one chinook. Coho catch has been restricted to adipose fin-clipped fish in the Buoy 10 fishery since 1998 to protect depressed populations of Oregon coast natural coho (OCN) and lower Columbia River wild coho, which were listed as “threatened” under the ESA in August 2005. Table 14 displays the history of the Buoy 10 fishing regulations.

The Columbia River ocean salmon season between Cape Falcon, Oregon and Leadbetter Point, Washington was open Sunday-Thursday during July 3 through the earlier of September 30 or a quota of 60,900 hatchery coho, except the area between Cape Falcon and Tillamook Head closed August 1. The chinook catch guideline for the ocean fishery was 8,200, but the coho fishery would remain open if the chinook guideline were reached prior to September 30. The daily bag limit was two salmon, of which only one could be a chinook in order to extend chinook retention through as much of the season as possible. Minimum sizes in the ocean salmon fishery were 16” for coho and 24” for chinook, and only adipose fin-clipped coho could be retained (since 1998). Beginning July 29, the ocean salmon season was expanded to seven days per week, and the daily salmon limit was liberalized to allow two chinook. Chinook retention was suspended during September 9-16, because the 8,200 fish guideline was exceeded; however, the overall chinook catch in the ocean between Cape Falcon and the U.S./Canada border remained under the guideline, and chinook retention was re-allowed off the mouth of the Columbia beginning September 17. The final recreational catch in the ocean fishery between Leadbetter and Cape Falcon totaled 38,700 adipose fin-clipped coho and 13,200 chinook from 45,300 angler trips during July 3-September 30, 2005.

2005 Effort and Catch

The 2005 Buoy 10 fishery was intensively monitored. Chinook catches started slowly, and reached a rapid peak during the week of August 22-28. The peak catch rate of 0.64 chinook per angler occurred on August 25, and by the following week chinook catch rates had declined to less than 0.2 fish per angler. Through Labor Day (September 5), the cumulative chinook catch was about 8,800, which was well below the chinook catch expectation of 12,360 for the 2005 Buoy 10 fishery. It appeared as if chinook retention would continue for the duration of the 2005 Buoy 10 season; however, on September 15 TAC downgraded the URB run to 280,000. Additionally, the mainstem sport fishery exceeded its catch guideline of 16,540 and closed to chinook retention effective September 18. On September 27, 2005 the cumulative total sport impact was 4.81% of the URB run size, and the states closed the Buoy 10 fishery to the retention of chinook salmon effective October 1. Subsequent upgrades of the URB run size allowed the retention of chinook to resume effective October 20; however, effort was very light and no chinook were caught.

The 2005 Buoy 10 season (combined boat and bank) effort and catch totals were 55,183 trips with catches of 6,878 adipose fin-clipped coho, 9,287 adult chinook, and 70 Group-B hatchery steelhead. The catch per unit effort for chinook salmon was 0.17 fish per angler, and the catch per unit effort for coho salmon was 0.12 fish per angler. The overall success rate of 0.29 salmon per trip was lowest combined CPUE since 1995. Table 15 shows the 2005 Buoy 10 catch for Oregon and Washington by method and week. Table 16 shows the total 2005 Buoy 10 catch and 1982-2004 comparison.

Table 14. History of Buoy 10 Fishery Regulations

Year	Opening Date	Hook Regulation	Daily Bag Limit 1/	Other
Pre-1982	Same as ocean through 1979. Aug 1, 1980-81	Barbed allowed	2 or 3	--
1982	16-Aug	Barbless beginning 8/25	2	Chinook closed 8/25-9/30
1983	16-Aug	Barbed allowed	2	All salmon closed 9/15-20; Coho closed 9/21-30
1984	9-Aug	Barbed allowed	2	Chinook closed 8/24-9/10 noon
1985	18-Aug	Barbless only	2	Chinook closed 8/23-9/5; Coho closed 8/23-30; 9/3-5
1986	16-Aug	Barbed allowed	2	North jetty open All boat salmon closed 9/1-6 All bank salmon closed 9/1-2
1987	16-Aug	Barbless only	2 8/16-9/6; 3 beg 9/7; 4 beg. 10/9	North jetty open All salmon closed 8/31-9/3
1988	6-Aug	Barbless only	2 8/6-14; 8/17-19; 8/24-9/5 1 8/15-16; 8/20-23 3 beg. 9/6	North jetty open
1989	14-Aug	Barbed allowed	2 8/14-9/4; 3 beg. 9/5	North and south jetties open
1990	13-Aug	Barbed allowed	2 8/13-9/3; 3 beg. 9/4	North and south jetties open
1991	9-Aug	Barbed allowed	2 8/9-9/2; 3 beg 9/3	North and south jetties open
1992	1-Aug	Barbed allowed	2 8/1-9/7; 3 beg. 9/8	North and south jetties open
1993	1-Aug	Barbed allowed	2 8/1-9/6; 3 beg. 9/7	North and south jetties open
1994	17-Sep	Barbed allowed	3	Chinook closed until 10/8 North and south jetties open
1995	1-Aug	Barbless through 9/4	2	Chinook closed until 9/5 North and south jetties open
1996	1-Aug	Barbless through 8/29	2	Chinook closed until 8/30 North and south jetties open
1997	1-Aug	Barbed allowed	2 3 beg. 9/2	North and south jetties open
1998 2/	8-Aug	Barbed allowed	2	Season open 8/8-8/23 North and south jetties open
1999	1-Aug	Barbed allowed	2	Chinook closed 8/30-9/29 North and south jetties open
2000 3/	1-Aug	Barbed allowed	2 but not more than 1 chinook	Chinook closed 8/28-8/31 North and south jetties open
2001	1-Aug	Barbed allowed	2 8/1-8/15; 3 8/16-8/29; 4 beg. 8/30; not more than 1 chinook	Chinook closed 8/30-9/12 North and south jetties open
2002	1-Aug	Barbed allowed	2 but not more than 1 chinook during 8/24-12/31	North and south jetties open
2003	1-Aug	Barbed Allowed	2 8/1-8/15; 3 beg. 8/16 but not more than 1 chinook	North and south jetties open
2004	1-Aug	Barbed Allowed	2 but not more than 1 chinook	Chinook closed 9/7-12/31 North and south jetties open
2005	1-Aug	Barbed Allowed	2 but not more than 1 chinook	Chinook closed 10/1-10/19 North and south jetties open

1/ Beginning in 1984, minimum sizes were 24" for chinook and 16" for coho through September 30.

2/ Beginning in 1998, only adipose fin-clipped coho could be retained.

3/ Beginning in 2000, the Buoy 10 management area was extended upstream of the Astoria Bridge to Tongue Point/Rocky Point.

Table 15. Buoy 10 Fishery Recreational Effort and Catch, by Week, 2005.

Week	Angler Trips	Chinook		Coho		Total	
		Catch	Catch/ Trip	Catch	Catch/ Trip	Catch	Catch/ Trip
32 (Aug 1-7)							
OR Bank	30	0	0.00	0	0.00	0	0.00
OR Charter Bt.	0	0	0.00	0	0.00	0	0.00
OR Private Bt.	790	30	0.04	7	0.01	37	0.05
OR Total	820	30	0.04	7	0.01	37	0.05
WA Bank	0	0	0.00	0	0.00	0	0.00
WA Charter Bt.	0	0	0.00	0	0.00	0	0.00
WA Private Bt.	858	26	0.03	6	0.01	32	0.04
WA Total	858	26	0.03	6	0.01	32	0.04
Week 32 Total	1,678	56	0.03	13	0.01	69	0.04
33 (Aug 8-14)							
OR Bank	28	0	0.00	0	0.00	0	0.00
OR Charter Bt.	1	0	0.00	0	0.00	0	0.00
OR Private Bt.	1,938	263	0.14	10	0.01	273	0.14
OR Total	1,967	263	0.13	10	0.01	273	0.14
WA Bank	0	0	0.00	0	0.00	0	0.00
WA Charter Bt.	7	0	0.00	0	0.00	0	0.00
WA Private Bt.	1,577	110	0.07	3	0.00	113	0.07
WA Total	1,584	110	0.07	3	0.00	113	0.07
Week 33 Total	3,551	373	0.11	13	0.00	386	0.11
34 (Aug 15-21)							
OR Bank	40	3	0.08	0	0.00	3	0.08
OR Charter Bt.	18	1	0.06	11	0.61	12	0.67
OR Private Bt.	7,068	615	0.09	164	0.02	779	0.11
OR Total	7,126	619	0.09	175	0.02	794	0.11
WA Bank	0	0	0.00	0	0.00	0	0.00
WA Charter Bt.	0	0	0.00	0	0.00	0	0.00
WA Private Bt.	4,658	289	0.06	98	0.02	387	0.08
WA Total	4,658	289	0.06	98	0.02	387	0.08
Week 34 Total	11,784	908	0.08	273	0.02	1,181	0.10

Table 15. (Continued)

Week	Angler Trips	Chinook		Coho		Total	
		Catch	Catch/ Trip	Catch	Catch/ Trip	Catch	Catch/ Trip
35 (Aug 22-28)							
OR Bank	147	0	0.00	25	0.17	25	0.17
OR Charter Bt.	0	0	0.00	0	0.00	0	0.00
OR Private Bt.	11,132	4,370	0.39	1,712	0.15	6,082	0.55
OR Total	11,279	4,370	0.39	1,737	0.15	6,107	0.54
WA Bank	0	0	0.00	0	0.00	0	0.00
WA Charter Bt.	0	0	0.00	0	0.00	0	0.00
WA Private Bt.	6,628	1,405	0.21	797	0.12	2,202	0.33
WA Total	6,628	1,405	0.21	797	0.12	2,202	0.33
Week 35 Total	17,907	5,775	0.32	2,534	0.14	8,309	0.46
36 (Aug 29-Sep 4)							
OR Bank	302	3	0.01	11	0.04	14	0.05
OR Charter Bt.	11	2	0.18	3	0.27	5	0.45
OR Private Bt.	7,425	1,175	0.16	1,609	0.22	2,784	0.37
OR Total	7,738	1,180	0.15	1,623	0.21	2,803	0.36
WA Bank	0	0	0.00	0	0.00	0	0.00
WA Charter Bt.	6	2	0.33	10	1.67	12	2.00
WA Private Bt.	4,761	400	0.08	799	0.17	1,199	0.25
WA Total	4,767	402	0.08	809	0.17	1,211	0.25
Week 36 Total	12,505	1,582	0.13	2,432	0.19	4,014	0.32
37 (Sep 5-11)							
OR Bank	222	0	0.00	0	0.00	0	0.00
OR Charter Bt.	57	9	0.16	30	0.53	39	0.68
OR Private Bt.	3,555	398	0.11	1,135	0.32	1,533	0.43
OR Total	3,834	407	0.11	1,165	0.30	1,572	0.41
WA Bank	0	0	0.00	0	0.00	0	0.00
WA Charter Bt.	170	3	0.02	24	0.14	27	0.16
WA Private Bt.	1,574	131	0.08	204	0.13	335	0.21
WA Total	1,744	134	0.08	228	0.13	362	0.21
Week 37 Total	5,578	541	0.10	1,393	0.25	1,934	0.35

Table 15. (Continued)

Week	Angler Trips	Chinook		Coho		Total	
		Catch	Catch/ Trip	Catch	Catch/ Trip	Catch	Catch/ Trip
38 (Sep 12-18)							
OR Bank	126	0	0.00	0	0.00	0	0.00
OR Charter Bt.	48	6	0.13	7	0.15	13	0.27
OR Private Bt.	865	24	0.03	145	0.17	169	0.20
OR Total	1,039	30	0.03	152	0.15	182	0.18
WA Bank	0	0	0.00	0	0.00	0	0.00
WA Charter Bt.	0	0	0.00	0	0.00	0	0.00
WA Private Bt.	648	20	0.03	61	0.09	81	0.13
WA Total	648	20	0.03	61	0.09	81	0.13
Week 38 Total	1,687	50	0.03	213	0.13	263	0.16
39 (Sep 19-25)							
OR Bank	40	0	0.00	0	0.00	0	0.00
OR Charter Bt.	0	0	0.00	0	0.00	0	0.00
OR Private Bt.	187	0	0.00	3	0.02	3	0.02
OR Total	227	0	0.00	3	0.01	3	0.01
WA Bank	0	0	0.00	0	0.00	0	0.00
WA Charter Bt.	0	0	0.00	0	0.00	0	0.00
WA Private Bt.	147	2	0.01	4	0.03	6	0.04
WA Total	147	2	0.01	4	0.03	6	0.04
Week 39 Total	374	2	0.01	7	0.02	9	0.02
40 (Sep 26-Oct 2)							
OR Bank	0	0	0.00	0	0.00	0	0.00
OR Charter Bt.	0	0	0.00	0	0.00	0	0.00
OR Private Bt.	91	0	0.00	0	0.00	0	0.00
OR Total	91	0	0.00	0	0.00	0	0.00
WA Bank	0	0	0.00	0	0.00	0	0.00
WA Charter Bt.	0	0	0.00	0	0.00	0	0.00
WA Private Bt.	28	0	0.00	0	0.00	0	0.00
WA Total	28	0	0.00	0	0.00	0	0.00
Week 40 Total	119	0	0.00	0	0.00	0	0.00

Table 15. (Continued)

Week	Angler Trips	Chinook		Coho		Total	
		Catch	Catch/ Trip	Catch	Catch/ Trip	Catch	Catch/ Trip
41-44 (Oct 3-Oct 31)							
OR Bank	0	0	0.00	0	0.00	0	0.00
OR Charter Bt.	0	0	0.00	0	0.00	0	0.00
OR Private Bt.	0	0	0.00	0	0.00	0	0.00
OR Total	0	0	0.00	0	0.00	0	0.00
WA Bank	0	0	0.00	0	0.00	0	0.00
WA Charter Bt.	0	0	0.00	0	0.00	0	0.00
WA Private Bt.	0	0	0.00	0	0.00	0	0.00
WA Total	0	0	0.00	0	0.00	0	0.00
Weeks 41-44 Total	0	0	0.00	0	0.00	0	0.00
Season Totals							
OR Bank	935	6	0.01	36	0.04	42	0.04
OR Charter Bt.	135	18	0.13	51	0.38	69	0.51
OR Private Bt.	33,051	6,875	0.21	4,785	0.14	11,660	0.35
OR Total	34,121	6,899	0.20	4,872	0.14	11,771	0.34
WA Bank	0	0	0.00	0	0.00	0	0.00
WA Charter Bt.	183	5	0.03	34	0.19	39	0.21
WA Private Bt.	20,879	2,383	0.11	1,972	0.09	4,355	0.21
WA Total	21,062	2,388	0.11	2,006	0.10	4,394	0.21
2005 Buoy 10 Total	55,183	9,287	0.17	6,878	0.12	16,165	0.29

Table 16. Buoy 10 Fishery Effort and Catch 2005 and 1982-2004 Comparison

Fishery	Chinook			Coho		Total	
	Angler Trips	Catch	Catch/Trip	Catch	Catch/Trip	Catch	Catch/Trip
2005 Buoy 10 Total	55,183	9,287	0.17	6,878	0.12	16,165	0.29
2004 Buoy 10 Total	68,818	16,016	0.23	15,169	0.22	31,185	0.45
2003 Buoy 10 Total	88,827	16,316	0.18	54,440	0.61	70,756	0.80
2002 Buoy 10 Total	84,434	19,438	0.23	6,205	0.07	25,643	0.30
2001 Buoy 10 Total	125,829	12,709	0.10	132,035	1.05	144,744	1.15
2000 Buoy 10 Total	72,518	6,085	0.08	21,478	0.30	27,563	0.38
1999 Buoy 10 Total	49,568	9,850	0.20	8,960	0.18	18,810	0.38
1998 Buoy 10 Total	29,998	5,784	0.19	3,175	0.11	8,959	0.30
1998 Astoria Bridge Total	11,044	3,484	0.32	3,142	0.28	6,626	0.60
1998 Grand Total	41,042	9,268	0.23	6,317	0.15	15,585	0.38
1997 Buoy 10 Total	55,725	13,153	0.24	20,357	0.37	33,510	0.60
1996 Buoy 10 Total	18,034	1,409	0.08	4,537	0.25	5,946	0.33
1995 Buoy 10 Total	25,186	607	0.02	5,026	0.20	5,633	0.22
1994 Buoy 10 Total	9,253	0	0.00	1,795	0.19	1,795	0.19
1993 Buoy 10 Total	75,774	5,288	0.07	20,932	0.28	26,220	0.35
1992 Buoy 10 Total	115,481	10,655	0.09	43,082	0.37	53,737	0.47
1991 C&H Total	2,759	39	0.01	1,151	0.42	1,190	0.43
1991 Buoy 10 Total	168,921	11,549	0.07	207,527	1.23	219,076	1.30
1991 Grand Total	171,680	11,588	0.07	208,678	1.22	220,266	1.28
1990 C&H Total	3,225	54	0.02	28	0.01	82	0.03
1990 Buoy 10 Total	76,411	5,149	0.07	18,435	0.24	23,584	0.31
1990 Grand Total	79,636	5,203	0.07	18,463	0.23	23,666	0.30
1989 C&H Total	7,922	492	0.06	3,195	0.40	3,687	0.47
1989 Buoy 10 Total	144,848	15,900	0.11	78,720	0.54	94,620	0.65
1989 Grand Total	152,770	16,392	0.11	81,915	0.54	98,307	0.64
1988 Buoy 10 Total	186,051	30,770	0.17	143,417	0.77	174,187	0.94
1987 Buoy 10 Total	124,594	42,100	0.34	47,170	0.38	89,270	0.72
1986 Buoy 10 Total	102,190	15,600	0.15	120,422	1.18	136,022	1.33
1985 Buoy 10 Total	32,156	2,655	0.08	25,387	0.79	28,042	0.87
1984 Buoy 10 Total	67,365	12,177	0.18	74,370	1.10	86,547	1.28
1983 Buoy 10 Total	7,128	604	0.08	3,574	0.50	4,178	0.59
1982 Buoy 10 Total	17,336	723	0.04	18,857	1.09	19,580	1.13

Average daily effort for the Buoy 10 salmon fishery is dependent on catch rate and to some extent on the number of open fishing days, both in the ocean and at Buoy 10. Effort remained high through Labor Day weekend during the 2005 Buoy 10 fishery. The peak day during the 2005 fishery was Saturday August 27, when private boat effort was just under 3,600 anglers compared to the record high effort of 7,500 boat anglers on August 13, 1988 and August 19, 1989.

During the 2005 Buoy 10 fishery, Oregon angler trips outnumbered Washington angler trips 34,121 (62%) to 21,062 (38%), and Oregon anglers caught 74% of the chinook and 70% of the coho. The combined salmon catch rate for Oregon anglers was 0.34 fish per trip compared to the combined catch rate of 0.21 fish per trip for Washington anglers, which may be due in part to the large number of guided trips on the Oregon side of the river. In 2005 the charter fleet produced 318 trips (0.6% of Buoy 10 total) with a catch of 85 coho (1.2%) and 23 chinook (0.2%). The bank fishery at Clatsop Spit produced 935 trips (1.7% of Buoy 10 total) with a catch of 36 coho (0.5%) and 6 chinook. Private boat anglers made 53,930 trips (97.7%) and caught 6,757 coho (98.2%) and 9,258 chinook (99.7%). Washington bank angler trips and catch made from the North Jetty during July 3-September 30, 2005 were included in the ocean fishery totals.

Coho Catch

The catch at Buoy consists primarily of early stock coho, with some late coho and a few coastal stocks mixed in; however the majority of late stock coho enter the Columbia River after October 1, when angler interest in the Buoy 10 fishery is very low. The final coho catch for the 2005 Buoy 10 season was 6,878 kept coho, which was disappointing considering that the final 2005 coho run entering the Columbia was 346,800 adults. Oregon anglers released 1,934 coho (28.4%), which included a mix of unclipped coho and coho less than the legal size limit (16”).

Chinook Catch

The 2005 Buoy 10 chinook catch was 9,287. A high proportion of tule stock (BPH and LRH) fish were caught relative to the overall chinook run size entering the Columbia River. Tule fall chinook seem to stage in the estuary for a longer period than bright stocks of fall chinook in most years and generally migrate upstream after a rainfall event. Their longer residence time in the estuary makes tules more “catchable” for Buoy 10 anglers than bright fall chinook. Chinook stock composition for the 2005 Buoy 10 fishery is displayed in Appendix Table 12.

ACKNOWLEDGMENTS

Lower Columbia Fisheries

Numerous personnel of ODFW and WDFW supervised by John North and Kevleen Melcher (ODFW) and Joe Hymer (WDFW) gathered the data for this sampling program. We thank the samplers who gathered the catch and effort data and collected biological samples. Jimmy Watts and Tanna Takata (ODFW) processed the data to arrive at catch and effort estimates and sampling summaries. John Leppink (ODFW) handled the mark sample processing and Kelly Harlan (WDFW) provided the chinook stock composition analysis. Senior Trooper Chris Culp (Oregon State Police) and Jack Christopherson (Wilderness Air Charters) conducted aerial counts from OSP or chartered aircraft.

Buoy 10 Fishery

John North and Wendy Beeghley (WDFW) supervised numerous ODFW and WDFW personnel who gathered the catch and effort data and collected biological samples. Again, we thank the field personnel. Tom Neill and Devin Volenec (ODFW) and Wendy Beeghly produced the catch and effort statistics. John Leppink and Lynn Anderson (WDFW) were responsible for processing the CWT recovery information. Kelly Harlan (WDFW) provided the chinook stock composition analysis.

APPENDIX TABLES

Appendix Table 1. Salmon and Steelhead of the Columbia River Basin Listed Under the Federal Endangered Species Act, 2005

Species- ESU	Designation	Effective Date
<u>Sockeye</u>		
Snake River	Endangered	December 20, 1991
<u>Chinook</u>		
Snake River Fall	Threatened	May 22, 1992
Snake River Spring/Summer	Threatened	May 22, 1992
Lower Columbia River Spring/Fall	Threatened	May 24, 1999
Upper Willamette River Spring	Threatened	May 24, 1999
Upper Columbia River Spring	Endangered	May 24, 1999
<u>Steelhead</u>		
Snake River	Threatened	October 17, 1997
Upper Columbia River	Endangered	October 17, 1997
Lower Columbia River	Threatened	May 18, 1998
Middle Columbia River	Threatened	May 24, 1999
Upper Willamette River	Threatened	May 24, 1999
<u>Chum</u>		
Columbia River	Threatened	May 24, 1999
<u>Coho</u>		
Lower Columbia River	Threatened	August 26, 2005

Appendix Table 2. Lower Columbia River Angling Seasons and Closures, 2005.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Spring Chinook 1/	Open 1/1-4/20 and June 4-15				Closed	Open	N/A					
Summer Chinook 2/	N/A					Open 6/16-7/31		N/A				
Fall Chinook	N/A							Open 8/1-9/17		Closed	Open 10/20-12/31	
Coho 3/	Open 1/1- 3/31			Closed				Open 8/1-12/31				
Steelhead 4/	Open 1/1-4/20			Closed		Open 5/22-12/31						
Sockeye	Closed											
Chum	Closed											
Sturgeon 5/	Split season above and below Wauna powerlines - see footnote.											
Shad 6/	Open 1/1-4/20			Closed		Open 5/22-12/31						
Trout 7/	Open 1/1-3/31			Closed			Open 5/28-12/31					

- 1/ Beginning in 2005, the spring chinook management period was extended from May 31 to June 15. The spring chinook fishery was open from Buoy 10 to the I-5 Bridge during January 1-April 20 and June 4-15 for adipose fin-clipped spring chinook. The area from I-5 to Rooster Rock was open seven days per week during March 16-April 20 and June 4-15. The area from Rooster Rock to Bonneville Dam was open three days per week during March 16-April 20 and seven days per week during June 4-15. Adipose fin-clipped spring chinook jacks were allowed May 22-June 15 below the I-5 Bridge and June 4-15 above the I-5 Bridge.
- 2/ The summer chinook fishery was open to the retention of adipose fin-clipped chinook during June 16-July 31 and any chinook during July 1-31.
- 3/ Only adipose fin-clipped coho could be retained.
- 4/ The retention of adipose fin-clipped steelhead was allowed during the spring chinook fishery. The season for adipose fin-clipped summer steelhead opened May 22 below the I-5 Bridge and June 4 above the I-5 Bridge.
- 5/ The retention of sturgeon was allowed seven days per week during January 1-April 30, May 14-July 10, and July 15-August 15 below the Wauna powerlines; and three days per week during January 1-July 31 and October 1-December 31 from Wauna upstream to Bonneville Dam.
- 6/ Shad retention was allowed during the spring chinook fishery; however the regular shad season opener was delayed until May 22 below Bonneville Dam.
- 7/ Only adipose fin-clipped cutthroat could be retained.

Appendix Table 3. Number and Percentage of Anglers Sampled Monthly on the Lower Columbia River, 2005. 1/

Month	Anglers Sampled				Percentage of Total Anglers			
	Boat	Bank		Total	Boat	Bank		Total
		OR	WA			OR	WA	
Feb	1,031	412	62	1,505	15.7%	15.5%	2.5%	12.9%
Mar	7,111	909	1,061	9,081	25.7%	15.8%	18.8%	23.2%
Apr	13,249	1,495	1,513	16,257	23.9%	15.5%	20.0%	22.4%
May	5,010	586	349	5,945	20.3%	15.4%	5.8%	17.3%
June	14,773	1,877	3,453	20,103	27.8%	20.7%	23.5%	26.2%
July	10,803	699	973	12,475	29.2%	16.9%	10.9%	24.9%
Aug	8,363	647	1,640	10,650	29.1%	25.1%	28.7%	28.8%
Sept	11,941	331	1,217	13,489	25.4%	16.5%	31.7%	25.5%
Oct	2,449	2,340	695	5,484	24.5%	35.1%	13.8%	25.3%
Total	74,730	9,296	10,963	94,989	25.7%	20.1%	18.3%	24.0%

Feb-Oct Totals

1977	8,788	6,267	6,501	21,556	9.5%	9.8%	10.7%	9.8%
1978	6,668	5,466	7,640	19,774	7.6%	8.4%	7.7%	8.0%
1979	7,153	5,685	7,323	20,161	9.6%	9.2%	10.6%	9.8%
1980	7,760	6,670	4,152	18,582	11.1%	12.3%	7.9%	10.5%
1981	7,957	5,237	3,385	16,579	9.3%	8.4%	5.2%	7.8%
1982	6,845	8,102	11,681	26,628	9.0%	12.9%	17.3%	12.9%
1983	9,349	7,495	11,880	28,724	10.4%	11.1%	15.0%	12.1%
1984	14,947	8,167	11,265	34,379	14.2%	11.5%	14.8%	13.6%
1985	19,877	6,498	8,837	35,212	16.9%	10.2%	13.1%	14.1%
1986	22,255	8,985	10,985	42,225	17.8%	12.0%	14.3%	15.2%
1987	29,728	9,130	10,437	49,295	18.2%	13.0%	13.4%	16.0%
1988	23,325	7,759	11,357	42,441	16.0%	12.0%	15.3%	15.0%
1989	22,867	7,520	11,392	41,779	16.4%	10.8%	15.5%	14.8%
1990	25,195	7,614	8,698	41,507	15.2%	10.6%	10.4%	12.9%
1991	24,481	6,816	8,069	39,366	15.5%	10.7%	10.2%	13.1%
1992	33,204	12,219	8,218	53,641	17.9%	18.0%	10.6%	16.2%
1993	38,826	13,841	9,740	62,407	21.8%	21.7%	12.3%	19.4%
1994	32,104	10,880	8,899	51,883	19.3%	24.4%	14.3%	19.0%
1995	32,557	6,887	6,026	45,470	19.5%	15.5%	9.7%	16.6%
1996	39,945	8,342	9,316	57,603	28.1%	17.2%	14.6%	22.7%
1997	36,473	11,861	7,756	56,090	23.7%	23.1%	11.2%	20.4%
1998	38,083	10,602	6,784	55,469	20.9%	23.5%	13.6%	20.0%
1999	39,528	11,201	12,096	62,825	20.7%	30.9%	15.7%	22.6%
2000	57,414	16,315	11,947	85,676	29.5%	33.3%	20.3%	28.3%
2001	64,722	17,831	17,164	99,267	21.9%	22.8%	17.8%	21.2%
2002	73,082	19,037	20,082	112,201	23.1%	24.6%	22.0%	23.1%
2003	62,477	18,829	13,788	95,094	20.3%	24.9%	15.3%	20.1%
2004	50,645	10,960	12,279	73,884	19.4%	19.0%	16.3%	18.7%
2005	74,730	9,296	10,963	94,989	25.7%	20.1%	18.3%	24.0%

1/ Does not include charter boats.

Appendix Table 4. Oregon and Washington Bank Angler Catch and Effort by Month on the Lower Columbia River, 2005. 1/

Oregon Bank

Month	Angler Trips				Chinook 2/		Steelhead 3/		Coho		White Sturgeon	Shad Kept	Cutthroat
	Salmonid	Sturgeon	Shad	Total	Adults	Jacks	Kept	Released	Adults	Jacks			
January		304		304							20		
February	1,826	840		2,666	7		16	34					
March	5,227	525		5,752	98		87	53			6		
April	8,073	1,585		9,658	502		89				402		
May	1,592	258	1,952	3,802		8	111	17			21	16,222	
June	3,711	364	4,986	9,061	173		296	61			29	45,557	
July	3,672	246	213	4,131	150		651	418				574	
August	2,371	208		2,579	40		472	157					
September	1,855	155		2,010	206	7	99	33	7				
October	677	5,985		6,662	174		12	8	14		2,520		
November		2,479		2,479							812		
December		794		794							33		
OR Total 4/	29,004	13,743	7,151	49,898	1,350	15	1,833	781	21		3,843	62,353	

Washington Bank

Month	Angler Trips				Chinook 2/		Steelhead 3/		Coho		White Sturgeon	Shad Kept	Cutthroat
	Salmonid	Sturgeon	Shad	Total	Adults	Jacks	Kept	Released	Adults	Jacks			
January		236		236							6		
February	1,528	931		2,459				7					
March	5,303	349		5,652	154		9	18					
April	6,383	1,173		7,556	741		43	10			141		
May	2,174	1,167	2,684	6,025		9	263	22			5	21,885	
June	7,788	1,374	5,536	14,698	554	2	747	161			49	47,321	
July	7,983	925		8,908	129		799	313			45		
August	5,430	284		5,714	99		496	262					2
September	3,739	95		3,834	496	14	28	20	4				
October	616	4,405		5,021							1,643		
November		1,116		1,116							294		
December		381		381							13		
WA Total 4/	40,944	12,436	8,220	61,600	2,173	25	2,385	813	4		2,196	69,206	2
Bank Total 4/	69,948	26,179	15,371	111,498	3,523	40	4,218	1,594	25		6,039	131,559	2

1/ Kept fish only unless noted otherwise. See Appendix Table 2 for the dates of angling closures.

2/ Catch of chinook stocks are differentiated by run timing as follows: Spring chinook February 1-June 15; Summer chinook June 16-July 31; Fall chinook August-October.

3/ Catch of steelhead stocks are differentiated by run timing as follows: Winter steelhead November-April; Summer steelhead May-October.

4/ Total effort is incomplete due to no salmonid sampling during November, December, and January.

Appendix Table 5. Oregon and Washington Boat Angler Catch and Effort by Month on the Lower Columbia River, 2005. 1/

Oregon Boat													
Month	Angler Trips				Chinook 2/		Steelhead 3/		Coho		White Sturgeon	Shad Kept	Cutthroat
	Salmonid	Sturgeon	Shad	Total	Adults	Jacks	Kept	Released	Adults	Jacks			
January		1,153		1,153							5		
February	1,804	1,339		3,143	17		4						
March	11,545	789		12,334	725		11	6			7		
April	24,505	2,404		26,909	3,799	7	26	9			470		
May	136	11,039	491	11,666			7				2,544	3,894	
June	5,063	16,679	2,404	24,146	323	5	229	80			3,609	16,994	
July	5,978	10,971	11	16,960	283	14	536	437			2,443	8	
August	9,976	3,033		13,009	1,638	17	573	252	9		622		
September	22,784	131		22,915	6,600	61	63	39	168	4			
October	1,149	4,182		5,331	81	3	18	8	74	6	731		
November		1,516		1,516							236		
December		668		668							25		
OR Total 4/	82,940	53,904	2,906	139,750	13,466	107	1,467	831	251	10	10,692	20,896	

Washington Boat													
Month	Angler Trips				Chinook 2/		Steelhead 3/		Coho		White Sturgeon	Shad Kept	Cutthroat
	Salmonid	Sturgeon	Shad	Total	Adults	Jacks	Kept	Released	Adults	Jacks			
January		1,363		1,363							6		
February	2,393	1,022		3,415	15		6						
March	14,790	597		15,387	922		18	9			3		
April	26,744	1,843		28,587	3,611	4	33	9			226		
May	180	12,429	358	12,967			26				2,591	2,485	
June	6,754	20,473	1,732	28,959	343	9	376	108			5,390	9,945	
July	8,048	11,999	3	20,050	340	20	714	506			3,474	4	
August	12,760	2,976		15,736	1,920	19	789	343	9		772		
September	23,989	92		24,081	6,960	62	71	49	210	6			
October	1,248	3,426		4,674	42	1	20	11	91	5	481		
November		932		932							112		
December		526		526							16		
WA Total 4/	96,906	57,678	2,093	156,677	14,153	115	2,053	1,035	310	11	13,071	12,434	
Boat Total 4/	179,846	111,582	4,999	296,427	27,619	222	3,520	1,866	561	21	23,763	33,330	

1/ Kept fish only unless noted otherwise. See Appendix Table 2 for the dates of angling closures.

2/ Catch of chinook stocks are differentiated by run timing as follows: Spring chinook February 1-June 15; Summer chinook June 16-July 31; Fall chinook August-October.

3/ Catch of steelhead stocks are differentiated by run timing as follows: Winter steelhead November-April; Summer steelhead May-October.

4/ Total effort is incomplete due to no salmonid sampling during November, December, and January.

Appendix Table 6. Oregon Angler Catch and Effort by River Section and Method on the Lower Columbia River, February-October 2005.

Oregon Bank														
River Section	Angler Trips				Chinook		Steelhead		Coho		White	Shad		Cutthroat
	Salmonid	Sturgeon	Shad	Total	Adults	Jacks	Kept	Released	Adults	Jacks	Sturgeon	Kept	Released	
1	7,147	8,322	7,021	22,490	682	7	1,166	591	7		2,923	62,353	1,915	
2	138	55		193					14					
3		29		29										
4	6,118	672		6,790	257		34	18			45			
5	1,174	448	91	1,713	38						10			
6	110	146	39	295										
7	3,966	77		4,043	118		177	60						
8	6,180	102		6,282	146	8	278	53						
9	3,468			3,468	67		116	18						
10	703	315		1,018	42		62	41						
OR Bank	29,004	10,166	7,151	46,321	1,350	15	1,833	781	21		2,978	62,353	1,915	
Oregon Boat														
River Section	Angler Trips				Chinook		Steelhead		Coho		White	Shad		Cutthroat
	Salmonid	Sturgeon	Shad	Total	Adults	Jacks	Kept	Released	Adults	Jacks	Sturgeon	Kept	Released	
1	7,207	13,704	1,751	22,662	1,857	18	205	227			2,573	16,139	3,820	
2	13,697	3,005	976	17,678	1,390	2	101	75	78	6	180	4,185	1,106	
3	7,260	2,631	16	9,907	1,121	5	13				239		68	
4	7,314	1,263	9	8,586	1,212	5	35	37	15		75	20		
5	14,004	1,489	81	15,574	2,400	21	123	81	24		64	255	9	
6	5,914	1,012	62	6,988	1,216	4	30	11	11		60	158	3	
7	10,045	251	7	10,303	2,110	35	507	245	97	4	12	125		
8	4,774	525	4	5,303	468	3	60	21	6		47	14		
9	2,304	285		2,589	262	4	199	38	1		31			
10 Private	10,421	25,588		36,009	1,430	10	194	96	19		6,841			
10 Charter		814		814							304			
OR Boat	82,940	50,567	2,906	136,413	13,466	107	1,467	831	251	10	10,426	20,896	5,006	
OR Total	111,944	60,733	10,057	182,734	14,816	122	3,300	1,612	272	10	13,404	83,249	6,921	

1/ Numbers are for kept fish only unless noted otherwise.

Appendix Table 7. Washington Angler Catch and Effort by River Section and Method on the Lower Columbia River, February-October 2005.

Washington Bank

River Section	Angler Trips				Chinook		Steelhead		Coho		White	Shad		Cutthroat
	Salmonid	Sturgeon	Shad	Total	Adults	Jacks	Kept	Released	Adults	Jacks	Sturgeon	Kept	Released	
1	4,407	5,513	7,803	17,723	559		137	110			1,777	68,081	2,562	
2	83	368	260	711							14	961	82	
3	268	259		527							24			
4	7,767	772	59	8,598	588		90	35				38		
5	5,033	491		5,524	204	10	128	72						
6	5,605	60	67	5,732	524	6	125	60						
7	245	14		259			6	4						
8	12,209	1,487	31	13,727	213		1,096	386	4			126		
9	3,922	9		3,931	77		453	103						2
10	1,405	1,730		3,135	8	9	350	43			68			
WA Bank	40,944	10,703	8,220	59,867	2,173	25	2,385	813	4		1,883	69,206	2,644	2

Washington Boat

River Section	Angler Trips				Chinook		Steelhead		Coho		White	Shad		Cutthroat
	Salmonid	Sturgeon	Shad	Total	Adults	Jacks	Kept	Released	Adults	Jacks	Sturgeon	Kept	Released	
1	3,085	5,866	748	9,699	796	7	87	97			1,103	6,917	1,637	
2	13,689	2,992	974	17,655	1,384	2	98	75	78	5	178	4,184	1,105	
3	3,643	1,139	9	4,791	536	2	4				109		40	
4	9,237	1,995	20	11,252	1,440	5	42	48	14		156	40		
5	13,705	1,146	67	14,918	2,159	18	107	65	20		50	218	7	
6	9,790	2,933	206	12,929	1,708	5	57	16	15		189	560	11	
7	16,421	1,016	26	17,463	2,899	53	878	453	138	6	56	420		
8	14,547	3,994	43	18,584	1,537	11	394	148	26		411	95		
9	2,296	277		2,573	259	4	196	38	1		29			
10 Private	10,415	25,584		35,999	1,428	8	190	95	18		6,839			
10 Charter	78	7,915		7,993	7						3,817			
WA Boat	96,906	54,857	2,093	153,856	14,153	115	2,053	1,035	310	11	12,937	12,434	2,800	
WA Total	137,850	65,560	10,313	213,723	16,326	140	4,438	1,848	314	11	14,820	81,640	5,444	2

1/ Numbers are for kept fish only unless noted otherwise.

Appendix Table 8. Mark Sampling Numbers and Percentages by Species in the Lower Columbia Recreational Fishery, 2005.

Species/ Month	Kept Catch	Number Mark- Sampled	Number Ad-CWT Marks 1/	Number Other Marks	Percentage Sampled	Voluntary Ad-CWT Marks
<u>Spring Chinook Adults</u>						
Feb	39	3	0	0	7.7%	0
Mar	1,899	388	60	0	20.4%	0
Apr	8,653	1,935	347	0	22.4%	1
June 1-15	724	101	35	0	14.0%	0
<u>Spring Chinook Jacks</u>						
Apr	11	3	1	0	27.3%	0
May	17	2	0	0	11.8%	0
June 1-15	11	0	0	0	0.0%	0
<u>Summer Chinook Adults</u>						
June 16-30	669	102	39	0	15.2%	0
July	902	140	22	0	15.5%	0
<u>Summer Chinook Jacks</u>						
June 16-30	5	0	0	0	0.0%	0
July	34	6	4	0	17.6%	0
<u>Fall Chinook Adults</u>						
Aug	3,697	909	40	0	24.6%	0
Sept	14,262	3,544	85	0	24.8%	0
Oct	297	57	0	0	19.2%	0
<u>Fall Chinook Jacks</u>						
Aug	36	10	0	0	27.8%	0
Sept	144	38	2	0	26.4%	0
Oct	4	1	0	0	25.0%	0
<u>Coho Adults</u>						
Aug	18	7	0	0	38.9%	0
Sept	389	88	3	0	22.6%	0
Oct	179	28	0	0	15.6%	0
<u>Coho Jacks</u>						
Sept	10	4	0	0	40.0%	0
Oct	11	2	0	0	18.2%	0
<u>Winter Steelhead</u>						
Feb	26	3	0	0	11.5%	0
Mar	125	20	1	1	16.0%	0
Apr	191	32	0	0	16.8%	0
<u>Summer Steelhead</u>						
May	407	34	1	0	8.4%	0
June	1,648	210	7	0	12.7%	0
July	2,700	257	18	9	9.5%	0
Aug	2,330	529	24	18	22.7%	1
Sept	261	54	2	1	20.7%	0
Oct	50	7	2	0	14.0%	0
Totals:	39,749	8,514	693	29	21.4%	2

1/ In the case of steelhead, includes LV and AD-LV marks. CWTs in mass marked spring chinook, summer chinook, and coho salmon were detected with handheld metal detectors (wands).

Appendix Table 9. White Sturgeon Tag Sampling Numbers in the Lower Columbia Recreational Fishery, 2005 and 1982-2004 Comparison (Includes Charter Boats). 1/

Month	Sublegal		Legal		Legals Released		Oversize	
	Number Sampled	Number Tagged	Number Sampled	Number Tagged	Number Sampled	Number Tagged	Number Sampled	Number Tagged
Jan	573	0	9	0	1	0	3	0
Feb	180	0	0	0	0	0	0	0
Mar	672	0	3	0	2	0	2	0
Apr	2,657	1	191	2	121	0	16	0
May	12,000	30	1,489	46	110	3	160	1
June	31,568	121	4,637	169	298	4	493	4
July	18,520	85	3,002	95	205	0	363	4
Aug	4,211	17	799	24	59	0	111	0
Sept	279	0	0	0	26	0	4	0
Oct	7,052	1	965	13	73	0	204	1
Nov	2,535	1	239	3	36	0	114	1
Dec	477	0	14	0	1	0	13	0
Total	80,724	256	11,348	352	932	7	1,483	11
<u>Annual Totals</u>								
1982	6,997	11	1,371	6	-	-	28	0
1983	8,673	13	1,898	12	-	-	61	0
1984	13,403	20	5,445	32	-	-	57	0
1985	16,897	48	9,060	78	-	-	104	0
1986	16,073	38	10,215	210	-	-	161	1
1987	31,930	89	14,672	415	421	4	109	1
1988	32,057	53	9,840	306	297	7	124	0
1989	38,844	319	4,406	146	196	6	114	3
1990	37,877	306	3,168	93	31	1	97	0
1991	37,872	182	3,160	136	142	2	118	0
1992	51,561	74	6,901	255	885	17	531	6
1993	52,999	74	7,562	257	1,339	18	513	0
1994	45,600	34	7,946	166	1,212	1	1,137	0
1995	69,787	33	14,039	264	3,263	16	1,024	3
1996	54,078	152	13,487	329	2,271	24	1,495	3
1997	65,967	90	15,377	504	972	20	1,847	4
1998	71,154	92	12,343	488	1,089	17	1,604	3
1999	65,846	181	13,288	539	1,182	29	1,662	8
2000	84,701	123	15,672	672	1,130	19	2,342	12
2001	67,234	103	13,945	523	1,801	32	1,922	18
2002	75,099	47	13,642	491	1,888	16	1,528	20
2003	59,254	52	9,376	314	1,406	15	983	17
2004	64,862	75	8,671	262	594	5	881	12
2005	80,724	256	11,348	352	932	7	1,483	11

1/ Incidence of tags on sublegals, legals released, and oversize sturgeon are based on angler interviews.

Appendix Table 10. Angler Catch of Adult Chinook by Month on the Lower Columbia River, 1969-2005.
1/

Year	Spring				Summer		Fall			Total
	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	
1969	NS	5,137	8,332	1,639	456	281	93	1,115	NS	17,053
1970	NS	4,945	24,958	1,443	1,253	544	209	3,025	NS	36,377
1971	NS	6,540	14,735	768	2,705	621 2/	0 2/	3,833 2/	NS	29,202
1972	NS	212	22,029	710	1,417	568 2/	315 2/	3,353 2/	NS	28,604
1973	NS	7,368	29,428	278	938	586 2/	363 2/	2,051 2/	NS	41,012
1974	NS	2,222	10,043	2,121	-	-	413	1,698	NS	16,497
1975	65	2,325	-	-	-	-	246	1,615	NS	4,251
1976	NS	3,154	-	-	-	-	414	1,256	0	4,824
1977	NS	3,058	11,977	2,234	-	-	63	1,638	0	18,970
1978	294	4,709	-	-	-	-	225	1,437	0	6,665
1979	0	1,719	-	-	-	-	259	821	0	2,799
1980	0	816	-	-	-	-	236	919	0	1,971
1981	41	3,604	-	-	-	-	62	960	0	4,667
1982	27	2,788	-	-	-	-	110	-	7	2,932
1983	92	2,675	-	-	-	-	82	810	70	3,729
1984	0	1,914	-	-	-	-	412	1,037	23	3,386
1985	2	1,438	-	-	-	-	645	1,387	0	3,472
1986	10	1,869	3,775	-	-	-	313	1,827	6	7,800
1987	23	2,664	-	-	-	-	584	3,744	29	7,044
1988	83	4,538	-	-	-	-	896	3,535	12	9,064
1989	0	1,165	1,831	-	-	-	1,504	3,927	92	8,519
1990	7	9,032	3,161	-	-	-	727	2,728	113	15,768
1991	46	5,551	-	-	-	-	863	1,715	62	8,237
1992	70	5,207	-	-	-	-	350	1,459	62	7,148
1993	96	518	1,248	-	-	-	795	2,784	115	5,556
1994	0	1,460	544	-	-	-	-	-	229	2,233
1995	0	-	-	-	-	-	-	4,412	151	4,563
1996	0	0	-	-	-	-	4,016	5,144	164	9,324
1997	0	0	-	-	-	-	3,343	4,668	436	8,447
1998	0	55	-	-	-	-	1,888	4,931	174	7,048
1999	0	0	-	-	-	-	2,476	5,381	795	8,652
2000	0	322	-	-	-	-	3,476	3,773	371	7,942
2001	84	4,550	21,077	-	-	-	1,453	7,221	681	35,066
2002	18	2,036	14,428	3,982	472	880	5,133	15,147	902	42,998
2003	209	5,597	9,110	1,976	1,348	506	3,894	21,607	694	44,941
2004	48	2,614	21,078	-	619	500	1,976	15,129	614	42,578
2005	39	1,899	8,653	-	1,393	902	3,697	14,262	297	31,142

1/ Numbers are for kept chinook. See Appendix Table 2 (Appendix Table 1 in past reports) for dates of salmon angling closures. NS signifies no sampling during the month. Dashes signify month was a closed season.

2/ Estimates are incomplete due to no catch data for the Washington bank fisheries of July-September 1971-1973.

Appendix Table 11. Number of Adult Chinook Released by Lower Columbia River Anglers by Month, 1986-2005. 1/

Year	Spring 2/				Summer 3/		Fall 4/			Total
	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	
1986	0	0	0	41	0	0	0	0	0	41
1987	0	0	-	0	18	46	0	0	0	64
1988	0	0	-	26	44	52	0	0	0	122
1989	0	0	0	74	102	117	0	0	0	293
1990	0	0	0	56	59	30	0	0	0	145
1991	0	0	-	73	27	11	0	0	0	111
1992	0	0	-	0	91	79	0	0	0	170
1993	0	0	0	77	119	88	0	0	0	284
1994	0	0	0	63	134	208	837	2,272	163	3,677
1995	0	-	-	94	55	151	529	0	0	829
1996	0	0	-	133	207	166	0	0	0	506
1997	0	0	-	82	149	106	0	0	0	337
1998	0	0	-	168	144	194	0	173	130	809
1999	0	0	-	108	337	241	17	380	0	1,083
2000	0	0	-	92	171	170	35	64	0	532
2001	0	2,323	13,138	56	503	386	0	0	0	16,406
2002	6	1,699	9,846	2,670	1,116	724	0	0	0	16,061
2003	223	3,193	4,729	1,122	1,014	763	0	0	0	11,044
2004	31	727	6,482	180	903	422	91	1,021	172	10,029
2005	0	542	2,389	143	971	15	129	1,202	657	6,048

1/ The majority of chinook are released incidentally to steelhead, shad, and walleye angling during closed salmon seasons.

2/ Beginning March 12, 2001 lower Columbia River anglers were required to release all non-adipose fin-clipped spring chinook.

3/ Selective fisheries for summer chinook occurred June 28-July 31, 2002; and June 16-July 31 in 2003-2005.

4/ The lower Columbia River fall salmon season was closed to the retention of chinook August 1-October 7, 1994; August 1-31, 1995; September 21-October 6, 1998; September 14-28, 1999 and September 18-October 19, 2005. During August-December 1999 and 2000, the retention of chinook was prohibited around the mouth of the Lewis River (RM 85-87) to protect low returns of LRW fall chinook. During August 1-December 31, 2004-2005 the chinook bag limit was reduced to one fish.

Dashes signify season closed to all salmonid angling.

Appendix Table 12. Fall Chinook Stock Components by Age for Fish Kept in the Lower Columbia River and Buoy 10 Recreational Fisheries, 2005. 1/

Age	LRH	LRW	BPH	URB	MCB	Other 2/	Total
<u>Lower Columbia</u>							
2 (Jacks)	0	0	0	121	0	0	121
3 (Most>=24")	385	0	1,343	46	0	8	1,782
4 (Adults)	798	0	507	8,803	1,181	22	11,311
5&6 (Adults)	587	0	0	1,707	2,904	28	5,226
Total:	1,770	0	1,850	10,677	4,085	58	18,440
<u>Buoy 10</u>							
2 (Jacks)	34	0	28	0	0	22	84
3 (Most>=24")	0	0	237	1,553	371	486	2,647
4 (Adults)	1,597	0	202	596	879	227	3,501
5&6 (Adults)	1,162	0	0	291	1,545	57	3,055
Total:	2,793	0	467	2,440	2,795	792	9,287

1/ This table was generated for stock accountability purposes and is based on aging from scale readings and stock identification from CWT analysis. The adult and jack totals in other tables of this report may not agree with these listed here because those adult and jack catch estimates were based on fish length.

2/ Includes Select Area Bright fall chinook released from net pens in Youngs Bay, lower Columbia spring chinook, and strays.

Appendix Table 13. Angler Trips and Catch for Sockeye Salmon on the Lower Columbia River, 1982-2005. 1/

Year	Angler Trips	Sockeye Kept	Sockeye Released	Months of Catch	Areas of Catch
1982	-	80	0	June-July	Sec. 7-9
1983	-	43	0	June	Sec. 7-9
1984	-	226	0	June	Sec. 7-10
1985	-	191	0	June	Sec. 5-10
1986	-	Few	0	June	Sec. 1-10
1987	-	Few	0	June-July	Sec. 1-10
1988	-	Few	0	June-July	Sec. 1-10
1989	-	36	0	June-July	Sec. 6-8
1990	-	173	0	June-July	Sec. 1-9
1991	-	29	0	June-July	Sec. 7-9
1992	-	0	75	June-July	Sec. 5-9
1993	-	0	89	June-July	Sec. 5-8
1994	-	0	6	June	Sec. 8
1995	-	0	8	June	Sec. 7
1996	-	0	55	June	Sec. 8-9
1997	-	0	19	June	Sec. 8-9
1998	-	0	22	June	Sec. 1&9
1999	-	0	9	June-July	Sec. 8
2000	-	22	18	June-July	Sec. 1&9
2001	-	114	19	June-July	Sec. 1&9
2002	-	13	47	June	Sec. 1&7-9
2003	-	0	0	-	-
2004	-	6	49	June-July	Sec. 1&7
2005	-	0	54	June -July	Sec. 8-10

1/ Sockeye are taken incidentally to bank angling for summer steelhead. The states prohibited the retention of sockeye effective July 3, 1991 in conjunction with the ESA listing of Snake River sockeye as "endangered" in December 1990. The retention of sockeye was allowed during June 28-July 31, 2000 and during May 16-July 31, 2001. Sockeye retention was allowed in Oregon only during May 16-June 27, 2002 and in both states during June 30-September 30, 2004.

Appendix Table 14. Angler Catch of Summer Steelhead by Month on the Lower Columbia River, 1969-2005. 1/

Year	May	June	July	August	September	October	Total
1969	1,067	1,556	5,576	2,283	804	NS	11,286
1970	249	1,694	4,960	1,889	603	NS	9,395
1971	735	3,872 2/	3,851 2/	1,333 2/	1,032 2/	NS	10,823
1972	1,443	3,737 2/	5,558 2/	2,761 2/	1,864 2/	NS	15,363
1973	361	1,385 2/	3,837 2/	2,158 2/	725 2/	NS	8,466
1974	685	382 2/	2,089 2/	1,691	607	NS	5,454
1975	-	-	-	-	-	-	0
1976	-	-	-	-	-	-	0
1977	350	382	1,866	569	1,081	144	4,392
1978	334	894	1,137	349	-	-	2,714
1979	-	626	1,182	-	-	-	1,808
1980	-	308	1,788	213	-	0	2,309
1981	-	1,921	2,355	634	142	0	5,052
1982	-	1,838	2,547	-	-	0	4,385
1983	-	823	2,787	-	9	70	3,689
1984	-	2,682	3,679	1,244	503	0	8,108
1985	-	1,837	2,617	2,953	465	0	7,872
1986	1,204	1,773	4,641	2,739	651	0	11,008
1987	476	1,103	2,626	1,617	657	0	6,479
1988	769	1,903	3,821	3,332	576	0	10,401
1989	257	1,443	2,695	2,738	927	33	8,093
1990	649	1,592	1,532	1,746	757	0	6,276
1991	321	842	1,556	3,110	1,332	0	7,161
1992	179	1,038	3,257	4,561	1,864	18	10,917
1993	503	1,248	2,138	3,399	2,426	133	9,847
1994	314	885	1,118	2,013	841	0	5,171
1995	214	1,150	1,717	4,314	748	5	8,148
1996	312	872	1,817	2,759	488	23	6,271
1997	530	1,413	2,108	2,786	245	34	7,116
1998	449	704	881	1,722	1,017	8	4,781
1999	409	873	1,762	3,066	954	26	7,090
2000	533	1,086	3,165	4,113	931	6	9,834
2001	501	1,465	4,412	4,083	919	32	11,412
2002	1,383	3,021	3,935	3,054	445	22	11,860
2003	1,076	1,615	2,695	3,763	381	27	9,557
2004	879	2,075	3,308	2,289	178	12	8,741
2005	407	1,648	2,700	2,330	261	50	7,396

1/ See Appendix Table 2 (or Appendix Table 1 in past reports) for dates of steelhead angling closures. NS signifies no sampling. Dashes signify month was a closed season. Numbers listed for 1984-present are for marked hatchery fish kept.

2/ Estimates are incomplete due to no catch data for the Washington bank fisheries during July-September 1971-1973 and June-July 1974.

Appendix Table 15. Number of Wild or Unmarked Hatchery Summer Steelhead Released by Lower Columbia River Anglers by Month, 1984-2005. 1/

Year	May	June	July	August	September	October	Total
1984	-	0	150	484	194	6	834
1985	-	0	222	530	63	0	815
1986	125	373	2,066	1,162	26	0	3,752
1987	29	153	1,721	934	104	0	2,941
1988	48	142	2,195	533	70	0	2,988
1989	15	218	1,415	741	156	0	2,545
1990	52	123	662	451	137	0	1,425
1991	32	81	920	667	183	0	1,883
1992	10	110	881	670	209	0	1,880
1993	64	81	845	866	263	5	2,124
1994	99	125	503	422	281	7	1,437
1995	9	122	997	583	8	0	1,719
1996	14	242	647	313	73	0	1,289
1997	9	66	522	427	57	10	1,091
1998	19	72	522	480	84	0	1,177
1999	23	179	1,324	1,186	88	8	2,808
2000	9	373	2,462	1,731	226	0	4,801
2001	38	568	4,245	1,829	301	11	6,992
2002	54	558	2,449	1,655	267	9	4,992
2003	95	493	1,702	1,882	126	0	4,298
2004	17	494	1,830	940	53	13	3,347
2005	39	410	1,674	1,014	141	27	3,305

1/ See Appendix Table 2 (Appendix Table 1 in past reports) for dates of steelhead angling closures.

Appendix Table 16. History of Sturgeon Regulations for the Lower Columbia River Sport Fishery.

Year	Daily Bag Limit	Annual Bag Limit	Size Restrictions	Other Regulations
Pre-1940	None	None	None	None
1940	Only 3 < 4'	"	"	"
1942	5, (3 < 4' and 2 = 4')	"	"	"
1950	" "	"	30" min.-72" max.	"
1951	3 Fish	"	"	"
1957	"	"	"	Cannot remove head or tail in the field.
1958	"	"	36" min.-72" max.	
1986	2 Fish	OR-30	"	<u>OR</u> --required sturgeon tag: <u>WA</u> --no gaffing.
1989	"	OR-30, WA-15	40" min.-72" max.	<u>WA</u> --required sturgeon tag. New minimum size limit effective April 1.
1990	"	15	"	Single-point barbless hooks required. <u>OR</u> --no gaffing.
1991	"1 and 1" slot limit	"	"	Daily limit changed to one fish 40-<48" and one fish 48-72".
1992	"	"	"	<u>WA</u> --60" max. length effective April 16, 1992-April 15, 1993. <u>WA</u> --Beacon Rock to Bonneville Dam sturgeon spawning sanctuary (boat and bank) April 16-June 15, 1992.
1994	"	10	42" min.-66" max.	Daily limit changed to one fish 42-<48" and one fish 48-66".
1995	"	"	"	LCR closed to retention September 1-December 31.
1996	1 Fish	"	"	One 42-66" fish daily bag limit effective April 1. Closed to boat angling from Beacon Rock to Bonneville Dam May 1-June 30.
1997	"	"	42" min.-60" max.	80% allocation of 67,300 annual harvest guideline to sport fishery (53,840).
1999	"	"	"	Harvest guideline adjusted to 50,000 in-season (40,000 sport). U.S. Army Corps implements Bonneville Boat Restricted Zone from Robins Is. to Hamilton Is. boat ramp.
2000	"	"	"	Retention disallowed below Wauna powerlines April 1-30. Beacon Rock-Bonneville boat angling closure extended through 7/15. Annual limit 10 fish even if licensed in both states.
2001	"	"	"	LCR closed to retention August 1-September 30.
2002	"	"	"	LCR closed to retention on Sundays and Mondays during March 3-May 13 and seven days per week during July 25-November 22.
2003	"	"	"	32,000 annual harvest guideline split 40% above Wauna and 60% below Wauna. Retention allowed above Wauna January 1-March 23 and July 1-October 31, and below Wauna January 1-June 27.
2004	"	5	45" min. below Wauna during May 15-July 3	27,000 annual harvest guideline split 12,000 above Wauna and 15,000 below Wauna. Retention allowed above Wauna January 1-31, then three days per week (Thur.-Sat.) during February 1-July 31 and October 1-December 31. Retention allowed below Wauna January 1-April 30 under permanent rules, then May 15-July 3 with a 45" minimum size limit. Closed to boat and bank angling from Beacon Rock to Bonneville Dam May 1-July 31. Annual limit reduced to five sturgeon.
2005	"	"	45" min. below Wauna during May 14-July 1- and July 15-August 15	30,600 annual harvest guideline split 12,800 above Wauna and 17,800 below Wauna. Retention allowed above Wauna three days per week (Thur.-Sat.) January 1-July 31 and October 1-December 31. Retention allowed below Wauna January 1-April 30 under permanent rules, then May 14-July 10 and July 15-August 15 with a 45" minimum size limit.

Appendix Table 17. Sturgeon Angler Trips by Area on the Lower Columbia River, 1974-2005. 1/

Year	Section 1		Section 2-9		Section 10		Section 1-10 Numbers
	Number	Percent	Number	Percent	Number	Percent	
1974	-	-	-	-	-	-	42,400
1975	-	-	-	-	-	-	60,300
1976	-	-	-	-	-	-	56,800
1977	(25,427)	-	(14,132)	-	8,047	15%	55,100
1978	(41,758)	-	(27,353)	-	11,517	14%	82,500
1979	(49,230)	-	(39,906)	-	9,576	9%	101,000
1980	(48,350)	-	(40,470)	-	12,342	12%	105,900
1981	(48,972)	-	(44,400)	-	16,977	15%	116,800
1982	(48,636)	-	(50,185)	-	20,839	16%	129,500
1983	(56,578)	-	(52,961)	-	26,803	18%	145,700
1984	(50,934)	-	(51,199)	-	32,455	23%	142,200
1985	(53,859)	-	(41,133)	-	37,907	28%	135,100
1986	(47,223)	-	(41,410)	-	43,357	30%	145,700
1987	(61,140)	-	(51,681)	-	51,907	30%	175,300
1988	(53,361)	-	(45,436)	-	40,601	27%	149,800
1989	(54,759)	-	(37,974)	-	28,564	20%	142,100
1990	50,805	39%	45,881	35%	34,779	26%	131,500
1991	68,888	44%	55,393	35%	32,394	21%	156,700
1992	75,004	40%	64,497	35%	47,315	25%	186,800
1993	72,167	38%	56,332	30%	59,261	32%	187,800
1994	73,866	44%	43,771	26%	51,397	30%	169,000
1995	67,524	35%	56,700	30%	67,155	35%	191,400
1996	72,083	40%	43,850	24%	63,848	36%	179,800
1997	73,545	37%	57,780	29%	69,140	34%	200,500
1998	62,158	31%	55,064	27%	86,416	42%	203,600
1999	59,378	31%	55,340	29%	77,611	40%	192,300
2000	62,464	31%	68,418	34%	69,151	35%	200,000
2001	61,929	34%	66,817	36%	55,871	30%	184,600
2002	45,306	29%	51,197	33%	59,279	38%	155,800
2003	55,758	39%	40,690	28%	46,416	32%	142,900
2004	36,728	32%	36,421	32%	41,759	36%	114,900
2005	39,745	29%	36,070	26%	61,946	45%	137,800

1/ Estimates of effort by section are not available for 1974-1976. Numbers in parentheses are incomplete due to no estimates for angler trips by section for winter months during open retention seasons.

Appendix Table 18. Kept Legal White Sturgeon Catch and Catch Per Trip by Area on the Lower Columbia River, 1974-2005. 1/

Year	Section 1			Section 2-9			Section 10			Section 1-10	
	Number	Percent	Catch/Trip	Number	Percent	Catch/Trip	Number	Percent	Catch/Trip	Number	Catch/Trip
Catch											
1974	-	-	0.34	-	-	0.12	-	-	0.41	12,300	0.29
1975	-	-	0.36	-	-	0.13	-	-	-	18,100	0.30
1976	-	-	0.44	-	-	0.10	-	-	0.53	19,300	0.34
1977	(15,377)	-	0.60	(2,788)	-	0.20	4,171	16%	0.52	25,836	0.47
1978	(19,958)	-	0.48	(5,256)	-	0.19	4,473	15%	0.39	30,387	0.37
1979	(18,239)	-	0.37	(8,041)	-	0.20	4,442	14%	0.46	31,422	0.31
1980	(14,048)	-	0.29	(6,059)	-	0.15	5,715	21%	0.46	27,022	0.26
1981	(13,549)	-	0.28	(6,410)	-	0.14	5,748	21%	0.34	27,207	0.23
1982	11,971	48%	0.23	6,329	25%	0.11	6,758	27%	0.32	25,058	0.19
1983	17,131	48%	0.28	6,740	19%	0.11	12,109	34%	0.45	35,980	0.25
1984	12,865	31%	0.23	7,207	17%	0.12	21,902	52%	0.67	41,974	0.30
1985	15,286	35%	0.28	4,993	11%	0.11	23,543	54%	0.62	43,822	0.32
1986	12,022	24%	0.23	7,663	15%	0.10	30,159	61%	0.70	49,844	0.34
1987	17,714	28%	0.26	7,885	13%	0.12	36,848	59%	0.71	62,447	0.36
1988	14,283	33%	0.23	6,093	14%	0.11	22,755	53%	0.56	43,131	0.29
1989	13,751	54%	0.23	5,219	20%	0.10	6,500	26%	0.23	25,380	0.19
1990	7,949	46%	0.16	1,908	11%	0.04	7,453	43%	0.21	17,310	0.13
1991	11,177	49%	0.16	4,191	19%	0.08	7,287	32%	0.22	22,655	0.14
1992	16,023	40%	0.21	6,306	16%	0.10	17,735	44%	0.37	40,064	0.21
1993	12,324	33%	0.17	5,456	14%	0.10	20,107	53%	0.34	37,887	0.20
1994	15,214	45%	0.21	2,679	8%	0.06	15,578	47%	0.30	33,471	0.20
1995	10,576	23%	0.16	4,847	11%	0.09	29,714	66%	0.44	45,137	0.24
1996	11,388	27%	0.16	3,680	9%	0.08	27,694	64%	0.43	42,762	0.24
1997	10,229	27%	0.14	3,417	9%	0.06	24,511	64%	0.35	38,157	0.19
1998	6,521	16%	0.10	4,772	11%	0.09	30,303	73%	0.35	41,596	0.20
1999	6,119	15%	0.10	4,442	11%	0.08	29,238	73%	0.38	39,799	0.21
2000	9,158	23%	0.15	7,080	17%	0.10	24,267	60%	0.35	40,505	0.20
2001	12,550	30%	0.20	7,047	17%	0.11	21,619	52%	0.39	41,216	0.22
2002	6,435	17%	0.14	5,610	15%	0.11	26,234	69%	0.44	38,279	0.25
2003	11,081	35%	0.20	2,519	8%	0.06	18,332	57%	0.39	31,932	0.22
2004	8,624	34%	0.23	1,926	7%	0.05	15,019	59%	0.36	25,569	0.22
2005	9,878	33%	0.25	2,055	7%	0.06	17,869	60%	0.29	29,802	0.22

1/ Estimates of catch by section are not available for 1974-1976. Numbers in parentheses are incomplete due to no sampling during winter months.

Appendix Table 19. White Sturgeon Angler Effort by Month on the Lower Columbia River, 1977-2005.

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total 2/
1977	-	-	2,903	4,634	5,741	6,972	9,351	7,418	5,785	4,847	-	-	55,100
1978	-	7,001	6,292	5,880	9,244	10,386	15,361	11,345	6,860	5,989	2,270	-	82,500
1979	-	5,400	10,541	11,794	15,656	15,777	15,736	10,771	6,887	3,577	2,573	-	101,000
1980	-	4,855	10,821	12,129	15,824	14,607	15,712	12,431	8,410	6,373	-	-	105,900
1981	-	11,953	13,989	14,203	16,104	12,677	15,546	12,744	8,048	5,085	-	-	116,800
1982	-	12,351	11,801	12,839	15,690	14,318	19,904	18,381	9,095	5,281	-	-	129,500
1983	-	11,210	15,411	16,160	19,669	13,820	22,583	19,456	9,474	8,559	-	-	145,700
1984	-	17,023	18,752	13,982	13,847	16,693	22,986	14,842	10,017	6,446	-	-	142,200
1985	-	8,125	24,308	12,752	16,216	21,433	17,702	18,841	6,825	6,697	-	-	135,100
1986	-	13,706	16,045	13,016	17,151	21,655	23,177	14,345	7,020	5,875	-	-	145,700
1987	-	25,158	14,633	14,301	25,261	27,051	19,686	18,016	12,992	7,630	-	-	175,300
1988	-	22,504	11,348	13,857	21,347	19,557	24,470	10,308	8,253	7,754	-	-	149,800
1989	-	6,084	25,793	13,535	11,624	18,125	19,738	11,622	8,230	6,546	-	-	142,100
1990	6,903	10,977	11,235	21,692	11,487	17,565	17,030	12,298	8,940	6,620	4,534	2,184	131,465
1991	5,301	20,111	20,079	22,116	13,664	20,929	17,444	12,316	7,537	6,730	4,756	5,692	156,675
1992	7,809	29,570	17,635	16,704	19,441	21,945	25,338	17,566	11,078	9,456	5,790	4,709	187,041
1993	3,750	15,136	30,599	15,648	21,791	24,112	30,862	20,347	10,146	8,316	3,639	3,414	187,760
1994	6,734	6,934	16,968	15,855	17,620	23,539	26,676	21,008	14,440	12,534	3,891	2,835	169,034
1995	4,619	27,111	23,622	22,005	21,189	31,428	36,640	21,696	1,804	646	364	257	191,381
1996	9,235	4,957	22,002	18,513	19,084	32,100	29,344	18,825	10,048	8,166	5,163	2,344	179,781
1997	2,780	17,688	24,997	19,789	20,541	27,042	32,773	22,607	9,575	8,899	7,031	6,743	200,465
1998	6,276	10,430	19,581	17,412	24,141	35,485	37,644	22,007	12,557	7,300	6,391	4,414	203,638
1999	6,976	8,419	14,847	14,923	23,469	32,304	36,781	19,154	12,910	9,043	7,239	6,264	192,329
2000	7,446	14,197	17,290	14,775	19,662	34,172	37,970	15,777	12,772	11,895	7,777	6,300	200,033
2001	7,941	9,859	15,502	13,070	27,798	39,360	34,361	1,096	903	16,750	11,347	6,630	184,617
2002	10,505	13,886	9,016	9,140	22,504	40,999	32,339	1,226	762	1,218	5,869	8,318	155,782
2003	8,180	21,250	9,460	854	15,788	37,222	16,907	9,350	10,131	13,722	-	-	142,864
2004	5,290	5,938	4,589	5,066	20,815	34,889	10,168	1,139	301	12,457	7,585	6,671	114,908
2005	3,056	4,132	2,260	7,005	24,893	38,890	24,141	6,501	473	17,998	6,043	2,369	137,761

1/ See Appendix Table 16 for the dates of sturgeon retention closures. Dashes signify no sampling.

2/ Angler effort total column for 1977-1989 includes an estimate of trips for the winter months.

Appendix Table 20. White Sturgeon Catch by Month on the Lower Columbia River, 1977-2005.

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1977	400	2,300	1,413	3,145	2,831	3,994	4,268	2,481	2,504	1,700	500	300	25,836
1978	400	2,719	3,263	2,082	2,634	4,104	5,436	4,062	2,376	2,566	445	300	30,387
1979	400	1,648	3,827	2,837	4,797	7,069	4,377	2,549	2,488	577	553	300	31,422
1980	400	1,947	3,186	2,071	4,083	4,377	3,663	2,556	2,282	1,657	500	300	27,022
1981	700	4,938	4,389	1,707	2,846	3,516	3,184	3,391	871	865	500	300	27,207
1982	1,000	2,477	1,571	1,794	2,026	4,422	4,413	3,706	1,574	1,175	500	400	25,058
1983	1,500	2,381	3,067	1,715	2,959	4,297	7,461	6,402	3,286	2,112	500	300	35,980
1984	1,250	4,651	2,887	1,685	2,233	5,691	8,960	7,814	3,682	2,121	600	400	41,974
1985	400	3,965	7,234	807	4,947	9,662	4,822	7,817	2,077	1,791	100	200	43,822
1986	2,025	3,839	1,770	2,138	6,275	14,547	9,701	3,734	1,791	1,374	1,000	1,650	49,844
1987	1,750	5,070	2,525	2,301	14,479	14,828	8,126	6,611	2,758	1,999	1,350	650	62,447
1988	1,600	4,496	1,311	3,711	6,535	7,888	10,460	2,353	1,839	1,538	850	550	43,131
1989	1,750	1,097	7,868	1,172	1,503	3,501	3,559	1,674	1,173	1,348	460	275	25,380
1990	357	695	491	1,653	1,528	2,578	2,750	2,388	2,249	1,701	676	244	17,310
1991	561	3,482	3,091	2,972	1,830	2,737	1,721	1,913	1,671	1,313	715	649	22,655
1992	615	4,946	2,205	3,107	3,435	5,272	6,227	5,947	2,984	3,000	1,378	948	40,064
1993	525	2,018	6,549	2,690	4,910	6,004	6,792	3,899	1,611	1,731	671	487	37,887
1994	691	421	2,034	1,812	2,556	4,592	5,832	5,783	5,262	3,211	815	462	33,471
1995	699	3,776	3,191	4,214	5,762	10,863	10,941	5,691	0	0	0	0	45,137
1996	1,681	879	4,071	3,005	3,527	9,217	9,691	5,094	3,044	1,644	622	287	42,762
1997	230	1,447	3,796	2,665	3,458	6,396	9,291	6,291	1,642	1,243	884	814	38,157
1998	859	1,041	2,112	2,184	4,882	10,247	9,905	4,452	2,781	1,401	1,220	512	41,596
1999	893	826	1,430	1,327	3,571	7,572	12,864	4,744	2,932	1,730	1,339	571	39,799
2000	751	2,298	2,592	1,552	2,819	8,370	9,859	4,027	3,444	2,770	1,221	802	40,505
2001	890	1,016	2,670	2,300	5,382	11,688	9,992	0	0	4,078	2,365	835	41,216
2002	1,497	2,282	1,325	1,841	5,829	13,759	9,631	0	0	0	1,277	838	38,279
2003	879	2,190	1,279	63	4,101	14,193	1,575	898	3,112	3,642	0	0	31,932
2004	242	183	408	1,389	5,397	10,857	1,307	0	0	3,744	1,505	537	25,569
2005	37	0	16	1,239	5,161	9,077	5,962	1,394	0	5,375	1,454	87	29,802

1/ See Appendix Table 16 for the dates of sturgeon retention closures.

Appendix Table 21. White Sturgeon Angler Effort by Month in the Bonneville Area (Section 1) on the Lower Columbia River, 1977-2005. 1/.

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1977	-	-	667	2,200	3,210	4,198	5,588	3,714	3,358	2,527	-	-	25,462
1978	-	2,755	4,023	3,963	4,675	5,165	6,667	5,495	4,310	3,525	1,180	-	41,758
1979	-	2,042	6,333	5,836	6,573	7,103	8,084	5,428	4,320	1,982	1,529	-	49,230
1980	-	1,844	6,747	4,500	6,503	6,981	7,773	6,246	4,100	3,656	-	-	48,350
1981	-	4,105	9,358	4,639	6,420	5,691	7,506	4,899	3,577	2,777	-	-	48,972
1982	-	5,794	5,263	4,021	5,879	6,065	8,452	6,437	3,886	2,839	-	-	48,636
1983	-	5,009	6,338	5,919	7,403	5,628	9,286	7,041	5,095	4,859	-	-	56,578
1984	-	5,284	7,573	4,803	5,132	6,640	7,940	5,087	4,666	3,809	-	-	50,934
1985	-	2,917	14,304	5,277	4,953	6,402	7,213	5,137	3,651	4,005	-	-	53,859
1986	-	5,125	8,025	3,842	4,600	6,098	6,735	5,964	3,590	3,244	-	-	47,223
1987	-	9,515	6,354	4,985	7,636	6,777	6,763	7,175	7,869	4,066	-	-	61,140
1988	-	7,713	4,354	6,290	7,933	5,729	7,604	4,697	4,549	4,492	-	-	53,361
1989	-	2,000	13,940	6,152	3,315	6,008	7,945	6,186	4,846	4,367	-	-	54,759
1990	1,207	3,570	4,475	8,815	3,867	5,305	6,662	4,570	4,375	4,465	2,585	909	50,805
1991	903	7,891	9,813	10,023	5,756	8,194	7,137	6,415	5,052	4,453	1,883	1,368	68,888
1992	1,294	8,894	8,723	6,685	6,188	7,932	10,187	8,500	6,125	5,847	3,288	1,341	75,004
1993	728	2,332	11,887	6,429	9,272	8,242	11,443	8,101	5,457	5,170	1,978	1,128	72,167
1994	1,731	1,765	6,714	9,312	8,950	9,204	9,045	8,543	7,749	7,693	2,163	997	73,866
1995	424	8,449	8,698	9,695	7,444	10,784	11,833	8,667	1,141	193	126	70	67,524
1996	2,445	2,159	10,315	9,488	8,243	11,344	9,121	5,137	4,155	5,536	3,334	806	72,083
1997	589	5,120	12,549	9,386	8,635	9,083	8,873	5,689	4,513	4,899	2,842	1,367	73,545
1998	861	2,879	7,492	7,274	7,462	10,193	8,317	4,372	4,015	3,887	3,569	1,837	62,158
1999	1,353	1,792	5,633	5,932	8,857	9,210	7,072	5,231	4,363	4,773	3,291	1,871	59,378
2000	953	1,628	6,442	7,382	7,585	10,437	6,963	4,140	5,381	6,593	3,461	1,499	62,464
2001	1,358	1,897	7,114	6,959	11,419	9,821	6,529	736	476	8,453	5,438	1,729	61,929
2002	2,426	3,113	4,868	5,755	7,690	8,050	5,878	848	497	455	2,438	3,288	45,306
2003	2,071	8,640	6,390	37	1,897	4,156	9,625	5,546	7,636	9,760	-	-	55,758
2004	1,151	1,334	1,974	3,087	5,305	3,311	2,163	685	145	8,315	5,866	3,392	36,728
2005	676	1,936	1,194	3,873	5,369	4,712	2,507	899	258	12,657	4,496	1,168	39,745

1/ See Appendix Table 16 for the dates of sturgeon retention closures. Dashes signify no sampling.

Appendix Table 22. White Sturgeon Catch by Month in the Bonneville Area (Section 1) on the Lower Columbia River, 1977-2005. 1/

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1977	-	-	370	1,785	2,128	3,025	3,171	1,553	2,012	1,333	-	-	15,377
1978	-	1,731	2,566	1,819	1,827	2,594	2,380	2,525	1,856	2,336	324	-	19,958
1979	-	1,226	2,887	1,063	2,494	3,487	2,707	1,415	2,089	431	440	-	18,239
1980	-	563	2,469	316	1,733	2,375	1,522	1,752	1,980	1,338	-	-	14,048
1981	-	1,853	3,524	490	1,559	1,819	2,032	909	571	792	-	-	13,549
1982	500	1,567	703	812	961	2,198	1,534	1,368	1,085	793	250	200	11,971
1983	750	1,100	1,438	629	1,644	1,738	2,918	1,947	2,755	1,812	250	150	17,131
1984	450	1,669	1,235	867	1,037	1,514	1,369	994	1,211	2,019	300	200	12,865
1985	100	2,249	5,973	375	626	1,009	1,195	762	1,495	1,402	50	50	15,286
1986	100	2,546	984	341	595	1,500	1,053	1,767	1,027	1,159	500	450	12,022
1987	650	2,624	1,621	934	1,707	1,502	1,870	1,929	2,069	1,558	850	400	17,714
1988	1,100	1,883	724	2,092	1,029	982	1,764	1,070	1,355	1,384	600	300	14,283
1989	500	415	5,473	800	258	795	1,581	1,136	960	1,348	410	75	13,751
1990	149	324	323	1,015	448	824	751	700	1,241	1,590	476	108	7,949
1991	84	2,062	2,062	1,326	667	518	557	852	1,181	1,232	413	223	11,177
1992	126	2,073	1,142	1,407	679	786	1,069	3,222	1,859	2,505	1,005	150	16,023
1993	59	128	2,988	1,208	1,427	846	1,142	1,485	1,002	1,634	361	44	12,324
1994	151	149	1,280	1,547	800	474	1,196	2,307	3,895	2,596	658	161	15,214
1995	58	1,257	1,556	1,898	833	844	1,805	2,325	0	0	0	0	10,576
1996	493	540	2,648	1,480	1,204	855	842	500	932	1,326	502	66	11,388
1997	77	799	2,513	1,759	964	635	584	439	858	1,014	478	109	10,229
1998	24	202	1,013	951	455	347	457	381	814	887	783	207	6,521
1999	111	109	733	706	538	353	469	350	702	1,242	645	161	6,119
2000	67	195	1,407	948	750	611	303	412	1,416	2,192	663	194	9,158
2001	105	241	1,958	1,614	2,683	907	415	0	0	2,898	1,468	261	12,550
2002	433	507	962	1,427	1,094	383	389	0	0	0	684	556	6,435
2003	385	1,558	1,097	0	0	0	1,185	693	2,846	3,317	0	0	11,081
2004	2	64	385	1,257	1,244	155	90	0	0	3,564	1,436	427	8,624
2005	26	0	10	1,114	1,767	467	49	0	0	4,969	1,408	68	9,878

1/ See Appendix Table 16 for the dates of sturgeon retention closures. Dashes signify no sampling.

Appendix Table 23. White Sturgeon Angler Effort by Month in the Troutdale-Westport Areas (Sections 2-9) on the Lower Columbia River, 1977-2005. 1/

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1977	-	-	1,280	1,214	1,919	1,845	2,576	2,108	1,484	1,706	-	-	14,132
1978	-	3,228	1,622	1,278	3,324	3,907	5,813	3,574	1,704	1,897	1,006	-	27,353
1979	-	3,114	3,170	5,124	8,486	6,304	5,697	3,683	1,991	1,370	967	-	39,906
1980	-	2,468	2,940	6,632	7,509	5,704	5,339	4,073	3,373	2,432	-	-	40,470
1981	-	6,897	3,691	8,587	7,103	3,964	5,359	4,079	2,624	2,096	-	-	44,400
1982	-	6,338	6,128	8,052	7,650	4,177	5,383	6,122	4,006	2,329	-	-	50,185
1983	-	5,959	8,536	9,050	8,235	4,394	6,253	4,370	2,958	3,206	-	-	52,961
1984	-	11,509	10,750	8,233	5,606	3,526	3,592	2,819	2,678	2,486	-	-	51,199
1985	-	5,208	9,511	6,843	5,503	3,658	2,908	3,262	1,836	2,404	-	-	41,133
1986	-	8,405	7,564	7,038	4,683	3,143	3,509	2,562	2,006	2,500	-	-	41,410
1987	-	15,242	7,848	6,557	5,167	3,498	3,677	2,713	3,912	3,067	-	-	51,681
1988	-	13,713	6,606	4,574	4,002	3,881	4,154	2,887	2,721	2,898	-	-	45,436
1989	-	3,839	11,411	5,206	3,311	3,304	3,815	2,966	2,245	1,877	-	-	37,974
1990	5,696	7,111	5,969	9,407	3,067	3,093	2,872	2,057	1,535	1,850	1,949	1,275	45,881
1991	4,398	11,178	8,571	7,919	3,433	3,474	3,579	2,335	1,357	1,952	2,873	4,324	55,393
1992	6,290	18,464	6,610	6,608	5,252	3,526	3,844	2,347	2,469	3,217	2,502	3,368	64,497
1993	3,022	10,168	14,289	6,622	3,151	3,533	3,963	3,174	1,703	2,760	1,661	2,286	56,332
1994	4,062	3,714	8,664	4,937	2,825	3,431	3,371	3,005	2,559	3,637	1,728	1,838	43,771
1995	3,834	16,210	11,687	7,373	4,140	3,489	5,009	3,645	443	447	236	187	56,700
1996	6,095	2,462	9,189	5,544	4,276	4,502	3,018	2,236	1,276	2,123	1,581	1,538	43,840
1997	2,080	11,238	10,176	7,448	3,582	2,702	3,590	1,982	2,053	3,445	4,189	5,295	57,780
1998	5,375	6,851	10,473	7,133	4,469	3,722	3,516	2,695	3,233	2,375	2,786	2,436	55,064
1999	5,540	6,157	8,196	6,858	4,831	3,299	3,583	3,032	2,807	3,051	3,870	4,116	55,340
2000	6,493	12,084	10,589	7,179	4,413	4,376	4,362	2,140	3,145	4,575	4,316	4,746	68,418
2001	6,583	7,628	8,002	5,273	10,080	6,163	5,069	350	373	6,486	5,909	4,901	66,817
2002	8,079	10,538	4,126	3,064	6,640	5,440	3,532	355	265	697	3,431	5,030	51,197
2003	6,109	12,497	2,956	134	961	1,293	6,995	3,713	2,079	3,953	-	-	40,690
2004	4,100	4,389	2,267	1,491	4,850	4,912	4,757	375	156	4,126	1,719	3,279	36,421
2005	2,380	2,153	1,059	2,574	8,586	5,769	4,758	495	207	5,341	1,547	1,201	36,070

1/ See Appendix Table 16 for the dates of sturgeon retention closures. Dashes signify no sampling.

Appendix Table 24. White Sturgeon Catch by Month in the Troutdale-Westport Areas (Sections 2-9) on the Lower Columbia River, 1977-2005. 1/

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1977	-	-	49	107	589	598	480	405	193	367	-	-	2,788
1978	-	565	472	66	667	1,060	1,215	615	245	230	121	-	5,256
1979	-	422	423	1,598	2,017	1,767	591	667	297	146	113	-	8,041
1980	-	986	328	1,276	955	1,046	508	339	302	319	-	-	6,059
1981	-	2,996	838	960	383	398	367	254	141	73	-	-	6,410
1982	500	910	868	770	460	602	534	483	370	382	250	200	6,329
1983	750	1,281	1,549	805	377	178	461	488	151	300	250	150	6,740
1984	800	2,982	1,590	507	112	165	150	131	168	102	300	200	7,207
1985	300	1,716	1,261	331	177	166	55	225	173	389	50	150	4,993
1986	1,925	1,293	650	1,001	316	79	205	93	186	215	500	1,200	7,663
1987	1,100	2,421	879	603	566	245	267	184	429	441	500	250	7,885
1988	500	2,613	587	319	178	409	550	152	131	154	250	250	6,093
1989	1,250	682	2,395	123	23	167	35	174	30	0	50	200	5,129
1990	208	371	168	298	57	132	138	73	16	111	200	136	1,908
1991	477	1,175	683	582	130	193	53	22	67	81	302	426	4,191
1992	489	2,064	570	575	250	50	294	141	207	495	373	798	6,306
1993	466	1,202	1,956	533	97	156	134	72	23	64	310	443	5,456
1994	281	111	710	156	62	154	137	17	171	422	157	301	2,679
1995	621	2,040	871	626	153	182	164	190	0	0	0	0	4,847
1996	987	322	1,030	303	280	185	30	21	22	159	120	221	3,680
1997	153	490	894	266	52	93	67	23	70	198	406	705	3,417
1998	835	769	985	499	241	94	160	36	135	276	437	305	4,772
1999	782	656	592	454	143	124	88	68	106	325	694	410	4,442
2000	684	2,102	1,182	604	271	150	139	72	220	490	558	608	7,080
2001	785	775	712	679	1,325	423	195	0	0	682	897	574	7,047
2002	1,064	1,775	360	328	896	173	139	0	0	0	593	282	5,610
2003	494	626	178	5	30	0	390	205	266	325	0	0	2,519
2004	240	119	13	88	720	299	88	0	0	180	69	110	1,926
2005	11	0	6	125	926	269	247	0	0	406	46	19	2,055

1/ See Appendix Table 16 for the dates of sturgeon retention closures. Dashes signify no sampling.

Appendix Table 25. White Sturgeon Angler Effort by Month in the Estuary Area (Section 10) on the Lower Columbia River, 1977-2005. 1/

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1977	400	2,300	1,413	3,145	2,831	3,994	4,268	2,481	2,504	1,700	500	300	25,836
1978	400	2,719	3,263	2,082	2,634	4,104	5,436	4,062	2,376	2,566	445	300	30,387
1979	400	1,648	3,827	2,837	4,797	7,069	4,377	2,549	2,488	577	553	300	31,422
1980	400	1,947	3,186	2,071	4,083	4,377	3,663	2,556	2,282	1,657	500	300	27,022
1981	700	4,938	4,389	1,707	2,846	3,516	3,184	3,391	871	865	500	300	27,207
1982	1,000	2,477	1,571	1,794	2,026	4,422	4,413	3,706	1,574	1,175	500	400	25,058
1983	1,500	2,381	3,067	1,715	2,959	4,297	7,461	6,402	3,286	2,112	500	300	35,980
1984	1,250	4,651	2,887	1,685	2,233	5,691	8,960	7,814	3,682	2,121	600	400	41,974
1985	400	3,965	7,234	807	4,947	9,662	4,822	7,817	2,077	1,791	100	200	43,822
1986	2,025	3,839	1,770	2,138	6,275	14,547	9,701	3,734	1,791	1,374	1,000	1,650	49,844
1987	1,750	5,070	2,525	2,301	14,479	14,828	8,126	6,611	2,758	1,999	1,350	650	62,447
1988	1,600	4,496	1,311	3,711	6,535	7,888	10,460	2,353	1,839	1,538	850	550	43,131
1989	1,750	1,097	7,868	1,172	1,503	3,501	3,559	1,674	1,173	1,348	460	275	25,380
1990	357	695	491	1,653	1,528	2,578	2,750	2,388	2,249	1,701	676	244	17,310
1991	561	3,482	3,091	2,972	1,830	2,737	1,721	1,913	1,671	1,313	715	649	22,655
1992	615	4,946	2,205	3,107	3,435	5,272	6,227	5,947	2,984	3,000	1,378	948	40,064
1993	525	2,018	6,549	2,690	4,910	6,004	6,792	3,899	1,611	1,731	671	487	37,887
1994	691	421	2,034	1,812	2,556	4,592	5,832	5,783	5,262	3,211	815	462	33,471
1995	699	3,776	3,191	4,214	5,762	10,863	10,941	5,691	0	0	0	0	45,137
1996	1,681	879	4,071	3,005	3,527	9,217	9,691	5,094	3,044	1,644	622	287	42,762
1997	230	1,447	3,796	2,665	3,458	6,396	9,291	6,291	1,642	1,243	884	814	38,157
1998	859	1,041	2,112	2,184	4,882	10,247	9,905	4,452	2,781	1,401	1,220	512	41,596
1999	893	826	1,430	1,327	3,571	7,572	12,864	4,744	2,932	1,730	1,339	571	39,799
2000	751	2,298	2,592	1,552	2,819	8,370	9,859	4,027	3,444	2,770	1,221	802	40,505
2001	890	1,016	2,670	2,300	5,382	11,688	9,992	0	0	4,078	2,365	835	41,216
2002	1,497	2,282	1,325	1,841	5,829	13,759	9,631	0	0	0	1,277	838	38,279
2003	879	2,190	1,279	63	4,101	14,193	1,575	898	3,112	3,642	0	0	31,932
2004	242	183	408	1,389	5,397	10,857	1,307	0	0	3,744	1,505	537	25,569
2005	37	0	16	1,239	5,161	9,077	5,962	1,394	0	5,375	1,454	87	29,802

1/ See Appendix Table 16 for the dates of sturgeon retention closures.

Appendix Table 26. White Sturgeon Catch by Month in the Estuary Area (Section 10) on the Lower Columbia River, 1977-2005. 1/

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1977	-	-	994	1,253	114	371	617	523	299	0	-	-	4,171
1978	-	423	225	197	140	450	1,841	922	275	0	0	-	4,473
1979	-	0	517	176	286	1,815	1,079	467	102	0	0	-	4,442
1980	-	398	389	479	1,395	956	1,633	465	0	0	-	-	5,715
1981	-	89	27	257	994	1,299	785	2,228	159	0	-	-	5,838
1982	-	0	0	212	605	1,622	2,345	1,855	119	0	-	-	6,758
1983	-	0	80	281	938	2,381	4,082	3,967	380	0	-	-	12,109
1984	-	0	62	311	1,084	4,012	7,441	6,689	2,303	0	-	-	21,902
1985	-	0	0	101	4,144	8,487	3,572	6,830	409	0	-	-	23,543
1986	-	0	136	796	5,364	12,968	8,443	1,874	578	0	-	-	30,159
1987	-	25	25	764	12,206	13,081	5,989	4,498	260	0	-	-	36,848
1988	-	0	0	1,300	5,328	6,497	8,146	1,131	353	0	-	-	22,755
1989	-	0	0	249	1,222	2,539	1,943	364	183	0	-	-	6,500
1990	-	0	0	340	1,023	1,622	1,861	1,615	992	0	-	-	7,453
1991	-	245	346	1,064	1,033	2,026	1,111	1,039	423	0	-	-	7,287
1992	-	809	493	1,125	2,506	4,436	4,864	2,584	918	0	-	-	17,735
1993	-	688	1,605	949	3,386	5,002	5,516	2,342	586	33	-	-	20,107
1994	259	161	44	109	1,694	3,964	4,499	3,459	1,196	193	-	-	15,578
1995	20	479	764	1,690	4,776	9,837	8,972	3,176	0	0	-	-	29,714
1996	201	17	393	1,222	2,043	8,177	8,819	4,573	2,090	159	0	-	27,694
1997	0	158	389	640	2,442	5,668	8,640	5,829	714	31	-	0	24,511
1998	0	70	114	734	4,186	9,806	9,288	4,035	1,832	238	0	0	30,303
1999	0	61	105	167	2,890	7,095	12,307	4,326	2,124	163	0	0	29,238
2000	-	1	3	0	1,798	7,609	9,417	3,543	1,808	88	-	0	24,267
2001	-	0	0	7	1,374	10,358	9,382	0	0	498	-	-	21,619
2002	-	0	3	86	3,839	13,203	9,103	0	0	0	-	-	26,234
2003	-	6	4	58	4,071	14,193	0	0	0	0	-	-	18,332
2004	0	0	10	44	3,433	10,403	1,129	0	0	0	-	-	15,019
2005	-	0	0	0	2,468	8,341	5,666	1,394	0	0	-	-	17,869

1/ Wintertime catch in the estuary is assumed to be zero unless there is information to indicate otherwise. Dashes signify no sampling. See Appendix Table 16 for the dates of sturgeon retention closures.

Appendix Table 27. Sublegal and Legal Released White Sturgeon Catch by Month on the Lower Columbia River, 1982-2005.

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Sublegals													
1982	-	11,447	9,668	11,986	17,928	16,428	25,369	17,999	5,477	4,049	-	-	130,200
1983	-	10,268	17,894	16,635	21,522	20,198	26,999	17,589	7,724	5,882	-	-	154,600
1984	-	23,267	18,949	9,012	9,019	17,251	24,985	20,047	9,599	4,819	-	-	144,700
1985	-	14,684	26,388	8,766	10,311	17,048	13,648	19,714	5,077	6,363	-	-	124,000
1986	-	14,849	15,197	8,447	11,291	22,556	22,736	9,758	4,730	4,393	-	-	125,300
1987	-	26,758	22,006	16,231	28,580	28,082	26,877	24,327	15,108	6,855	-	-	207,300
1988	-	32,483	15,020	12,526	24,324	25,972	40,876	10,306	6,996	8,428	-	-	190,200
1989	17,787	7,778	40,651	14,601	15,791	34,287	47,431	13,705	10,490	7,097	8,680	9,107	227,405
1990	14,748	18,625	12,962	41,659	16,169	36,210	32,521	20,530	13,382	9,450	9,356	5,494	231,106
1991	9,447	56,947	39,248	56,114	19,394	35,232	26,388	15,492	7,837	6,323	12,759	17,527	302,708
1992	20,113	75,011	41,389	37,290	29,750	30,834	39,324	21,575	14,812	12,103	11,752	11,928	345,881
1993	5,666	22,164	56,128	17,398	32,282	45,827	45,274	23,404	9,975	9,173	7,286	7,367	281,944
1994	15,376	9,957	33,473	24,870	18,521	28,100	28,023	22,984	14,254	16,585	9,233	6,954	228,330
1995	10,033	54,050	55,522	45,344	38,179	52,414	57,270	26,158	2,300	1,125	1,452	335	344,182
1996	21,157	3,839	22,485	27,578	26,713	39,548	38,285	16,121	9,982	6,939	9,984	4,118	226,749
1997	4,519	26,213	36,093	25,433	22,250	33,621	43,591	28,201	8,320	7,962	18,757	21,471	276,431
1998	17,321	21,740	46,687	36,860	36,563	56,472	50,723	24,245	17,773	10,238	15,670	11,818	346,110
1999	14,152	10,976	30,400	25,538	27,531	37,763	62,117	22,168	14,221	9,661	13,321	10,315	278,163
2000	10,615	23,451	44,675	37,993	25,751	43,834	51,947	19,926	13,465	13,085	13,191	11,486	309,419
2001	10,898	11,610	18,996	21,198	41,961	50,401	47,007	2,803	1,332	31,151	33,422	14,125	284,904
2002	20,902	27,227	23,010	26,607	43,620	62,467	48,395	2,571	1,877	2,998	21,031	29,227	309,932
2003	33,414	66,876	35,252	1,520	18,131	50,361	50,175	21,036	15,225	28,692	-	-	320,682
2004	11,245	7,322	6,620	9,596	46,810	77,796	28,402	3,016	686	29,379	24,253	16,012	261,137
2005	3,428	2,123	2,998	14,881	61,313	80,391	46,354	9,345	1,381	33,816	11,312	3,090	270,432
Legals Released													
1991	0	289	305	138	12	90	88	74	71	119	9	46	1,241
1992	51	746	307	274	420	590	1,048	610	411	122	102	87	4,768
1993	13	404	1,875	226	987	1,194	1,073	409	114	62	83	8	6,448
1994	93	52	356	232	136	430	1,100	1,019	584	606	76	45	4,729
1995	75	565	807	1,167	1,630	2,804	2,059	647	145	190	0	74	10,163
1996	133	153	691	750	674	2,246	1,905	550	342	174	86	0	7,704
1997	23	499	467	801	231	720	1,212	374	320	136	100	41	4,924
1998	51	21	281	220	507	1,296	1,329	391	58	35	155	40	4,384
1999	96	10	128	74	391	1,055	1,647	316	234	208	98	68	4,325
2000	63	351	388	104	218	699	770	342	158	222	100	123	3,538
2001	76	110	516	323	516	1,908	988	131	378	357	273	30	5,606
2002	134	441	222	420	1,222	2,250	772	153	195	196	91	68	6,164
2003	349	313	230	64	696	2,492	361	32	265	157	-	-	4,959
2004	34	0	43	32	484	684	137	69	59	219	135	60	1,956
2005	3	0	12	810	541	581	473	155	155	322	176	7	3,235

1/ Estimates of legals released were made beginning in 1991 in response to the enactment of a "one and one" bag limit. Dashes signify no sampling.

Appendix Table 28. Oversize White Sturgeon Released by Month on the Lower Columbia River, 1982-2005. 1/

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
<u>Oversize</u>													
1982	-	12	0	0	34	139	159	87	50	172	-	-	700
1983	-	0	11	197	909	466	255	136	55	154	-	-	2,300
1984	-	0	0	116	420	448	1,095	126	65	112	-	-	2,500
1985	-	17	10	79	289	377	457	156	43	168	-	-	1,600
1986	-	54	254	95	372	467	268	97	23	50	-	-	1,900
1987	-	36	0	86	433	371	106	23	59	94	-	-	1,300
1988	-	29	18	309	238	339	286	54	103	0	-	-	1,500
1989	6	0	54	33	169	300	345	3	44	157	39	0	1,150
1990	7	0	0	190	321	499	465	202	153	0	68	6	1,911
1991	8	105	48	43	277	468	509	206	49	74	37	7	1,831
1992 2/	12	127	55	387	996	2,053	1,595	283	149	80	56	12	5,805
1993 2/	6	78	55	273	810	1,395	1,558	564	176	53	21	7	4,996
1994	0	11	54	360	1,392	2,450	1,579	791	225	155	36	14	7,067
1995	13	116	136	444	1,240	2,942	2,638	519	162	8	0	0	8,218
1996	46	53	66	308	972	3,036	2,153	856	512	321	254	57	8,634
1997	0	181	477	753	1,824	2,631	2,016	686	89	89	41	0	8,787
1998	33	18	61	245	1,780	3,003	2,308	373	137	139	310	60	8,467
1999	45	10	134	175	1,771	2,608	2,174	648	383	133	166	58	8,305
2000	21	66	133	200	2,102	2,952	2,143	587	325	312	184	59	9,084
2001	21	46	309	329	2,645	2,681	1,841	253	158	603	271	116	9,273
2002	8	236	162	279	1,710	2,502	1,715	367	130	184	81	141	7,515
2003	89	201	146	15	1,280	1,561	1,339	637	449	274	-	-	5,991
2004	19	27	13	138	727	1,250	378	73	0	356	402	132	3,515
2005	10	0	12	131	746	1,780	1,027	382	21	1,012	669	57	5,847

Appendix Table 29. Sublegal and Legal Released White Sturgeon Catch by Month in the Bonneville Area (Section 1) of the Lower Columbia River, 1982-2005.

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total 1/
Sublegals													
1982	-	5,964	5,061	4,071	7,447	6,005	9,619	4,607	1,693	1,541	-	-	46,008
1983	-	4,176	7,168	6,125	9,123	6,341	12,514	5,096	3,873	2,337	-	-	56,753
1984	-	4,793	7,969	4,149	3,397	6,317	9,564	4,197	2,450	2,552	-	-	45,388
1985	-	5,168	19,662	4,909	3,091	5,801	5,592	5,461	2,455	2,605	-	-	54,744
1986	-	7,094	9,336	3,693	3,362	7,499	8,233	4,523	1,526	2,190	-	-	47,456
1987	-	12,578	12,075	7,173	13,054	5,496	9,165	9,084	10,414	3,530	-	-	82,569
1988	-	13,330	9,198	5,082	9,611	4,658	9,251	4,583	4,071	6,377	-	-	66,161
1989	4,069	2,203	22,627	8,265	3,788	9,251	21,282	7,562	4,583	5,022	6,893	1,959	97,504
1990	3,932	8,717	7,045	22,072	5,211	6,743	8,268	4,737	5,828	5,541	4,587	1,310	83,991
1991	1,046	21,100	21,198	20,459	5,542	7,494	6,267	6,370	4,371	3,781	5,001	4,178	106,807
1992	2,644	25,866	22,992	15,945	8,913	9,286	14,892	10,525	9,108	7,062	7,162	2,213	136,608
1993	435	1,723	19,609	5,302	12,123	8,995	10,814	6,574	4,540	6,134	4,120	1,249	81,618
1994	3,924	2,531	17,491	17,318	9,682	5,768	7,151	9,084	6,967	10,047	4,297	1,996	96,256
1995	1,037	19,369	29,960	24,603	15,292	11,502	14,295	7,942	1,504	324	333	94	126,255
1996	4,725	1,716	8,464	16,994	10,077	8,723	7,758	4,460	2,760	3,660	5,631	1,063	76,031
1997	473	9,949	15,785	13,073	8,706	6,900	9,433	6,343	3,246	3,687	5,596	2,578	85,769
1998	1,035	4,362	25,486	20,660	11,046	12,124	7,959	4,974	6,583	4,430	9,575	6,671	114,905
1999	3,478	2,365	18,813	17,690	14,118	7,516	8,565	4,978	6,579	4,042	5,611	3,960	97,715
2000	1,521	5,525	26,805	26,920	13,643	11,044	9,507	4,160	4,966	6,693	6,036	3,258	120,078
2001	1,903	2,728	10,933	12,567	20,107	10,767	13,435	2,078	710	16,956	18,017	4,775	114,976
2002	5,143	5,994	16,275	20,131	19,116	12,118	9,068	1,973	1,197	1,498	7,211	12,901	112,625
2003	8,925	44,397	29,375	464	2,140	5,685	30,120	12,767	8,959	18,956	-	-	161,788
2004	1,048	2,774	2,987	6,566	16,587	10,233	10,488	2,270	381	18,478	19,906	7,461	99,179
2005	1,103	1,316	2,000	10,581	27,775	14,723	8,353	1,798	972	20,733	7,519	942	97,815
Legals Released 2/													
1991	0	289	300	118	0	31	18	45	57	104	9	16	987
1992	40	560	124	127	40	34	129	240	252	122	102	33	1,803
1993	13	0	1,005	18	321	79	68	136	48	62	76	0	1,826
1994	26	23	258	217	67	20	110	341	342	595	68	18	2,085
1995	52	317	389	491	221	118	151	239	115	190	0	20	2,303
1996	95	153	621	532	266	216	21	56	132	151	86	0	2,329
1997	23	488	388	644	64	46	99	33	289	113	53	13	2,253
1998	0	8	85	50	129	62	80	46	47	35	94	17	653
1999	31	0	63	59	123	99	103	27	95	158	47	23	828
2000	19	136	275	45	58	55	62	57	99	193	73	45	1,117
2001	7	67	391	306	342	86	24	112	101	229	175	8	1,848
2002	46	236	123	338	211	46	48	76	174	137	69	47	1,551
2003	200	252	204	22	204	366	101	17	215	157	-	-	1,738
2004	0	0	34	28	228	101	36	58	29	193	135	60	902
2005	3	0	12	784	418	34	10	52	142	310	176	7	1,948

1/ Prior to 1989 winter estimates were not made by section. Dashes signify no sampling.

2/ Estimates of legals released were made beginning in 1991 in response to the enactment of a "one and one" bag limit.

Appendix Table 30. Oversize White Sturgeon Released by Month in the Bonneville Area (Section 1) of the Lower Columbia River, 1982-2005. 1/

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
<u>Oversize</u>													
1982	-	12	0	0	34	139	145	72	50	172	-	-	624
1983	-	0	11	197	909	440	239	108	55	154	-	-	2,113
1984	-	0	0	116	412	413	1,063	126	54	112	-	-	2,296
1985	-	17	10	79	256	298	439	145	43	168	-	-	1,455
1986	-	54	254	95	316	362	199	84	23	50	-	-	1,437
1987	-	36	0	86	376	318	94	15	59	94	-	-	1,078
1988	-	29	18	309	197	278	251	54	103	0	-	-	1,239
1989	6	0	54	33	137	265	321	0	44	157	39	0	1,056
1990	7	0	0	190	282	473	449	187	153	0	68	6	1,815
1991	8	105	48	43	270	407	494	199	49	74	37	7	1,741
1992 2/	12	117	55	387	861	1,885	1,519	283	98	68	56	12	5,353
1993 2/	6	78	32	253	789	1,343	1,460	527	176	53	21	7	4,745
1994	0	4	54	360	1,100	2,236	1,423	774	210	155	36	14	6,366
1995	13	101	136	385	1,209	2,756	2,491	502	162	8	0	0	7,763
1996 3/	46	53	66	308	964	2,791	1,751	762	483	321	254	57	7,856
1997	0	178	468	753	1,737	2,331	1,628	535	85	89	41	0	7,845
1998	13	17	28	214	1,574	2,421	1,883	274	119	139	302	60	7,044
1999	31	10	116	168	1,512	2,054	1,466	512	325	126	152	58	6,530
2000	21	58	112	200	1,872	2,549	1,830	489	302	300	184	59	7,976
2001	13	37	297	309	2,522	2,162	1,503	253	158	549	264	109	8,176
2002	8	220	154	254	1,588	2,158	1,462	353	130	179	70	127	6,703
2003	70	186	146	0	1,105	1,132	1,323	621	442	270	-	-	5,295
2004	12	27	13	138	411	679	282	73	0	351	398	132	2,516
2005	10	0	12	131	445	1,119	515	250	21	965	656	57	4,181

- 1/ Prior to 1989 winter estimates were not made by section. Maximum size limit decreased from 72 to 66 inches effective January 1, 1994 and from 66 to 60 inches effective January 1, 1997. Dashes signify no sampling.
- 2/ Estimate includes a very small number of sturgeon between 5 and 6 feet in length because Washington adopted a 5 foot maximum length effective April 16, 1992-April 15, 1993.
- 3/ Beginning in 1996, the reach from Beacon Rock to Bonneville Dam was closed to sturgeon angling from boats effective May 1-June 30 to provide a spawning sanctuary. The sanctuary closure date was extended to July 15 beginning in 2000. Beginning in 2004 the sanctuary was expanded to include bank anglers and the closure date was extended through July 31.

Appendix Table 31. Sublegal and Legal Released White Sturgeon Catch by Month in the Troutdale-Westport Areas (Sections 2-9) of the Lower Columbia River, 1982-2005.

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
<u>Oversize</u>													
1982	-	12	0	0	34	139	145	72	50	172	-	-	624
1983	-	0	11	197	909	440	239	108	55	154	-	-	2,113
1984	-	0	0	116	412	413	1,063	126	54	112	-	-	2,296
1985	-	17	10	79	256	298	439	145	43	168	-	-	1,455
1986	-	54	254	95	316	362	199	84	23	50	-	-	1,437
1987	-	36	0	86	376	318	94	15	59	94	-	-	1,078
1988	-	29	18	309	197	278	251	54	103	0	-	-	1,239
1989	6	0	54	33	137	265	321	0	44	157	39	0	1,056
1990	7	0	0	190	282	473	449	187	153	0	68	6	1,815
1991	8	105	48	43	270	407	494	199	49	74	37	7	1,741
1992	2/ 12	117	55	387	861	1,885	1,519	283	98	68	56	12	5,353
1993	2/ 6	78	32	253	789	1,343	1,460	527	176	53	21	7	4,745
1994	0	4	54	360	1,100	2,236	1,423	774	210	155	36	14	6,366
1995	13	101	136	385	1,209	2,756	2,491	502	162	8	0	0	7,763
1996	3/ 46	53	66	308	964	2,791	1,751	762	483	321	254	57	7,856
1997	0	178	468	753	1,737	2,331	1,628	535	85	89	41	0	7,845
1998	13	17	28	214	1,574	2,421	1,883	274	119	139	302	60	7,044
1999	31	10	116	168	1,512	2,054	1,466	512	325	126	152	58	6,530
2000	21	58	112	200	1,872	2,549	1,830	489	302	300	184	59	7,976
2001	13	37	297	309	2,522	2,162	1,503	253	158	549	264	109	8,176
2002	8	220	154	254	1,588	2,158	1,462	353	130	179	70	127	6,703
2003	70	186	146	0	1,105	1,132	1,323	621	442	270	-	-	5,295
2004	12	27	13	138	411	679	282	73	0	351	398	132	2,516
2005	10	0	12	131	445	1,119	515	250	21	965	656	57	4,181

- 1/ Prior to 1989 winter estimates were not made by section. Maximum size limit decreased from 72 to 66 inches effective January 1, 1994 and from 66 to 60 inches effective January 1, 1997. Dashes signify no sampling.
- 2/ Estimate includes a very small number of sturgeon between 5 and 6 feet in length because Washington adopted a 5 foot maximum length effective April 16, 1992-April 15, 1993.
- 3/ Beginning in 1996, the reach from Beacon Rock to Bonneville Dam was closed to sturgeon angling from boats effective May 1-June 30 to provide a spawning sanctuary. The sanctuary closure date was extended to July 15 beginning in 2000. Beginning in 2004 the sanctuary was expanded to include bank anglers and the closure date was extended through July 31.

Appendix Table 32. Oversize White Sturgeon Released by Month in the Troutdale-Westport Areas (Sections 2-9) of the Lower Columbia River, 1982-2005. 1/

<u>Oversize</u>													
1982	-	0	0	0	0	0	0	0	0	0	-	-	0
1983	-	0	0	0	0	0	0	8	0	0	-	-	8
1984	-	0	0	0	0	0	0	0	0	0	-	-	0
1985	-	0	0	0	0	0	0	0	0	0	-	-	0
1986	-	0	0	0	0	9	0	10	0	0	-	-	19
1987	-	0	0	0	0	10	0	0	0	0	-	-	10
1988	-	0	0	0	0	0	0	0	0	0	-	-	0
1989	0	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	10	0	0	0	0	10
1991	0	0	0	0	0	0	0	0	0	0	0	0	0
1992 2/	0	10	0	0	9	6	11	0	0	12	0	0	48
1993 2/	0	0	3	8	0	16	15	4	0	0	0	0	46
1994	0	0	0	0	16	6	65	4	0	0	0	0	91
1995	0	15	0	51	0	81	22	3	0	0	0	0	172
1996	0	0	0	0	0	30	83	5	6	0	0	0	124
1997	0	3	9	0	38	28	11	4	0	0	0	0	93
1998	20	0	33	11	9	49	6	0	7	0	8	0	143
1999	14	0	18	7	22	56	29	19	5	7	14	0	191
2000	0	8	21	0	134	127	32	6	3	12	0	0	343
2001	8	9	12	20	59	154	75	0	0	29	7	7	380
2002	0	16	8	25	77	149	59	14	0	5	11	14	378
2003	19	15	0	4	36	40	16	16	7	4	-	-	157
2004	7	0	0	0	96	93	30	0	0	5	4	0	235
2005	0	0	0	0	130	125	130	37	0	47	13	0	482

1/ Prior to 1989 winter estimates were not made by section. Maximum size limit decreased from 72 to 66 inches effective January 1, 1994 and from 66 to 60 inches effective January 1, 1997. Dashes signify no sampling.

2/ Estimate includes a very small number of sturgeon between 5 and 6 feet in length because Washington adopted a 5 foot maximum length effective April 16, 1992-April 15, 1993.

Appendix Table 33. Sublegal and Legal Released White Sturgeon Catch by Month in the Estuary Area (Section 10) of the Lower Columbia River, 1982-2005.

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total 1/
Sublegals													
1982	-	0	0	636	1,988	5,201	6,600	6,809	1,071	0	-	-	22,305
1983	-	0	264	902	3,562	6,459	8,710	7,627	1,351	0	-	-	28,875
1984	-	0	205	249	2,278	7,471	12,455	14,065	5,049	0	-	-	41,772
1985	-	0	0	90	3,867	9,398	5,844	12,022	838	0	-	-	32,059
1986	-	0	187	962	4,918	11,096	11,603	4,540	1,698	0	-	-	35,004
1987	-	43	43	1,835	9,863	17,300	13,342	13,190	1,191	0	-	-	56,807
1988	-	0	0	4,090	10,999	17,053	24,438	3,559	471	0	-	-	60,610
1989	-	0	0	2,356	8,699	20,712	22,857	4,605	4,692	0	-	-	63,921
1990	-	0	207	6,494	8,564	24,078	12,136	13,927	6,497	0	-	-	71,903
1991	-	7,830	2,655	15,650	9,353	22,064	15,902	7,171	2,253	0	-	-	82,878
1992	60	6,909	6,550	7,280	13,962	17,503	17,850	7,581	2,359	40	-	-	80,094
1993	-	3,048	9,593	3,625	16,417	30,016	27,917	12,047	3,932	83	-	-	106,678
1994	2,729	2,078	1,277	1,693	7,171	18,892	16,033	11,038	4,490	597	-	-	65,998
1995	128	2,518	3,445	7,300	17,094	35,297	34,571	13,392	249	0	-	-	113,994
1996	1,290	136	1,657	5,076	9,355	24,872	27,450	9,278	6,122	298	0	-	85,534
1997	35	1,011	2,681	4,163	10,938	23,516	28,498	18,880	2,959	231	-	60	92,972
1998	20	201	980	3,864	17,403	39,877	38,570	16,536	7,696	1,788	0	0	126,935
1999	0	118	864	849	8,750	27,040	49,424	14,159	5,689	1,469	0	83	108,445
2000	-	40	182	11	5,111	26,969	35,957	11,995	4,683	0	-	0	84,948
2001	-	0	13	21	5,255	31,302	26,003	19	0	1,166	-	-	63,779
2002	-	0	42	500	11,851	39,506	32,700	173	0	0	-	-	84,772
2003	-	26	36	569	13,484	43,340	369	112	991	0	-	-	58,927
2004	0	0	8	444	18,376	55,598	7,013	0	0	0	-	-	81,439
2005	-	0	0	75	14,733	51,006	27,778	6,455	0	0	-	-	100,047
Legals Released 2/													
1991	-	0	0	0	12	59	70	22	14	0	-	-	177
1992	0	171	179	138	380	556	919	370	159	0	-	-	2,872
1993	-	347	624	154	666	1,115	996	273	66	0	-	-	4,241
1994	62	14	0	15	69	410	990	678	222	11	-	-	2,471
1995	0	174	326	672	1,409	2,686	1,908	408	15	0	-	-	7,598
1996	8	0	59	168	216	2,030	1,884	494	193	14	0	-	5,066
1997	0	0	21	157	167	674	1,113	341	31	0	-	0	2,504
1998	0	0	19	159	361	1,234	1,244	345	11	0	0	0	3,373
1999	0	10	37	8	247	956	1,544	289	139	0	0	0	3,230
2000	-	0	0	0	139	640	699	285	58	0	-	0	1,821
2001	-	0	0	0	101	1,803	952	0	216	0	-	-	3,072
2002	-	0	0	18	865	2,166	710	68	0	0	-	-	3,827
2003	-	0	0	11	361	2,087	245	0	0	0	-	-	2,704
2004	0	0	0	4	176	578	90	0	0	0	-	-	848
2005	-	0	0	0	110	511	405	79	0	0	-	-	1,105

1/ Prior to 1989 winter estimates were not made by section. Dashes signify no sampling.

2/ Estimates of legals released were made beginning in 1991 in response to the enactment of a "one and one" bag limit.

Appendix Table 34. Oversize White Sturgeon Released in the Estuary Area (Section 10) by Month of the Lower Columbia River, 1982-2005.

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
<u>Oversize</u>													
1982	-	0	0	0	0	0	14	15	0	0	-	-	29
1983	-	0	0	0	0	26	16	20	0	0	-	-	62
1984	-	0	0	0	8	35	32	0	11	0	-	-	86
1985	-	0	0	0	33	79	18	11	0	0	-	-	141
1986	-	0	0	0	56	96	69	3	0	0	-	-	224
1987	-	0	0	0	57	43	12	8	0	0	-	-	120
1988	-	0	0	0	41	61	35	0	0	0	-	-	137
1989	-	0	0	0	32	35	24	3	0	0	-	-	94
1990	-	0	0	0	39	26	16	5	0	0	-	-	86
1991	-	0	0	0	7	61	15	7	0	0	-	-	90
1992 2/	0	0	0	0	126	162	65	0	51	0	-	-	404
1993 2/	-	0	20	12	21	36	83	33	0	0	-	-	205
1994	0	7	0	0	276	208	91	13	15	0	-	-	610
1995	0	0	0	8	31	105	125	14	0	0	-	-	283
1996	0	0	0	0	8	215	319	89	23	0	0	-	654
1997	0	0	0	0	49	272	377	147	4	0	-	0	849
1998	0	1	0	20	197	533	419	99	11	0	0	0	1,280
1999	0	0	0	0	237	498	679	117	53	0	0	0	1,584
2000	-	0	0	0	96	276	281	92	20	0	-	0	765
2001	-	0	0	0	64	365	263	0	0	25	-	-	717
2002	-	0	0	0	45	195	194	0	0	0	-	-	434
2003	-	0	0	11	139	389	0	0	0	0	-	-	539
2004	0	0	0	0	220	478	66	0	0	0	-	-	764
2005	-	0	0	0	171	536	382	95	0	0	-	-	1,184

1/ Prior to 1989 winter estimates were not made by section. Maximum size limit decreased from 72 to 66 inches effective January 1, 1994 and from 66 to 60 inches effective January 1, 1997. Dashes signify no sampling.
 2/ Estimate includes a very small number of sturgeon between 5 and 6 feet in length because Washington adopted a 5 foot maximum length effective April 16, 1992-April 15, 1993.

Appendix Table 35. Estimated Angler Handle of Sublegal White Sturgeon by Month on the Lower Columbia River, 2005 and 1982-2004 Comparison. 1/

Month	Section 1	Sections 2-9	Section 10	Total	Catch/Trip
Jan	1,103	2,325	0	3,428	1.12
Feb	1,316	807	0	2,123	0.51
Mar	2,000	998	0	2,998	1.33
Apr	10,581	4,225	75	14,881	2.12
May	27,775	18,805	14,733	61,313	2.46
June	14,723	14,662	51,006	80,391	2.07
July	8,353	10,223	27,778	46,354	1.92
Aug	1,798	1,092	6,455	9,345	1.44
Sept	972	409	0	1,381	2.92
Oct	20,733	13,083	0	33,816	1.88
Nov	7,519	3,793	0	11,312	1.87
Dec	942	2,148	0	3,090	1.30
Total:	97,815	72,570	100,047	270,432	1.96

Annual Totals 2/

1982	46,008	52,038	22,305	130,200	1.01
1983	56,753	59,083	28,875	154,600	1.06
1984	45,388	49,788	41,772	144,700	1.02
1985	54,744	35,196	32,059	124,000	0.92
1986	47,456	31,497	35,004	125,300	0.86
1987	82,569	55,448	56,807	207,300	1.18
1988	66,161	50,160	60,610	190,200	1.27
1989	97,504	65,980	63,921	227,405	1.73
1990	83,991	66,212	80,903	231,106	1.76
1991	106,807	113,022	82,878	302,707	1.93
1992	136,558	129,229	80,094	345,881	1.85
1993	81,618	93,648	106,678	281,944	1.50
1994	96,256	66,076	65,998	228,330	1.35
1995	126,255	103,933	113,994	344,182	1.80
1996	76,031	65,184	85,534	226,749	1.26
1997	85,769	97,690	92,972	276,431	1.38
1998	114,905	104,270	126,935	328,920	1.70
1999	97,715	72,003	108,445	278,163	1.45
2000	120,078	104,393	84,948	309,419	1.55
2001	114,976	106,149	63,779	284,904	1.54
2002	112,625	112,535	84,772	309,932	1.99
2003	161,788	99,967	58,927	320,682	2.24
2004	99,179	80,519	81,439	261,137	2.27
2005	97,815	72,570	10,047	270,375	1.96

1/ Minimum legal size increased to 40" effective April 1, 1989 and 42" effective January 1, 1994. Minimum size increased to 45" effective May 15-July 3, 2004 and May 14-July 10 and July 15-August 15, 2005 below Wauna Powerlines (Section 10).

2/ Totals for 1982-1988 include a lump sum winter estimate.

Appendix Table 36. Estimated Angler Handle of Oversize White Sturgeon by Month on the Lower Columbia River, 2005 and 1982-2004 Comparison. 1/

Month	Section 1	Sections 2-9	Section 10	Total	Catch/Trip
Jan	10	0	0	10	0.003
Feb	0	0	0	0	0.000
Mar	12	0	0	12	0.005
Apr	131	0	0	131	0.019
May	445	130	171	746	0.030
June	1,119	125	536	1,780	0.046
July	515	130	382	1,027	0.043
Aug	250	37	95	382	0.059
Sept	21	0	0	21	0.044
Oct	965	47	0	1,012	0.056
Nov	656	13	0	669	0.111
Dec	57	0	0	57	0.024
Totals:	4,181	482	1,184	5,847	0.042

Annual Totals 2/

1982	624	0	29	700	0.005
1983	2,113	8	62	2,300	0.016
1984	2,296	0	86	2,500	0.018
1985	1,455	0	141	1,600	0.012
1986	1,437	19	224	1,900	0.013
1987	1,078	10	120	1,300	0.007
1988	1,239	0	137	1,500	0.010
1989	1,056	0	94	1,150	0.009
1990	1,815	10	86	1,911	0.014
1991	1,741	0	90	1,831	0.012
1992 3/	5,353	48	404	5,805	0.031
1993 3/	4,745	46	205	4,996	0.027
1994	6,366	91	610	7,067	0.042
1995	7,763	172	283	8,218	0.043
1996	7,856	124	654	8,634	0.048
1997	7,845	93	849	8,787	0.044
1998	7,044	143	1,280	8,520	0.044
1999	6,530	191	1,584	8,305	0.043
2000	7,976	343	765	9,084	0.045
2001	8,176	380	717	9,273	0.050
2002	6,703	378	434	7,515	0.048
2003	5,295	157	539	5,991	0.042
2004	2,516	235	764	3,515	0.031
2005	4,181	482	1,184	5,844	0.042

1/ Both states reduced the maximum length from 72" to 66" effective January 1, 1997 and from 66" to 60" effective January 1, 1997.

2/ Totals for 1982-1988 include a lump sum winter estimate.

3/ Includes a very small number of sturgeon between 5 and 6 feet in length because WA had a 5-foot maximum length rule from April 16, 1992 through April 15, 1993.

Appendix Table 37. Length Frequency Data and Catch by Size Group for Kept Legal White Sturgeon in the Lower Columbia River Sport Fishery, 1977-2005. 1/

Year	Number Measured	Total Length (inches)			Catch By Length Group						Total Number Kept
		Mean	Median	Mode	36-47"		48-59"		60-72"		
					Number	Percent	Number	Percent	Number	Percent	
1984	2,318	41.0	39	37	19,274	88.0%	2,409	11.0%	219	1.0%	21,902
1985	2,683	41.1	39	37	21,024	89.3%	2,072	8.8%	447	1.9%	23,543
1986	7,043	41.7	40	38	26,932	89.3%	2,835	9.4%	392	1.3%	30,159
1987	9,194	41.8	41	39	33,421	90.3%	2,911	8.3%	516	1.4%	36,848
1988	3,810	41.0	39	37	20,843	91.6%	1,616	7.1%	296	1.3%	22,755
1989	1,992	44.4	43	40	5,393	83.0%	921	14.2%	186	2.9%	6,500
1990	1,983	43.1	41	40	6,818	91.5%	486	6.5%	149	2.0%	7,453
1991	1,641	42.8	42	41	6,831	93.7%	383	5.3%	71	1.0%	7,285
1992	2/ 3,175	43.2	42	42	16,299	91.9%	1,363	7.7%	72	0.4%	17,734
1993	2/ 3,536	43.4	42	41	18,320	91.1%	1,694	8.4%	93	0.5%	20,107
1994	4,960	45.2	44	42	12,898	82.8%	2,571	16.5%	109	0.7%	15,578
1995	7,720	45.4	44	43	23,888	80.4%	5,751	19.4%	75	0.2%	29,714
1996	8,346	46.2	45	43	20,046	72.4%	7,321	26.4%	327	1.2%	27,694
1997	6,997	45.7	44	43	19,136	78.1%	5,359	21.9%	16	0.1%	24,511
1998	7,774	45.6	45	43	23,394	77.2%	6,818	22.5%	91	0.3%	30,303
1999	7,908	45.4	44	42	23,947	81.9%	5,258	18.0%	33	0.1%	29,238
2000	10,547	45.0	44	42	20,620	85.0%	3,619	14.9%	28	0.1%	24,267
2001	6,403	45.8	45	43	16,852	77.9%	4,757	22.0%	10	0.1%	21,619
2002	8,585	46.2	45	43	19,102	72.8%	7,117	27.1%	15	0.1%	26,234
2003	5,292	46.8	46	43	12,221	66.7%	6,097	33.2%	14	0.1%	18,332
2004	4,290	49.0	48	46	7,224	48.1%	7,780	51.8%	15	0.1%	15,019
2005	7,642	48.5	47	46	9,630	53.9%	8,203	45.9%	36	0.2%	17,869

1/ Minimum size limit increased from 36" to 40" effective April 1, 1989 and from 40" to 42" effective January 1, 1994. Maximum size limit decreased from 72" to 66" effective January 1, 1994 and from 66" to 60" effective January 1, 1997. Minimum size increased from 42" to 45" during May 15-July 3, 2005 and May 14-July 10 and July 15-August 15, 2005 in the area below Wauna powerlines (primarily Section 10). See Appendix Table 16 changes in the daily bag limit.

2/ Washington temporarily changed their maximum size limit from 72" to 66" April 16, 1992 and changed it back to 72" April 15, 1993.

Appendix Table 38. Length Frequency Data and Catch by Size Group for Kept Legal Sturgeon in the Bonneville Area (Section 1) of the Lower Columbia River, 1982-2005.

Year	Number Measured	Total Length (inches)			Catch By Length Group						Total Number Kept
		Mean	Median	Mode	36-47"		48-59"		60-72"		
					Number	Percent	Number	Percent	Number	Percent	
1982	674	45.3	43	37	8,117	67.8%	2,966	24.8%	888	7.4%	11,971
1983	773	48.1	46	37	9,441	55.1%	5,252	30.7%	2,438	14.2%	17,131
1984	837	45.6	43	37	8,346	64.9%	3,520	27.4%	999	7.8%	12,865
1985	990	44.2	42	37	11,303	73.9%	2,964	19.4%	1,019	6.7%	15,286
1986	688	45.1	42	38	8,440	70.2%	2,516	20.9%	1,066	8.8%	12,022
1987	1,317	43.6	41	37	14,015	79.1%	2,691	15.2%	1,008	5.7%	17,714
1988	1,000	44.2	41	36	10,684	74.8%	2,442	17.1%	1,157	8.1%	14,283
1989	1,328	44.6	42	40	10,619	77.2%	2,313	16.8%	819	6.0%	13,751
1990	489	47.0	44	42	5,441	68.4%	1,919	24.1%	589	7.4%	7,949
1991	889	45.4	43	42	8,956	80.1%	1,521	13.6%	701	6.3%	11,178
1992 2/	1,867	45.5	43	41	12,726	79.4%	2,416	15.1%	881	5.5%	16,023
1993 2/	1,320	45.3	43	41	9,938	80.6%	1,883	15.3%	504	4.1%	12,325
1994	1,483	46.9	45	43	10,670	70.1%	4,107	27.0%	437	2.9%	15,214
1995	865	46.3	45	44	7,811	73.8%	2,618	24.8%	147	1.4%	10,576
1996	1,088	46.9	46	44	7,549	66.3%	3,558	31.2%	281	2.5%	11,388
1997	1,034	46.7	46	44	7,002	68.5%	3,206	31.3%	21	0.2%	10,229
1998	802	46.4	45	44	4,656	71.4%	1,852	22.8%	13	0.2%	6,521
1999	833	46.8	46	43	4,075	66.6%	2,044	33.4%	0	0.0%	6,119
2000	1,861	46.5	45	43	6,555	71.6%	2,603	28.4%	0	0.0%	9,158
2001	1,827	46.7	46	44	8,683	69.2%	3,860	30.8%	7	0.0%	12,550
2002	1,080	46.6	45	44	4,479	69.6%	1,950	30.3%	6	0.1%	6,435
2003	1,564	47.7	46	44	6,589	59.5%	4,471	40.3%	21	0.2%	11,081
2004	1,722	47.7	46	44	5,131	59.5%	3,493	40.5%	0	0.0%	8,624
2005	1,574	47.8	46	43	5,924	59.9%	3,948	40.0%	6	0.1%	9,878

1/ Minimum size limit increased from 36" to 40" effective April 1, 1989 and from 40" to 42" effective January 1, 1994. Maximum size limit decreased from 72" to 66" effective January 1, 1994 and from 66" to 60" effective January 1, 1997. See Appendix Table 16 for changes in the daily bag limit.

2/ Washington temporarily changed their maximum size limit from 72" to 66" April 16, 1992 and changed it back to 72" April 15, 1993.

Appendix Table 39. Length Frequency Data and Catch by Size Group for Kept Legal Sturgeon in the Troutdale to Estuary Area (Section 2-10), 1982-1983 and Troutdale to Westport Area (Sections 2-9) of the Lower Columbia River, 1984-2005. 1/

Year	Number Measured	Total Length (inches)			Catch By Length Group						Total Number Kept
					36-47"		48-59"		60-72"		
		Mean	Median	Mode	Number	Percent	Number	Percent	Number	Percent	
1982	607	41.0	39	37	5,579	88.1%	656	10.4%	94	1.5%	6,329
1983	839	41.1	40	37	5,993	88.9%	683	10.1%	64	1.0%	6,740
1984	302	40.1	38	37	6,586	91.4%	597	8.3%	24	0.3%	7,207
1985	268	39.9	38	37	4,695	94.0%	298	6.0%	0	0.0%	4,993
1986	307	40.4	39	37	6,889	89.9%	699	9.1%	75	1.0%	7,663
1987	473	39.8	38	37	7,535	95.6%	300	3.8%	50	0.6%	7,885
1988	477	39.2	38	37	5,940	93.1%	115	6.4%	38	0.6%	6,093
1989	507	40.0	38	37	4,832	94.2%	276	5.4%	21	0.4%	5,129
1990	141	43.0	42	41	1,757	92.1%	142	7.4%	9	0.5%	1,908
1991	296	42.8	42	40	3,852	91.9%	329	7.9%	11	0.3%	4,192
1992	2/ 540	42.4	41	40	5,849	92.8%	457	7.2%	0	0.0%	6,306
1993	2/ 784	42.8	42	41	5,130	94.0%	314	5.8%	12	0.2%	5,456
1994	338	44.8	44	44	2,361	88.1%	309	11.5%	9	0.3%	2,679
1995	472	44.7	44	43	4,234	87.3%	579	12.0%	34	0.7%	4,847
1996	376	45.0	44	43	3,115	84.6%	556	15.1%	9	0.2%	3,680
1997	248	45.1	44	43	2,837	83.0%	580	17.0%	0	0.0%	3,417
1998	612	44.9	44	43	4,018	84.2%	754	15.8%	0	0.0%	4,772
1999	569	44.8	44	43	3,816	85.9%	626	14.1%	0	0.0%	4,442
2000	1,049	44.8	44	43	6,095	86.1%	985	13.9%	0	0.0%	7,080
2001	993	45.3	44	43	5,841	82.9%	1,199	17.0%	7	0.1%	7,047
2002	706	45.4	44	43	4,404	78.5%	1,206	21.5%	0	0.0%	5,610
2003	278	45.2	44	43	2,084	82.7%	435	17.3%	0	0.0%	2,519
2004	311	45.9	44	43	1,448	75.2%	478	24.8%	0	0.0%	1,926
2005	249	45.8	44	43	1,618	78.7%	429	20.9%	8	0.4%	2,055

1/ Minimum size limit increased from 36" to 40" effective April 1, 1989 and from 40" to 42" effective January 1, 1994. Maximum size limit decreased from 72" to 66" effective January 1, 1994 and from 66" to 60" effective January 1, 1997. See Appendix Table 16 for changes in the daily bag limit.

2/ Washington temporarily changed their maximum size limit from 72" to 66" April 16, 1992 and changed it back to 72" April 15, 1993.

Appendix Table 40. Length Frequency Data and Catch by Size Group for Kept Legal Sturgeon in the Estuary Area (Section 10) of the Lower Columbia River, 1984-2005. 1/

Year	Number Measured	Total Length (inches)			Catch By Length Group						Total Number Kept
					36-47"		48-59"		60-72"		
		Mean	Median	Mode	Number	Percent	Number	Percent	Number	Percent	
1984	2,318	41.0	39	37	19,274	88.0%	2,409	11.0%	219	1.0%	21,902
1985	2,683	41.1	39	37	21,024	89.3%	2,072	8.8%	447	1.9%	23,543
1986	7,043	41.7	40	38	26,932	89.3%	2,835	9.4%	392	1.3%	30,159
1987	9,194	41.8	41	39	33,421	90.3%	2,911	8.3%	516	1.4%	36,848
1988	3,810	41.0	39	37	20,843	91.6%	1,616	7.1%	296	1.3%	22,755
1989	1,992	44.4	43	40	5,393	83.0%	921	14.2%	186	2.9%	6,500
1990	1,983	43.1	41	40	6,818	91.5%	486	6.5%	149	2.0%	7,453
1991	1,641	42.8	42	41	6,831	93.7%	383	5.3%	71	1.0%	7,285
1992 2/	3,175	43.2	42	42	16,299	91.9%	1,363	7.7%	72	0.4%	17,734
1993 2/	3,536	43.4	42	41	18,320	91.1%	1,694	8.4%	93	0.5%	20,107
1994	4,960	45.2	44	42	12,898	82.8%	2,571	16.5%	109	0.7%	15,578
1995	7,720	45.4	44	43	23,888	80.4%	5,751	19.4%	75	0.2%	29,714
1996	8,346	46.2	45	43	20,046	72.4%	7,321	26.4%	327	1.2%	27,694
1997	6,997	45.7	44	43	19,136	78.1%	5,359	21.9%	16	0.1%	24,511
1998	7,774	45.6	45	43	23,394	77.2%	6,818	22.5%	91	0.3%	30,303
1999	7,908	45.4	44	42	23,947	81.9%	5,258	18.0%	33	0.1%	29,238
2000	10,547	45.0	44	42	20,620	85.0%	3,619	14.9%	28	0.1%	24,267
2001	6,403	45.8	45	43	16,852	77.9%	4,757	22.0%	10	0.1%	21,619
2002	8,585	46.2	45	43	19,102	72.8%	7,117	27.1%	15	0.1%	26,234
2003	5,292	46.8	46	43	12,221	66.7%	6,097	33.2%	14	0.1%	18,332
2004	4,290	49.0	48	46	7,224	48.1%	7,780	51.8%	15	0.1%	15,019
2005	7,642	48.5	47	46	9,630	53.9%	8,203	45.9%	36	0.2%	17,869

1/ Minimum size limit increased from 36" to 40" effective April 1, 1989 and from 40" to 42" effective January 1, 1994. Maximum size limit decreased from 72" to 66" effective January 1, 1994 and from 66" to 60" effective January 1, 1997. Minimum size increased from 42" to 45" during May 15-July 3, 2005 and May 14-July 10 and July 15-August 15, 2005 in the area below Wauna powerlines (primarily Section 10). See Appendix Table 16 changes in the daily bag limit.

2/ Washington temporarily changed their maximum size limit from 72" to 66" April 16, 1992 and changed it back to 72" April 15, 1993.

Appendix Table 41. Sturgeon Charter and Private Boat Effort and Catch by Month in the Estuary Area (Section 10) of the Lower Columbia River, 2005. 1/

Month	Boat Trips	Angler Trips	White Sturgeon				Green Sturgeon Kept	White and Green Legal Catch Kept Per Angler Trip	
			Sublegals	Legals Kept 2/	Legals Rel. 3/	Oversize			
Charters									
Feb	0	0	0	0	0	0	0.00	0	0.00
Mar	0	0	0	0	0	0	0.00	0	0.00
Apr	1	9	0	0	0	0	0.00	0	0.00
May	162	1,635	1,905	567	7	51	3.32	0	0.35
June	492	5,068	10,050	2,144	156	137	4.37	10	0.43
July	199	1,809	5,176	1,259	46	69	3.97	13	0.70
Aug	23	208	519	151	8	12	3.26	1	0.73
Sept	0	0	0	0	0	0	0.00	0	0.00
Oct	0	0	0	0	0	0	0.00	0	0.00
Totals:	877	8,729	17,650	4,121	217	269	4.07	24	0.47
Private 4/									
Feb	0	0	0	0	0	0	0.00	0	0.00
Mar	3	7	0	0	0	0	0.00	0	0.00
Apr	182	444	75	0	0	0	0.00	0	0.00
May	3,092	8,936	12,815	1,901	103	120	6.39	0	0.21
June	7,750	22,630	40,878	6,174	355	394	6.26	26	0.27
July	5,252	14,443	22,545	4,362	359	313	4.78	54	0.31
Aug	1,695	4,712	5,936	1,243	71	83	4.52	15	0.27
Sept	0	0	0	0	0	0	0.00	0	0.00
Oct	0	0	0	0	0	0	0.00	0	0.00
Totals:	17,974	51,172	82,249	13,680	888	910	5.65	95	0.27
Charter & Private Combined									
Feb	0	0	0	0	0	0	0.00	0	0.00
Mar	3	7	0	0	0	0	0.00	0	0.00
Apr	183	453	75	0	0	0	0.00	0	0.00
May	3,254	10,571	14,720	2,468	110	171	5.71	0	0.23
June	8,242	27,698	50,928	8,318	511	531	5.77	36	0.30
July	5,451	16,252	27,721	5,621	405	382	4.60	67	0.35
Aug	1,718	4,920	6,455	1,394	79	95	4.38	16	0.29
Sept	0	0	0	0	0	0	0.00	0	0.00
Oct	0	0	0	0	0	0	0.00	0	0.00
Totals:	18,851	59,901	99,899	17,801	1,105	1,179	5.28	119	0.30

- 1/ There is usually no appreciable wintertime catch of sturgeon in the estuary.
- 2/ Sturgeon retention was allowed below Wauna during January 1-April 30, May 14-July 10, and July 15-August 15, 2005. Minimum size increased to 45" during May 14-July 10 and July 15-August 15, 2005.
- 3/ Estimates of legals released started in 1991 in response to the enactment of the "one and one" bag limit.
- 4/ Private totals include catch and effort from guide boats (4-7 passenger vessels), which are indistinguishable from private boats during aerial counts.

Appendix Table 42. Sturgeon Charter and Private Boat Effort and Catch in the Estuary Area (Section 10) of the Columbia River, 1984-2005.

Year	Boat Trips	Angler Trips	White Sturgeon						Green Sturgeon Kept	White and Green Legal Kept Catch Per Angler Trip
			Sublegals	Legals Kept	Legals Released 1/		Oversize 2/	Sublegal/Legal		
					Number	Percent				
Charters										
1984	3/	-	-	-	-	-	-	-	-	-
1985	680	4,958	6,964	5,982	-	-	21	1.16	108	1.23
1986	761	5,690	5,117	7,403	-	-	39	0.69	94	1.32
1987	832	6,016	7,018	7,423	-	-	32	0.95	55	1.24
1988	859	6,160	11,900	5,770	-	-	10	2.06	15	0.94
1989	608	4,304	12,569	1,922	-	-	10	6.54	14	0.45
1990	535	3,919	13,850	1,644	-	-	32	8.42	15	0.42
1991	486	3,649	10,437	1,415	0	0%	5	7.38	4	0.39
1992	708	5,029	10,555	3,555	206	5%	104	2.81	10	0.71
1993	803	6,050	14,308	3,209	370	10%	34	4.00	2	0.53
1994	948	7,458	15,713	4,306	233	5%	239	3.46	34	0.58
1995	879	7,686	20,490	7,541	1,664	18%	105	2.23	9	0.98
1996	1,223	11,119	24,529	9,194	878	9%	329	2.44	31	0.83
1997	1,393	12,243	24,054	8,271	104	1%	396	2.87	22	0.68
1998	1,471	14,194	29,480	9,895	194	2%	485	2.92	45	0.70
1999	1,326	13,207	27,232	10,130	139	1%	607	2.65	16	0.77
2000	1,170	11,593	22,550	8,483	226	3%	327	2.59	13	0.73
2001	991	10,786	16,911	7,886	728	8%	336	1.96	29	0.73
2002	957	9,946	17,791	7,644	399	5%	119	2.21	42	0.77
2003	632	6,590	9,805	5,201	785	13%	132	1.64	21	0.79
2004	721	7,410	17,995	5,328	217	4%	339	3.25	14	0.72
2005	877	8,729	17,650	4,121	217	5%	269	4.06	24	0.47
Private 4/										
1984	9,529	30,121	41,477	21,700	-	-	86	1.91	103	0.72
1985	10,916	31,248	25,077	17,518	-	-	120	1.43	425	0.57
1986	12,444	35,676	29,460	22,620	-	-	183	1.30	305	0.64
1987	15,173	43,194	50,463	29,346	-	-	88	1.72	173	0.68
1988	12,050	32,385	48,585	16,985	-	-	127	2.86	126	0.53
1989	8,357	22,002	50,760	4,466	-	-	74	11.37	70	0.21
1990	10,442	28,001	66,007	5,488	-	-	54	12.03	71	0.20
1991	10,188	26,029	71,788	5,759	177	3%	85	12.09	18	0.22
1992	14,359	38,293	66,114	13,546	2,647	16%	288	4.08	63	0.36
1993	18,055	48,550	89,981	16,446	3,870	19%	171	4.43	13	0.34
1994	15,291	40,357	48,631	10,767	2,188	17%	371	3.75	98	0.27
1995	20,528	55,229	92,092	21,599	5,934	22%	178	3.34	12	0.39
1996	16,477	45,194	60,375	17,128	4,107	19%	267	2.84	32	0.38
1997	18,125	48,421	64,867	15,262	2,250	13%	434	3.70	19	0.32
1998	24,242	64,335	94,509	19,665	3,082	14%	756	4.15	28	0.31
1999	21,269	57,066	79,941	18,556	3,040	14%	966	3.70	77	0.33
2000	19,004	52,069	61,453	15,198	1,578	9%	422	3.66	19	0.29
2001	15,018	40,924	46,375	13,529	2,341	15%	374	2.92	21	0.33
2002	16,679	45,858	65,959	18,011	3,387	16%	286	3.08	9	0.39
2003	13,974	38,089	48,721	12,998	1,919	13%	401	3.27	31	0.34
2004	11,272	32,228	62,940	9,504	627	6%	411	6.21	15	0.30
2005	17,974	51,172	82,249	13,680	888	6%	910	5.65	95	0.27
Charter & Private Combined										
1984	9,529	30,121	41,477	21,700	-	-	86	1.91	103	0.72
1985	11,596	36,206	32,041	23,500	-	-	141	1.36	533	0.66
1986	13,205	41,366	34,577	30,023	-	-	222	1.15	399	0.74
1987	16,005	49,210	57,481	36,769	-	-	120	1.56	228	0.75
1988	12,909	38,545	60,485	22,755	-	-	137	2.66	141	0.59
1989	8,965	26,306	63,329	6,388	-	-	84	9.91	84	0.25
1990	10,977	31,920	79,857	7,132	-	-	86	11.20	86	0.23

Appendix Table 43. Angler Trips and Catch for Green Sturgeon on the Lower Columbia River, 1982-2005.

Year	Angler Trips 1/	Green Sturgeon Kept	Months of Catch	Areas of Catch
1982	-	0	-	-
1983	-	141	June-Aug.	Sec. 10
1984	-	103	June-Sept.	Sec. 10
1985	-	533	May-Sept.	Sec. 10
1986	-	407	May-Sept.	Sec. 10
1987	-	228	May-Aug.	Sec. 10
1988	-	141	May-Aug.	Sec. 10
1989	-	84	June-Sept.	Sec. 10
1990	-	86	June-Sept.	Sec. 10
1991	-	22	June-Aug.	Sec. 10
1992	-	73	June-Sept.	Sec. 10
1993	-	15	July-Aug.	Sec. 10
1994	-	132	May-Sept.	Sec. 10
1995	-	21	June-Aug.	Sec. 10
1996	-	63	June-Sept.	Sec. 10
1997	-	41	June-Aug.	Sec. 10
1998	-	73	June-Sept.	Sec. 10
1999	-	93	May-Sept.	Sec. 10
2000	-	32	June-Aug.	Sec. 10
2001	-	50	May-July	Sec. 10
2002	-	51	May-July	Sec. 10
2003	-	52	May-June	Sec. 10
2004	-	29	May-July	Sec. 10
2005	-	119	June-Aug.	Sec. 10

1/ Green sturgeon are taken incidentally to boat angling for white sturgeon.

Appendix Table 44. Shad Angler Trips, Catch, and Catch/Trip on the Lower Columbia River, 1974-2005.

Year	Angler Trips	Shad		Percent Released	Catch/Trip
		Kept	Released		
1974	4,554	12,263	--	--	2.7
1975	6,711	14,497	--	--	2.2
1976	5,614	15,877	--	--	2.8
1977	2,203	2,804	--	--	1.3
1978	3,726	15,683	--	--	4.2
1979	4,341	12,442	--	--	2.9
1980	6,005	24,280	--	--	4.0
1981	7,267	28,689	--	--	3.9
1982	6,632	33,914	1,428	4%	5.3
1983	7,274	28,744	4,960	15%	4.6
1984	7,982	22,270	1,700	7%	3.0
1985	7,031	13,666	3,950	22%	2.5
1986	6,475	18,914	5,045	21%	3.7
1987	5,520	14,349	1,940	12%	3.0
1988	6,744	27,455	2,566	9%	4.5
1989	12,824	64,351	18,966	23%	6.5
1990	18,983	113,831	21,841	16%	7.1
1991	20,321	100,584	15,522	13%	5.7
1992	20,977	88,295	11,506	12%	4.8
1993	20,297	111,446	8,278	7%	5.9
1994	16,152	103,788	10,284	9%	7.1
1995	17,822	101,361	8,297	8%	6.2
1996	15,935	129,759	4,516	3%	8.4
1997	11,859	98,949	4,069	4%	8.7
1998	13,147	83,355	5,503	6%	6.8
1999	12,436	79,347	6,228	7%	6.9
2000	10,790	57,953	5,664	9%	5.9
2001	12,506	98,566	8,479	8%	8.6
2002	17,869	148,164	21,733	13%	9.5
2003	17,892	115,867	13,022	10%	7.2
2004	15,522	123,047	6,234	5%	8.3
2005	20,370	164,889	12,365	7%	8.7

Appendix Table 45. Angler Trips and Catch for Walleye on the Lower Columbia River, 1982-2005.

Year	Angler Trips 1/	Walleye Kept	Months of Catch	Areas of Catch
1982	-	126	July-Aug.	-
1983	-	200	All Year	Sec. 1
1984	1,081	541	July-Sept.	Sec. 1
1985	553	155	May-Sept.	Sec. 1-2
1986	-	Few	May-Sept.	Sec. 1-2
1987	-	Few	May-Sept.	Sec. 1-2
1988	-	Few	May-Sept.	Sec. 1-2
1989	729	340	May-Oct.	Sec. 1-2
1990	1,627	418	May-Oct.	Sec. 1-2
1991	1,210	361	Feb.-Oct.	Sec. 1-2
1992	1,407	437	Feb.-Oct.	Sec. 1-2
1993	2,271	603	Feb.-Oct.	Sec. 1-2
1994	7,488	1,872	Feb.-Oct.	Sec. 1-4
1995	6,248	3,124	Feb.-Oct.	Sec. 1-4
1996	5,836	1,728	Feb.-Oct.	Sec. 1-4
1997	3,122	1,068	July-Oct.	Sec. 1-2
1998	1,900	428	June-Oct.	Sec. 1-4
1999	1,696	374	July-Oct.	Sec. 1-4
2000	1,339	252	June-Oct.	Sec. 1-6
2001	1,315	462	Feb.-Nov.	Sec. 1-6
2002	1,507	672	Mar.-Oct.	Sec. 1-6
2003	1,196	313	June-Oct.	Sec. 1-5
2004	1,925	1,001	Apr.-Oct.	Sec. 1-6
2005	1,437	646	June-Sept.	Sec. 1-3

1/ The majority of the walleye catch is taken by target walleye boat anglers and the remainder is taken incidentally to boat angling for salmon, steelhead, and shad.