



**JOINT STAFF REPORT
CONCERNING THE 2000 IN-RIVER COMMERCIAL HARVEST
OF COLUMBIA RIVER FALL CHINOOK SALMON, SUMMER
STEELHEAD, COHO SALMON, AND STURGEON**

Joint Columbia River Management Staff

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

July 13, 2000

TABLE OF CONTENTS

| | |
|---|----|
| LIST OF TABLES | 4 |
| LIST OF FIGURES | 5 |
| INTRODUCTION..... | 6 |
| THE COMPACT..... | 7 |
| STOCK STATUS..... | 8 |
| <i>Fall Chinook</i> | 8 |
| Stock Description | 8 |
| 1999 Returns | 9 |
| 2000 Forecast | 11 |
| <i>Upriver Summer Steelhead</i> | 12 |
| Stock Description | 12 |
| 1999 Returns | 14 |
| 2000 Forecast | 14 |
| <i>Coho</i> | 15 |
| Stock Description | 15 |
| 1999 Returns | 16 |
| 2000 Forecast | 16 |
| <i>Chum</i> | 20 |
| <i>Sturgeon</i> | 21 |
| MANAGEMENT GUIDELINES | 21 |
| <i>Endangered Species Act</i> | 21 |
| <i>2000 Salmon Management Guidelines</i> | 24 |
| <i>Lower Columbia River Sturgeon Allocation</i> | 24 |
| <i>Zone 6 Sturgeon Allocation</i> | 25 |
| REVIEW OF MAINSTEM FISHERIES | 26 |
| <i>Past Seasons</i> | 26 |
| <i>1999 Season Summary</i> | 27 |
| <i>Zone 6 Fisheries</i> | 31 |
| Treaty Indian Commercial Season | 31 |
| Sturgeon Fisheries | 35 |
| <i>Lower River Commercial Fisheries</i> | 36 |
| Early Fall Mainstem Seasons | 36 |
| Late Fall Mainstem Seasons..... | 37 |

| | |
|---|----|
| <i>Select Area Fisheries</i> | 37 |
| <i>Mainstem Columbia River Recreational Fisheries</i> | 38 |
| <i>1999 Fishery Impacts</i> | 41 |
| 2000 FALL SEASON RECOMMENDATIONS..... | 42 |
| <i>Non-Indian Fisheries</i> | 42 |
| August Sturgeon/Salmon Fishery..... | 42 |
| Fall Sturgeon/Salmon Fisheries | 42 |
| Fall Select Area Fisheries..... | 42 |
| <i>Treaty Indian Commercial Fisheries</i> | 42 |

LIST OF TABLES

| | |
|--|----|
| Table 1. Summary of 1999 Actual and Current 2000 Forecasts of Adult Salmon and Steelhead Returns..... | 6 |
| Table 2. Predicted and Actual Returns of Columbia River Adult Fall Chinook, 1990-1999, and 2000 Forecasts (Thousands) | 10 |
| Table 3. Estimated Columbia River Returns and Lower Granite Dam Escapement of Snake River Wild Fall Chinook Adults, 1986-1999 and Forecast for 2000 | 11 |
| Table 4. Group A Index and Group B Index Returns of Summer Steelhead to Bonneville Dam During 1984-1999 and 2000 Projections | 14 |
| Table 5. Minimum Numbers (Thousands) of Coho Adults Entering the Columbia River, 1970-1999..... | 17 |
| Table 6. Minimum Numbers (Thousands) of Early Coho Adults Entering the Columbia River, 1970-1999..... | 18 |
| Table 7. Minimum Numbers (Thousands) of Late Coho Adults Entering the Columbia River, 1970-1999..... | 19 |
| Table 8. Escapement Index Values for Chum in Washington Lower Columbia River Tributaries and for Late Run Coho in Oregon Columbia River Tributaries downstream from the Willamette River, 1950-1999..... | 20 |
| Table 9. ESA Status of Columbia Basin Salmonids Present During August 1-December 31 ... | 23 |
| Table 10. Zone 6 Sturgeon Catch Guidelines..... | 25 |
| Table 11. Fall Lower River and Zone 6 Mainstem Commercial Fishery Seasons, 1999..... | 29 |
| Table 12. Salmon, Steelhead, and Sturgeon Catch in 1999 Fall Fisheries | 30 |
| Table 13. Stock Composition of Adult Fall Chinook Landed in Mainstem Columbia River Fisheries, 1999. | 31 |
| Table 14. Catch Composition of Fall Zone 6 Treaty Indian Fisheries, 1999. | 32 |
| Table 15. Number of Adult Chinook, Coho, Steelhead, and Sturgeon Landed During Treaty Indian Fall Seasons (Aug-Nov) Above Bonneville Dam, 1970-1999..... | 33 |
| Table 16. Wild Steelhead Catch in Treaty Indian Fall Fisheries, 1985-1999..... | 35 |
| Table 17. Sturgeon Catches in Zone 6 Reservoirs above Bonneville Dam, 1991-1999. | 36 |
| Table 18. Number of Adult Chinook, Chum, Coho, Steelhead, and Sturgeon Landed During Early Fall Mainstem Columbia River Seasons Below Bonneville Dam, 1970-1999... | 39 |
| Table 19. Number of Adult Chinook, Coho, Steelhead, and Sturgeon Landed during Late Fall Mainstem Columbia River and Select Area Seasons (mid-Sep to mid-Nov) below Bonneville Dam, 1970-1999. | 40 |
| Table 20. Lower Columbia River White and Green Sturgeon Catches, 1991-1999..... | 41 |
| Table 21. Summary of 1999 Fall Fishery Impacts | 41 |

LIST OF FIGURES

| | |
|---|----|
| Figure 1. Columbia River Commercial Fishing Zones..... | 7 |
| Figure 2. Stock Components of Columbia River Fall Chinook and 2000 Adult Preseason Forecasts..... | 8 |
| Figure 3. Average Run Timing of Adult Fall Chinook Over Bonneville Dam (1990-1999) Applied to the 2000 Forecast..... | 9 |
| Figure 4. Daily Passage of Summer Steelhead over Bonneville Dam. | 13 |
| Figure 5. Average Daily Counts of Salmon and Shad at Bonneville Dam, 1986-1997. | 27 |

**JOINT STAFF REPORT CONCERNING THE 2000 IN-RIVER COMMERCIAL
HARVEST OF COLUMBIA RIVER FALL CHINOOK SALMON, SUMMER
STEELHEAD, COHO SALMON, AND STURGEON**

INTRODUCTION

This report describes fall fisheries in the mainstem Columbia River and includes summaries of 1999 fall fisheries, 2000 management guidelines, expected 2000 fall fish runs, and the outlook for 2000 fall fisheries. This report is the third in an annual series produced by the Joint Columbia River Management Staff of the Oregon Department of Fish and Wildlife (ODFW) and Washington Department of Fish and Wildlife (WDFW) prior to each major Columbia River Compact hearing. Early and late fall management periods are combined in this report. Information and recommendations concerning Select Area fisheries are reported separately.

The 2000 fall Compact hearing will begin at 10 AM, July 27, at the ODFW Headquarters Office, 2501 S.W. 1st Avenue, Portland, Oregon. The purpose of the hearing is to consider fishing seasons for the commercial harvest of fall chinook, coho, steelhead, and sturgeon in Compact jurisdiction waters of the Columbia River. Following the hearing, the states will consider Select Area fall salmon seasons for Big Creek, Youngs Bay, Tongue Point, Blind Slough, and Deep River. Additional Compact hearings will be scheduled to address treaty Indian commercial seasons, other non-Indian commercial seasons, and in-season adjustments to all commercial fisheries.

Salmon and summer steelhead returns are forecast prior to the fall season and are updated in-season based on the most current estimates of Alaska, British Columbia, and WA/OR ocean catches, dam counts, and in-river fishery information (Table 1). The data in this report are a consensus of the Technical Advisory Committee (TAC) which completed review prior to printing. TAC is comprised of biologists from state and federal fish management agencies and the Columbia River treaty Indian tribes, and functions by agreement of the parties under *U. S. v. Oregon*.

| Table 1. Summary of 1999 Actual and Current 2000 Forecasts of Adult Salmon and Steelhead Returns. | | | |
|---|--------------------------|-------------------------------|---------------------------------------|
| Species, stock | 1999 Run ¹ | 2000 Forecast ¹ | Comments |
| Fall chinook | 313,100 | 328,900 | |
| Upriver bright (URB) | 166,100 | 208,200 | Highest since 1989 |
| Snake River wild (SRW) | 2,739 | 1,764 | Similar to recent 10-year average |
| Mid-Columbia bright (MCB) | 49,600 | 58,400 | Higher than the recent 10-yr. average |
| Bonneville upriver bright (BUB) | 13,400 | 17,900 | |
| Pool upriver bright (PUB) | 36,200 | 40,500 | |
| Lower river bright (LRB) | 1,100 | 3,200 | Formerly a component of the BUB stock |
| Bonneville pool hatchery (BPH) | 50,200 | 26,900 | Similar to recent 10-yr. average |
| Lower river hatchery (LRH) | 40,000 | 26,400 | Record low return |
| Lower river wild (LRW) | 3,300 | 2,700 | Record low |
| Select area bright (SAB) | 2,900 | 3,100 | Below recent 5-year average |
| Upriver summer steelhead | 205,700 | 254,000 | Above recent 10-year average |
| Skamania index (May 1 - June 30) | 7,200 | 10,200 | |
| A-run index (length <78cm) | 176,400 | 210,000 | Includes only fish after June 30 |
| B-run index (length ≥78cm) | 22,100 | 33,800 | Includes only fish after June 30 |
| Coho | 260,700 | 450,200 | |
| Early stock | 153,500 | 253,600 | Highest since 1991 |
| Late stock | 105,300 | 196,600 | Highest since 1991 |

¹ Columbia River mouth return, except summer steelhead is Bonneville Dam return.

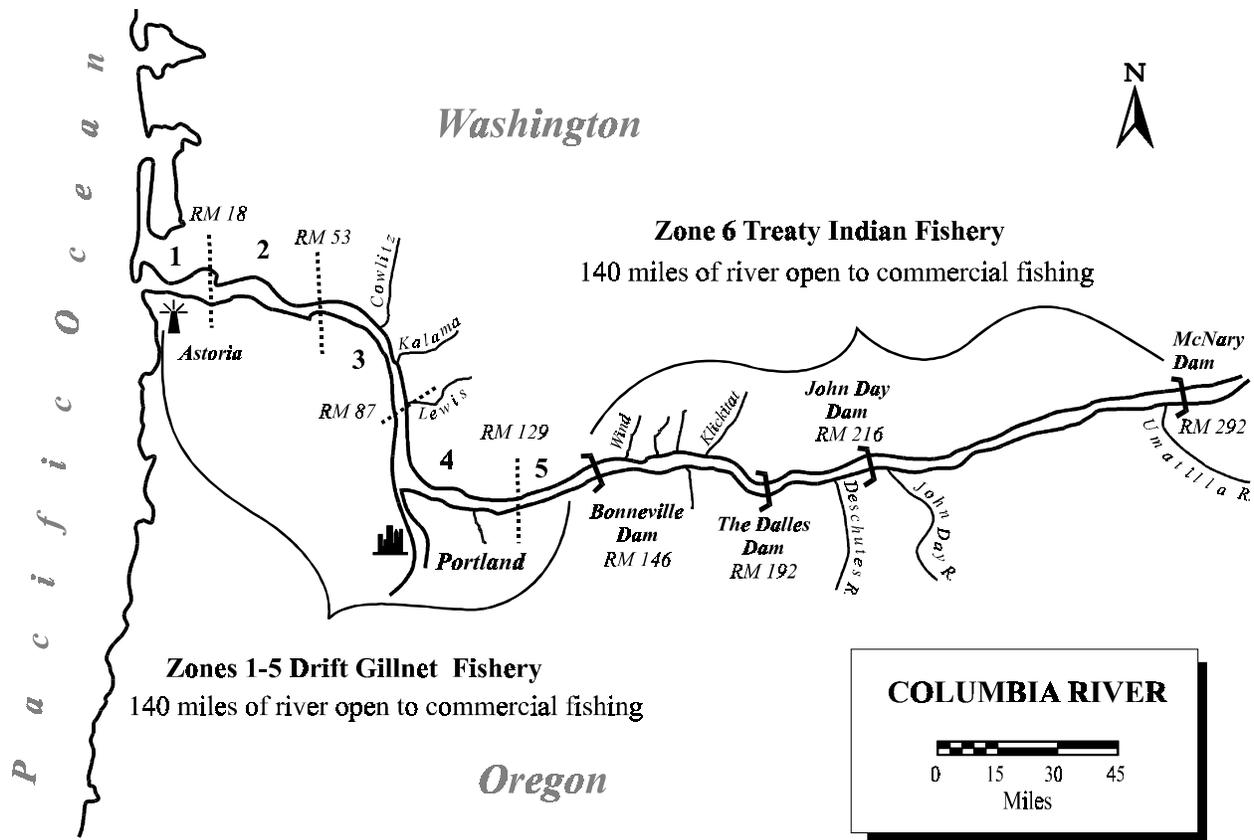


Figure 1. Columbia River Commercial Fishing Zones.

THE COMPACT

The Columbia River Compact is charged by congressional and statutory authority to adopt seasons and rules for Columbia River commercial fisheries (Figure 1). In recent years, the Compact has consisted of the Oregon and Washington agency directors, or their delegates, acting on behalf of the Oregon Fish and Wildlife Commission (OFWC) and the Washington Fish and Wildlife Commission (WFWC). In addition, the Columbia River treaty tribes have authority to regulate treaty Indian fisheries.

When addressing commercial seasons for salmon, steelhead, and sturgeon, the Compact must consider the effect of the commercial fishery on escapement, treaty rights, and sport fisheries, as well as the impact on species listed under the Endangered Species Act (ESA). Although the Compact has no authority to adopt sport fishing seasons or rules, it is an inherent responsibility of the Compact to address the allocation of limited resources among users. This responsibility has become increasingly demanding in recent years. The Compact can be expected to be more conservative than in the past when considering fisheries that will impact listed salmon and steelhead.

STOCK STATUS

Fall Chinook

Stock Description

Fall chinook generally enter the Columbia River from late July through October with abundance peaking in the lower river from mid-August to mid-September and peaking at Bonneville Dam in early September. Columbia River fall chinook are comprised of five major components (Figure 2): Lower River Hatchery (LRH), Lower River Wild (LRW), Bonneville Pool Hatchery (BPH), Upriver Bright (URB), and Mid-Columbia Bright (MCB). The LRH and BPH stocks are referred to as tules and the LRW, URB, and MCB stocks are referred to as brights. Minor run components include Lower River Brights (LRB) and Select Area Brights (SAB).

The URB, BPH, and a portion of MCB chinook are produced above Bonneville Dam, and in aggregate, comprise the upriver run which is subject to treaty Indian/non-Indian allocation requirements. Most of the URB stocks are wild fish destined for the Hanford Reach section of the Columbia River. Smaller URB components are destined for the Deschutes, Snake, and Yakima rivers. Snake River wild (SRW) fall chinook are a sub component of the URB stock. The MCBs originated from, and are considered a component of the URB stock. The upriver MCB component (Pool Upriver Brights or PUB stock) is comprised of brights reared at Bonneville, Little White Salmon, Irrigon, and Klickitat hatcheries and released in areas between Bonneville and McNary dams. Natural production of brights derived from PUB stock is also believed to occur in the mainstem Columbia below John Day Dam, and in the Wind, White Salmon, Klickitat, and Umatilla rivers. The BPH stock is produced primarily at Spring Creek Hatchery in the Bonneville Pool. BPH passage at Bonneville Dam occurs over a shorter time frame than the URB and MCB chinook (Figure 3). Natural production of tules occurs in the Wind, White Salmon, and Klickitat rivers.

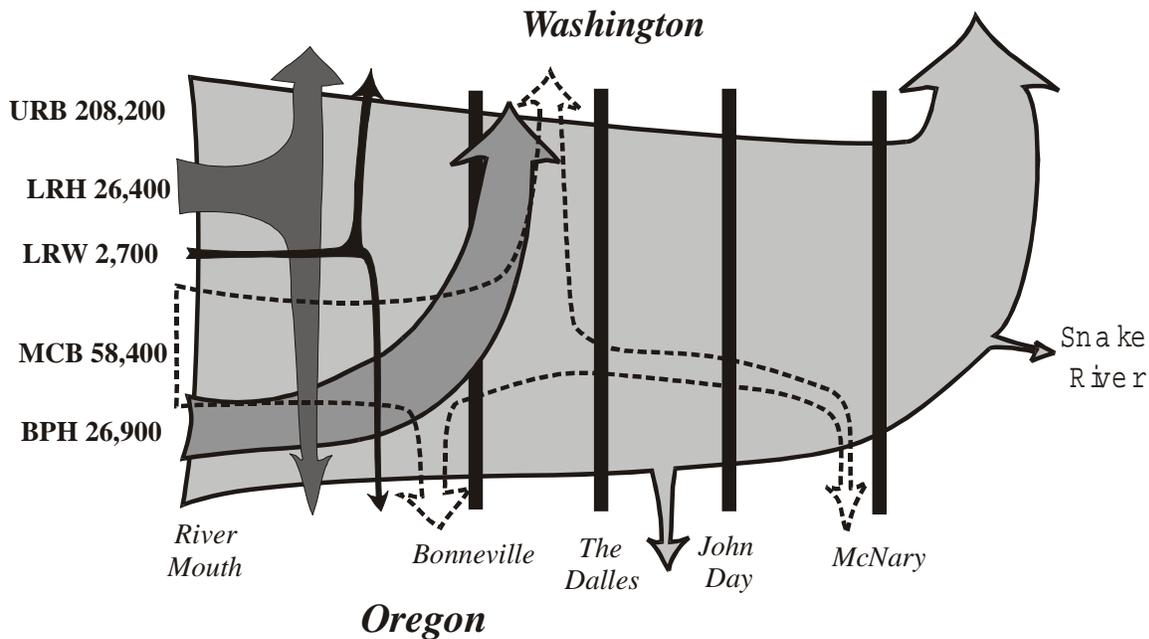


Figure 2. Stock Components of Columbia River Fall Chinook and 2000 Adult Preseason Forecasts.

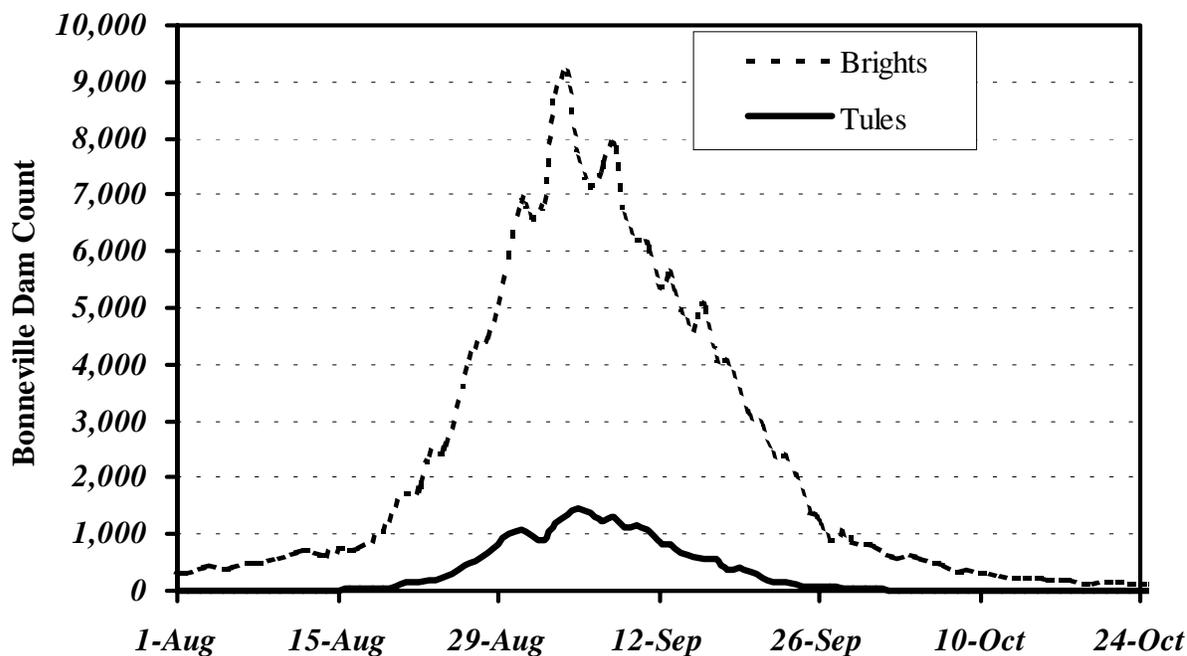


Figure 3. Average Run Timing of Adult Fall Chinook over Bonneville Dam (1990-1999) Applied to the 2000 Forecasts.

The lower river run is comprised of LRH, LRW, MCB, LRB, and SAB stocks, which are produced below Bonneville Dam. The LRH stock is currently produced from hatchery facilities (five in Washington and one in Oregon) while the LRW stock is naturally produced, primarily in the Lewis River system with smaller components also present in the Cowlitz and Sandy rivers. The MCB production below Bonneville Dam (Bonneville Upriver Brights, or BUB stock) occurs at Bonneville Hatchery in Oregon. The LRB's are a self-sustaining natural stock that spawns in the mainstem Columbia approximately three miles downstream from Bonneville Dam. The LRB stock is closely related to upriver brights and is thought to have originated from MCB or URB stock. Prior to 1998, LRB's were classified as BUB's, and therefore were considered to be a component of the MCB stocks. Beginning in 1998, LRB's were identified as a separate stock. SABs are a local hatchery stock that originated from the Rogue River fall chinook stock and are currently being reared at Klaskanine Hatchery for release into Youngs Bay. SABs are expected to return only to Youngs Bay in 2000.

1999 Returns

The total Columbia River fall chinook adult return in 1999 was 313,100 adults which is similar to the stronger return years of 1996 and 1997 and larger than the average returns observed during the 1990's (Table 2). The URB return of 166,100 adults was the largest return since 1989 but well below the record return of 420,600 in 1987. URBs comprised slightly more than half (53%) of the total river mouth return and the 1999 McNary Dam count of 78,400 adults surpassed the management goal of 46,000. The Deschutes basin return of 6,900 adults was below the recent 10-year average of 7,900.

| Table 2. Predicated and Actual Returns of Columbia River Adult Fall Chinook, 1990-1999, and 2000 Forecasts (Thousands). | | | | |
|---|-------------|---------------------|---------------|---------------------|
| Stock | Year | Pre-season Forecast | Actual Return | Percent of Forecast |
| Lower River Hatchery | 1990-94 | 77.7 | 58.2 | 81 |
| | 1995 | 42.4 | 46.4 | 109 |
| | 1996 | 48.4 | 75.5 | 156 |
| | 1997 | 68.7 | 57.4 | 84 |
| | 1998 | 19.2 | 44.3 | 231 |
| | 1999 | 38.2 | 40.0 | 105 |
| | 2000 | 26.4 | | |
| Lower River Wild | 1990-94 | 15.8 | 15.7 | 104 |
| | 1995 | 11.5 | 16.0 | 139 |
| | 1996 | 8.1 | 14.6 | 180 |
| | 1997 | 7.2 | 12.3 | 171 |
| | 1998 | 8.1 | 7.3 | 90 |
| | 1999 | 2.5 | 3.3 | 132 |
| | 2000 | 2.7 | | |
| Bonneville Pool Hatchery | 1990-94 | 35.5 | 27.2 | 76 |
| | 1995 | 22.5 | 33.8 | 150 |
| | 1996 | 35.4 | 33.1 | 94 |
| | 1997 | 25.7 | 27.4 | 107 |
| | 1998 | 14.2 | 20.2 | 142 |
| | 1999 | 61.0 | 50.2 | 82 |
| | 2000 | 26.9 | | |
| Upriver Bright | 1990-94 | 91.9 | 114.6 | 125 |
| | 1995 | 125.0 | 106.5 | 85 |
| | 1996 | 94.2 | 143.2 | 152 |
| | 1997 | 153.4 | 161.7 | 105 |
| | 1998 | 150.8 | 142.3 | 94 |
| | 1999 | 102.1 | 167.0 | 164 |
| | 2000 | 208.2 | | |
| Mid-Columbia Bright | 1990-94 | 43.2 | 37.4 | 90 |
| | 1995 | 30.0 | 34.1 | 114 |
| | 1996 | 43.2 | 59.7 | 138 |
| | 1997 | 66.5 | 58.9 | 89 |
| | 1998 | 47.8 | 36.8 | 77 |
| | 1999 | 26.7 | 49.6 | 188 |
| | 2000 | 58.4 | | |
| Columbia River Total ¹ | 1990-94 | 264.2 | 253.1 | 97 |
| | 1995 | 231.4 | 236.7 | 102 |
| | 1996 | 229.3 | 326.1 | 142 |
| | 1997 | 321.5 | 314.5 | 98 |
| | 1998 | 240.1 | 254.6 | 106 |
| | 1999 | 233.8 | 313.1 | 134 |
| | 2000 | 328.9 | | |

¹Includes Lower River Brights (LRB) and Select Area Brights (SAB)

The 1999 return of SRW fall chinook to the Columbia River of 2,739 adults was the largest return since 1988 and exceeded the preseason forecast of 1,624. The combined hatchery and wild fall chinook escapement into the Snake River, based on the Ice Harbor Dam count, was 6,586 adults. A total of 1,820 adults swam into Lyons Ferry Hatchery and an estimated 53 spawned in the Tucannon River. The Lower Granite Dam count was 3,381 adults, which included 1,519 marked hatchery adults that were trapped at lower Granite Dam and hauled to Lyons Ferry Hatchery. Spawning escapement above Lower Granite Dam was 1,862, of which an estimated 905 were SRW fall chinook (Table 3).

Table 3. Estimated Columbia River Returns and Lower Granite Dam Escapement of Snake River Wild Fall Chinook Adults, 1986-1999, and forecast for 2000.

| Year | Columbia River Return | Mainstem Harvest | Harvest Rate % | Passage Loss | BON-LGR Conversion Rate % | Lower Granite Escapement |
|------------|-----------------------|------------------|----------------|--------------|---------------------------|--------------------------|
| 1986 | 3,440 | 1,953 | 56.8 | 952 | 32.4 | 449 |
| 1987 | 2,295 | 1,309 | 57.1 | 554 | 33.7 | 253 |
| 1988 | 4,811 | 3,065 | 63.7 | 973 | 29.3 | 368 |
| 1989 | 2,527 | 1,444 | 57.1 | 569 | 36.5 | 295 |
| 1990 | 665 | 353 | 53.1 | 162 | 36.4 | 78 |
| 1991 | 2,261 | 908 | 40.2 | 1,035 | 23.5 | 318 |
| 1992 | 1,555 | 409 | 26.3 | 597 | 47.9 | 549 |
| 1993 | 1,620 | 450 | 27.8 | 428 | 63.4 | 742 |
| 1994 | 1,055 | 192 | 18.2 | 457 | 47.0 | 406 |
| 1995 | 1,223 | 232 | 19.0 | 641 | 35.3 | 350 |
| 1996 | 1,957 | 516 | 26.4 | 802 | 44.3 | 639 |
| 1997 | 2,048 | 659 | 32.2 | 592 | 57.4 | 797 |
| 1998 | 864 | 230 | 26.6 | 328 | 48.3 | 306 |
| 1999 | 2,739 | 831 | 30.34 | 1,003 | 47.5 | 905 |
| 2000 proj. | 1,764 | 552 | 31.29 | 643 | 46.6 | 570 |

The BPH return of 50,200 was the largest since 1991 and nearly doubled the recent 5-year average of 26,600. Adult returns of BPH included 14,500 fish to Spring Creek Hatchery, double the escapement goal of 7,000. Natural spawning escapement of BPH occurred in the Wind (126), White Salmon (590) and Klickitat (1,510) rivers and the interim natural escapement goals for all three systems were achieved in 1999.

A total of 36,200 PUB fall chinook returned to the Columbia River in 1999, including 2,350 to Little White Salmon hatchery, which achieved the 2,000 fish escapement goal. Natural escapement of PUB stock included 770 in the White Salmon River and 13,000 in the Klickitat River, as compared to the interim escapement goals of 1,300 and 1,000 fish, respectively. The return of BUB stock in 1999 was 13,400 fish to the mouth of the Columbia River of which 4,600 fish escaped to Bonneville Hatchery, 66% of the escapement goal of 7,000. Significant natural escapement of BUBs does not occur.

LRH returns in 1999 totaled 40,000 adults. A total of 19,000 fish returned to Oregon and Washington hatcheries below Bonneville Dam, meeting the aggregate escapement goal of 15,400. A total of 11,400 fish returned to Washington hatcheries (goal 11,800) and 6,400 returned to Big Creek hatchery in Oregon (goal 3,600). An additional 10,100 LRH fall chinook spawned in Washington tributaries below Bonneville Dam and interim natural escapement goals in the Grays, Elokommin, Kalama, and Washougal rivers were achieved in 1999. Returns of LRW chinook in 1999 were a record low of 3,300 adults and far less than the recent 10-year average of 16,700 fish. The natural spawning escapement goal of 5,700 fish to the North Fork Lewis River was not achieved in 1999.

2000 Forecast

The forecasted total adult return of fall chinook in 2000 of 328,900 (Table 1 and Figure 2) is slightly higher than last year's return of 313,100. The forecasted URB and MCB returns would result in the highest return since 1989 and 1990, respectively. The BPH forecast of 26,900 would be less than the recent 10-year average of 30,100 and the LRW forecast of 2,700 would be a record low and reflects the

effects of flooding in 1995 and 1996. The LRH forecast of 26,400 would also be a record low, reflecting the continued poor survival of this stock and decreased smolt releases due to recent reductions in Mitchell Act funds supporting fall chinook hatcheries.

The expected surplus of upriver fall chinook is 213,500 in 2000 ocean and freshwater fisheries, which includes 148,500 URB, 44,700 MCB, and 20,300 BPH. Surplus is the difference between run size and needed escapement. Surplus is used to set seasons, determine treaty Indian/non-Indian shares, and monitor compliance with management agreements. Although the number of URBs that are surplus to escapement needs is 148,500, only 65,100 are available for harvest below McNary Dam due to ESA constraints that limit the harvest rate on URBs to 31.29%. Surplus calculations for stocks originating below Bonneville Dam are based on river mouth run sizes. The expected 2000 return of the LRH stock provides a harvestable surplus of 3,600 fish in the Columbia River which are available for harvest; however, there is no surplus of the LRW stock in 2000. Escapement goals have not been established for SAB or LRB stocks.

Upriver Summer Steelhead

Stock Description

Summer steelhead enter the Columbia River from March through October, with most of the run entering from late June through mid-September (Figure 4). The upriver steelhead run has historically been separated into A and B groups, which pass Bonneville Dam through and after August 25. Group A steelhead include early-returning Skamania stock which pass Bonneville Dam prior to July and are primarily destined for Bonneville Pool tributaries. Group A steelhead also include non-Skamania stock which pass Bonneville Dam from late June through August 25 on their way to tributaries throughout the Columbia and the Snake River basins. Group B steelhead return to the Clearwater and Salmon rivers in Idaho and pass Bonneville Dam from August 26 through October. Group B steelhead are generally larger than group A steelhead.

Group A and B steelhead cannot be distinguished based on run timing above Bonneville Dam where groups mix as fish seek temporary refuge in cooler tributaries. Steelhead counts at dams above Bonneville surge as mainstem water temperature declines in the fall. Counts peak at John Day, McNary, and the Snake River dams in September and October. During years of above average September-October flows and lower temperatures, steelhead move readily past lower Snake River dams during the fall counting period (June-December) and fewer fish are delayed until the spring count period (March-May). Snake River steelhead experience higher Bonneville to Lower Granite Dam survival rates in run years with lower spring count percentages.

In 1999, the TAC completed a review of steelhead assessment methods for Bonneville Dam and Zone 6 fisheries. While the bi-modal run timing distribution at Bonneville Dam has not been as distinct in recent years as it was historically, the TAC reviewed passage data and determined that smaller steelhead are still earlier timed at Bonneville Dam while larger steelhead are later timed. Since 1989, an average of 78% of steelhead less than 78 cm fork length crossed Bonneville Dam prior to August 26 and 75% of steelhead greater than or equal to 78 cm fork length crossed Bonneville Dam after August 25. Although about 85% of steelhead found in certain Idaho streams are large (≥ 78 cm), the data are insufficient to make any definitive conclusions regarding the proportion of late-timed larger steelhead crossing Bonneville Dam that are destined for Idaho streams. The TAC concluded that separation using a 78 cm fork length criteria can be used as an index of historic Group A and Group B steelhead

stock components; therefore, the TAC adopted a revised method of estimating fishery impacts to Group A and Group B steelhead using sampling data from Bonneville Dam (July 1-October 31) and fisheries to estimate impacts for large (≥ 78 cm) and small (< 78 cm) steelhead index groups. Steelhead passing Bonneville Dam prior to July 1 are considered to be an index of Skamania stock steelhead.

Steelhead are subject to sport fisheries throughout the basin and treaty Indian fisheries in Zone 6. In all current sport fisheries only fin-clipped hatchery steelhead may be retained. Above Bonneville Dam, and in the tributaries, summer steelhead are caught in sport fisheries during the year of entry and in the winter and spring of the following calendar year. Treaty Indian catch occurs throughout the year in platform and gillnet fisheries but most of the catch occurs in the fall gillnet season concurrent with landings of fall chinook. In recent years the tribes have reduced catch of wild steelhead during fall season treaty Indian gillnet fisheries (Table 16). Commercial harvest of steelhead by non-Indians has been prohibited since 1975, and time, area, and gear restrictions limit handling and mortality of steelhead by the non-Indian gillnet fishery to $< 1\%$ of the run.

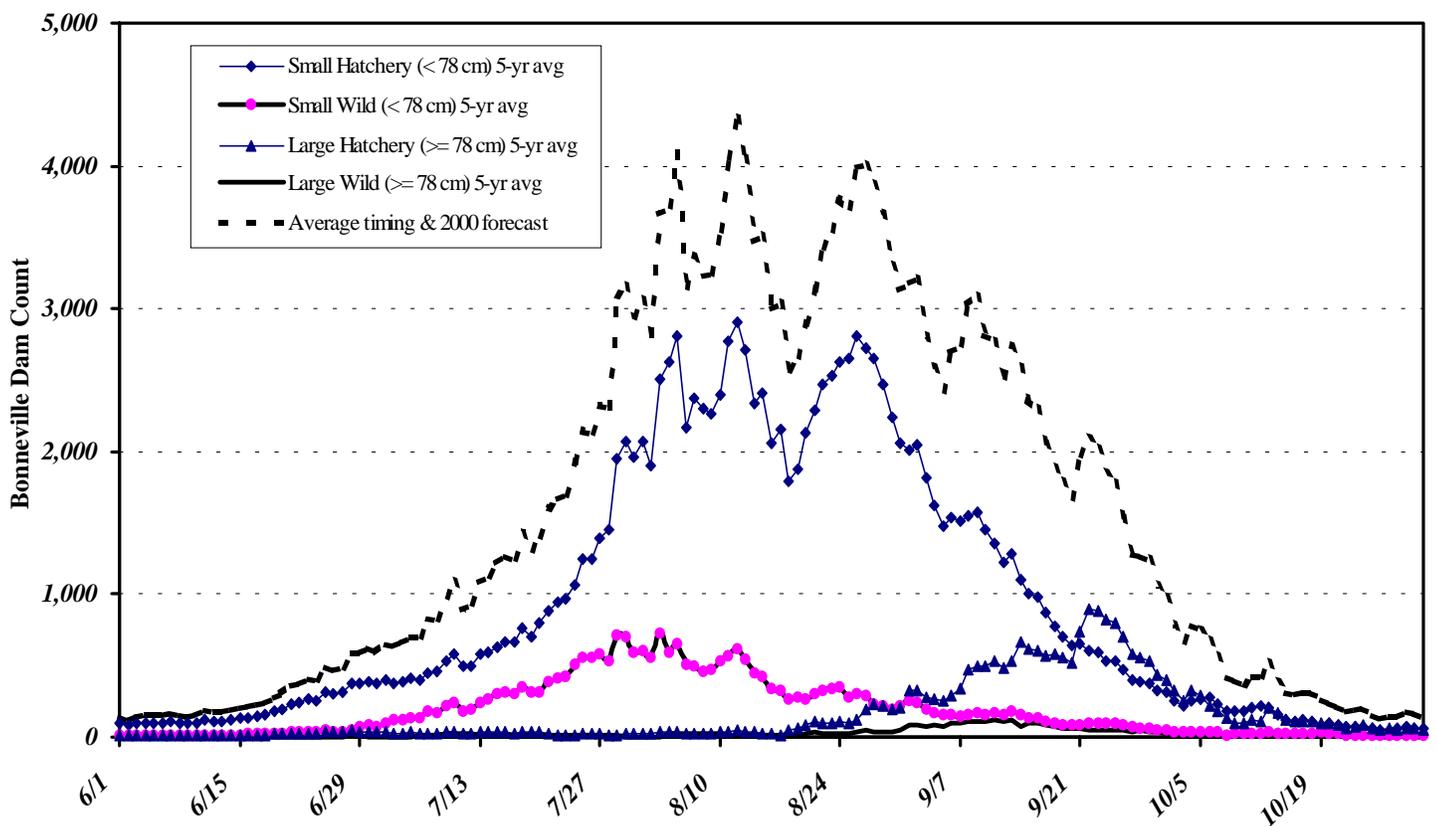


Figure 4. Daily Passage of Summer Steelhead over Bonneville Dam.

1999 Returns

The 1999 upriver summer steelhead return of 205,700 past Bonneville Dam was similar to the recent 5-year average of 201,500. Group A index steelhead total return in 1999 was slightly larger than the recent 5-year average of 163,700 while the wild return (56,600) was the largest since 1991. The percent wild in the Group A index steelhead return was the highest since 1988 and represented the 2nd consecutive year in which this percentage increased. The Group B index steelhead total and wild returns (3,700) both were the 2nd lowest on record. The percent wild in the Group B index return was similar to the recent 5-year average of 15% (Table 4). The 1999 Group A return to Bonneville Dam included 80% 1-ocean fish and 19% 2-ocean fish. The 1999 Group B returns included 59% 1-ocean fish and 30% 2-ocean fish.

The Lower Granite Dam count for the 1999 run was 74,600, which included 11,100 wild steelhead, about 15% of the total count. The Lower Granite Dam wild steelhead passage was comprised of 10,200 (92%) Group A index fish and 900 (9%) Group B index fish.

2000 Forecast

The 2000 forecast for the summer steelhead return to Bonneville Dam is 254,000 which would be larger than the 1999 return of 205,700 and the recent 10-year average of 216,900. Run components based on the revised index method include 10,200 Skamania index fish which pass before July 1, 210,000 Group A index fish (<78 cm), and 33,800 Group B index fish (≥78 cm) as compared to the recent 5-year averages of 9,500, 174,800, and 26,200, respectively. The wild fish forecast includes 52,700 Group A index fish (25.1% of Group A return) and 11,000 Group B index fish (32.5% of Group B return).

| Table 4. Group A Index and Group B Index Returns of Summer Steelhead to Bonneville Dam During 1984-1999 and 2000 Projections. | | | | | | | | | | |
|---|------------------------|----|-----------------|----|---------|-----------------------|----|-----------------|----|--------|
| Year | Group A Index (<78 cm) | | | | | Group B Index (>78cm) | | | | |
| | Number Wild | % | Number Hatchery | % | Total | Number Wild | % | Number Hatchery | % | Total |
| 1984 | 52,500 | 27 | 143,200 | 73 | 195,700 | 13,800 | 14 | 84,200 | 86 | 98,000 |
| 1985 | 51,900 | 18 | 229,600 | 82 | 281,500 | 13,000 | 32 | 27,900 | 68 | 40,900 |
| 1986 | 56,600 | 20 | 230,900 | 80 | 287,500 | 10,000 | 16 | 54,000 | 84 | 64,000 |
| 1987 | 106,700 | 45 | 131,600 | 55 | 238,300 | 14,000 | 31 | 31,000 | 69 | 45,000 |
| 1988 | 64,300 | 37 | 108,800 | 63 | 173,100 | 17,700 | 22 | 63,900 | 78 | 81,600 |
| 1989 | 57,500 | 30 | 135,600 | 70 | 193,100 | 12,400 | 16 | 65,200 | 84 | 77,600 |
| 1990 | 27,100 | 23 | 88,500 | 77 | 115,600 | 8,800 | 19 | 38,400 | 81 | 47,200 |
| 1991 | 60,300 | 26 | 173,800 | 74 | 234,100 | 6,200 | 22 | 22,100 | 78 | 28,300 |
| 1992 | 44,300 | 18 | 197,200 | 82 | 241,500 | 12,700 | 22 | 44,800 | 78 | 57,500 |
| 1993 | 28,700 | 21 | 108,000 | 79 | 136,700 | 4,400 | 12 | 31,800 | 88 | 36,200 |
| 1994 | 21,200 | 18 | 99,800 | 82 | 121,000 | 5,200 | 19 | 22,300 | 81 | 27,500 |
| 1995 | 26,000 | 14 | 154,000 | 86 | 180,000 | 1,900 | 14 | 11,300 | 86 | 13,200 |
| 1996 | 25,700 | 15 | 148,700 | 85 | 174,400 | 3,900 | 21 | 14,900 | 79 | 18,800 |
| 1997 | 30,900 | 15 | 177,300 | 85 | 208,200 | 3,900 | 11 | 32,800 | 89 | 36,700 |
| 1998 | 34,800 | 26 | 99,900 | 74 | 134,700 | 3,400 | 9 | 36,900 | 91 | 40,300 |
| 1999 ¹ | 56,600 | 32 | 119,900 | 68 | 176,500 | 3,700 | 17 | 18,400 | 83 | 22,100 |
| 2000 ² | 52,700 | 25 | 157,300 | 75 | 210,000 | 11,000 | 33 | 22,800 | 67 | 33,800 |

¹ Preliminary

² Projected

Coho

Stock Description

Columbia River coho return primarily to Oregon and Washington hatcheries downstream from Bonneville Dam. Hatchery coho are also released upstream from Bonneville Dam with 34% of Columbia River coho being released above Bonneville Dam in 1999. Limited natural spawning also occurs in tributaries below Bonneville Dam. Columbia River coho include early and late run segments and total adult coho returns since 1970 have ranged from a low of 74,000 in 1995 to a high of 1,527,800 in 1986 (Table 5). Coho landed in commercial fisheries prior to mid-September are primarily early stock, during mid-September through early October are a mixture of early and late stock, and after early October are primarily late stock.

Early stock coho enter the Columbia River from mid-August to early October with peak entry occurring in early September. Almost all early stock coho remain along the Oregon and southern Washington coasts and most migrate southward from the Columbia River. Since 1970, adult returns of Columbia River early coho have ranged from 43,400 in 1983 (*El Niño* year) to 730,800 in 1986 and have averaged 221,000 (Table 6). Releases of early coho above Bonneville Dam comprised 35% of the 1999 total.

Late stock coho enter the Columbia River from mid-September through December with peak entry occurring in mid-October. Hatchery production has expanded since 1975 and is primarily from Washington hatcheries below Bonneville Dam. Releases of late coho above Bonneville Dam comprised 31% of the 1999 total. The majority of late coho migrate northward from the Columbia River and reside along the Washington coast and Vancouver Island. Since 1970, Columbia River returns of late coho have ranged from 16,800 in 1995 to 796,900 in 1986 and averaged 151,300 (Table 7).

Historic natural coho production areas in Washington included the Grays, Elokomín, Cowlitz, Toutle, Kalama, Lewis, and Washougal watersheds. Stream surveys conducted in Washington from 1945-1979 in the Toutle and lower Cowlitz River tributaries showed a steady decline of naturally spawning coho. Significant natural spawning still occurs in the lower Cowlitz system but is almost entirely composed of Cowlitz hatchery fish. Surveys of 37 Washington streams below Bonneville Dam in 1991 suggested that natural spawning continues but production is low. Surveys of the majority of Washington tributaries below Bonneville Dam were performed again in 1998. Results of the 1998 surveys indicated that natural spawning occurs at low levels over a wide variety of areas; however, the bulk of the spawners (>90%) appear to be hatchery fish.

In Oregon, tributaries that were historic natural coho production areas include the Lewis and Clark, Youngs, Klaskanine, Clatskanie, Clackamas, and Sandy rivers plus Big, Gnat, Beaver, Milton, and Scappoose creeks. Annual spawning fish survey counts conducted in Oregon lower Columbia River tributaries from December through February since 1949, and intensive surveys conducted from 1990-1993, indicate that wild coho have been extirpated from Oregon's lower Columbia tributaries below the mouth of the Willamette River (Table 8). Most coho currently spawning in those tributaries are hatchery strays. The Clackamas and Sandy rivers still contain significant natural populations of coho. Since 1978, natural coho returns to the Sandy and Clackamas rivers have varied widely with very low numbers returning in recent years.

The naturally produced Clackamas coho run originates above North Fork Dam, and includes an early segment that originated from hatchery plants during 1960-1972 and a late segment that recolonized the upper river after 1939 when the Faraday Dam fish ladder was built. Coho presently pass North Fork Dam in a bimodal pattern with peaks in September and January, although only a unimodal pattern was apparent before 1960 with a peak during November and December. Early and late run Clackamas coho pass through the lower Columbia during September and November-December, respectively. Coded wire tag (CWT) studies on the 1985-1987 broods indicated that late stock Clackamas coho contributed only 0-0.2% of 1988-1990 late fall commercial landings, with all landings occurring after mid-October. The Sandy River coho population passing Marmot Dam is primarily a wild population supplemented with some hatchery plants of adults and juveniles during 1961-1973 and 1979-1990. This run passes through the lower Columbia River primarily in September and passes Marmot Dam from early September through November with the peak in October. Historic passage at Marmot Dam occurred from late September through December.

Historical natural coho production areas above Bonneville Dam include the Spokane, Yakima, Wenatchee, Entiat, Methow, and Snake rivers. The majority of coho presently passing Bonneville Dam are returns from Columbia River Fish Management Plan (CRFMP) mandated hatchery releases of lower river coho stocks into the Yakima, Umatilla, Little White Salmon, Klickitat, and Clearwater rivers. In the past, these releases have primarily been for the purpose of harvest augmentation, but the parties are also increasing efforts to restore naturally producing coho to appropriate habitats above Bonneville Dam (most recently the Snake and Methow rivers). Counts of coho destined for areas above Bonneville Dam have averaged 25,600 fish since 1988 (Table 5).

1999 Returns

The 1999 Columbia River coho return of 260,700 was the largest since 1991, and continues a trend of steadily increasing run sizes since the record low return in 1995 (Table 5). Both early and late stock returns were the largest since 1991 with the late segment doubling the previous year's return (Tables 6 and 7). Overall, early and late coho aggregate hatchery escapement goals were met.

2000 Forecast

The projected 2000 Columbia River mouth return, based on expected ocean fisheries, is 450,200 coho, which includes 253,600 early stock and 196,600 late stock (Table 1). This total return would be the highest since 1991. The early stock forecast is well above the recent 10-year average of 146,000 and the late stock forecast shows improvement compared to returns during 1992-1998. Approximately 73,000 coho are expected to pass above Bonneville Dam after ocean and lower river fisheries. Both early and late stock coho are expected to return at harvestable numbers in 2000. Hatchery escapement goals of 19,600 early stock and 15,200 late stock are expected to be achieved after all mainstem and tributary fisheries have occurred.

Table 5. Minimum Numbers (Thousands) of Coho Adults Entering the Columbia River, 1970-1999.

| Year | Lower Columbia River | | | | | | | Minimum Run |
|-------------|---------------------------------------|----------------------|-----------------------|-------------|---------------------|----------------------------|-------------------------|--------------|
| | Comm. Catch Zones 1-5 ¹ | Sport Catch | | | Hatchery Returns | Dam Counts ⁴ | Bonneville Dam Count | |
| | | Estuary ² | L.Col.R. ³ | Tributary | | | | |
| 1970 | 520.9 | -- | 2.2 | 21.8 | 275.4 | 20.1 | 54.9 | 895.3 |
| 1971 | 264.3 | -- | 1.4 | 16.0 | 187.7 | 21.3 | 53.8 | 544.5 |
| 1972 | 131.3 | -- | 0.8 | 9.2 | 91.3 | 11.0 | 34.2 | 277.8 |
| 1973 | 183.7 | -- | 0.3 | 7.4 | 68.2 | 5.8 | 25.8 | 291.2 |
| 1974 | 261.0 | -- | 0.5 | 12.6 | 152.8 | 2.4 | 31.6 | 460.9 |
| 1975 | 156.6 | -- | 0.6 | 10.0 | 85.4 | 7.1 | 32.8 | 292.5 |
| 1976 | 168.4 | -- | 0.3 | 10.8 | 117.3 | 3.5 | 36.7 | 337.0 |
| 1977 | 39.0 | -- | 0.5 | 5.7 | 37.1 | 2.2 | 9.3 | 93.8 |
| 1978 | 132.7 | -- | 1.1 | 8.7 | 131.8 | 2.9 | 30.3 | 307.5 |
| 1979 | 127.6 | -- | 0.2 | 12.1 | 102.6 | 4.4 | 29.6 | 276.5 |
| 1980 | 150.1 | -- | 0.1 | 11.1 | 122.2 | 5.1 | 13.0 | 301.6 |
| 1981 | 60.0 | -- | 0.1 | 7.6 | 77.9 | 2.8 | 21.9 | 170.3 |
| 1982 | 201.7 | 18.8 | 0.1 | 17.6 | 154.1 | 5.0 | 55.8 | 453.1 |
| 1983 | 7.1 | 3.6 | 0.2 | 5.1 | 73.6 | 2.5 | 8.4 | 100.5 |
| 1984 | 201.5 | 74.4 | 0.7 | 14.9 | 101.7 | 4.2 | 16.8 | 414.2 |
| 1985 | 190.0 | 25.4 | 1.1 | 9.4 | 94.2 | 7.5 | 38.6 | 366.2 |
| 1986 | 981.0 | 120.4 | 4.0 | 20.7 | 284.1 | 8.9 | 108.7 | 1,527.8 |
| 1987 | 165.2 | 47.2 | 0.9 | 6.1 | 66.1 | 4.2 | 17.9 | 307.6 |
| 1988 | 361.5 | 143.4 | 0.5 | 11.8 | 113.6 | 6.9 | 27.1 | 664.8 |
| 1989 | 387.3 | 81.9 | 0.2 | 15.1 | 183.3 | 6.4 | 27.4 | 701.6 |
| 1990 | 66.2 | 18.5 | 0.3 | 9.7 | 87.8 | 2.0 | 11.6 | 196.1 |
| 1991 | 407.5 | 208.7 | 1.1 | 29.3 | 223.3 | 5.5 | 58.9 | 934.3 |
| 1992 | 54.1 | 43.1 | 0.6 | 8.4 | 85.1 | 5.2 | 14.4 | 210.9 |
| 1993 | 35.6 | 20.9 | 0.6 | 6.3 | 39.1 | 0.8 | 10.6 | 113.9 |
| 1994 | 60.7 | 1.8 | 0.9 | 3.4 | 77.7 | 4.1 | 20.3 | 168.9 |
| 1995 | 21.4 | 5.0 | 0.2 | 2.6 | 31.5 | 2.9 | 10.4 | 74.0 |
| 1996 | 26.2 | 4.5 | 0.8 | 3.8 | 62.2 | 0.6 | 15.7 | 113.7 |
| 1997 | 20.5 | 20.4 | 0.8 | 8.5 | 69.7 | 2.8 | 24.1 | 146.8 |
| 1998 | 23.0 | 6.3 | 3.7 | 7.1 | 84.6 | 1.0 | 46.3 | 168.9 |
| 1999 | 79.0 | 9.3 | 1.3 | 17.8 | 111.6 | 1.0 | 40.7 | 260.7 |

¹ Includes Youngs Bay, Big Creek (1970-present), other Select Area fisheries, and 1980-82 Washington terminal landings. Includes jacks, except beginning in 1987 jacks landed in Youngs Bay and other terminal fisheries are not included in this total.

² Catch from estuary recreational (Buoy 10) fishery. Catch from the estuary fishery prior to 1982 is included in ocean catch totals. Some non-Columbia River fish are caught in the estuary fishery and are included here.

³ Catch from above Astoria-Megler Bridge.

⁴ Willamette Falls on the Willamette River, North Fork Dam on the Clackamas River, and Marmot Dam on the Sandy River.

| Table 6. Minimum Numbers (Thousands) of Early Coho Adults Entering the Columbia River, 1970-1999. | | | | | | | | |
|---|---------------------------------------|----------------------|-----------------------|------------|---------------------|----------------------------|-------------------------|--------------|
| Year | Lower Columbia River | | | | | | | Minimum Run |
| | Comm. Catch Zones 1-5 ¹ | Sport Catch | | | Hatchery Returns | Dam Counts ⁴ | Bonneville Dam Count | |
| | | Estuary ² | L.Col.R. ³ | Tributary | | | | |
| 1970 | 396.5 | -- | 1.7 | 16.6 | 226.2 | 18.6 | 53.1 | 712.7 |
| 1971 | 166.2 | -- | 1.1 | 12.4 | 158.6 | 18.7 | 46.4 | 403.4 |
| 1972 | 70.3 | -- | 0.7 | 7.4 | 81.3 | 10.4 | 32.2 | 202.3 |
| 1973 | 144.3 | -- | 0.2 | 4.8 | 49.8 | 5.4 | 24.8 | 229.3 |
| 1974 | 120.1 | -- | 0.4 | 10.6 | 123.8 | 1.6 | 26.1 | 282.6 |
| 1975 | 89.1 | -- | 0.4 | 7.0 | 69.0 | 6.4 | 30.2 | 202.1 |
| 1976 | 71.2 | -- | 0.2 | 6.8 | 71.5 | 2.5 | 33.1 | 185.3 |
| 1977 | 17.2 | -- | 0.4 | 4.0 | 23.5 | 1.4 | 7.7 | 54.2 |
| 1978 | 62.4 | -- | 0.8 | 6.2 | 98.7 | 2.4 | 27.9 | 198.4 |
| 1979 | 69.2 | -- | 0.2 | 8.8 | 78.6 | 3.1 | 26.3 | 186.2 |
| 1980 | 68.8 | -- | 0.1 | 6.2 | 76.4 | 2.0 | 6.8 | 160.3 |
| 1981 | 22.0 | -- | 0.2 | 4.3 | 50.4 | 2.4 | 21.0 | 100.3 |
| 1982 | 42.6 | 11.9 | 0.1 | 11.6 | 108.4 | 3.8 | 51.0 | 229.4 |
| 1983 | 4.7 | 2.3 | 0.1 | 2.4 | 28.3 | 1.0 | 4.6 | 43.4 |
| 1984 | 115.1 | 46.3 | 0.5 | 6.9 | 54.9 | 3.8 | 13.1 | 240.6 |
| 1985 | 105.8 | 16.5 | 0.8 | 6.3 | 57.3 | 6.5 | 35.2 | 228.4 |
| 1986 | 356.6 | 97.6 | 2.9 | 9.5 | 158.6 | 5.9 | 99.7 | 730.8 |
| 1987 | 100.5 | 28.4 | 0.7 | 4.2 | 32.6 | 3.4 | 16.4 | 186.2 |
| 1988 | 186.7 | 61.7 | 0.3 | 7.0 | 47.3 | 6.3 | 23.0 | 332.3 |
| 1989 | 78.2 | 54.7 | 0.2 | 7.0 | 98.0 | 5.0 | 19.6 | 262.7 |
| 1990 | 38.3 | 12.6 | 0.3 | 6.3 | 40.9 | 1.7 | 8.7 | 108.8 |
| 1991 | 203.2 | 142.9 | 0.8 | 15.1 | 108.9 | 4.3 | 43.2 | 518.4 |
| 1992 | 19.4 | 29.1 | 0.5 | 4.1 | 44.5 | 3.4 | 8.4 | 109.4 |
| 1993 | 20.9 | 16.5 | 0.5 | 2.9 | 22.9 | 0.7 | 8.0 | 72.4 |
| 1994 | 58.3 | 1.4 | 0.8 | 2.2 | 59.6 | 3.3 | 12.6 | 138.2 |
| 1995 | 21.2 | 4.9 | 0.2 | 1.2 | 20.4 | 2.3 | 7.0 | 57.2 |
| 1996 | 22.3 | 3.9 | 0.8 | 2.4 | 44.3 | 0.6 | 8.9 | 82.6 |
| 1997 | 18.1 | 19.3 | 0.8 | 4.8 | 39.1 | 2.8 | 18.1 | 103.0 |
| 1998 | 22.8 | 6.0 | 3.6 | 5.1 | 46.8 | 0.9 | 34.2 | 116.4 |
| 1999 | 46.2 | 6.9 | 0.9 | 9.3 | 56.3 | 1.0 | 32.9 | 153.5 |

¹ Includes Youngs Bay, Big Creek (1970-present), other Select Area fisheries, and 1980-82 Washington terminal landings. Includes jacks, except beginning in 1987 jacks landed in Youngs Bay and other terminal fisheries are not included in this total.

² Catch from estuary recreational (Buoy 10) fishery. Catch from the estuary fishery prior to 1982 is included in ocean catch totals. Some non-Columbia River fish are caught in the estuary fishery and are included here.

³ Catch from above Astoria-Megler Bridge.

⁴ Willamette Falls on the Willamette River, North Fork Dam on the Clackamas River, and Marmot Dam on the Sandy River.

Table 7. Minimum Numbers (Thousands) of Late Coho Adults Entering the Columbia River, 1970-1999.

| Year | Lower Columbia River | | | | | | | Minimum Run |
|-------------|---------------------------------------|----------------------|-----------------------|------------|---------------------|----------------------------|-------------------------|--------------|
| | Comm. Catch Zones 1-5 ¹ | Sport Catch | | | Hatchery Returns | Dam Counts ⁴ | Bonneville Dam Count | |
| | | Estuary ² | L.Col.R. ³ | Tributary | | | | |
| 1970 | 124.3 | -- | 0.5 | 5.1 | 49.3 | 1.6 | 1.8 | 182.6 |
| 1971 | 98.1 | -- | 0.3 | 3.7 | 29.0 | 2.6 | 7.4 | 141.1 |
| 1972 | 61.0 | -- | 0.2 | 1.8 | 9.9 | 0.6 | 2.0 | 75.5 |
| 1973 | 39.4 | -- | 0.1 | 2.6 | 18.4 | 0.4 | 1.1 | 62.0 |
| 1974 | 140.9 | -- | 0.1 | 2.0 | 29.0 | 0.8 | 5.5 | 178.3 |
| 1975 | 67.6 | -- | 0.2 | 2.9 | 16.4 | 0.7 | 2.6 | 90.4 |
| 1976 | 97.2 | -- | 0.1 | 4.0 | 45.8 | 1.0 | 3.6 | 151.7 |
| 1977 | 21.8 | -- | 0.1 | 1.7 | 13.6 | 0.9 | 1.6 | 39.7 |
| 1978 | 70.3 | -- | 0.2 | 2.6 | 33.1 | 0.5 | 2.4 | 109.1 |
| 1979 | 58.4 | -- | 0.0 | 3.4 | 23.9 | 1.3 | 3.3 | 90.3 |
| 1980 | 81.2 | -- | 0.0 | 5.0 | 45.8 | 3.1 | 6.2 | 141.3 |
| 1981 | 37.9 | -- | 0.0 | 3.3 | 27.5 | 0.4 | 1.0 | 70.1 |
| 1982 | 159.1 | 7.0 | 0.0 | 6.0 | 45.7 | 1.1 | 4.8 | 223.7 |
| 1983 | 2.4 | 1.3 | <0.1 | 2.7 | 45.3 | 1.5 | 3.8 | 57.1 |
| 1984 | 86.4 | 28.1 | 0.2 | 8.0 | 46.8 | 0.4 | 3.6 | 173.5 |
| 1985 | 84.2 | 8.9 | 0.3 | 3.1 | 36.9 | 1.0 | 3.4 | 137.8 |
| 1986 | 624.4 | 22.8 | 1.1 | 11.3 | 125.5 | 2.9 | 8.9 | 796.9 |
| 1987 | 64.8 | 18.8 | 0.2 | 1.8 | 33.4 | 0.9 | 1.5 | 121.4 |
| 1988 | 174.9 | 81.7 | 0.2 | 4.8 | 66.3 | 0.6 | 4.1 | 332.6 |
| 1989 | 309.1 | 27.2 | <0.1 | 8.1 | 85.3 | 1.4 | 7.8 | 439.0 |
| 1990 | 27.9 | 5.8 | <0.1 | 3.5 | 46.9 | 0.3 | 2.9 | 87.4 |
| 1991 | 204.3 | 65.7 | 0.3 | 14.3 | 114.4 | 1.3 | 15.6 | 415.9 |
| 1992 | 34.7 | 14.0 | <0.1 | 4.3 | 40.7 | 1.8 | 6.0 | 101.5 |
| 1993 | 14.8 | 4.4 | 0.1 | 3.4 | 16.1 | 0.1 | 2.6 | 41.5 |
| 1994 | 2.4 | 0.4 | 0.1 | 1.2 | 18.1 | 0.8 | 7.7 | 30.7 |
| 1995 | 0.2 | 0.2 | <0.1 | 1.3 | 11.1 | 0.6 | 3.4 | 16.8 |
| 1996 | 3.8 | 0.6 | <0.1 | 1.4 | 17.9 | <0.1 | 6.8 | 30.5 |
| 1997 | 2.4 | 1.0 | <0.1 | 3.7 | 30.7 | <0.1 | 6.0 | 43.8 |
| 1998 | 0.2 | 0.2 | 0.2 | 2.0 | 37.8 | 0.1 | 12.1 | 52.6 |
| 1999 | 32.8 | 2.3 | 0.4 | 8.5 | 53.4 | 0.1 | 7.8 | 105.3 |

¹ Includes Youngs Bay, Big Creek (1970-present), other Select Area fisheries, and 1980-82 Washington terminal landings. Includes jacks, except beginning in 1987 jacks landed in Youngs Bay and other terminal fisheries are not included in this total.

² Catch from estuary recreational (Buoy 10) fishery. Catch from the estuary fishery prior to 1982 is included in ocean catch totals. Some non-Columbia River fish are caught in the estuary fishery and are included here.

³ Catch from above Astoria-Megler Bridge.

⁴ North Fork Dam on the Clackamas River.

Chum

Naturally produced chum salmon return to small tributaries of the lower Columbia, primarily in Washington. Limited hatchery releases also contribute to returns, which have fluctuated at low levels since the mid-1960's. Washington tributaries have been surveyed annually since 1950. Counts during 1999 in index areas were larger than the recent 10-year average and improved from low returns in 1994 and 1995 (Table 8). Chum are caught incidentally in the late fall non-Indian commercial fishery with landings typically beginning in mid-October and peaking about November 1. During 1999 chum landings totaled 101 which included 97 in the late fall fishery, and four in the fall Select Area fisheries (Table 12).

| Table 8. Escapement Index Values for Chum in Washington Lower Columbia River Tributaries and for Late Run Coho in Oregon Columbia River Tributaries downstream from the Willamette River, 1950-1999. | | | | | | |
|--|----------------|---------------|-----------|-----------------------------|---------------|-----------|
| Year | Chum | | | Coho | | |
| | Miles Surveyed | Fish Observed | Fish/Mile | Miles Surveyed ¹ | Fish Observed | Fish/Mile |
| <i>50's Average</i> | 2.2 | 903 | 450 | 9.4 | 263 | 28 |
| <i>60's Average</i> | 4.9 | 767 | 179 | 6.8 | 161 | 24 |
| <i>70's Average</i> | 6.0 | 450 | 77 | 9.3 | 61 | 7 |
| 1980 | 6.7 | 276 | 41 | 9.3 | 81 | 9 |
| 1981 | 4.0 | 56 | 14 | 9.3 | 16 | 2 |
| 1982 | 6.1 | 1,127 | 185 | 9.3 | 17 | 2 |
| 1983 | 5.8 | 317 | 55 | 9.3 | 11 | 1 |
| 1984 | 7.1 | 499 | 70 | 9.3 | 17 | 2 |
| 1985 | 7.1 | 500 | 70 | 7.8 | 3 | <1 |
| 1986 | 7.4 | 1,138 | 154 | 9.3 | 51 | 5 |
| 1987 | 7.1 | 1,016 | 143 | 9.3 | 7 | 1 |
| 1988 | 7.1 | 1,917 | 270 | 9.3 | 5 | 1 |
| 1989 | 7.1 | 367 | 52 | 9.3 | 3 | <1 |
| <i>80's Average</i> | 6.6 | 721 | 105 | 9.2 | 21 | 2 |
| 1990 | 7.1 | 832 | 117 | 9.4 | 4 | <1 |
| 1991 | 7.1 | 673 | 95 | 9.4 | 3 | <1 |
| 1992 | 7.1 | 3,273 | 461 | 9.4 | 4 | <1 |
| 1993 | 7.1 | 1,411 | 199 | 9.3 | 2 | <1 |
| 1994 | 7.1 | 509 | 72 | 9.3 | 3 | <1 |
| 1995 | 7.2 | 922 | 128 | 9.3 | 2 | <1 |
| 1996 | 7.2 | 1,545 | 215 | 9.3 | 0 | 0 |
| 1997 | 7.2 | 1,054 | 146 | 9.3 | 0 | 0 |
| 1998 | 7.2 | 1,666 | 231 | 9.3 | 4 | <1 |
| 1999 | 7.2 | 2,096 | 291 | 9.3 | 4 | <1 |
| <i>90's Average</i> | 7.2 | 1,398 | 196 | 9.3 | 3 | <1 |

¹ In 1975 the database was reorganized into 9.3 miles of ten standard index streams that best indicate trends in escapement since 1967. Prior to 1967 the same ten streams were used; however, survey miles and frequency vary. In 1968 two streams were not surveyed and in 1985 observations in a survey heavily influenced by hatchery adult introduction were not included.

Sturgeon

Both white and green sturgeon are present in the lower Columbia River. Green sturgeon originate primarily from the Klamath and Sacramento rivers and use the Columbia River estuary extensively during summer and early fall. Columbia River white sturgeon originate from spawning areas near Bonneville Dam and range seasonally up and down the lower Columbia River, use the nearshore ocean along the Oregon and Washington coasts, and contribute to populations in other coastal bays and estuaries. Columbia River sturgeon fisheries are designed primarily for white sturgeon. Green sturgeon are seldom caught by sport anglers but do contribute significant commercial catches in some years.

The current white sturgeon population is considered to be healthy with more than 1 million fish exceeding 2' in length. In general, indicators of sublegal (<42 inches) and oversize (>60 inches) abundance are good at this time. The 1998 estimate of harvestable size fish (42-60 inches) within the Columbia River is less than 1995 but is larger than estimates for 1996 and 1997. There is strong evidence that the 1996 and 1997 harvestable population estimates were negatively impacted by a mass emigration of white sturgeon from the lower Columbia River. Tag recoveries from outside the Columbia River basin indicated that this emigration began in 1996. The increased abundance estimate for 1998, relative to the two previous years, indicates that the harvestable population remains strong and emigrated sturgeon may be returning to the Columbia River. The 1998 harvestable population estimate is the 2nd largest since 1989. Since the late 1980's, harvestable numbers below Bonneville Dam have been linked to an estimated broodstock (>6') escapement and an Optimum Sustainable Yield (OSY) harvest management strategy. A combined sport and commercial annual harvest rate of 22.5% on 42"-60" fish is considered to be adequate for broodstock recruitment needs.

Isolated white sturgeon populations also occur in reservoirs upstream of Bonneville Dam. Abundance varies among populations and is limited primarily by lack of quality spawning habitat in each reservoir. The sturgeon populations in all three Zone 6 reservoirs are evaluated every three to five years to monitor the effects of hydro-system mitigation activities, which include quota management based on OSY harvest strategy. Estimated abundances of sturgeon >24" total length based on mark-recapture stock assessments, are 19,800 in Bonneville (1994), 46,800 in The Dalles (1997), and 23,400 in John Day (1996) reservoirs. Projected 1999 numbers, based on observed growth and mortality rates, were 50,100 (preliminary), 54,400 and 25,800 for Bonneville, The Dalles, and John Day pools, respectively.

MANAGEMENT GUIDELINES

Endangered Species Act

Status reviews occurring since 1991 have resulted in the majority of Columbia Basin salmon and steelhead stocks being listed under the ESA (Table 9). In order to facilitate consultations with NMFS for past mainstem treaty Indian and non-Indian fisheries, the *U. S. v. Oregon* TAC has prepared biological assessments for combined fisheries based on relevant *U. S. v. Oregon* management plans and agreements. The TAC completed biological assessments (BAs) of impacts to all ESA-listed salmon stocks (including steelhead) for all mainstem Columbia River fisheries since January 1992 and for Snake River basin fisheries since January 1993.

In 1999, separate Indian and non-Indian BAs were submitted to the National Marine Fisheries Service (NMFS) for 1999 fall fisheries. Again in 2000, the tribes and states submitted separate BAs to the NMFS. A Biological Opinion has not yet been received from the NMFS for 2000 fall season fisheries.

The State of Oregon listed wild coho destined for lower Columbia River tributaries as an endangered species under Oregon state law in July 1999. In conjunction with this listing, the OFWC decided that harvest rates on wild coho should not exceed 15%, including ocean fisheries. For 2000 ocean and freshwater fisheries the OFWC has adopted a maximum impact rate of 13.3%.

Table 9. ESA Status of Columbia Basin Salmonids Present During August 1-December 31.

| Species - ESU | Designation | Register Date | Effective Date | Description |
|--------------------------------------|---------------------------------|----------------------|-----------------------|---|
| <u>Chinook</u> | | | | |
| <i>Snake River Fall</i> | Threatened | April 22, 1992 | May 22, 1992 | Mainstem Snake, Tucannon, Grande Ronde, Imnaha, Salmon, and Clearwater river natural-spawning populations. |
| <i>Upper Columbia Summer/Fall</i> | Not warranted | -- | -- | |
| <i>Lower Columbia R. Spring/Fall</i> | Threatened | March 16, 1999 | May 24, 1999 | All naturally spawned populations from the river mouth upstream to, but not including the Klickitat River. |
| <u>Chum</u> | | | | |
| <i>Columbia River</i> | Threatened | March 16, 1999 | May 24, 1999 | All naturally-spawned populations in the mainstem and its tributaries |
| <u>Coho</u> | | | | |
| <i>Lower Columbia</i> | Candidate | 1995 | 1995 | Federal listing not warranted at this time |
| <i>Lower Columbia</i> | Endangered | -- | July 16, 1999 | All naturally-spawned populations destined for Oregon tributaries of the Columbia River below Bonneville Dam, listed under Oregon state law. |
| <u>Steelhead</u> | | | | |
| <i>Snake River</i> | Threatened | August 18, 1997 | October 17, 1997 | Snake River Basin tributaries |
| <i>Upper Columbia River</i> | Endangered | August 18, 1997 | October 17, 1997 | Tributaries upstream from the Yakima River to the US/Canada Border. The listed component includes Wells Hatchery steelhead. |
| <i>Middle Columbia River</i> | Threatened | March 16, 1999 | May 24, 1999 | Tributaries from above the Wind River in WA and the Hood River in OR (exclusive), upstream to, and including, the Yakima River. |
| <i>Lower Columbia River</i> | Threatened | March 13, 1998 | May 18, 1998 | Tributaries between the Cowlitz and Wind rivers (inclusive) in WA and the Willamette and Hood rivers (inclusive) in OR. |
| <u>Cutthroat Trout</u> | | | | |
| <i>Southwest Washington</i> | Threatened | -- | -- | Coastal cutthroat downstream from the Klickitat River in Washington and Fifteenmile Creek in Oregon (inclusive), and Willamette River tributaries downstream of Willamette Falls. Also includes Washington coastal populations north to Grays Harbor. |
| | Decision due October 5, 2000 | | | |

2000 Salmon Management Guidelines

The Columbia River Fish Management Plan (CRFMP) expired on December 31, 1998 and was extended through December 31, 1999 subject to the provisions in the 1999 Management Agreement. There are no management agreements in place for fall 2000 fisheries at this time; however, based on past agreements it is expected that the following guidelines will be in place for the 2000 fall fishery management period.

1. Allowable SRW fall chinook impacts in combined non-Indian and treaty Indian mainstem fisheries for 2000 result in a 30% reduction from base period harvest rates based on the NMFS-recommended ESA guideline. The corresponding impact rate is 31.29% of the aggregate URB run. This method is used as an index to measure the SRW harvest reduction but is not considered an actual SRW harvest rate.
2. Treaty Indian fall fisheries will be managed to limit impacts on wild Group A index and wild Group B index steelhead below 15% based on the NMFS-recommended ESA guideline. The non-Indian mainstem fall fisheries will be managed for an upriver wild steelhead impact rate of 2% or less for any wild Evolutionarily Significant Unit (ESU) based on the NMFS-recommended ESA guideline.
3. Upriver fall chinook escapement goals include 7,000 adult fall chinook (4,000 females) to Spring Creek hatchery and 43,500 adult fall chinook (natural and hatchery included) for spawning escapement above McNary Dam.
4. Ocean and lower river fisheries will be managed to provide for Bonneville Dam escapement of at least 50% of the upriver coho salmon return.
5. Non-Indian fisheries will be managed for impact rates of <10% for LRW chinook and <5% for lower Columbia chum.
6. Non-Indian fisheries will be managed to limit impacts on wild coho destined for Oregon tributaries to less than 13.3% based on OFWC-recommended guideline.

Lower Columbia River Sturgeon Allocation

Sturgeon fisheries between the Columbia River mouth and Bonneville Dam during 2000-2002 are guided by a management plan signed by the ODFW and WDFW Directors in March 2000. Major tenets of the Joint State Agreement on Sturgeon Fishery Management include:

- ✓ Management for optimum sustained yield of white sturgeon.
- ✓ Absent significant update, annual harvestable number is 50,000.
- ✓ Harvestable number may be adjusted if there is a significant population update resulting from new biological information, new analytical/theoretical approach, or a substantial change in harvest impacts outside of the Columbia system.
- ✓ Allocate white sturgeon harvestable number 20% commercial (10,000) and 80% sport (40,000).
- ✓ Sport and commercial seasons will be modified as necessary to ensure that average catch during the three year period (2000-2002) does not exceed fishery specific harvestable number.
- ✓ Commercial target seasons allowed as necessary to access allocation and maximize economic benefit consistent with conservation objectives for other species.

- ✓ Green sturgeon may be taken during white sturgeon commercial seasons but green sturgeon-only commercial seasons are not allowed (green sturgeon catch rate not to exceed historical rates).
- ✓ Commercial size limits are 48"-60" for white sturgeon and 48"-66" for green sturgeon.
- ✓ Recreational size limit for white and green sturgeon is 42"-60" with one fish daily limit, ten fish annual (per calendar year) limit, and barbless hooks required.
- ✓ For the fall sport fishery in 2000, during August 16 - September 15 in the area below Wauna Power Lines (River mile 40), including Youngs Bay, and during November 1 – 30 in the area above Wauna Power Lines (River mile 40), retention of sturgeon by boat and bank anglers will be prohibited but catch and release angling may continue.

Within the formal commercial allocation of 20% there is no allocation for Select Area fisheries, as was the case during 1997-1999. Select Area fisheries will be managed as target salmon fisheries through the use of time, area, and gear restrictions. Gear restrictions will be phased in during the next few years to limit economic impact on participating fishers.

The Joint State Agreement on sturgeon fishery management allows for changes based on new biological information. Based on revised sturgeon population data, the Joint Staff currently recommends that the 2000 catch not exceed 50,000 sturgeon unless estimates of abundance to be completed in September of 2000 indicate that greater catches are appropriate. With the current allocation of 80% sport and 20% commercial, recommended white sturgeon catch guidelines for 2000 would be 40,000 for the sport fishery and 10,000 for the commercial fishery.

Zone 6 Sturgeon Allocation

Sturgeon catch guidelines and sport/treaty commercial allocations have been reviewed annually since 1987 by the Sturgeon Management Task Force (SMTF) which is comprised of representatives from state fish management agencies and the Columbia River treaty Indian tribes. Guidelines are based on desired harvest rates and current stock assessments. In March of 1997, the SMTF agreed to pool-specific management with catch guidelines, based on optimum sustainable yield (OSY), designed to allow for survival of adequate numbers of juvenile sturgeon through existing fisheries to increase harvestable and broodstock numbers. Current sturgeon size limits are 48-60" in all treaty Indian fisheries, 48-60" in sport fisheries in The Dalles and John Day reservoirs, and 42-60" in Bonneville Reservoir sport fisheries.

Sturgeon catch guidelines increased in 1997 and 1998 as updated stock assessments indicated that these sturgeon populations were rebuilding under the catch restrictions implemented by the SMTF. For 2000 management the SMTF agreed to use catch guidelines that were in place during 1998 and 1999 (Table 10). Allocation is approximately 50:50 between sport and tribal fisheries, although reservoir specific guidelines are shaped to meet fishery demands.

| Table 10. Zone 6 Sturgeon Catch Guidelines | | | |
|---|--------------|------------------|--------------|
| <i>Reservoir / Fishery</i> | <i>1997</i> | <i>1998-1999</i> | <i>2000</i> |
| Bonneville | 2,820 | 2,820 | 2,820 |
| Sport | 1,520 | 1,520 | 1,520 |
| Treaty Commercial | 1,300 | 1,300 | 1,300 |
| The Dalles | 600 | 1,800 | 1,800 |
| Sport | 200 | 600-800 | 600-800 |
| Treaty Commercial | 400 | 1,000-1,200 | 1,000-1,200 |
| John Day | 1,720 | 1,720 | 1,720 |
| Sport | 560 | 560 | 560 |
| Treaty Commercial | 1,160 | 1,160 | 1,160 |

For instance, the sport fishery is allowed a greater share of the Bonneville Reservoir catch while the treaty Indian fishery is allowed a greater share of the catch in The Dalles and John Day reservoirs. Treaty Indian fishers may continue to take sturgeon for subsistence purposes following closure of commercial seasons. Subsistence catch is estimated through a monitoring program conducted by the Yakama Indian Nation (YIN) and annually averages less than 300 sturgeon in addition to the aforementioned catch guidelines. Sport anglers may continue to fish for sturgeon and release them unharmed when retention is prohibited.

REVIEW OF MAINSTEM FISHERIES

Past Seasons

Traditional commercial fisheries below Bonneville Dam have occurred during "early fall" (August to early September) targeting on chinook and "late fall" (mid-September to mid-November) targeting on coho (Figure 5). Coho typically outnumber chinook in the late fall season catch and in some years by a wide margin; however, chinook landings can be significant during the mid-September time frame. Incidental landings of steelhead occurred in both early and late fall seasons until commercial sale was banned in 1975. Mesh restrictions are frequently imposed on the early fall segment of the non-Indian commercial fishery to reduce the incidental catch of non-target species. Commercial fisheries are also frequently restricted to zones or daylight only time periods to concentrate on target stocks or avoid non-target stocks.

With the reduction in non-Indian commercial salmon fishing opportunities in recent years, and the adoption of the Joint State Sturgeon Management Agreement, target sturgeon fisheries have become an important part of fall fishing strategies. Sturgeon sales are typically allowed during salmon seasons; however, in recent years target sturgeon seasons have been required to allow the commercial fishery to access it's allocation. Target sturgeon seasons typically occur during early August and late September through October.

In recent years commercial fisheries have also occurred in select off-channel fishing areas. The Select Area Fishery Enhancement (SAFE) program began in Youngs Bay and has since been expanded to include Tongue Point/South Channel and Blind Slough/Knappa Slough on the Oregon shore plus Deep River and Steamboat Slough on the Washington shore. These fisheries target primarily hatchery coho returning to release sites in these areas; however, some SAB fall chinook are also released and subsequently caught upon their return to Youngs Bay. A target chinook fishery occurs intermittently in Knappa Slough near the mouth of Big Creek when surplus returns are expected for Big Creek Hatchery.

Treaty Indian commercial seasons above Bonneville Dam traditionally opened during early to mid-August and ended in mid-October. Fall chinook and steelhead dominate the catch, but catch can include substantial numbers of sturgeon and coho. Mesh size restrictions have sometimes been imposed on the treaty Indian fishery to keep the wild steelhead harvest rates within the CRFMP guidelines. Zoning has also been used to increase escapement of some run segments. Most recently fall fisheries have been closed for white sturgeon because guidelines were achieved prior to August 1.

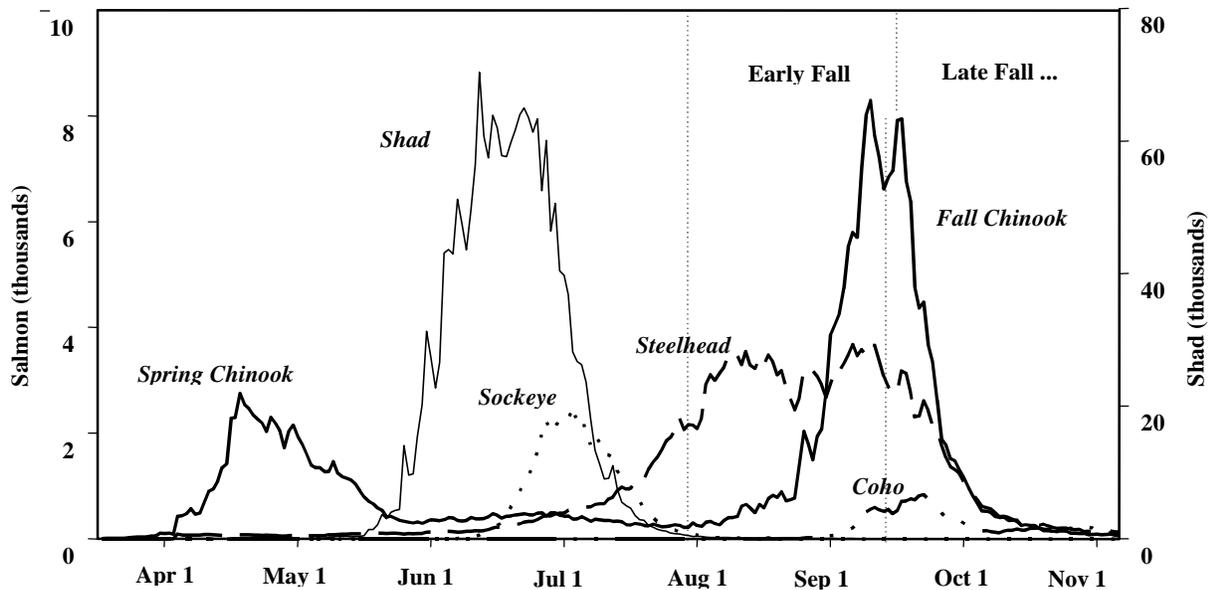


Figure 5. Average Daily Counts of Salmon, Steelhead, and Shad at Bonneville Dam, 1986-1997.

A mainstem recreational fall chinook fishery exists in much of the Columbia River with the primary catch areas in recent years being the lower estuary below the Astoria-Megler Bridge (Buoy 10), the lower River between the Astoria-Megler Bridge and Bonneville Dam, and the Vernita-Hanford Reach area below Priest Rapids Dam. Small recreational fisheries can also occur at tributary mouths in Zone 6. Significant numbers of coho are landed in the Buoy 10 fishery. Hatchery steelhead fisheries in the mainstem Columbia occur primarily between the Astoria-Megler Bridge and Bonneville Dam with few caught below the Astoria-Megler Bridge. Significant catch of steelhead occurs above Bonneville Dam, especially near tributary mouths.

1999 Season Summary

- ✓ The 1999 chinook run was similar to recent years while the coho return was the highest since 1991. The wild Group A index steelhead return was the highest since 1991 while the wild Group B index steelhead return was low, similar to recent years.
- ✓ Low numbers of listed SRW chinook continued to constrain harvest of healthier upriver chinook stocks.
- ✓ All fisheries were constrained to remain within ESA limitations. Post-season impacts totaled 30.34% for URB chinook which was within the 31.29% catch guideline.
- ✓ Oregon wild coho impacts of 11% for early stock and 8% for late stock were below the Oregon state management guideline of 15%.
- ✓ Buoy 10 and below Bonneville sport fisheries were closed to the retention of chinook due to ESA constraints. The Buoy 10 fishery was closed during August 30 through September 28 and the mainstem sport fishery was closed during September 14 through September 28. Both fisheries reopened on September 29, 1999.
- ✓ Treaty Indian fisheries landed 76,700 fall chinook. The 78,400 chinook passing McNary Dam nearly doubled the escapement goal of 43,500.

- ✓ An estimated 17,400 steelhead were landed during treaty Indian fall seasons but voluntarily restricted harvest to less than their full share of steelhead to limit impacts on wild Group B steelhead. The 1999 wild Group B index steelhead impact was 12.7% versus the agreed limit of 15%. The 15% limitation was much less than the 32% previously allowed by the CRFMP.
- ✓ Lower-river commercial mainstem fisheries focused on coho and sturgeon while minimizing impacts on fall chinook.
- ✓ Lower river mainstem commercial fisheries landed an estimated 57,600 coho and only 5,900 chinook. The white sturgeon commercial catch allocation was reached on November 4, 1999.
- ✓ Overall Select Area catches were down somewhat from preseason expectations with landings of 2,100 chinook, 23,000 coho, 200 white sturgeon, 5 green sturgeon, and 4 chum.
- ✓ Seasons and catches are summarized in Tables 11-13.
- ✓ A total of 11 Compact hearings were held between the dates of July 26, 1999 and November 2, 1999 to make commercial management decisions. Joint State action occurred following three Compact hearings and one additional Joint State hearing was held to modify an ongoing sport fishery.

Table 11. Fall Lower River and Zone 6 Mainstem Commercial Fishing Seasons, 1999

| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|-------------|------------|-----------------|-----------------|----------------------|-----------------|---------------------|------------|
| AUG | 1 | 2 | 3 | 4 7 pm | 5 7 am | 6 | 7 |
| | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| | 22 | 23 8 pm | 24 6 am | 25 | 26 | 27 | 28 |
| SEPT | 29 | 30 | 31 6 am | 1 | 2 | 3 | 4 6 pm |
| | 5 | 6 | 7 6 am | 8 | 9 | 10 | 11 6 pm |
| | 12 | 13 | 14 | 15 6 am | 16 | 17 | 18 6 pm |
| | 19 | 20 7 am 7 pm | 21 7 am 7 pm | 22 6 am 7 am 7 pm | 23 | 24 | 25 6 pm |
| | 26 | 27 7 am 7 pm | 28 7 am 7 pm | 29 6 am 7 am 7 pm | 30 7 am 7 pm | 1 | 2 6 pm |
| | OCT | 3 | 4 | 5 6 pm | 6 7 am 7 pm | 7 7 am 7 pm 6 pm | 8 |
| 10 | | 11 7 am 7 pm | 12 7 am | 13 | 14 | 15 7 pm | 16 |
| 17 | | 18 7 am 7 pm | 19 7 am | 20 | 21 | 22 | 23 |
| 24 | | 25 7 am 7 pm | 26 | 27 7 am 7 pm | 28 7 am 7 pm | 29 | 30 |
| NOV | 31 | 1 | 2 | 3 | 4 5 am 7 pm | 5 | 6 |

Lower River:  Zone 6: 

Table 12. Salmon, Steelhead, and Sturgeon Catch in 1999 Fall Fisheries.

| Fishery | Date | Chinook | Coho | Chum | Summer Steelhead | White Sturgeon | Green Sturgeon |
|--------------------------------------|---------------------|----------------|---------------|------------|------------------|----------------|----------------|
| Treaty Indian Fisheries | | | | | | | |
| Zone 6 commercial ¹ | Aug 31-Sept. 4 | 10,614 | 4 | 0 | 480 | 0 | 0 |
| Zone 6 commercial ¹ | Sept 7-11 | 19,163 | 174 | 0 | 1,280 | 0 | 0 |
| Zone 6 commercial ² | Sept 15-18 | 8,642 | 709 | 0 | 1,510 | 0 | 0 |
| Zone 6 commercial ¹ | Sept 22-25 | 4,126 | 543 | 0 | 769 | 0 | 0 |
| Zone 6 commercial ² | Sept 29-Oct2 | 1,235 | 220 | 0 | 332 | 0 | 0 |
| Zone 6 C&S | Aug.-Dec | 32,883 | 3,089 | 0 | 12,979 | 112 | 0 |
| Treaty Indian Total | | 76,663 | 4,739 | 0 | 17,350 | 112 | 0 |
| Non-Indian Fisheries | | | | | | | |
| Zone 1-3 Sturgeon ³ | Aug 4-5 (12 hr) | 407 | 0 | 0 | -- | 2,788 | 508 |
| Area 2S ⁴ | Aug 23-24 (10 hr) | 944 | 0 | 0 | -- | 66 | 0 |
| Zones 1-3 ⁵ | Sept 20, 21, 22 | 2,169 | 11,402 | 0 | -- | 123 | 137 |
| Zones 1-3 ⁵ | Sept 27, 28, 29, 30 | 930 | 10,040 | 0 | -- | 152 | 112 |
| Zones 1-3 ⁵ | Oct 6, 7 | 435 | 6,472 | 1 | -- | 56 | 11 |
| Zones 4-5 ⁶ | Oct 5-7 | 618 | 0 | 0 | -- | 443 | 0 |
| Zones 1-5 ⁷ | Oct 11 | 74 | 2,768 | 0 | -- | 1,135 | 23 |
| Zones 1-5 ⁸ | Oct 12-15 | 237 | 12,518 | 6 | -- | 83 | 16 |
| Zones 1-5 ⁷ | Oct 18 | 23 | 2,816 | 1 | -- | 1081 | 9 |
| Zones 1-5 ⁸ | Oct 19-22 | 58 | 7,825 | 67 | -- | 112 | 36 |
| Zones 1-5 ⁷ | Oct 25 | 6 | 1,579 | 4 | -- | 339 | 1 |
| Zones 2-5 ⁹ | Oct 27 | 6 | 1,326 | 6 | -- | 133 | 0 |
| Zones 2-5 ¹⁰ | Oct 28 | 0 | 829 | 12 | -- | 17 | 0 |
| Zones 1-5 ¹¹ | Nov 4 | 5 | 0 | 0 | -- | 457 | 1 |
| Mainstem Subtotal | | 5,912 | 57,575 | 97 | -- | 6,985 | 854 |
| Youngs Bay ¹² | Aug 3 – Oct 31 | 1,589 | 15,911 | 2 | -- | 99 | 2 |
| Tongue Pt/South Ch. ¹³ | Sept 7 – Oct 28 | 339 | 3,659 | 0 | -- | 106 | 1 |
| Blind & Knappa Sl. ¹⁴ | Sept 9 – Oct 28 | 167 | 1,958 | 0 | -- | 4 | 0 |
| Deep River ¹⁴ | Sept 9 – Oct 28 | 48 | 1,430 | 2 | -- | 0 | 2 |
| Select Area Subtotal | | 2,143 | 22,958 | 4 | -- | 209 | 5 |
| Buoy 10 sport ¹⁵ | Aug 1 – Dec 31 | 10,255 | 8,900 | 0 | -- | -- | -- |
| Lower River sport ¹⁶ | Aug 1 – Dec 31 | 8,652 | 1,000 | 0 | 4,800 | -- | -- |
| Bonn. Dam To Priest Rapids Dam sport | Aug 1 – Dec 31 | 7,375 | 0 | 0 | 12,000 | -- | -- |
| Sport Subtotal | | 26,282 | 9,900 | 0 | 16,800 | | |
| Non Indian Total | | 34,337 | 90,433 | 101 | 16,800 | 7,167 | 859 |
| Grand Total | | 111,000 | 95,172 | 101 | 29,375 | 7,279 | 859 |

¹ No minimum mesh restriction. Small Spring Creek sanctuary.² Mesh restriction is 8" minimum. Small Spring Creek sanctuary.³ Mesh size restrictions are 9" minimum and 9 3/4" maximum. Zones 1-3 to the Longview Bridge. Salmon and sturgeon.⁴ Mesh size restrictions are 9" minimum and 9 3/4" maximum. Area 2S. Salmon and sturgeon sales allowed.⁵ Mesh size restriction is 6" maximum unslacked gillnet. Zones 1-3 upstream to Longview Bridge during daylight. Salmon and sturgeon sales allowed.⁶ Mesh size restrictions are 8" minimum and 9 3/4" maximum. 1-5 Bridge to Beacon Rock. Salmon and sturgeon sales allowed.⁷ Mesh size restriction is 9 3/4" maximum. Zones 1-5 except closed from Longview Bridge to upper end of Bachelor Island. Salmon and sturgeon sales allowed.⁸ Mesh size restriction is 6" maximum. Zones 1-5 except closed from Longview Bridge to upper end of Bachelor Island. Salmon and sturgeon sales allowed.

- ⁹ Mesh size restriction is 9 3/4" maximum. Upstream from Harrington Point to Beacon Rock. Salmon and sturgeon sales allowed.
- ¹⁰ Mesh size restriction is 6" maximum. Upstream from Harrington Point to Beacon Rock. Salmon and sturgeon sales allowed.
- ¹¹ Mesh size restriction is 9" minimum and 9 3/4" maximum. Zones 1-5. Salmon and sturgeon sales allowed.
- ¹² Mesh size restriction is 8" maximum. Nets may not exceed 250 fathoms in length. Leadline not to exceed 2 lbs /fathom. Monofilament nets are allowed. Salmon and sturgeon sales allowed.
- ¹³ Mesh size restriction is 8" maximum. Net lengths may not exceed 250 fathoms in Tongue Point Basin and 100 fathoms in South Channel. Leadline not to exceed 2 lbs /fathom in Tongue Point Basin. Salmon and sturgeon sales allowed.
- ¹⁴ Mesh size restriction is 8" maximum. Nets may not exceed 100 fathoms in length. Salmon and sturgeon sales allowed.
- ¹⁵ Includes catches in fishery just above Astoria-Megler Bridge. Chinook retention prohibited Aug 30-Sept 28. Buoy 10 remained open to coho retention from August through December.
- ¹⁶ Chinook retention prohibited Sep 14-28.

| | Stock | | | | | | Total |
|---------------------------------|--------------|----------------|---------------|---------------|---------------|--------------------|----------------|
| | LRH | LRW | BPH | URB | MCB | Other ¹ | |
| Non-Indian Fisheries | | | | | | | |
| Recreational ² | 3,700 | 0 | 2,200 | 15,200 | 4,600 | 600 | 26,300 |
| August Sturgeon Commercial | 100 | 0 | <100 | <200 | <100 | <100 | 400 |
| Early Fall Commercial | 400 | 0 | <100 | 300 | 200 | 0 | 900 |
| Late Fall Commercial | 1,400 | <100 | 200 | 1,600 | 1,300 | 100 | 4,500 |
| Select Area Commercial | 400 | 0 | 0 | 100 | <100 | 1,500 | 2,100 |
| <i>Subtotal</i> | <i>5,900</i> | <i><100</i> | <i>2,500</i> | <i>17,300</i> | <i>6,100</i> | <i>2,300</i> | <i>34,200</i> |
| Treaty Indian Fisheries | | | | | | | |
| Sales to Licensed Buyers | 0 | 0 | 24,500 | 15,300 | 3,500 | <100 | 43,400 |
| C&S and Sales to General Public | 0 | 0 | 3,700 | 23,000 | 6,100 | 0 | 32,800 |
| <i>Subtotal</i> | <i>0</i> | <i>0</i> | <i>28,200</i> | <i>38,300</i> | <i>9,600</i> | <i><100</i> | <i>76,200</i> |
| Total | 5,900 | <100 | 30,700 | 55,600 | 15,700 | 2,400 | 110,400 |

¹ Includes Select Area Bright and out-of-basin stocks.

² Includes sport catch from mouth to Priest Rapids Dam.

Zone 6 Fisheries

Treaty Indian Commercial Season

The treaty Indian fishery in the fall of 1999 was managed to target on healthier URB and BPH fall chinook stocks while allowing some harvest of hatchery summer steelhead and limiting impacts on listed SRW fall chinook and Group B summer steelhead. The 1999 treaty Indian commercial fall season consisted of five fishing periods occurring between August 31 and October 2: two 4.5 day fishing periods followed by three 3.5 day fishing periods (Table 11). All of Zone 6 was open to fishing throughout the duration of the fishery and an 8" minimum mesh size restriction was in place during the third and fifth fishing periods to reduce handle of Group B wild index summer steelhead. The 22-day season was similar in length to the last three years but far less than in the late 1980's when season lengths ranged from 35-46 days (Table 15).

Treaty Indian fisheries landed 76,700 chinook and 17,400 steelhead during fall commercial and Ceremonial and Subsistence (C&S) fisheries of which about 43% (32,900 fish) of chinook and 75% (13,000 fish) of steelhead landings were taken home or sold to the public rather than being sold to commercial buyers (Table 14). The chinook catch of 76,700 was the largest since 1990 but still well below the strong return years of 1986-1989 when catches averaged 128,700. The

1999 total steelhead catch was similar to the recent 5-year average of 18,000 but far less than the strong return years of 1984-1989 when catches averaged 63,900.

The fall catch of 76,200 fall chinook adults represented 42% of the harvestable surplus, which was less than the goal of 50%. The tribes were unable to catch the harvestable surplus for several reasons: 1) Treaty Indian catch was composed of fewer BPH stock chinook than expected, 2) steelhead impact limits reduced gear and time available to the treaty Indian fishery; 3) the TAC was unable to update the URB fall chinook run prior to September 10 which limited early season fishing options, and 4) as part of the 1999 Management Agreement the tribes agreed to manage their fisheries to allow for a 6% URB impact rate for non-Indian fisheries.

Tribal fisheries landed an estimated 631 SRW fall chinook in 1999. Total estimated catch of wild steelhead during the fall season in the Zone 6 treaty Indian fisheries (commercial, sales to the general public, and C&S) included 4,300 Group A index wild steelhead, 7.6% of the Bonneville Dam count, and 470 Group B index wild steelhead, 12.7% of the Bonneville Dam count (Table 16).

| Date | | Chinook ¹ | Steelhead ¹ | Coho ¹ | Walleye ¹ |
|------------------------|---------------|----------------------|------------------------|-------------------|----------------------|
| Aug C&S | C & S | 220 | 3,280 | 0 | 0 |
| Aug 31-Sep. 4 | Ticket | 10,614 | 480 | 7 | 7 |
| | Other | 5,879 | 1,380 | 6 | 1 |
| | <i>Total</i> | <i>16,493</i> | <i>1,860</i> | <i>110</i> | <i>8</i> |
| Sept 7-11 | Ticket | 19,163 | 1,280 | 156 | 4 |
| | Other | 9,900 | 760 | 8 | 3 |
| | <i>Total</i> | <i>29,063</i> | <i>2,040</i> | <i>251</i> | <i>7</i> |
| Sept 15-18 | Ticket | 8,642 | 1,510 | 686 | 6 |
| | Other | 4,810 | 940 | 48 | 0 |
| | <i>Total</i> | <i>13,452</i> | <i>2,450</i> | <i>1,413</i> | <i>6</i> |
| Sept. 22-25 | Ticket | 4,126 | 769 | 585 | 2 |
| | Other | 6,147 | 761 | 187 | 6 |
| | <i>Total</i> | <i>10,273</i> | <i>1,530</i> | <i>870</i> | <i>8</i> |
| Sept. 29-Oct. 2 | Ticket | 1,235 | 332 | 295 | 6 |
| | Other | 4,837 | 1,038 | 369 | 2 |
| | <i>Total</i> | <i>6,072</i> | <i>1,370</i> | <i>1,610</i> | <i>8</i> |
| Oct.–Dec. ² | C & S | 1,090 | 4,820 | 480 | 0 |
| | <i>Ticket</i> | <i>43,780</i> | <i>4,371</i> | <i>1,729</i> | <i>25</i> |
| | <i>Other</i> | <i>32,883</i> | <i>12,979</i> | <i>618</i> | <i>12</i> |
| <i>Total</i> | <i>76,663</i> | <i>17,350</i> | <i>4,739</i> | <i>37</i> | |

¹ Based on preliminary fish ticket reports and YIN summary report of fisher interviews.

² Includes Tribal permits from August through October and projected platform and hook-and-line landings from October 3-December 31. Does not include Klickitat landings during this period.

Table 15. Number of Adult Chinook, Coho, Steelhead, and Sturgeon Landed During Treaty Indian Fall Seasons (Aug-Nov) Above Bonneville Dam, 1970-1999.

| Year | Season ² | Fishing Days ³ | Numbers Landed ¹ | | | |
|--------------------|---------------------|---------------------------|-----------------------------|----------------------|-------------------------------|----------------|
| | | | Chinook Adults | Coho | Steelhead ²⁸ | White Sturgeon |
| 1970 | Aug 9-Oct 16 | 48 | 34,800 | 21,300 | 11,400 (13,200) | 200 |
| 1971 | Aug 9-Oct 15 | 49 | 50,900 | 17,100 | 22,500 (25,700) | 600 |
| 1972 | Aug 9-Oct 13 | 46 | 39,000 | 9,600 | 25,100 (28,800) | 500 |
| 1973 | Aug 12-Oct 12 | 56 | 57,000 | 11,400 | 26,200 (26,800) | 400 |
| 1974 | Aug 8-Oct 18 | 63 | 51,100 | 6,900 | 12,900 (13,200) | 400 |
| 1975 | Aug 8-Oct 10 | 54 | 122,300 | 6,000 | 7,000 (7,800) | 600 |
| 1976 | Aug 8-Oct 18 | 60 | 121,500 | 4,600 | 8,800 (11,800) | 300 |
| 1977 | Aug 25-Sep 13 | 19 | 46,300 | 1,000 | 31,300 (36,000) | 200 |
| 1978 | Aug 25-Oct 3 | 27 | 56,200 | 4,400 | 15,800 (19,100) | 400 |
| 1979 | Aug 25-Sep 18 | 18 | 59,900 | 4,600 | 5,900 (8,500) | 300 |
| 1980 | Sep 2-Sep 11 | 5 | 32,600 | 300 | 4,700 (9,600) | 200 |
| 1981 | Sep 1-Sep 18 | 10 | 48,900 | 1,800 | 5,100 (9,400) | 100 |
| 1982 ⁴ | Sep 1-Nov 5 | 14 | 53,600 | 4,300 | 5,100 (8,300) | 100 |
| 1983 | Aug 31-Oct 7 | 15 | 22,800 | 200 | 14,800 (18,300) | 200 |
| 1984 | Aug 6-Oct 15 | 32 | 50,900 | 1,600 | 68,900 (78,200) | 700 |
| 1985 ⁵ | Aug 23-Sep 28 | 29 | 68,300 | 5,300 | 75,600 (86,100) | 1,800 |
| 1986 ⁶ | Aug 18-Oct 4 | 37 | 102,300 ⁷ | 40,300 ⁸ | 62,500 (72,700) | 4,300 |
| 1987 | Aug 10-Oct 15 | 46 | 138,600 ⁹ | 2,400 | 65,900 (81,100) | 4,400 |
| 1988 ¹⁰ | Aug 10-Oct 1 | 35 | 145,700 ¹¹ | 12,700 ¹² | 59,000 ¹¹ (81,600) | 2,000 |
| 1989 ¹³ | Aug 7-Sep 29 | 36 | 128,200 ¹⁴ | 8,700 ¹⁵ | 51,400 (71,300) | -- |
| 1990 ¹⁶ | Aug 8-Sep 29 | 34 | 79,300 ¹⁷ | 2,900 ¹⁸ | 29,000 (38,000) | 1,700 |
| 1991 ¹⁹ | Aug 12-Oct 28 | 20 | 51,100 | 12,800 ²⁰ | 34,900 (46,800) | -- |
| 1992 ²¹ | Aug 10-Oct 17 | 32 | 28,100 | 1,000 | 47,900 (60,800) | 100 |
| 1993 ²² | Aug 9-Oct 2 | 26 | 30,400 | 1,000 | 25,300 (33,400) | 100 |
| 1994 ²³ | Aug 29-Oct 15 | 10 | 33,700 ²⁴ | 1,300 | 15,500 ²⁴ (18,700) | 500 |
| 1995 ²⁵ | Aug 29-Sep 15 | 9 | 41,400 | 400 | 20,400 (24,800) | 400 |
| 1996 ²⁶ | Sep 2-Sep 28 | 17 | 63,200 | 700 | 18,600 (22,800) | 300 |
| 1997 ²⁷ | Aug 27-Sep 20 | 16 | 65,000 | 600 | 22,700 (22,900) | <100 |
| 1998 ²⁹ | Aug 25-Sep 25 | 22 | 44,700 | 1,500 | 12,600 | <100 |
| 1999 ³⁰ | Aug 31- Oct 2 | 22 | 77,200 | 2,300 | 17,350 | 0 |

¹ Includes Spring Creek terminal area fishing since 1975 (1977-83 & 92), sales to the general public and C&S catches beginning in 1994, Klickitat R. dipnet catches during open mainstem seasons, and extended Klickitat River commercial seasons beginning in 1988.

² Minimum mesh size: 1970-74 none; 1975 7-1/2"; 1976-82 8"; 1983 none; 1984 none, except 8" Oct 9-15; 1985 none, except 8" Sep 14-28; 1986 none, except 8" Sep 6-Oct 4; 1987 none; 1988 none, except 8" Aug 17-27 and Sep 18-24 and 8" and 9" test fishery Sep 28-Oct 1; 1989 8" except none Aug 7-12; 1990 8" except none Sep 3-5, Sep 12-15 below Hood River Br., Sep 17-22, and Sep 24-29; 1991-97 none; 1998 8".

³ Mainstem commercial seasons only.

⁴ Includes Nov 1-5 coho fishery below Klickitat River.

⁵ Spring Creek sanctuary area open to fishing Aug 23-28 and Aug 29-Sep 3.

⁶ Includes Sep 29-Oct 4 dipnet and experimental gillnet fishery.

⁷ An additional 1,000 catch occurred above Priest Rapids Dam.

⁸ Over half of the catch (24,100) were Klickitat River dipnet.

⁹ An additional 2,200 catch occurred above Priest Rapids Dam.

- ¹⁰ Includes Sep 28-Oct 1 test fishery in John Day Pool. No sturgeon sales allowed after Sep 3. Reduced Spring Creek sanctuary to 150' Aug 10-27 and after Sep 20.
- ¹¹ An additional catch of 2,300 chinook and an estimated 300 steelhead occurred above Priest Rapids Dam.
- ¹² Includes 5,500 captured in an extended Klickitat River dipnet season.
- ¹³ No sturgeon sales allowed. Reduced Spring Creek sanctuary to 150 feet Aug 7-26.
- ¹⁴ An additional catch of 800 chinook occurred above Priest Rapids Dam.
- ¹⁵ Includes 6,100 captured in an extended Klickitat River dipnet season.
- ¹⁶ Reduced Spring Creek sanctuary to 150 feet Aug 8-25 and Sep 24-29.
- ¹⁷ An additional 200 catch occurred above Priest Rapids Dam.
- ¹⁸ Includes 1,900 captured in an extended Klickitat River dipnet season.
- ¹⁹ No sturgeon sales allowed. Reduced Spring Creek sanctuary to 150 feet Aug 12-Sep 10 and reduced to 50 feet Sep 10-Oct 28.
- ²⁰ Includes 5,500 captured in an extended Klickitat River dipnet season.
- ²¹ No sturgeon sales allowed. Reduced Spring Creek sanctuary to 150 feet Aug 10-22, and reduced to 50 feet Sep 2-5 and Oct 5-17. Spring Creek sanctuary area only open to fishing Sep 7-11. Fishing restricted to upper two pools Sep 17-19.
- ²² No sturgeon sales allowed. Small Spring Creek sanctuary (150 feet) Aug 9-28 and large Spring Creek sanctuary (2 mile) for rest of season. Gillnet fishery restricted to upper two pools Sep 13-18.
- ²³ No sturgeon sales allowed. Large Spring Creek sanctuary (2 mile) Aug 29-Sep 3 and Sep 8-10, and small Spring Creek sanctuary (150 feet) Oct 12-15.
- ²⁴ An additional catch of 570 chinook and 70 steelhead occurred above Priest Rapids Dam. An additional catch of 220 chinook and 80 steelhead occurred above McNary Dam.
- ²⁵ No sturgeon sales allowed. Large Spring Creek sanctuary (2 mile).
- ²⁶ No sturgeon sales allowed. Large Spring Creek sanctuary (2 mile) Sep 2-21. Closed below Hood River Bridge Sep 23-28.
- ²⁷ No sturgeon sales allowed. Large Spring Creek sanctuary (2 mile) Aug 27-Sep 6. Closed below Hood River Bridge Sep 9-13.
- ²⁸ Steelhead run year totals are in parentheses. Sales to licensed buyers during sockeye and fall seasons only through 1984. Sales to licensed buyers, general public and C&S catch, including winter season catch of holdover and fresh run summer steelhead, for calendar year from 1985-1998.
- ²⁹ No sturgeon sales allowed. 8" min mesh size. Closed below Hood River Bridge Sep 8-12. Enlarged Spring Creek sanctuary from Nav. Light #27 to #35, Washington shore only to mid-channel, Sep 15-25.
- ³⁰ No sturgeon sales allowed. 8" min. mesh size. Sep. 15-18 and Sep. 29-Oct. 2, sturgeon catch during Oct. 11-Dec. 31 season not included in total. Klickitat dipnet catch of 900 chinook included

Table 16. Wild Steelhead Catch in Treaty Indian Fall Fisheries, 1985-1999.

| Year | Group A Index | | Group B Index | |
|------|---------------------|----------------------------|---------------------|----------------------------|
| | Number ² | % of wild run ¹ | Number ² | % of wild run ¹ |
| 1985 | 10,800 | 20.7 | 4,000 | 31.0 |
| 1986 | 7,800 | 13.8 | 2,700 | 26.7 |
| 1987 | 16,800 | 15.7 | 5,200 | 37.2 |
| 1988 | 11,000 | 17.1 | 4,200 | 23.4 |
| 1989 | 9,100 | 15.9 | 4,300 | 35.0 |
| 1990 | 4,300 | 16.0 | 1,900 | 21.5 |
| 1991 | 8,800 | 14.6 | 1,900 | 30.0 |
| 1992 | 7,200 | 16.2 | 3,300 | 26.3 |
| 1993 | 4,400 | 15.2 | 800 | 19.1 |
| 1994 | 2,200 | 10.3 | 1,000 | 18.6 |
| 1995 | 2,700 | 10.4 | 300 | 18.6 |
| 1996 | 2,300 | 8.9 | 1,400 | 34.8 |
| 1997 | 3,200 | 10.4 | 600 | 14.3 |
| 1998 | 3,100 | 8.8 | 500 | 15.6 |
| 1999 | 4,300 | 7.6 | 470 | 12.7 |

¹ Percentage calculated before rounding. Steelhead impacts based on date method through 1998. Fork length index method used beginning in 1999.

² Includes sales to licensed buyers only prior to 1994. Includes sales to the general public and C&S catch beginning in 1994.

Sturgeon Fisheries

Treaty Indian and non-Indian sport fisheries had achieved the catch guidelines for Bonneville and The Dalles pools prior to initiation of the fall fishing period. Although the catch guideline for the John Day Pool had not been achieved the tribes chose not to allow sales of sturgeon during fall commercial fisheries occurring in the John Day Pool. Following the completion of the fall gillnet fishing periods a sturgeon setline season was adopted and began 6 pm October 11 and continued through 6 pm December 31.

The treaty commercial landings for 1999 were estimated to be 2,940 white sturgeon from the winter and spring commercial fisheries and 151 from fall commercial fisheries for a total catch of 3,091. This compares with the SMTF treaty Indian commercial guideline of 3,660 white sturgeon. Sturgeon landings of 1,280 in Bonneville Pool, 1,051 in The Dalles Pool, and 760 in John Day Pool were within the pool-specific catch guidelines of 1,300, 1,000-1,200, and 1,160 respectively (Tables 10 and 17). An additional 112 were taken in the fall subsistence fishery.

Sport catch of sturgeon in Zone 6 during 1999 totaled 2,352 compared to a guideline of 2,680-2,880. Sport retention seasons were closed in Bonneville Reservoir on April 17, 1999 and The Dalles Reservoir on June 12, 1999 while the John Day Reservoir was open for the entire year in 1999. Catches of 1,236 in Bonneville, 694 in The Dalles, and 422 in John Day pools were within the pool-specific catch guidelines of 1,520, 600-800, and 560, respectively (Tables 10 and 17).

| | Non-Indian Sport | | | | Treaty Indian Commercial | | | | Sub- sistence |
|------|--------------------|------------------|------------------|-------|--------------------------|--------------------|------------------|-------|------------------|
| | Bonne- ville | The Dalles | John Day | Total | Bonne- ville | The Dalles | John Day | Total | |
| 1991 | 2,270 | 200 | 150 | 2,620 | 1,000 | 460 | 40 | 1,500 | NA |
| 1992 | 1,720 | 140 | 150 | 2,010 | 1,150 | 430 | 20 | 1,600 | 210 |
| 1993 | 2,310 | 160 | 140 | 2,610 | 1,420 | 580 | 10 | 2,010 | 260 |
| 1994 | 2,220 | 155 | 235 | 2,610 | 1,175 | 310 | 115 | 1,600 | 650 |
| 1995 | 1,370 | 50 | 90 | 1,510 | 1,420 | 310 | 310 | 2,040 | 1,150 |
| 1996 | 1,360 | 90 | 80 | 1,530 | 1,000 | 230 | 360 | 1,590 | 480 |
| 1997 | 1,470 | 180 | 480 | 2,130 | 1,852 | 498 | 1,260 | 3,610 | 236 |
| 1998 | 1,625 | 857 | 599 | 3,081 | 1,462 | 1,108 | 1,100 | 3,670 | 240 |
| 1999 | 1,236 ¹ | 694 ² | 422 ³ | 2,352 | 1,280 ⁴ | 1,051 ⁵ | 760 ⁶ | 3,091 | 112 |

¹ Closed April 17, 1999.

² Closed June 12, 1999.

³ Catch estimate for entire year.

⁴ Closed June 5, 1999.

⁵ Closed March 20, 1999.

⁶ Catch estimate for entire year.

Lower River Commercial Fisheries

Early Fall Mainstem Seasons

The early fall commercial fishery in the lower mainstem Columbia River during 1999 was managed to harvest primarily sturgeon with some limited chinook catch allowed in the area upstream of the Sandy River mouth. It consisted of a 12-hour daylight target sturgeon fishery during early August and a 10-hour nighttime target chinook fishery in Area 2S (Table 11). A 12-hour sturgeon fishery occurred in the lower river in Zones 1-3 (below Longview Bridge) on Aug 4-5 with a catch of 2,800 white sturgeon, 510 green sturgeon, and 410 chinook. The Area 2S salmon fishery occurred for 10 hours on August 23-24 and landed 940 chinook and 70 white sturgeon. Due to the low chinook catch in the Area 2S salmon fishery additional fishing time was requested by commercial fishers, and considered by the Columbia River Compact. An additional fishing period was not adopted for several reasons: 1) non-Indian fisheries were limited to 6% impact prior to September 10, 2) lower river sport fisheries were exceeding expected catch expectations and impact rates, 3) TAC was unable to update the URB run size prior to September 10, and 4) additional impacts would be necessary for fisheries planned during the late fall time period.

The 1999 early fall commercial fisheries resulted in catches of 1,400 chinook, 2,900 white sturgeon, and 500 green sturgeon (Table 18). A season length of two fishing days is similar to recent years but less than the stronger run years of 1986-1990 when season length averaged six days and far less than the more heavily fished time period of 1970-1975 when season length averaged 11 days. Chinook catch for the early fall season was the second lowest since at least 1970, while sturgeon catch increased for the third consecutive year.

Late Fall Mainstem Seasons

The lower Columbia River commercial fishery operating during the late fall fishing time frame in 1999 was managed to harvest primarily coho and white sturgeon while minimizing impacts on listed species. At the start of the late fall season the URB run size had been upgraded to 160,000, but chinook retention in sport fisheries below Bonneville Dam was still prohibited due to limited impacts available for non-Indian fisheries.

The late fall fishery began with two target coho seasons during late September consisting of three and four 12-hour fishing periods. (Table 11). Target coho seasons were restricted to daylight hours (7 am to 7 pm) and a 6-inch maximum mesh size to minimize handle of fall chinook. Additionally, the area upstream of the Longview Bridge was closed to protect wild coho destined for the Sandy and Clackamas rivers.

The third fishing period included two target coho fishing days below Longview Bridge and a 48 hour salmon/sturgeon fishery in the area above the I-5 Bridge to target on sturgeon and salmon and to limit impact on Clackamas and Sandy wild coho. A combination of salmon/sturgeon and coho target seasons were adopted for the last three weeks of October. The salmon/sturgeon seasons consisted of 12-hour daylight fishing periods (7 am-7 pm) with no mesh size restrictions. The coho seasons consisted of two 3-1/2 day fishing periods followed by one 12-hour fishing period. During the target coho season the maximum mesh size was 6-inches, but nighttime fishing was allowed. For seasons occurring from October 11 to October 25 the area between Longview Bridge and Bachelor Island was closed to protect fall chinook returning to the Lewis River. Seasons occurring from October 27 to November 4 were restricted to the area above Harrington Point (across from the Grays River) to protect chum salmon and late returning wild coho salmon destined for the Clackamas River.

The late fall season consisted of a total of 23 days occurring between September 20 and November 4 and resulted in catches of 57,600 coho, 4,600 chinook, 4,100 white sturgeon, 300 green sturgeon, and 97 chum (Table 19). The season length for the 1999 fishery of 23 days is similar to recent years but only about half of the strong return years of 1985-1989 when season length averaged 39 days. Coho catches of 57,600 fish are the highest since 1991 but only 6% of the record high catch of nearly 1 million fish. Chinook catches were less than 10,000 for the sixth consecutive year as compared to 1970-1993 when catches exceeded 10,000 fish in 21 of the 24 years and peaked in 1987 with catch of nearly 300,000 fish. Chum catch in mainstem fisheries was less than 100 fish for the seventh consecutive year and sturgeon landings were similar to past years.

Select Area Fisheries

Select Area fisheries during the fall time frame were managed to harvest primarily net-pen reared coho. Select Area fisheries occurred in Youngs Bay, Tongue Point/South Channel, Blind Slough/Knapa Slough, and Deep River. A total of 59 days and 57 nights were fished in Select Areas during the fall of 1999, with a total catch of 23,000 coho, 2,100 chinook, 4 chum, 200 white sturgeon, and 5 green sturgeon (Tables 12 and 19). A separate report details stock status updates, past Select Area fisheries, and Select Area fishing proposals for 2000.

Mainstem Columbia River Recreational Fisheries

Recreational fisheries occur in two areas in the Lower Columbia River. The Buoy 10 estuary fishery targets fall chinook and coho in the area from Buoy 10 upstream to the Astoria-Megler Bridge while the lower Columbia River mainstem fishery targets salmon, steelhead and sturgeon in the area from the Astoria-Megler Bridge upstream to Bonneville Dam. The fisheries below Bonneville Dam are managed intensively for catch and effort to ensure that impacts on listed species are not exceeded. Retention of coho in fisheries below Bonneville Dam is restricted to adipose fin-clipped fish only.

The 1999 Buoy 10 season opened on August 1, but chinook catches escalated quickly and it soon became evident that this fishery would exceed preseason expectations for both total catch and SRW impacts. Catch rates were near record high during mid-August and the states took action to disallow chinook retention in this fishery effective August 30 in order to remain within the preseason management guidelines and allow other fisheries upstream to occur. Chinook retention was prohibited in the area from Buoy 10 upstream to the Tongue Point/Grays Point line. In late September when the URB run size was upgraded, and it became clear that the non-Indian fishery impacts would not exceed the SRW impact guideline of 6%, the Buoy 10 fishery re-opened for retention of chinook on September 29. However, the reopening occurred so late in the season that virtually no chinook were caught after the reopening. The Buoy 10 fishery produced 49,000 angler trips with a total catch of 10,300 chinook and 8,900 coho (Table 12).

The lower Columbia River sport fishery below Bonneville Dam opened on August 1, but like the Buoy 10 fishery, chinook catches were greater than preseason expectations. The states took action to disallow chinook retention from the Tongue Point/Grays Point line upstream to Bonneville Dam effective September 14. When it became clear that the non-Indian fishery impacts would not exceed the SRW impact guideline of 6% the fishery was reopened to chinook retention effective September 29. The fall fishery (August 1-October 31) below Bonneville Dam produced 70,700 angler trips with a total catch of 8,700 chinook, 1,000 coho, 4,000 marked steelhead kept, and 1,300 unmarked steelhead released.

A smaller fishery targeting chinook and steelhead occurs in the mainstem Columbia between Bonneville and McNary dams; however, an intensive creel program is not in effect for this fishery. Harvest is estimated from angler catch record cards and in-season from average harvest rates. The total chinook catch in 1999 from Bonneville to McNary Dam is estimated to be 2,200 fish.

Table 18. Number of Adult Chinook, Chum Coho, Steelhead, and Sturgeon Landed During Early Fall Mainstem Columbia River Seasons Below Bonneville Dam, 1970-1999.

| Year | Season ¹ | Fishing Days | Chinook | | | Sturgeon | |
|--------------------------|---------------------|--------------|--------------|----------|------------------------|--------------|------------|
| | | | Adults | Coho | Steelhead ² | White | Green |
| 1970 | August 9-26 | 13 | 142,100 | 66,600 | 6,200 | 2,000 | 1,000 |
| 1971 | August 8-25 | 13 | 91,900 | 31,900 | 9,600 | 2,900 | 1,000 |
| 1972 | August 9-25 | 12 | 94,400 | 18,800 | 3,800 | 2,700 | 900 |
| 1973 | August 12-24 | 10 | 101,200 | 10,900 | 6,800 | 1,800 | 1,000 |
| 1974 | August 11-23 | 10 | 51,700 | 20,100 | 2,600 | 3,900 | 2,700 |
| 1975 | August 10-22 | 10 | 92,100 | 6,600 | -- | 4,900 | 1,000 |
| 1976 | August 8-18 | 7 | 31,700 | 2,500 | -- | 8,300 | 1,400 |
| 1977 | August 14-23 | 7 | 67,000 | 4,400 | -- | 4,300 | 600 |
| 1978 | August 15-21 | 4 | 38,900 | 1,300 | -- | 2,700 | 1,600 |
| 1979 | August 14-16 | 2 | 28,100 | 1,800 | -- | 2,300 | 700 |
| 1980 ³ | September 2-3 | 1 | 58,400 | 7,000 | -- | 1,700 | 600 |
| 1981 | None | 0 | -- | -- | -- | -- | -- |
| 1982 ³ | August 30-31 | 0.5 | 79,200 | 5,800 | -- | 500 | 300 |
| 1983 ³ | September 1-2 | 0.5 | 15,400 | 200 | -- | 1,200 | 600 |
| 1984 | None | 0 | -- | -- | -- | -- | -- |
| 1985 | None | 0 | -- | -- | -- | -- | -- |
| 1986 ⁴ | July 30-August 6 | 4 | 800 | 0 | -- | 5,400 | 5,100 |
| 1987 ⁵ | August 9-12 | 3 | 11,500 | 100 | -- | 3,900 | 3,200 |
| 1988 ⁶ | August 14-15 | 0.5 | 51,100 | 300 | -- | 1,700 | 2,300 |
| 1989 ⁷ | August 7-29 | 13 | 29,800 | 100 | -- | 1,800 | 0 |
| 1990 ⁸ | August 12-24 | 10 | 6,700 | 20 | -- | 1,500 | 0 |
| 1991 ⁹ | August 25-29 | 4 | 5,400 | 10 | -- | 500 | 0 |
| 1992 ³ | September 8-9 | 0.5 | 2,200 | 400 | -- | 800 | 1,800 |
| 1993 | None | 0 | -- | -- | -- | -- | -- |
| 1994 | None | 0 | -- | -- | -- | -- | -- |
| 1995 | None | 0 | -- | -- | -- | -- | -- |
| 1996 ¹⁰ | August 26-29 | 3 | 4,400 | 0 | -- | 300 | 0 |
| 1997 ¹¹ | August 4 - 25 | 2 | 1,300 | 1 | -- | 2,000 | 1,500 |
| 1998 ¹² | Aug 4 - 26 | 2 | 1,800 | 0 | -- | 2,600 | 700 |
| 1999¹³ | Aug 4 - 24 | 2 | 1,400 | 0 | -- | 2,900 | 500 |

¹ Minimum mesh size: 1970-74 7-1/4"; 1975-79 8"; 1980-98 see following footnotes.

² Sale of steelhead by non-Indians prohibited since 1975. Annual handling and mortality limited by time, area, and gear regulations.

³ Zone 1 only with no mesh restriction in 1980, 1983, and 1992 and 8" minimum mesh in 1982. Night fishing only in 1982-83 and 1992 (6PM-6AM).

⁴ Experimental large-mesh (9" min.) sturgeon season. Night fishing only Jul 30-Aug 1 and Aug 4-6 in Zone 1 only.

⁵ Night fishing only in Zones 1 and 2 with 8" minimum mesh size.

⁶ Aug 14 6pm-Aug 15 5am (11 hrs) below Astoria-Megler Bridge, 8" min. mesh. Aug 14 6pm-Aug 15 Noon (18 hrs) Astoria-Megler Bridge to I-5 Bridge, 8" min. mesh except 9" min. mesh Longview Bridge to I-5 Bridge.

⁷ Aug 7-11 in Zones 1-5, Aug 13-14 in Zones 3-5, and Aug 14-15 above Wauna powerlines. Night fishing only (6pm-6am). Eight inch minimum mesh below Longview Br. and 9" minimum mesh above Longview Br. Aug 20-25 and 27-29 in Area 2S. Night fishing only (6pm-6am). Nine inch minimum mesh.

⁸ Aug 12-17 and Aug 19-24 above I-205 Br. (extended Washougal sanctuary) with 9" min. mesh, night fishing only (6pm-6am).

⁹ I-205 Br. to Beacon Rock (with extended Washougal sanctuary) with 9" min. mesh, night fishing only (6pm-6am).

¹⁰ Area 2S, 8pm-6am nightly.

¹¹ 9" min. mesh Aug 4 9pm to Aug 5 3am (6 hrs) in Zone 1 and Aug 24 8 pm to Aug 25 6 am (10 hrs) in Area 2S.

¹² 9"min. mesh. Aug.4 5pm to Aug 5 5 am (12 hrs) below Longview Bridge; Aug. 25 8pm to August 26 6am (10 hrs) in Area 2S..

¹³ 9"min mesh. Aug.4 7pm to Aug 5 7 am (12 hrs) below Longview Bridge; Aug. 23 8pm to August 24 6am (10 hrs) in Area 2S.

Table 19. Number of Adult Chinook, Coho, Steelhead, and Sturgeon Landed during Late Fall Mainstem Columbia River and Select Area Seasons (mid-Sep to mid-Nov) below Bonneville Dam, 1970-1999.

| Year | Mainstem Season ¹ | Mainstem Fishing Days | Chinook | | Coho | | Chum ³ | Steelhead ⁴ | Sturgeon | |
|--------------------------|------------------------------|-----------------------|-------------------|--------------------------|-------------------|--------------------------|-------------------------|------------------------|---------------------------|-------------------------|
| | | | Columbia Mainstem | Select Area ² | Columbia Mainstem | Select Area ² | | | White | Green |
| 1970 | Sep 10-Nov 5 | 35 | 93,900 | 700 | 432,500 | 21,700 | 600 | 6,200 | 1,300 | 100 |
| 1971 | Sep 12-Nov 3 | 34 | 119,600 | 100 | 224,400 | 8,000 | 500 | 6,300 | 1,800 | 200 |
| 1972 | Sep 20-Nov 3 | 27 | 39,400 | 900 | 103,100 | 9,300 | 1,300 | 9,200 | 1,600 | 100 |
| 1973 | Sep 12-Nov 2 | 32 | 158,400 | 300 | 166,000 | 6,800 | 1,400 | 13,000 | 2,400 | 200 |
| 1974 | Sep 17-Nov 1 | 29 | 43,300 | 100 | 231,800 | 9,100 | 900 | 1,200 | 4,800 | 400 |
| 1975 | Sep 10-Nov 7 | 39 | 72,700 | < 100 | 148,000 | 2,100 | 500 | -- | 5,300 | 300 |
| 1976 | Sep 7-Nov 12 | 47 | 105,400 | 300 | 160,700 | 5,200 | 1,200 | -- | 8,100 | 1,200 |
| 1977 | Sep 8-Oct 27 | 23 | 90,400 | 1,700 | 33,100 | 1,600 | 200 | -- | 2,300 | 200 |
| 1978 | Sep 10-Nov 15 | 37 | 64,900 | 500 | 128,000 | 3,400 | 1,500 | -- | 3,900 | 100 |
| 1979 | Sep 11-Nov 7 | 30 | 65,300 | 1,600 | 103,200 | 22,500 | 100 | -- | 13,500 | 500 |
| 1980 | Sep 28-Oct 16 | 12 | 14,600 | 40,000 | 114,200 | 28,900 | 200 | -- | 3,100 | 50 |
| 1981 | Sep 27-Nov 12 | 25 | 5,200 | 24,900 | 47,400 | 12,400 | 1,400 | -- | 6,700 | 100 |
| 1982 | Oct 3-Nov 12 | 27 | 4,500 | 6,000 | 181,600 | 14,300 | 1,800 | -- | 4,600 | 400 |
| 1983 ⁵ | Oct 4-Oct 13 | 4 | 4,800 | 4,700 | 3,600 | 3,600 | 200 | -- | 4,500 | 100 |
| 1984 | Sep 10-Nov 16 | 35 | 60,300 | 3,600 | 160,900 | 40,600 | 1,800 | -- | 9,800 | 2,700 |
| 1985 | Sep 16-Nov 15 | 39 | 56,400 | 3,600 | 138,800 | 51,200 | 700 | -- | 4,900 | 1,500 |
| 1986 | Sep 12-Nov 14 | 43 | 153,000 | 4,600 | 925,400 | 55,600 | 1,800 | -- | 4,100 | 800 |
| 1987 | Sep 13-Nov 12 | 35 | 280,900 | 36,900 | 150,900 | 16,900 | 1,300 | -- | 4,100 | 1,600 |
| 1988 | Sep 12-Nov 11 | 41 | 242,200 | 28,800 | 311,100 | 51,400 | 2,500 | -- | 3,100 | 1,000 |
| 1989 | Sep 17-Nov 15 | 36 | 95,700 | 6,600 | 360,700 | 28,100 | 1,300 | -- | 2,700 | 1,700 |
| 1990 | Sep 18-Oct 31 | 26 | 35,300 | 3,100 | 47,400 | 27,600 | 800 | -- | 3,100 | 2,200 |
| 1991 ⁶ | Sep 10-Nov 5 | 32 | 33,500 | 2,100 | 324,400 | 82,100 | 400 | -- | 2,400 | 3,200 |
| 1992 | Sep 22-Oct 30 | 22 | 14,100 | 1,500 | 37,900 | 19,600 | 700 | -- | 4,200 | 400 |
| 1993 | Sep 20-Oct 20 | 17 | 16,700 | 300 | 20,600 | 15,500 | 40 | -- | 7,100 | 2,200 |
| 1994 | Oct 9-Oct 19 | 4 | 1,500 | 100 | 6,000 | 57,800 | 20 | -- | 3,400 | 200 |
| 1995 | Oct 9 & Oct 12 | 2 | 50 | 500 | 200 | 22,300 | 0 | -- | 6,000 | 400 |
| 1996 ⁷ | Sep 16-Oct 25 | 17 | 7,600 | 5,000 | 5,600 | 22,400 | 20 | -- | 7,200 | 600 |
| 1997 ⁸ | Sep 24-Nov 7 | 23 | 3,800 | 4,000 | 3,800 | 17,100 | 39 | -- | 7,800 ⁹ | 100 ⁹ |
| 1998 ¹⁰ | Oct 7-Nov 6 | 7 | 1,000 | 2,100 | 300 | 23,600 | 11 | -- | 10,900 ¹¹ | 900 ¹¹ |
| 1999¹² | Sept 20-Nov 4 | 23 | 4,600 | 2,100 | 57,600 | 23,000 | 101¹¹ | -- | 4,100¹¹ | 300¹¹ |

¹ Mesh restriction of 7" or less and 9" or greater, 1980-1982.

² Number of Oregon and Washington terminal areas and fishing days vary from year to year, and some early fall fisheries are included. Between 1983 and 1995 only Oregon terminal fisheries occurred. Prior to 1979, landings listed for Youngs Bay are minimal as Youngs Bay salmon could be sold outside of the bay during concurrent mainstem fishing periods.

³ Includes 1970-1998 Youngs Bay, 1980-1982 Washington, and 1996-1998 Big Creek, Tongue Point. Blind Slough and Deep River terminal landings.

⁴ Sale of steelhead by non-Indians prohibited since 1975. Handling and mortality limited by time, area, and gear regulations.

⁵ Dates reflect coho season only. Six days of large-mesh sturgeon fishing occurred Oct 18-Nov 3 with sale of chinook allowed.

⁶ Sep 10 and 17 daylight only coho target fishery. Late fall season opened on Sep 22.

⁷ Sep 16-20 extended 2S night time fishery. Sep 30-Oct 25 all of Zones 1-5.

⁸ Sep 24-Oct 3 Zone 1-Longview Bridge 6" maximum mesh and 1-5 Bridge to Zone 5 9" min. mesh; Oct 6-Nov 7 Zones 1-5, 8" min. mesh after Oct 26.

⁹ Includes mainstem and select area fisheries after Sep 24.

¹⁰ Oct. 7 - Nov 4 Zones 1-5, 9" minimum mesh.

¹¹ Includes all Select Area catches.

¹² Sep 20 - Oct 28, target coho fisheries; Oct 11, 18, 25 and 27, salmon/sturgeon fisheries; Sep 20 - Oct 7, Zone 1-Longview Bridge; Oct 11-22, Zone 1-5 except closed from Longview Bridge to upper Bachelor Island; Oct 27-28, HarringtonPt/Setter Pt Line - Zone 5; Oct 5-7; 1-5 Bridge - Zone 5, 8" min mesh; Nov 4 daylight target sturgeon fishery.

| Year | White Sturgeon | | | | | Green Sturgeon | | | | |
|-------------|----------------|---------------------|--------------|------------------------|--------------|----------------|-------------------------|------------|------------------------|------------|
| | Sport | Commercial | | | | Sport | Commercial ¹ | | | |
| | | Winter ¹ | Early Fall | Late Fall ¹ | Total | | Winter ¹ | Early Fall | Late Fall ¹ | Total |
| 1991 | 22,700 | 840 | 530 | 2,430 | 3,800 | 20 | 4 | 2 | 3,180 | 3,190 |
| 1992 | 40,100 | 1,210 | 790 | 4,240 | 6,240 | 75 | 10 | 1,750 | 400 | 2,160 |
| 1993 | 37,900 | 1,020 | -- | 7,050 | 8,070 | 15 | 1 | -- | 2,220 | 2,220 |
| 1994 | 33,500 | 3,030 | -- | 3,380 | 6,410 | 130 | 1 | -- | 240 | 240 |
| 1995 | 45,100 | 110 | -- | 6,040 | 6,150 | 20 | -- | -- | 390 | 390 |
| 1996 | 42,800 | 1,380 | 330 | 6,670 | 8,380 | 65 | 1 | -- | 610 | 610 |
| 1997 | 38,200 | 3,064 | 1,971 | 7,792 | 12,828 | 41 | 2 | 1,474 | 138 | 1,614 |
| 1998 | 41,600 | 2,675 | 2,634 | 8,585 | 13,894 | 73 | 0 | 743 | 151 | 894 |
| 1999 | 39,800 | 2,303 | 2,854 | 4,336 | 9,493 | 93 | 2 | 508 | 279 | 789 |

¹ Includes Young Bay and other Select Area fisheries landings.

1999 Fishery Impacts

As was the case in 1998, 1999 was another season where fishery management under ESA restrictions became unstable and resulted in closures to chinook retention in several sport fisheries and the cancellation of several planned commercial fisheries. The 63% increase in the final URB run size, as compared to the preseason forecast, and the inability to update the run size prior to mid-September greatly reduced fishery management flexibility in shaping fisheries around impacts on listed SRW fall chinook. Time restrictions were used in the treaty Indian fishery. Time, area, and gear restrictions, plus chinook retention closures were used in non-Indian fisheries to limit impacts on listed SRW fall chinook. Harvest impacts on URB fall chinook were 30.34% as compared with inseason guideline of 31.29% (Table 21). URB fall chinook impacts totaled 7.29% in non-Indian fisheries and 23.05% in treaty Indian fisheries. An estimated 831 SRW fall chinook were landed in Columbia River fisheries during the fall of 1999, of which 200 were landed in non-Indian fisheries and 631 were landed in treaty Indian fisheries. The 831 SRW fall chinook catch represents 0.75% of the total adult chinook catch during 1999 fall fisheries.

Impacts on wild Group B index steelhead were limited by the ESA to less than 15.0% for treaty Indian fisheries and less than 2.0% for non-Indian fisheries. Treaty impacts occur as fish kept in commercial and C&S fisheries while non-Indian impacts occur as catch and release mortalities in sport and commercial fisheries. Time and gear restrictions were used in treaty Indian fisheries to limit impacts on listed steelhead. Impact rates on wild Group B index steelhead were estimated to be 13.5% for the treaty Indian fisheries and <2% for non-Indian fisheries.

| Season | Fall Chinook Catch | Snake R. Wild Fall Chinook | | Total Steelhead Catch | Wild Steelhead | | | |
|-------------------------|--------------------|----------------------------|--------------|-----------------------|----------------|-----|---------|------|
| | | No. | % | | Group A | | Group B | |
| | | | | | No. | % | No. | % |
| Treaty Indian Fisheries | 76,200 | 631 | 23.05 | 17,350 | 4,300 | 7.6 | 470 | 12.7 |
| Non-Indian Fisheries | 34,200 | 200 | 7.29 | 16,800 | NA | NA | NA | NA |
| <i>Total</i> | <i>110,400</i> | <i>831</i> | <i>30.34</i> | <i>34,150</i> | | | | |

2000 FALL SEASON RECOMMENDATIONS

Non-Indian Fisheries

August Sturgeon/Salmon Fishery

The Joint Staff is proposing this fishery to access a portion of the remaining commercial white sturgeon allocation. This proposal is similar to August target sturgeon seasons adopted during 1998 and 1999. The season duration and area are limited to maximize the economic benefit of the landed catch. The fishery is timed to avoid chinook salmon and minimize impacts on listed fall chinook. A 9-inch minimum mesh size restriction reduces steelhead and sub-legal sturgeon handle. The Joint Staff will monitor on-going sturgeon sport and test fisheries during July and may modify catch expectations for this fishery at the July 27 Compact hearing.

August Salmon/Sturgeon Recommendation

Area : Zone 1, 2, and 3 below Longview Bridge

Dates: 7 p.m. August 3 to 7 a.m. August 4 (12 hrs.)

Gear: 9 inch minimum mesh size

9 ¾ maximum mesh size

Sales: Salmon and sturgeon allowed

Expected Catch: 1,500-3,000 white sturgeon

500-1,500 green sturgeon

300 chinook (1.0 SRW)

Fall Sturgeon/Salmon Fisheries

Specific recommendations for additional fall seasons to harvest sturgeon, chinook, and coho will be developed after final management guidelines are established and will be presented at later Compact hearings. Goals for additional fall fisheries are:

- Limit impact to SRW as necessary.
- Limit impact to LRW chinook by establishing a large sanctuary around the mouth of the Lewis River.
- Limit impacts on wild coho destined for Clackamas and Sandy rivers by adoption of time, area, and gear restrictions similar to those adopted in 1999.
- Target surplus hatchery coho for maximum economic benefit to commercial fisheries.
- Attempt to harvest the balance of the commercial white sturgeon allocation by the end of October and provide maximum economic benefit for commercial fishers.
- Set fishery checkpoints to allow for in-season adjustments to adopted seasons.

Fall Select Area Fisheries

To be reported separately.

Treaty Indian Commercial Fisheries

The Columbia River treaty tribes may propose initial commercial fishing periods for the 2000 fall season at the July 27 Compact hearing.