



*Washington
Department of*
**FISH and
WILDLIFE**

**2012 JOINT STAFF REPORT:
STOCK STATUS AND FISHERIES FOR
SPRING CHINOOK, SUMMER CHINOOK, SOCKEYE,
STEELHEAD, AND OTHER SPECIES,
AND MISCELLANEOUS REGULATIONS**

Joint Columbia River Management Staff

Oregon Department of Fish & Wildlife

Washington Department of Fish & Wildlife

January 20, 2012

CONTENTS

	<u>Page</u>
INTRODUCTION.....	7
THE COMPACT.....	7
SEASONS CONSIDERED.....	7
STOCKS CONSIDERED.....	8
SPRING CHINOOK.....	8
WILLAMETTE RIVER SPRING CHINOOK.....	8
2011 Return.....	9
2011 Escapement.....	9
2012 Forecast.....	9
CLACKAMAS RIVER SPRING CHINOOK.....	10
2011 Return.....	10
2011 Escapement.....	10
2012 Forecast.....	10
SANDY RIVER SPRING CHINOOK.....	10
WASHINGTON LOWER RIVER SPRING CHINOOK.....	11
Cowlitz River Return and Forecast.....	11
Kalama River Return and Forecast.....	12
Lewis River Return and Forecast.....	12
SELECT AREA SPRING CHINOOK.....	12
2011 Returns.....	13
2012 Forecast.....	13
UPRIVER SPRING CHINOOK.....	13
2011 Return.....	14
2012 Forecast.....	15
WASHINGTON TRIBUTARIES UPSTREAM OF BONNEVILLE DAM.....	15
Wind River Return and Forecast.....	16
Little White Salmon River (Drano Lake) Return and Forecast.....	16
Klickitat River Return and Forecast.....	16
Yakima River Return and Forecast.....	16
UPPER COLUMBIA RIVER SUMMER CHINOOK.....	17
2011 Return.....	17
2012 Forecast.....	18
WILD WINTER STEELHEAD.....	18
2011 Return and 2012 Forecast.....	18
SUMMER STEELHEAD.....	18
2011 Return.....	19
2012 Forecast.....	20
SOCKEYE.....	20
2011 Return.....	21
2012 Forecast.....	21

SHAD.....	21
<i>2011 Return</i>	22
MANAGEMENT GUIDELINES	24
ENDANGERED SPECIES ACT.....	24
<i>Wild Winter Steelhead Management</i>	25
COLUMBIA RIVER SALMON MANAGEMENT GUIDELINES	25
<i>Upriver Spring Chinook</i>	25
<i>Upper Columbia River Summer Chinook</i>	27
<i>Sockeye</i>	27
NON-INDIAN IMPACT ALLOCATIONS OF UPRIVER SPRING CHINOOK.....	28
UPPER COLUMBIA RIVER SUMMER CHINOOK HARVEST SHARING GUIDELINES.....	29
WILLAMETTE SPRING CHINOOK MANAGEMENT	30
<i>Fishery Management and Evaluation Plan for Willamette Spring Chinook</i>	30
<i>Willamette River Basin Fish Management Plan</i>	30
<i>Lower Columbia River White Sturgeon Management</i>	31
REVIEW OF MAINSTEM, SELECT AREA, AND TRIBUTARY FISHERIES.....	32
NON-INDIAN FISHERIES	32
<i>Past Mainstem Commercial Winter Sturgeon and Salmon Seasons</i>	32
<i>2011 Winter Commercial Salmon Season</i>	34
<i>Past Lower Columbia River Spring Chinook Recreational Fisheries</i>	36
<i>2011 Lower Columbia River Spring Chinook Recreational Fishery</i>	37
<i>2011 Zone 6 (Bonneville Dam to McNary Dam) Spring Chinook Recreational</i>	
<i>Fishery</i>	39
<i>2011 Spring Chinook Fisheries Upstream of McNary Dam</i>	40
<i>Snake River Recreational Fisheries</i>	40
<i>Lower Columbia River Tributary Spring Chinook Fisheries</i>	41
<i>Past Summer Commercial Salmon Seasons</i>	42
<i>2011 Summer Commercial Salmon Season</i>	42
<i>Past Columbia River Summer Steelhead and Summer Chinook Recreational</i>	
<i>Fisheries</i>	43
<i>2011 Columbia River Summer Steelhead and Summer Chinook Recreational</i>	
<i>Fisheries</i>	44
<i>Past Select Area Commercial Fisheries</i>	45
<i>2011 Youngs Bay Winter/Spring/Summer Gillnet Season</i>	46
<i>2011 Blind Slough/Knappa Slough Winter/Spring Gillnet Season</i>	47
<i>2011 Tongue Point/South Channel Spring Gillnet Full-Fleet Test Fishery</i>	48
<i>2011 Deep River Winter/Spring Gillnet Season</i>	49
<i>Select Area Recreational Fisheries</i>	50
<i>2011 Commercial Shad Seasons</i>	51
<i>2011 Non-Indian Impacts to ESA-Listed Stocks</i>	51
TREATY INDIAN FISHERIES	53
<i>2011 Treaty Indian Winter Season Fisheries</i>	54
<i>2011 Treaty Indian Mainstem Spring and Summer Chinook and Sockeye Fisheries</i>	54
<i>2011 Treaty Indian Tributary Fisheries</i>	55

<i>2011 Ceremonial and Subsistence Entitlement</i>	55
<i>2011 Shad Fisheries</i>	56
2012 WINTER, SPRING, AND SUMMER SEASON EXPECTATIONS	58
2012 MANAGEMENT GUIDELINES	58
2012 NON-INDIAN FISHERIES	59
<i>Commercial Winter Sturgeon Fishery</i>	59
<i>Commercial Spring Chinook Fisheries</i>	59
<i>Lower Columbia River Spring Chinook Recreational Fishery</i>	59
<i>Bonneville to McNary Dam Spring Chinook Recreational Fishery</i>	59
<i>Select Area Commercial Fisheries</i>	59
<i>Columbia River Steelhead Recreational Fishery</i>	60
<i>Columbia River Summer Chinook Recreational and Commercial Fisheries</i>	60
<i>Commercial Shad Fishery</i>	60
2012 TREATY INDIAN FISHERIES	60
<i>Treaty Winter Commercial Fisheries</i>	60
<i>Treaty Indian Spring Season Fisheries</i>	61
<i>Treaty Indian Summer Season Fisheries</i>	61
<i>Treaty Indian Shad Fisheries</i>	61
MISCELLANEOUS REGULATIONS	61

LIST OF TABLES

	<u>Page</u>
TABLE 1. MINIMUM ADULT SPRING CHINOOK RUN ENTERING THE COLUMBIA RIVER, 1980-2011. 1	62
TABLE 2. PREDICTED AND ACTUAL SPRING CHINOOK ENTERING THE COLUMBIA RIVER, 1985- 2011 AND 2012 PROJECTIONS.	63
TABLE 3. COMPONENTS (IN THOUSANDS) OF THE MINIMUM WILLAMETTE RIVER SPRING CHINOOK RUN AND PERCENTAGE CAUGHT IN LOWER WILLAMETTE RECREATIONAL FISHERY, 1970-2011. INCLUDES JACKS.....	64
TABLE 4. WILLAMETTE FALLS SPRING CHINOOK ESCAPEMENT, UPPER WILLAMETTE RECREATIONAL CATCH, NUMBER RETURNING TO HATCHERIES, AND TRIBAL USE, 1980-2011. INCLUDES JACKS.	65
TABLE 5. SMOLT RELEASES AT SELECT AREA FISHERIES ENHANCEMENT PROJECT SITES, BROOD YEARS 1996-2009.	66
TABLE 6. WINTER/SPRING/SUMMER SEASON COMMERCIAL AND RECREATIONAL CHINOOK HARVEST IN SELECT AREA SITES, 1993-2011.....	67
TABLE 7. ESTIMATED NUMBERS OF ADULT UPRIVER SPRING CHINOOK ENTERING THE COLUMBIA RIVER.....	68
TABLE 8. ESTIMATED NUMBERS OF ADULT UPPER COLUMBIA WILD SPRING CHINOOK ENTERING THE COLUMBIA RIVER.....	69
TABLE 9. ESTIMATED NUMBERS OF ADULT SNAKE RIVER WILD SPRING/SUMMER CHINOOK ENTERING THE COLUMBIA RIVER.....	70
TABLE 10. ESTIMATED NUMBERS OF ADULT UPPER COLUMBIA SUMMER CHINOOK ENTERING THE COLUMBIA RIVER.	71
TABLE 11. WILD WINTER STEELHEAD MINIMUM RUN SIZE ESTIMATE AND FORECAST, 2001-2012.	72
TABLE 12. UPRIVER SUMMER STEELHEAD PASSAGE AT BONNEVILLE DAM (APRIL-OCTOBER), 1948-2011.	72
TABLE 13. SUMMER STEELHEAD COUNTS AT LOWER GRANITE DAM 1984-2011.....	73
TABLE 14. MINIMUM NUMBERS (IN THOUSANDS) OF LOWER RIVER SUMMER STEELHEAD ENTERING THE COLUMBIA RIVER, 1980-2011.	74
TABLE 15. MINIMUM NUMBERS (IN THOUSANDS) OF UPRIVER SUMMER STEELHEAD ENTERING THE COLUMBIA RIVER, 1980-2011.	75
TABLE 16. ESTIMATED NUMBER OF SOCKEYE ENTERING THE COLUMBIA RIVER, MAINSTEM HARVEST, AND ESCAPEMENT.....	76
TABLE 17. COMMERCIAL LANDINGS OF SHAD IN AREA 2S, WASHOUGAL REEF, AND TREATY INDIAN FISHERIES AND MINIMUM SHAD RUN SIZE (IN THOUSANDS), 1977-2011.	77
TABLE 18. SEASON DATES, GEAR RESTRICTIONS, AND COMMERCIAL LANDINGS DURING NON- INDIAN WINTER (JANUARY-MARCH) AND SPRING (APRIL-JUNE 15) MAINSTEM SEASONS, 1970-2011.....	78
TABLE 19. FISHING PERIODS, GEAR, AND ASSOCIATED STURGEON CATCH FOR WINTER, SPRING, AND SUMMER MAINSTEM COLUMBIA RIVER COMMERCIAL SEASONS, 2011.....	79
TABLE 20. ESTIMATES OF THE SPRING CHINOOK STOCK COMPOSITION (IN THOUSANDS) IN MAINSTEM LOWER COLUMBIA COMMERCIAL FISHERIES, 1990-2011.	80

TABLE 21. COLUMBIA RIVER RECREATIONAL SPRING CHINOOK FISHING REGULATIONS, 2000-2011.....	81
TABLE 22. SALMONID ANGLER TRIPS AND ADULT CHINOOK CATCH BY MONTH ON THE LOWER COLUMBIA RIVER, 2000-2011.	83
TABLE 23. RECREATIONAL FISHERIES UPSTREAM OF BONNEVILLE DAM ¹	84
TABLE 24. ESTIMATES OF THE SPRING CHINOOK STOCK COMPOSITION (IN THOUSANDS) IN MAINSTEM LOWER COLUMBIA RECREATIONAL FISHERIES, 1990-2011.	85
TABLE 25. ADULT SPRING CHINOOK RECREATIONAL CATCH AND HARVEST RATES FOR THE COWLITZ, KALAMA, LEWIS, AND SANDY RIVERS.....	86
TABLE 26. WINTER SEASON COMMERCIAL GILLNET LANDINGS IN TREATY INDIAN FISHERIES, 1977-2011.	87
TABLE 27. SPRING SEASON COMMERCIAL LANDINGS IN TREATY PLATFORM/HOOK & LINE FISHERIES, 2009-2011.	87
TABLE 28. SUMMER SEASON TREATY COMMERCIAL GILLNET LANDINGS, 2009-2011.	88

LIST OF FIGURES

	<u>Page</u>
FIGURE 1. AVERAGE DAILY COUNTS OF SALMON, STEELHEAD, AND SHAD AT BONNEVILLE DAM, 2002-2011.	23
FIGURE 2. MAP OF THE COLUMBIA RIVER DOWNSTREAM OF McNARY DAM SHOWING AREAS OPEN TO COMMERCIAL FISHING.	57

INTRODUCTION

This report describes winter/spring and summer season fisheries in the mainstem Columbia River and includes a summary of 2011 winter/spring and summer fisheries and management guidelines and expectations for 2012 salmon and summer steelhead returns and fisheries. This is the second report of an annual series produced by the Joint Columbia River Management Staff of the Oregon Department of Fish & Wildlife (ODFW) and Washington Department of Fish & Wildlife (WDFW) prior to each major Columbia River Compact/Joint State hearing. A Compact hearing for the 2012 winter/spring and summer management season is scheduled for 10 AM, Tuesday January 26, 2012 at the Sheraton Portland Airport Hotel, 8235 Northeast Airport Way, Portland, Oregon. Members of the *US v Oregon* Technical Advisory Committee (TAC) have reviewed this report.

THE COMPACT

The Columbia River Compact is charged by congressional and statutory authority to adopt seasons and rules for Columbia River commercial fisheries. 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). The Columbia River treaty tribes have authority to regulate treaty Indian fisheries.

When addressing commercial seasons for Columbia River fisheries, the Compact must consider the effect of the commercial fishery on escapement, treaty rights, and the impact on species listed under the Endangered Species Act (ESA). Working together under the Compact, the states have the responsibility to address the allocation of limited resources between recreational, commercial, and treaty Indian fishers. This responsibility has become increasingly demanding in recent years. The states maintain a conservative management approach when considering Columbia River fisheries that will affect species listed under the ESA.

SEASONS CONSIDERED

At the January 26 hearing, the following non-Indian seasons will be considered: 1) mainstem Columbia River recreational spring Chinook fishery; 2) mainstem recreational sturgeon fishery for the remainder of 2012; 3) mainstem commercial winter sturgeon-directed fishery; and 4) Select Area commercial winter, spring, and summer fisheries. Other general permanent fishery rules may also be considered. Modifications to seasons adopted at this hearing and other recreational and commercial seasons will be considered at future hearings as additional information on fish runs and ongoing fisheries become available.

STOCKS CONSIDERED

Spring Chinook

Spring Chinook enter fresh water to spawn in Columbia River tributaries and generally emigrate from freshwater as yearlings. Returning adults are comprised of lower river (downstream from Bonneville Dam) and upriver (upstream from Bonneville Dam) components. Adult returns are comprised of Age-4, Age-5, and Age-6 fish. Age-3 fish are referred to as “jacks”, and are typically male fish that have returned one year early, prior to adulthood. Spring Chinook entering the lower Columbia River during mid-February to mid-March are predominantly larger, Age-5 fish destined for lower river tributaries. Age-5 Chinook are dominant throughout March and reach peak abundance in the lower Columbia River by late March. Smaller Age-4 fish enter in increasing numbers after mid-March, reaching peak abundance during April. Upriver spring Chinook returning to areas upstream of Bonneville Dam begin to enter the Columbia River in substantial numbers after mid-March and generally reach peak abundance at Bonneville Dam in late April to early May. Most wild spring Chinook entering the Columbia River are listed under the federal ESA.

Willamette River Spring Chinook

The Willamette River spring Chinook run passes through the lower Columbia River from February through May, with peak abundance during mid-March to mid-April. Migration through the lower Willamette River varies with water conditions but typically occurs from mid-March through April. Passage through the Willamette Falls fishway primarily occurs from April through July, with peak passage typically in mid-May.

Visual stock identification (VSI) and coded-wire tag (CWT) recoveries indicate that spring Chinook destined for the Willamette River typically comprised a large percentage of the spring Chinook caught during past winter commercial seasons and during March in Columbia River recreational fisheries. Willamette River fish predominated because they exhibit a broader migration pattern and usually contained a greater proportion of early-returning Age-5 fish than other spring Chinook runs. In recent years the proportion of Willamette River fish in early season fisheries has decreased, presumably due to lower returns to the Willamette in some years and a lower proportion of Age-5 fish in recent Willamette returns.

Historically, wild spring Chinook spawned in nearly all east side Willamette tributaries upstream of Willamette Falls. During 1952-1968, the U.S. Army Corps of Engineers (USACE) constructed dams on all major east side tributaries upstream of Willamette Falls, blocking over 400 stream miles of wild spring Chinook rearing area. Some residual spawning areas remain, including about two-thirds of the McKenzie River and about one-quarter of the North Santiam River; however, upstream dams affect these areas through alteration of flows and temperature. The majority of the Clackamas River Basin remains accessible, although a three-dam hydroelectric complex (River miles (RM) 23-31) has impacted migration and rearing conditions in the mainstem Clackamas River. The percentage of wild fish in the Willamette spring Chinook population was previously estimated at about 10-12%, with the majority destined for the McKenzie River. However, the wild percentage of the run has been higher in recent years,

averaging 22% (range 15-27%) since 2007. Passage over Leaburg Dam on the McKenzie River and North Fork Dam on the Clackamas River, plus redd counts and dam counts in the North Santiam River, are currently used to index the status of wild spring Chinook populations in the Willamette River Basin. The National Marine Fisheries Service (NMFS) classified spring Chinook destined for the Willamette River upstream of Willamette Falls and the Clackamas River into a single ESU and listed the wild component as a threatened species under the ESA effective May 24, 1999.

Accurate Willamette River spring Chinook run size estimates prior to 1946 are not available. Prior to 1990, the 1953 run was generally believed to be the largest on record, at 125,000 fish, and the run was predominantly wild. The 1953 run was eclipsed by a return of 130,600 spring Chinook in 1990, comprised mainly of hatchery fish. A new record run was established in 2004 with a return of 144,400 fish, again comprised primarily of hatchery fish.

Four large hatcheries upstream from Willamette Falls produce up to 5.0 million smolts annually, plus additional fingerlings to seed reservoir and stream areas. About 75% of this hatchery production is funded by USACE as mitigation for lost production areas. Downstream of Willamette Falls, hatchery releases in the Clackamas River total about 0.75 million smolts annually. Hatchery egg-take needs for the combined Willamette and Clackamas River programs have been met annually since 1980, with the exception of 1984 and 1994.

2011 Return

The Willamette River return of 80,254 spring Chinook entering the Columbia River in 2011 was 27% less than the 2010 return of 110,536 fish and was 23% less than the preseason forecast of 104,100 (Tables 1 and 2). The 2011 return was made up of 3,705 Age-3, 55,533 Age-4, 20,632 Age-5, and 384 Age-6 Chinook. Approximately 21% (16,597) of the 2011 Willamette spring Chinook returning to the mouth of the Columbia River were non-fin-clipped fish. The estimated return to the Columbia River mouth includes fish destined for the Clackamas River.

2011 Escapement

Passage of spring Chinook over Willamette Falls in 2011 totaled 45,147 fish (Table 3). From 1970 to 2011, the number of spring Chinook passing Willamette Falls ranged from 14,700 to 96,700 and averaged 42,100 fish. Of the fish passing Willamette Falls in 2011, about 31,600 were hatchery fish, which exceeded the 26,500 hatchery fish escapement goal specified in the Willamette Fishery Management and Evaluation Plan (FMEP).

2012 Forecast

The ODFW staff is forecasting a return of 83,400 Willamette River spring Chinook to the Columbia River mouth in 2012 which would be greater than the 2004-2011 average actual returns (Table 2). Age-specific returns for 2012 are expected to total 2,100 Age-3s, 60,700, Age-4s (range 42,968-63,040), 20,100 Age-5s (range 19,141-43,050), and 500 Age-6s. The 2012 return is expected to include about 17,500 non-fin-clipped fish (21% of total return), based on the proportions of unmarked fish seen in the 2009-2011 returns.

Clackamas River Spring Chinook

2011 Return

The run entering the Clackamas River has generally increased from an annual average of 2,600 in the 1970s, 8,200 in the 1980s, and 8,500 in the 1990s, to 15,300 in the 2000s. The larger returns since the 1980s are due to production from Clackamas Hatchery at McIver Park, which came on-line in 1979, and programs developed to increase passage of wild fish over North Fork Dam yielding increased natural production. In 2011, 6,775 fish (including 4,906 hatchery fish) returned to the Clackamas River (Table 3).

2011 Escapement

The North Fork Dam count of 4,385 spring Chinook in 2011 included 1,828 unmarked fish that were passed upstream, 426 marked fish that were recycled downstream (to provide additional recreational fishing opportunity), and 2,131 marked fish that were taken directly to Clackamas Hatchery where the swim-in return was 1,777 fish. An estimated 59 fish (marked and unmarked) remained downstream of North Fork Dam to spawn naturally. During 1980-1998, passage over North Fork Dam included unknown numbers of hatchery fish. Since 1999, only unmarked spring Chinook have been passed over North Fork Dam and marked hatchery fish have been recycled through fisheries to the fullest extent possible. The first year in which all returning hatchery adults except double-index tag (DIT) groups were mass-marked with an adipose fin clip was 2003. DIT groups from Clackamas Hatchery were discontinued following the 2003 brood year. The return of 4,906 hatchery fish to the Clackamas River met the FMEP escapement goal of 4,000.

2012 Forecast

The ODFW staff is forecasting a return of 8,000 spring Chinook to the Clackamas River. The 8,000 fish are included as a component of the total estimated return of Willamette Basin spring Chinook to the Columbia River mouth.

Sandy River Spring Chinook

Beginning in 1976, spring Chinook smolts from hatchery stocks in the Willamette River system were released into the Sandy River to supplement the depressed native spring Chinook run. These releases doubled in the mid-1980s and were mass-marked with an adipose fin clip beginning in 1999. Subsequently, the Marmot Dam count increased from averages of 120 fish during 1954-1970, 1,000 during the 1980s, 2,900 during the 1990s, and 3,900 since 2000. Beginning with the 2000 brood, large-scale releases of spring Chinook smolts from wild, local broodstock were initiated at Sandy River Hatchery. Since 2002, only wild spring Chinook have been used for Sandy River Hatchery broodstock.

Prior to 2008, the minimum spring Chinook run entering the Sandy River was calculated as the sum of the Marmot Dam count, Sandy Hatchery return, and recreational catch downstream of Marmot Dam. Recreational catch in the Sandy River is estimated from angler catch cards, which often have a delay of up to three years before catch estimates are available. Lacking more recent data, an average harvest rate based on the most recent five years available is used to estimate

annual catch. Once final catch estimates become available, the run reconstructions are updated. As a result of the removal of Marmot Dam in late 2007, dam counts of spring Chinook on the Sandy River are currently unavailable.

Because Marmot Dam counts are no longer available, ODFW has developed a different methodology for run reconstructions for 2008 and beyond. Redd count information for areas upstream of the Marmot Dam site were available for eight years prior to the removal of the dam. A linear regression fitted to the Marmot Dam counts and the redd counts was developed to allow for an escapement estimate to be based upon the redd counts directly. Average number of fish per redd and spawner carcass survey data were also considered. Although the data set used contains only eight data points and the range of the variables is limited, the fit of the regression is strong ($r^2 = 0.83$).

The 2011 adult spring Chinook return to the Sandy River is estimated at 4,348 adults, compared to the 2011 forecast of 5,500 adults. The 2012 forecast is 4,800 adult fish, based on 2009-2011 average returns (Table 1). Recreational catch and harvest rates are shown in Table 25.

Washington Lower River Spring Chinook

Spring Chinook returning to the Washington tributaries of the lower Columbia River are destined for the Cowlitz, Kalama, and Lewis rivers. These runs are listed under the ESA and are genetically similar. Washington lower river spring Chinook migrate earlier than upriver Columbia River stocks with the majority of the run passing through the lower Columbia River from during March and April. Once in their natal tributaries, these spring Chinook will spawn during August and September. Virtually all of the production in the Washington portion of the lower Columbia River is of hatchery origin. Adult returns are shown in Table 1. Forecast and actual returns are shown in Table 2. Catch from Columbia River fisheries are shown in Table 20 for commercial fisheries and Table 24 for recreational fisheries. Recreational tributary catch and harvest rates are shown in Table 25.

Cowlitz River Return and Forecast

The 2011 Cowlitz River spring Chinook return of 4,064 adults (including 110 wild based on scale pattern readings on unmarked fish) was 38% less than the preseason forecast of 6,600. The 2011 return was just over half the recent ten-year (2001-2010) average of 7,700 adults. The minimum hatchery escapement goal of 1,250 adults was met with nearly 2,000 adults (and 2,300 jacks including 388 mini's) returning to the hatchery. Natural spawning escapement for 2011 is estimated at 1,200 adults, which is approximately 60% greater than the recent ten-year average of 750. An adult run size of approximately 1,400 fish is needed to achieve the minimum hatchery escapement goal, since a portion of the run spawns naturally.

An estimated 8,700 adult spring Chinook are expected to return to the Cowlitz River in 2012, which is slightly greater than the recent ten-year (2002-2011) average of 8,000.

Kalama River Return and Forecast

The 2011 Kalama River spring Chinook return of 764 adults (including 156 wild based on scale pattern readings on unmarked fish) was 25% greater than the preseason forecast of 600. The 2011 return continued a trend of less than a thousand adults a year since 2009. The minimum hatchery escapement goal of 400 adults was not met even with restrictions and eventual closure of the recreational fishery. A total of 358 adults and 26 jacks returned to the hatchery. An estimated twenty-six fish spawned naturally. A run of approximately 500 adults is needed to achieve the minimum hatchery escapement goal, since a portion of the run spawns naturally.

An estimated 700 adult spring Chinook are expected to return to the Kalama River in 2012, similar to last year's actual return and 21% of the recent ten-year average of 3,200 fish.

Lewis River Return and Forecast

The 2011 Lewis River spring Chinook return of 1,436 adults was less than half of the preseason forecast of 3,400 adult fish. The 2011 return was the lowest since at least 1980 and about one-third of the recent ten-year average of 4,400 adults. A total of 966 adults and 570 jacks including 216 mini's) returned to the Lewis River trap in 2011. The minimum hatchery escapement goal of 1,300 fish was not met even with restrictions and eventual closure to the recreational fishery. Natural spawning escapement is estimated to be 45 adults and 80 jacks.

An estimated 2,700 adult spring Chinook are expected to return to the Lewis River in 2012, almost double last year's actual return and 64% of the recent ten-year average of 4,200.

Select Area Spring Chinook

The spring Chinook program in the Youngs Bay terminal fishing area began in 1989 and was expanded in 1993 with the implementation of the Bonneville Power Administration (BPA) funded Select Area Fisheries Evaluation (SAFE) Project. Implementation of the SAFE project also allowed for the development of other Select Area fishing sites. The evaluation phase of the SAFE program was completed in 2006, and the program is now referred to as the Select Area Fisheries Enhancement project (utilizing the same acronym – SAFE). Spring Chinook releases in Oregon Select Area sites are comprised of Willamette stock while the Washington site utilizes Cowlitz and/or Lewis stocks. Currently, all Select Area spring Chinook are reared in hatcheries primarily supported by the BPA-funded SAFE Project: Gnat Creek Hatchery (ODFW) in Oregon and Grays River Hatchery (WDFW) in Washington. Production at both hatcheries uses surplus eggs collected at other state facilities that would not otherwise have been hatched and reared. Spring Chinook released in Select Areas are reared and/or acclimated in net pens located in Youngs Bay, Tongue Point, and Blind Slough in Oregon and Deep River in Washington.

Spring Chinook releases in all Select Areas combined ranged between 890,400–1,828,100 smolts annually during 1996–2011, with an average release of 1,175,400. In Youngs Bay, annual releases of spring Chinook during the evaluation phase of the project averaged 449,500 smolts (1994–2006 broods). Since then, releases have increased and now average 654,800 for release years 2009–2011 (2007–2009 broods). Releases of spring Chinook smolts into Tongue Point and Blind Slough began in 1996. Since then, smolt releases into Blind Slough have averaged

296,000 smolts annually. Following the 2003 relocation of the Tongue Point net pen site further into Cathlamet Bay, experimental groups of spring Chinook smolts released from the Tongue Point–MERTS site have ranged from 20,900–103,100 annually. The intent is to increase releases to pre-2000 levels (approximately 250,000 annually) beginning in 2012. Releases into Deep River began in 1998 and averaged 98,500 annually through 2004, except in 2000 when no spring Chinook were released. Starting with the 2005 release (2003 brood), smolts from Deep River were released directly into the mainstem Columbia River via towing of the net pens, in an attempt to reduce potential interactions with native juvenile chum; releases have averaged 264,600 since this strategy was initiated.

2011 Returns

Select Area spring Chinook fisheries are intended to maximize harvest of returning hatchery-produced adults to minimize straying and maximize economic return from the production. Returns of Select Area spring Chinook are measured by Select Area commercial and recreational harvest. Commercial landings of Chinook salmon in 2011 Select Area winter/spring/summer fisheries totaled 11,101 Chinook (10,004 spring Chinook; remainder primarily early-returning Select Area Bright (SAB) fall Chinook) of which 8,732 were landed in Youngs Bay, 1,610 were landed in Blind Slough, 659 in Tongue Point and 100 in Deep River. This was the third highest catch on record and 25% higher than the recent ten-year (2001–2010) average harvest of 8,900 Chinook (Tables 1 and 6). The relatively high harvest was again driven by above average return rates of Age-4 adults from the Youngs Bay net pen release.

2012 Forecast

The 2012 Select Area spring Chinook adult return will be comprised of Age-5 and Age-4 adults from releases of 1.12 million smolts in 2009 and 1.54 million smolts in 2010 (Table 5). Based on these releases and recent site- and age-specific return rates, about 8,700 spring Chinook are expected to return to Select Areas in 2012. Approximately 7,300 fish are predicted to return to Youngs Bay, 1,100 fish to Blind Slough/Knappa Slough, 260 fish to Tongue Point/South Channel, and 80 fish to Deep River. The combined Select Area commercial harvest is expected to be above average and similar to the number harvested in 2011.

Upriver Spring Chinook

Upriver spring Chinook begin entering the Columbia River in late February and early March and typically reach peak abundance at Bonneville Dam in late April. Historically, all Chinook passing Bonneville Dam from March through May were counted as upriver spring Chinook (Figure 1). Since 2005, the upriver spring Chinook run size has included Snake River summer Chinook due to similarities in run timing among the stocks, and is calculated as the sum of the Bonneville Dam count plus the number of upriver origin fish landed in lower river fisheries (kept catch plus release mortalities) from January 1 through June 15. Abundance tables (pre-2005) for upriver spring and summer Chinook contained in this report have been adjusted to account for the change in counting period. Table 2 remains unmodified to allow comparison of past annual forecasts with actual returns.

The upriver spring run is comprised of stocks from several ESUs and three geographically separate production areas: 1) the Columbia River system upstream of the Yakima River (upper Columbia), 2) the Snake River system, and 3) Columbia River tributaries between Bonneville Dam and the Yakima River, excluding the Snake River (mid-Columbia). Snake River summer Chinook are destined for areas upstream of Lower Granite Dam. Snake River wild spring/summer Chinook and upper Columbia wild spring Chinook are federally-listed under the ESA. In each of the three geographic areas, production is now a mix of hatchery and wild/natural fish. Although no estimates of hatchery contribution to upriver runs are available prior to 1977, those runs are assumed to have been predominantly wild. Hatchery production in the 1960s and early 1970s was very limited in comparison to current production. Since the late 1970s, spring Chinook hatchery production of upriver stocks has expanded. Beginning in 2002, the majority of the hatchery production returning to the Columbia River has been mass-marked with an adipose fin clip.

Upriver spring Chinook returns have ranged widely in recent decades. Upriver runs were considered poor in the 1980s averaging 84,500 fish per year (range 52,400-128,300) and decreased further during the 1990s when annual returns averaged 69,000 fish (range 12,800-124,300). The 1995 run marked an all-time low of 12,800 fish. The average annual return during the 2000s improved substantially to 210,100 adults (range 86,200 to 440,300). The 2001 run marked a high (since counting began in 1938) of 440,300 adult upriver spring Chinook (Table 7).

Upper Columbia River spring Chinook spawn and rear in the mainstem Columbia River and its tributaries (Wenatchee, Entiat and Methow rivers) between Rock Island Dam and Chief Joseph Dams (RM 453 – 545). Chief Joseph Dam (completed in 1961) blocks the upriver migration of these fish which was previously blocked by Grand Coulee Dam (RM 597). On average, the Upper Columbia River spring Chinook return has represented 16% of the aggregate upriver spring Chinook run since 1980. The recent 10-year average for the Upper Columbia River spring Chinook population is around 10% of the aggregate return. Returns of upper Columbia spring Chinook to the Columbia River mouth in the 1980s averaged around 20,400 adults, including 7,600 wild fish (37% wild). Returns severely declined during the 1990s averaging 10,700 adults (18% wild). During the 2000s, the annual returns improved, averaging 21,700 adults, including 2,300 wild fish (10% wild). Data is provided in Table 8.

On average, the Snake River spring/summer Chinook return has represented 47% of the aggregate upriver spring Chinook run since 1980 compared to the recent 10-year average of around 53%. Returns of Snake River spring/summer Chinook to the Columbia River mouth in the 1980s averaged around 40,500 adults, including 19,500 wild fish. Returns declined during the 1990s averaging 30,300 adults (11,700 wild). During the 2000s, annual returns improved, averaging 111,100 adults including 30,300 wild fish (Table 9).

2011 Return

The 2011 upriver spring Chinook return to the Columbia River mouth totaled 221,200 adults (Table 7) and consisted of 180,600 Age-4 fish and 40,500 Age-5 fish. The return included 127,500 (31,600 wild) adult Snake River spring/summer Chinook and 16,500 (2,200 wild) adult upper Columbia spring Chinook. The remainder of the run was destined for tributaries in the

mid-Columbia. The 2011 upriver spring Chinook return was very similar to the 198,400 fish forecasted. The aggregate return was similar to (99%) the recent ten-year average (2001-2010) of 222,900 adults, and the sixth highest since at least 1980. The Snake River spring/summer return was 108% of the 10-year average and also the sixth highest return since at least 1980. The Snake River wild component was 98% of average and the sixth highest return since 1980. The upper Columbia spring Chinook return was only 71% of the recent 10-year average and much less than the return observed just one year prior. The upper Columbia wild component was 91% of the recent 10-year average and considered an average return (Tables 7, 8 and 9).

During 2006-2010, average peak counts and 50% passage dates at Bonneville Dam have been around 10-days later than the 1980-2005 average. The 2011 return followed the late timing trend observed for six of the past seven years. The peak count occurred on May 1, followed six days later by 50% passage completion date on May 7 (compared to the historical average of April 29). Chinook jack counts at Bonneville Dam totaled 67,000 fish, which was greater than the 10-year average of 20,500, and compares to the very high count (81,800) observed in 2009.

2012 Forecast

After review of numerous models, TAC chose a range of models that appeared to reflect actual returns reasonably well. Models were selected based on statistical indices of model fits and historic forecasting success from hind-casting analyses. Log-normal models appear to work relatively well when jack counts are large, and the 2011 jack count at Bonneville Dam was the second highest on record. TAC selected a model which used a log-normal sibling regression to forecast the 2012 Age-4 returns from the 2011 Bonneville Dam jack (age-3) count.

The 2012 forecast for upriver spring Chinook is 314,200 adults to the Columbia River mouth. This forecast includes 168,000 Snake River fish (39,100 wild) and 32,600 upper Columbia spring Chinook (2,800 wild), with the remainder of the run is comprised of spring Chinook returning to mid-Columbia tributaries. The overall return is expected to consist of 277,400 Age-4 fish and 36,400 Age-5 fish. If accurate, this projection would represent the fourth highest return since 1980, and 156% of the average return observed over the past decade.

The forecast for Snake River spring/summer Chinook is 156% of the recent 10-year average of and the wild forecast is 134% of the recent 10-year average. The wild Snake River component is forecasted to represent 23% of total Snake River run, which is less than the recent 10-year average percentage (27%). The forecast for adult Upper Columbia spring Chinook is 166% of the recent 10-year average; the wild component represents 141% of the 10-year average return. The wild component is forecasted to represent 9% of total Upper Columbia spring run, compared to the recent 10-year average of 10%.

Washington Tributaries Upstream of Bonneville Dam

The Washington tributary returns and forecasts listed below are included in the aggregate 2011 return and 2012 forecast for upriver spring Chinook.

Wind River Return and Forecast.

The Wind River enters the Columbia River 155 miles upstream from its mouth. Wind River is included in the Lower Columbia ESU, however Wind River spring Chinook are excluded in the ESA listing. Spring Chinook were introduced into the Wind River with production beginning in the late 1950s at the Carson Hatchery. Since the 1980s Carson Hatchery has produced spring Chinook exclusively. Hatchery returns during the most recent decade (2001-2010 averaged 11,800 (range 3,300 to 25,900) adult spring Chinook each year. The 2011 return of spring Chinook to the Wind River was 7,800 adults, compared to the preseason forecast of 4,900 adults. The 2012 forecast is 8,400 fish, slightly greater than the 2011 return.

Little White Salmon River (Drano Lake) Return and Forecast

Prior to the construction of Bonneville Dam in 1938, a limited amount of natural production occurred in the Little White Salmon River downstream of the falls located approximately two miles upstream of the historic mouth of the river. That section of the river was inundated by the construction of Bonneville Dam. Hatchery spring Chinook return to the Little White Salmon National Fish Hatchery, which was built in 1898 and is one of the oldest on the Columbia River system. The program is currently self-supporting, as broodstock are guided into the hatchery by a barrier dam. The 2011 return of spring Chinook to the Little White Salmon River was 12,200 adults returning to the tributary mouth. The return was similar to the preseason forecast of 12,600 adults, and similar to the recent 10-year average of 11,600 adults. The forecast for 2012 is for another strong return of 9,500 adults to the tributary mouth.

Klickitat River Return and Forecast

The Klickitat River spring Chinook return consists of hatchery-origin fish from the Klickitat Hatchery (RM 42) and a smaller, depressed wild population that spawns upstream of the hatchery. Klickitat River spring Chinook are included in the mid Columbia ESU but are not ESA-listed. Prior to 1920, there were large spring Chinook runs in the Klickitat River and a significant tribal fishery occurred at Lyle Falls (RM 2), despite difficult passage at the falls. By 1951, the annual spring Chinook run varied from 1,000 to 5,000 adults. In 1952, the Klickitat Hatchery (RM 42.5) and two fishways at Lyle Falls were constructed using Mitchell Act funds. Indigenous Klickitat spring Chinook were trapped at the upper fishway each year from 1952 through at least 1959. Since then, collection of broodstock has relied upon fish returns (primarily of hatchery origin) at the on-site hatchery trap. Plans call for hatchery upgrades and collection of natural-origin fish for broodstock in the near future. Since 1977, estimates of adult spring Chinook returning to the Klickitat River mouth have ranged from about 500 to 5,250 fish, averaging about 1,900 fish annually, with 70-80% of the run being hatchery fish. The 2011 return of adult spring Chinook was just over 1,400 adults, compared to the 2011 forecast of 2,100 fish. The 2012 forecast is also for a return of 2,100 adults.

Yakima River Return and Forecast

The Yakima River Basin spring Chinook return is comprised of three unique spring Chinook populations: upper Yakima River, Naches River, and American River. Yakima River spring Chinook are included in the mid-Columbia ESU but are not federally-listed under the ESA.

Historical Yakima spring Chinook returns (all stocks) ranged from approximately 50,000 to 200,000 fish. An integrated hatchery supplementation program (Cle Elum Supplementation and Research Facility – CESRF) in the Upper Yakima was initiated in 1997 with the first Age-4 adults returning from this program in 2001. The program uses only natural-origin fish for brood stock and hatchery-origin returns are allowed to spawn naturally. The Naches River and American River populations are predominantly wild and few if any hatchery-origin fish are known to stray to Naches sub-basin spawning areas. An aggregate total of 13,400 (53% wild) adult spring Chinook returned to the Yakima River in 2011, which was greater than the 10,300 expected. The 2012 return is forecasted at 12,000 adult spring Chinook, including 6,400 wild fish, compared to the recent ten-year average of 8,900 adults.

Upper Columbia River Summer Chinook

Upper Columbia River summer Chinook are destined for production areas and hatcheries upstream of Priest Rapids Dam. Historically, these fish spawned in the Columbia, Wenatchee, Okanogan, and Similkameen rivers. Access to over 500 miles of the upper Columbia River (excluding tributaries) was blocked by the construction of Grand Coulee Dam in 1941. The building of Chief Joseph Dam further reduced available mainstem habitat. Since completion of the Columbia River hydropower system, summer Chinook redds are found in the Columbia, Wenatchee, Okanogan, Methow, Similkameen, Chelan, and Entiat rivers. The upper Columbia summer Chinook run size remained at low levels throughout the 1980s and 1990s, with average returns of 19,200 and 15,100 fish, respectively. Supplementation programs and improved natural habitat have played a significant role in the increased abundance trends observed since 1999. The average run size during the 2000s was 59,800 adults, which was three times greater than the average run size of the 1980s and four times greater than the average run size of the 1990s (Table 10). Since 2002, the majority of the hatchery production has been mass-marked with an adipose fin clip. Natural-spawning populations also contribute significantly to the run.

The Columbia River summer Chinook run consists only of the upper Columbia component (Snake River summer Chinook are included in the upriver spring run). The Columbia River return is calculated as the sum of the Bonneville Dam count and the number of fish caught in lower river fisheries during June 16 through July 31. Upper Columbia summer Chinook are not ESA-listed, and the population is currently considered healthy. See Table 10 for abundance, harvest and escapement data.

2011 Return

The 2011 upper Columbia River summer Chinook return totaled 80,574 adults, compared to the pre-season forecast of 91,100 adults. The adult return was comprised of 32,600 Age-4 fish, 47,300 Age-5 fish and 700 Age-6 fish. Overall, the total return was strong and continued the generally upward trend observed since 2000. The 2011 return was the third highest since 1980, greater than the recent 10-year average of 64,800 adults and also greater than the 2010 return of 72,300 adults. The 2011 jack return was a record high of nearly 35,400 fish at Bonneville Dam.

2012 Forecast

The methodology for forecasting summer Chinook returns has historically depended on cohort relationships using linear regression models, but with the record high jack return, a log-normal sibling regression model was used to forecast the 2012 Age-4 returns from the 2011 Bonneville Dam jack (Age-3) count. This analysis resulted in a forecast of 59,000 Age-4 upper Columbia River summer Chinook. The forecast also includes 28,900 Age-5 fish and 3,300 Age-6 fish for a total of 91,200 adult upper Columbia River summer Chinook to the river mouth. The age class ratios are within the range of those observed in the past ten years, although the Age-4 component (65%) is proportionately greater than the recent 10-year (2002-2011) average of 51%. If accurate, this projection of 91,200 adults would represent the highest return since at least 1980, and would be 135% of the 10-year average (67,500 adult fish).

Wild Winter Steelhead

Winter steelhead enter the Columbia River from November through April and spawn from March through June. Juvenile wild winter steelhead usually rear in freshwater for one to three years before outmigrating to the ocean as smolts during March through June. Most lower Columbia River winter steelhead spend two summers in the ocean before returning as adults to spawn in natal streams. The range of winter steelhead includes all tributaries of the Columbia River upstream to Fifteen Mile Creek on the Oregon shore and the Klickitat River on the Washington shore. All wild winter steelhead are ESA-listed, except those within the Southwest Washington Distinct Population Segment (DPS) that includes populations in Grays Harbor, Willapa Bay, and the Columbia River downstream of the Cowlitz River in Washington and the Willamette River in Oregon. All steelhead handled downstream of Bonneville Dam during November through April are considered winter steelhead. Columbia River wild winter steelhead returns during 2002 through 2010 averaged 19,900 fish and ranged between 11,300 and 33,700 fish (Table 11).

2011 Return and 2012 Forecast

The 2011 wild winter steelhead return to the Columbia River mouth totaled nearly 16,800 fish. The return was similar to the forecast of 15,200 fish. Individual tributary returns were generally less than the recent five year average. Passage of wild winter steelhead at Willamette Falls since 2002 has averaged 8,100 fish, but has varied widely from 2,800 up to 16,000 fish. Passage in 2011 totaled 7,300 fish and represented nearly 40% of the total Columbia River return, which is proportionately similar to the recent 10-year average. The 2012 forecast for wild winter steelhead is 15,300 returning to the Columbia River mouth. (Table 11).

Summer Steelhead

The Columbia River summer steelhead run includes populations from lower river and upriver tributaries. Summer steelhead enter freshwater year-round with the majority of the run entering from June through October. The lower river component of the run tends to be earlier-timed than the upriver stocks, with abundance peaking during May and June. Skamania stock hatchery summer steelhead are widely planted in the lower Columbia tributaries, including the Willamette Basin. Skamania stock hatchery fish are also released annually in some tributaries upstream of

Bonneville Dam. Wild lower river summer steelhead are present in the Kalama, Lewis, Washougal and Wind rivers in Washington, and in the Hood River in Oregon. The lower Columbia River steelhead DPS was listed as threatened by the NMFS on May 24, 1999. All steelhead handled downstream of Bonneville Dam during May and June are classified as Skamania-stock.

The NMFS has divided the upriver wild summer steelhead run into three DPSs: 1) the middle Columbia DPS which includes steelhead destined for Columbia River tributaries from upstream of the Wind and Hood rivers upstream to and including the Yakima River (listed as threatened in May 1999), 2) the upper Columbia DPS which includes steelhead destined for Columbia River tributaries upstream of the Yakima River (listed as endangered in May, 1999), and 3) the Snake River DPS which includes steelhead returning to the Snake River basin (listed as threatened in October 1997). Currently, there is no reliable method available to segregate the steelhead run at Bonneville Dam into individual DPSs.

The combined summer steelhead run is estimated as the sum of lower river tributary returns (lower river stocks), mainstem fisheries mortalities during May-October (lower river and upriver stocks), and Bonneville Dam counts during April-October (upriver stocks). Upriver summer steelhead pass Bonneville Dam from April 1 through October 31 each year (Figure 1 and Tables 12 and 14). Summer steelhead passing Bonneville Dam between April 1 and June 30 are considered Skamania stock steelhead primarily destined for tributaries within Bonneville Pool. Summer steelhead passing Bonneville Dam between July 1 and October 31 represent an index count of steelhead which are considered to be either Group A or Group B stock. Group A steelhead are destined for tributaries throughout the Columbia and Snake basins, are characteristically smaller (less than 78 cm length) and spend one or two years at sea. Group B steelhead return to the Clearwater and Salmon rivers in Idaho, are generally larger (at least 78 cm length), later-timed than the Group A steelhead, and typically spend two or three years at sea.

Upriver summer steelhead returns to Bonneville Dam have been relatively stable since at least 1984. During 1984-2010 Bonneville Dam passage has ranged from 160,800 fish up to 630,200 fish with an average of 312,700 upriver summer steelhead. The 10-year average (2001-2010) is 410,600 fish. The Skamania stock has followed the relatively stable trend observed for the total return, with the annual returns since 1984 averaging 16,000 fish compared to the average in the 1990s of 12,000 fish and 17,000 fish in the 2000s. The Group A return to Bonneville Dam has ranged from 116,000 fish to 543,000 fish over the past 27 years, averaging 243,000 fish. The recent 5-year average for Group A steelhead passage has improved to 319,000 fish, mainly due to the large return of 2009. Group B steelhead returns are much less than the Group A returns. Group B passage at Bonneville Dam over the past 27 years has ranged from 13,000 fish up to 129,900 fish, averaging 54,000 fish. The recent five-year average has improved to 68,000 fish. The wild component of the Group B run has increased proportionately to the overall Group B run, averaging around 20% of the return (10%-30% range).

2011 Return

The total return to Bonneville Dam (April-October passage) of upriver summer steelhead in 2011 was 364,900 fish, compared to the pre-season forecast of 390,900 upriver steelhead. Upriver summer steelhead passage at Bonneville Dam in 2011 was less (89%) than the recent 10-year

average return of 410,300 fish. Window observations of unclipped steelhead include a small portion of unclipped hatchery fish. Data in this report is adjusted for unclipped hatchery fish based on sampling data collected at the Bonneville Dam adult fish trap.

Skamania stock steelhead passage at Bonneville Dam totaled 9,750 fish including 2,814 (29%) wild fish. The 2011 Skamania return was only 54% of the recent 10-year average; well below the record return observed only a year prior. The majority of steelhead passage at Bonneville Dam occurs during July through October. During these months in 2011, a total of 355,121 steelhead passed Bonneville Dam, compared to the recent ten-year average of 392,300 fish and the expected total passage of 366,800. The 2011 upriver steelhead return to Bonneville Dam included 318,125 Group A stock (101,263 wild) and 36,996 Group B stock (7,771 wild).

Wild steelhead passing Bonneville Dam during April-October in 2011 totaled 111,848 fish, compared to the preseason expectation of 112,000 fish. The wild fish component represented 29% of the passage, which is greater than the recent ten-year average of 26%.

2012 Forecast

The 2012 forecast for upriver summer steelhead at Bonneville Dam totals 364,600 fish, which is 95% of the 10-year average and very similar to the 2011 return. The forecast includes 15,700 (4,600 wild) Skamania stock, 311,800 (91,800 wild) Group A and 52,800 (13,400 wild) Group B fish. All individual forecasts are similar to the 10-year average, with the exception of the Group B fish, which is forecasted to be 85% of the 10-year average.

Sockeye

Sockeye salmon have been adversely impacted by hydroelectric development in the Columbia Basin, and their abundance has declined substantially from historic levels. Most of the historic production of sockeye occurred in nursery lakes located in the uppermost reaches of the Columbia and Snake River basins. Upstream passage was blocked by the construction of several key dams including: Grand Coulee in the upper Columbia system; and by Swan Falls (completed 1901), Sunbeam (completed 1913; removed in 1934), and Black Canyon (completed 1914), and Brownlee (completed 1958) in the Snake River system. Landlocked sockeye salmon, commonly called kokanee, are still produced in many of the areas that formerly contained anadromous runs.

The Columbia River sockeye run consists of the Okanogan, Wenatchee, and Snake River stocks. The Okanogan and Wenatchee stock abundance is cyclic, with occasional strong return years followed by years of low returns. The upper Columbia River sockeye run (Okanogan and Wenatchee) consists of four age groups. Fish returning to Osoyoos Lake in the Okanogan Basin are typically Age-3 and Age-4 fish. Those returning to Lake Wenatchee in the Wenatchee Basin are typically Age-4 and Age-5 fish. The Snake River sockeye run, largely returning to the Stanley Basin in Idaho, is extremely depleted. A small remnant population of the Snake River sockeye returns to Redfish Lake. Production is maintained through a captive brood program and most returning adults are progeny of this program. The Snake River stock was federally-listed as endangered in November 1991. The upper Columbia stocks (Okanogan and Wenatchee) are considered healthy populations and are not listed under the ESA.

Sockeye salmon migrate through the lower Columbia River during June and July, with normal peak passage at Bonneville Dam around July 1 (Figure 1). The Wenatchee stock generally migrates earlier than the Okanogan stock although the run timing of both stocks overlap. Sockeye counts at Ice Harbor Dam (on the Snake River) and Priest Rapids Dam (on the upper Columbia River) both extend from early June through mid-July, which suggests that the Snake River component has similar run timing to the upper Columbia sockeye. The escapement goal of 65,000 sockeye salmon at Priest Rapids Dam requires that 75,000 sockeye migrate past Bonneville Dam. The Wenatchee River, which enters the Columbia River from the Washington shore upstream of Rock Island Dam (RM 454), has a current escapement goal of around 23,000 adult sockeye to the Wenatchee River system. Historically, the Wenatchee return was similar in abundance to the Okanogan return. Since 2006, with unprecedented large returns, the Wenatchee stock has represented less than 20% of the upper Columbia return. During the 1990s the number of sockeye returning to the Snake River basin averaged 12 fish per year. During 2000-2007, Snake River sockeye returns improved, but remained severely depressed averaging less than 100 fish annually. Since 2008, the Snake River sockeye return has improved steadily, likely a result of improved passage conditions and increases in production (Table 16).

2011 Return

The 2011 return of sockeye to the Columbia River of 187,300 adults was greater than the pre-season forecast of 161,900 adults. The 2011 return proved to be the fourth highest return since at least 1980 and the fourth consecutive strong return year, following the record returns of 2008, 2009 and 2010. The 2011 return included 41,800 Wenatchee stock, over 143,500 Okanogan stock, and 1,900 Snake River stock returning to the Columbia River. All components exceeded pre-season expectations. Sockeye counts at Lower Granite Dam totaled 1,500 fish, which is also the fourth consecutive strong return year. The 2011 Columbia River return of Snake River sockeye was the second highest observed since at least 1980, trailing only the record return of 2010 (Table 16).

2012 Forecast

The 2012 forecast for the Columbia River sockeye run is for a record return of 462,000 adults to the Columbia River, which includes 28,800 fish to the Wenatchee, 431,300 fish to the Okanogan, and 1,900 to the Snake River. The forecast is 348% of the recent 10-year average. The Wenatchee component is forecasted to be 5,800 fish above the escapement objective of 23,000 fish. The Okanogan component, which has shown an impressive increase in run strength since 2008, is expected to continue this trend. Although the Snake River component proportionately is a small component within the total run, a return of 1,900 fish would be 253% of the recent 10-year average return and continue the upward trend observed in the past three years.

Shad

Shad are an introduced species brought to the West Coast from Pennsylvania in the late 19th century. The shad is an anadromous fish; spending three to four years at sea before returning to spawn. Since the extensive development of mainstem hydroelectric projects, shad runs have increased markedly in abundance and have extended their range into the upper Columbia River

and into Hells Canyon of the Snake River. Since the late 1970s, all shad runs have met or exceeded one million fish per year, with a peak of over six million in 2005. Shad run timing extends from mid-May through early August at Bonneville Dam, with peak daily counts occurring in June (Figure 1). Since the timing of the shad run overlaps with upriver Chinook, sockeye, and steelhead runs, harvest opportunities for shad are regulated to minimize impacts to ESA-listed salmonids.

2011 Return

The 2011 minimum shad run size was 1.0 million, with a minimum escapement of 948,000 upstream of Bonneville Dam, plus an unknown number of spawners downstream of Bonneville Dam and downstream of Willamette Falls. The 2011 shad run in the Columbia River was the lowest since 1977 and continued a declining trend from the 2005 record return of 6.3 million shad (Table 17). The non-Indian (lower Columbia and lower Willamette) recreational and commercial combined catch of 93,200 shad (9% of the total run) was improved over the previous two years, but below the recent 5-year average of 134,900 shad kept.

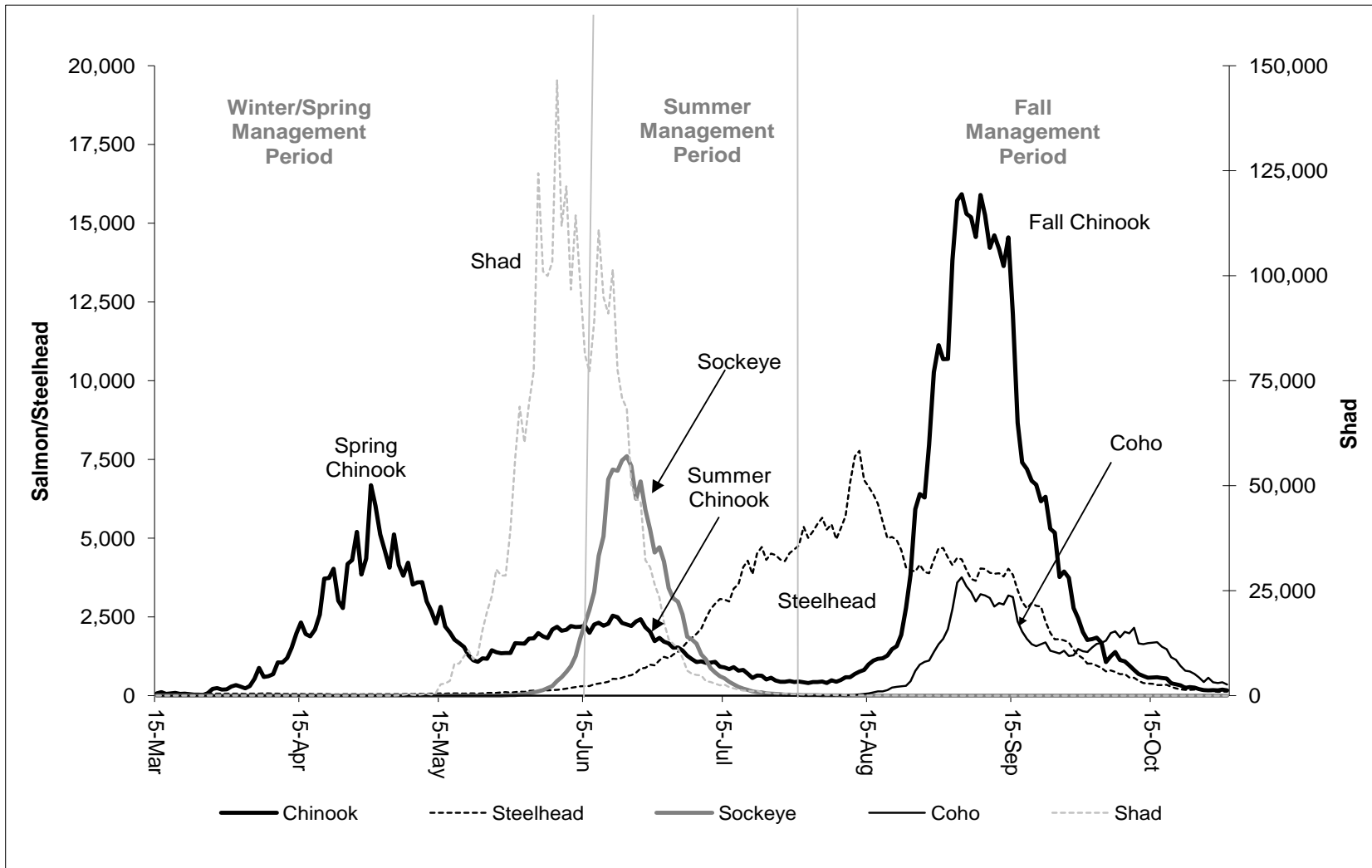


Figure 1. Average Daily Counts of Salmon, Steelhead, and Shad at Bonneville Dam, 2002-2011.

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 as shown in the table below. The *U.S. v Oregon* TAC has prepared Biological Assessments (BAs) for combined fisheries based on relevant *U.S. v Oregon* management plans and agreements. The TAC has completed BAs for ESA-listed stocks for all mainstem Columbia River fisheries since January 1992. In addition, ODFW has a management plan in place for naturally-produced coho from Oregon tributaries that were listed by the State of Oregon in 1999.

<i>Federally-listed Species Found in Columbia River Fishery Management Areas</i>			
Species – <i>ESU/DPS</i> ¹	Current Designation	Listing Date	Effective Date
<u>Chinook</u>			
Snake River Fall	Threatened	April 22, 1992	May 22, 1992
Snake River Spring/Summer	Threatened	April 22, 1992	May 22, 1992
Upper Columbia Spring	Endangered	March 24, 1999	May 24, 1999
Upper Columbia Summer/Fall	Not warranted	--	--
Middle Columbia Spring	Not warranted	--	--
Lower Columbia River Spring/Fall	Threatened	March 24, 1999	May 24, 1999
Upper Willamette Spring	Threatened	March 24, 1999	May 24, 1999
Deschutes River Summer/Fall	Not warranted	--	--
<u>Steelhead</u>			
Snake River Basin	Threatened	August 18, 1997	October 17, 1997
Upper Columbia River ²	Threatened	August 18, 1997	October 17, 1997
Lower Columbia River	Threatened	March 19, 1998	May 18, 1998
Middle Columbia River	Threatened	March 25, 1999	May 24, 1999
Southwest Washington	Not warranted	--	--
Upper Willamette	Threatened	March 25, 1999	May 24, 1999
<u>Sockeye</u>			
Snake River	Endangered	November 20, 1991	Dec. 20, 1991
Okanogan River	Not warranted	--	--
Lake Wenatchee	Not warranted	--	--
<u>Chum</u> – Columbia River	Threatened	March 25, 1999	May 24, 1999
<u>Coho</u> – Columbia River	Threatened	June 28, 2005	August 26, 2005
Green Sturgeon- Southern DPS	Threatened	April 7, 2006	July 7, 2006
Eulachon - Southern DPS	Threatened	March 18, 2010	May 17, 2010

¹ The ESU/DPSs in bold are present in the Columbia River basin during the time when fisheries described in this report occur and therefore may be impacted by these fisheries.

² Status downgraded to threatened per U.S. District Court order in June 2009.

The current BA concerns Columbia River treaty Indian and non-Indian fisheries, as described in the “2008-2017 *U.S. v Oregon* Management Agreement for upriver Chinook, sockeye, steelhead, coho, and white sturgeon” (2008-2017 MA). The BA was submitted during the spring of 2008,

and a Biological Opinion (BO) was subsequently issued by NMFS later that year. The current BO expires December 31, 2017, concurrent with the 2008-2017 MA. The BO covering non-Indian fisheries described in the 2008-2017 MA addresses impacts to green sturgeon.

Wild Winter Steelhead Management

Non-Indian fisheries conducted during the winter season incidentally handle wild winter steelhead while targeting hatchery Chinook or hatchery steelhead. While the highest impacts on wild winter steelhead populations occur in the tributaries of the Columbia River where hatchery steelhead are a recreational target species, lesser impacts also occur during mainstem recreational and commercial spring Chinook seasons. Tributary recreational fisheries are conducted under separate permits issued by NMFS and the associated steelhead impacts are considered separately from mainstem fisheries. When lower Columbia and upper Willamette steelhead were listed under the federal ESA, a 2% annual impact rate for all non-Indian mainstem fisheries combined was established in the BAs and BOs for mainstem fisheries.

Columbia River Salmon Management Guidelines

The parties to *U.S. v Oregon* are currently operating under the 2008-2017 MA. This agreement provides specific fishery management constraints for upriver spring, summer, and fall Chinook, coho, sockeye and steelhead. Excerpts from the 2008-2017 MA and other agreements applicable to fisheries considered in this report are highlighted below.

Upriver Spring Chinook

The 2008-2017 MA provides for a minimum annual mainstem treaty Indian C&S entitlement to the Columbia River treaty tribes of 10,000 spring and summer Chinook. It is anticipated that the majority of this entitlement will be taken in treaty Indian fisheries during the winter/spring management period (January 1 through June 15). Tributary harvest of spring and summer Chinook is not included in this entitlement.

Non-Indian and treaty Indian winter and spring season fisheries are managed in accordance with the harvest rate schedule provided in Table A1 of the 2008-2017 MA. This harvest rate schedule is the first to incorporate a sliding scale, with increasing or decreasing allowable impact rates dependant on the total upriver spring Chinook run size. Based on this harvest rate schedule and the preseason forecast for upriver spring Chinook, fisheries are planned based on the available impacts allocated to treaty Indian and non-Indian fisheries. Beginning in 2010, modifications to Table A1 were implemented, which required non-Indian fisheries to meet the catch balance provisions in the MA for upriver spring Chinook. Under these provisions, non-Indian fisheries are managed to remain within ESA impacts, *and* to not exceed the total allowable catch available for treaty Indian fisheries. In addition, non-Indian fisheries are restricted to no more than 70% of the available catch specified for treaty Indian fisheries at the preseason forecasted run size for use prior to a run size update (30% buffer). The following table is the revised version of Table A1 of the MA, reflecting the new catch balancing provisions (implemented in 2010).

2008-2017 Harvest Rate Schedule for Chinook in Spring Management Period

Total Upriver Spring and Snake River Summer Chinook Run Size ⁶	SNAKE RIVER Natural Spring/Summer Chinook Run Size ¹	Treaty Zone 6 Total Harvest Rate ^{2,5}	Treaty Catch Guideline	Non- Treaty Natural Harvest Rate ³	Non-Treaty Mortality Guideline	Total Natural Harvest Rate ⁴	Non- Treaty Natural Limited Harvest Rate ⁴
<27,000	<2,700	5.0%		<0.5%		<5.5%	0.5%
27,000	2,700	5.0%	1,350	0.5%	1,350	5.5%	0.5%
33,000	3,300	5.0%	1,650	1.0%	1,650	6.0%	0.5%
44,000	4,400	6.0%	2,640	1.0%	2,640	7.0%	0.5%
55,000	5,500	7.0%	3,850	1.5%	3,850	8.5%	1.0%
82,000	8,200	7.4%	6,068	1.6%	6,068	9.0%	1.5%
109,000	10,900	8.3%	9,047	1.7%	9,047	10.0%	
141,000	14,100	9.1%	12,831	1.9%	12,831	11.0%	
217,000	21,700	10.0%	21,700	2.0%	21,700	12.0%	
271,000	27,100	10.8%	29,268	2.2%	29,268	13.0%	
326,000	32,600	11.7%	38,142	2.3%	38,142	14.0%	
380,000	38,000	12.5%	47,500	2.5%	47,500	15.0%	
434,000	43,400	13.4%	58,156	2.6%	58,156	16.0%	
488,000	48,800	14.3%	69,784	2.7%	69,784	17.0%	

1. If the Snake River natural spring/summer forecast is less than 10% of the total upriver run size, the allowable mortality rate will be based on the Snake River natural spring/summer Chinook run size. In the event the total forecast is less than 27,000 or the Snake River natural spring/summer forecast is less than 2,700, Oregon and Washington would keep their mortality rate below 0.5% and attempt to keep actual mortalities as close to zero as possible while maintaining minimal fisheries targeting other harvestable runs.

2. Treaty Fisheries include: Zone 6 Ceremonial, subsistence, and commercial fisheries from January 1-June 15. Harvest impacts in the Bonneville Pool tributary fisheries may be included if TAC analysis shows the impacts have increased from the background levels.

3. Non-Treaty Fisheries include: Commercial and recreational fisheries in Zones 1-5 and mainstem recreational fisheries from Bonneville Dam upstream to the Hwy 395 Bridge in the Tri-Cities and commercial and recreation SAFE (Selective Areas Fisheries Evaluation) fisheries from January 1-June 15; Wanapum tribal fisheries, and Snake River mainstem recreational fisheries upstream to the Washington-Idaho border from April through June. Harvest impacts in the Bonneville Pool tributary fisheries may be included if TAC analysis shows the impacts have increased from the background levels.

4. If the Upper Columbia River natural spring Chinook forecast is less than 1,000, then the total allowable mortality for treaty and non-treaty fisheries combined would be restricted to 9% or less. Whenever Upper Columbia River natural fish restrict the total allowable mortality rate to 9% or less, then non-treaty fisheries would transfer 0.5% harvest rate to treaty fisheries. In no event would non-treaty fisheries go below 0.5% harvest rate.

5. The Treaty Tribes and the States of Oregon and Washington may agree to a fishery for the Treaty Tribes below Bonneville Dam not to exceed the harvest rates provided for in this Agreement.

6. If the total in river run is predicted to exceed 380,000, the Parties agree to consider increasing the total allowed harvest rate and to reinstate consultation with NOAA Fisheries if necessary.

Upper Columbia River Summer Chinook

Mainstem Columbia River summer Chinook fisheries occurring from June 16 through July 31 are managed in accordance with the harvest rate schedule provided in Table A2 of the 2008-2017 MA. Table A2 follows the general framework described in the table below, but provides a much more detailed description of incremental harvest rates and escapement past fisheries. The parties agreed to manage upper Columbia River summer Chinook based on an interim management goal of 29,000 hatchery and natural origin adults as measured at the Columbia River mouth. The management goal is based on an interim combined spawning escapement goal of 20,000 hatchery and natural adults upstream of Priest Rapids Dam. Current escapement goals are under review by the parties to *U.S. v. Oregon*, in part due to Chief Joseph Hatchery becoming operational. The following table outlines the current framework for upper Columbia summer Chinook harvest rates.

Upper Columbia Summer Chinook Fishery Framework		
Run Size at River Mouth	Allowed Treaty Harvest	Allowed Non-Treaty Harvest
<5,000	5%	<100 Chinook
5,000-<16,000	5%	<200 Chinook
16,000-<29,000	10%	5%
29,000-<32,000	10%	5-6%
32,000- <36,250	10%	7%
(125% of 29,000 goal)		
36,250-50,000	50% of total harvestable ¹	50% of total harvestable ¹
>50,000	50% of 75% of margin above 50,000 plus 10,500 ²	50% of 75% of margin above 50,000 plus 10,500 ²

1 The total number of harvestable fish is defined as the run size minus 29,000 for run sizes of 36,250 to 50,000.

2 For the purposes of this Agreement, the total number of harvestable fish at run sizes greater than 50,000 is to be determined by the following formula: $(0.75 * (\text{run size} - 50,000)) + 21,000$.

Based on this framework, the sharing formula allows for greater numbers of fish to escape when runs are greater than 50,000 fish.

Sockeye

The management goal for upper Columbia River sockeye is for a return of 65,000 adult sockeye at Priest Rapids Dam, which under average migration conditions requires a passage of 75,000 fish over Bonneville Dam. Combined non-Indian impacts on ESA-listed Snake River sockeye will be minimized, and shall not exceed 1% of the run entering the Columbia River. Fisheries conducted by the Columbia River treaty tribes will be managed according to the following schedule and all fishery impacts on sockeye will be included in the specified harvest rates.

Treaty Indian Sockeye Harvest Rate Schedule, 2008-2017.	
Upriver Sockeye Run Size	Harvest Rate
<50,000	5%
50,000-75,000	7%
>75,000	7%, with further discussion

If the upriver sockeye run is projected to exceed 75,000 adults over Bonneville Dam, any party may propose harvest rates exceeding the aforementioned harvest rates. If harvest rate

modifications are proposed, parties shall prepare a revised BA of proposed Columbia River fishery impacts on ESA-listed sockeye, and shall submit the BA to NMFS for consultation under Section 7 of the ESA.

Non-Indian Impact Allocations of Upriver Spring Chinook

The Oregon and Washington Fish and Wildlife commissions (Commissions) provide staff with policy guidance when shaping fisheries preseason and managing fisheries in-season. Current policy guidance extends through 2013. Since 2009, impact allocation guidance from the Oregon Commission and Washington Commission has not been identical, so staff has applied the lowest of the two impact allocation guidelines to recreational and commercial fisheries. Policy guidelines for non-Indian spring Chinook fisheries adopted by the Commissions allocated available ESA impacts for upriver spring Chinook among the various fisheries. Of the impacts available, 60% were allocated to sport fisheries and 35% to commercial fisheries, with the remaining 5% un-allocated. In addition to allocating available upriver-stock impacts among the various non-Indian fisheries, guidance from the Commissions specified the proportion of each ESA-impact share that was to be used before and after the run-size update. In order to comply with catch-balancing provisions of the 2008-2017 MA, Washington and Oregon translated the ESA-based guidance received from the Commissions into shares of available upriver-stock harvest (kept catch plus release mortalities) available to each non-Indian fishery. The following table is the matrix used when determining allocation shares.

Matrix for allocating upriver Spring Chinook ESA impacts based on OFWC and WFWC Policy		
Run Size of Upriver Columbia Spring Chinook	Run Size of Willamette Spring Chinook	
	Low (<50,000)	High (>50,000)
Very Low (<33,000)	Share = 80/15%	Share = 70/25%
	Buffer = 30% of sport fishery impact + 25% of commercial fishery impact	Buffer = 30% of sport fishery impact + 25% of commercial fishery impact
Low (33,000 – 55,000)	Share = 70/25%	Share = 65/30%
	Buffer = 30% of sport fishery impact + 25% of commercial fishery impact	Buffer = 30% of sport fishery impact + 25% of commercial fishery impact
Medium-High (55,000 – 271,000)	Share = 65/30%	Share = 60/35% (base)
	Buffer = 30% of sport fishery impact + 25% of commercial fishery impact	Buffer = 20% of sport fishery impact + 40% of commercial fishery impact
Very High (>271,000)	Share = 55/40%	Share = 50/45%
	Buffer = 20% of sport fishery impact + 40% of commercial fishery impact	Buffer = 20% of sport fishery impact + 40% of commercial fishery impact

Upper Columbia River Summer Chinook Harvest Sharing Guidelines

The allocation for non-Indian fisheries is determined by the 2008-2017 MA and the Upper Columbia Management Agreement (UCMA). The UCMA provides a harvest sharing matrix based on run strength of upper Columbia River summer Chinook. This matrix allocates harvestable Chinook to fisheries upstream and downstream of Priest Rapids Dam. In recent years, pre-season negotiations between WDFW and the Colville Tribe have resulted in additional fish being available for harvest in the areas downstream of Priest Rapids Dam. The Commissions provide staff with policy guidance in the sharing of harvestable fish available for non-Indian fisheries downstream of Priest Rapids Dam. Over the past several years, the Commissions have determined that these fish should be shared equally between commercial and recreational fisheries.

Upper Columbia Management Agreement: Non-treaty Harvest Framework for Upper Columbia Summer Chinook			
River mouth run size	Harvest allocation upstream of Priest Rapids Dam	Harvest allocation downstream of Priest Rapids Dam	Description of expected fisheries upstream of Priest Rapids Dam
0 – 29,000	> 90%	No directed harvest	C&S for Colville and Wanapum, potential selective recreational
29,001 – 50,000	90%	Recreational and/or commercial	C&S for Colville and Wanapum, limited recreational
50,001 – 60,000	90% -70%	Recreational and/or commercial	C&S for Wanapum and Colville, recreational
60,001 – 75,000	70 - 65%	Recreational and/or commercial	C&S for Wanapum and Colville, recreational
≥75,001	65% - 60%	Recreational and/or commercial	C&S Wanapum and Colville, recreational

Willamette Spring Chinook Management

Fishery Management and Evaluation Plan for Willamette Spring Chinook

Following the ESA-listing of wild Willamette Basin spring Chinook, the state of Oregon completed a Fishery Management and Evaluation Plan (FMEP) to comply with Section 4(d) of the ESA. The FMEP set forth maximum freshwater impact limits for wild Willamette River spring Chinook of 20% for 2001 and 15% for 2002 and beyond. These limits apply to impacts associated with recreational fisheries occurring in the Willamette River Basin and with recreational and commercial fisheries occurring in the mainstem Columbia River. In addition to the impact limits, the FMEP requires that all wild Willamette River spring Chinook landed in mainstem Columbia River and Willamette River fisheries be released. In accordance with the FMEP, recreational and commercial fisheries are managed to ensure that cumulative freshwater mortality from fisheries do not exceed 15% of the combined wild spring Chinook run destined for the Willamette River.

Willamette River Basin Fish Management Plan

The original Willamette River Basin Fish Management Plan (WFMP) was adopted in 1981, readopted in 1988, and revised in 1992 and 1999. Beginning in 2001, freshwater fisheries were managed in accordance with the new FMEP, which superseded the prior management plan. The operating policies and objectives of the mainstem WFMP for spring Chinook were revised by the OFWC in December 2001 in accordance with the FMEP. Revisions included the adoption of escapement goals for hatchery-produced spring Chinook over Willamette Falls and to the Clackamas River, and determination of the recreational/commercial harvest allocation of hatchery-produced spring Chinook in excess of the escapement goal. These revisions were designed to allow for the orderly implementation of live-capture and mark-selective fishing strategies for all freshwater fisheries beginning in 2002. The escapement goals adopted by the OFWC are shown in the table below.

Hatchery Spring Chinook Escapement Goals at Willamette Falls and the Clackamas River			
Predicted Hatchery Return	Hatchery Fish Escapement		
	Willamette Falls	Clackamas River	Total
<40,000	20,000	3,000	23,000
40,000-49,999	22,000	3,300	25,300
50,000-59,999	24,000	3,600	27,600
60,000-69,999	26,500	4,000	30,500
70,000-79,999	29,000	4,400	33,400
80,000-89,999	32,000	4,900	36,900
90,000-100,000	35,000	5,400	40,400
>100,000	39,000	6,000	45,000

These escapement levels are designed to provide for full mark-selective fisheries in Willamette River tributaries and the mainstem Willamette River upstream of Willamette Falls, and meet hatchery broodstock escapement goals. The increase in escapement goals as the hatchery run

size increases allows fisheries upstream of Willamette Falls to share in increased fishery benefits available to lower Willamette River and mainstem Columbia River recreational and commercial fisheries created by increased abundances of hatchery fish.

The recreational and commercial allocation of hatchery-produced Willamette spring Chinook at various hatchery fish run sizes is shown in the table below. Recreational fisheries included in the recreational allocation are those occurring in the lower Columbia River downstream of Bonneville Dam, the lower Willamette River downstream of Willamette Falls, and the lower Clackamas River downstream of North Fork Dam. Commercial fisheries occur in the lower Columbia River downstream of Beacon Rock and in Select Areas. The allocation plan is designed to allow for recreational fisheries in the mainstem Willamette and Clackamas rivers at hatchery run sizes greater than 23,000 fish, and increases the commercial share gradually (up to 30%) as the forecasted run of hatchery fish increases. Limitations on upriver spring Chinook generally restrict access to the commercial share of the Willamette hatchery surplus. At low run sizes (<40,000 hatchery fish), the commercial fishery is restricted to <1% of the predicted return to allow for minimal incidental harvest of Willamette hatchery fish during other commercial fisheries.

Allocation of Willamette Hatchery Spring Chinook		
Predicted Hatchery Return	Allocation of Harvestable Numbers	
	Recreational Fishery	Commercial Fishery
<23,000	<1%	<1% of predicted return as incidental for other fisheries
23,000-39,999	100%	<1% of predicted return as incidental for other fisheries
40,000-44,999	85%	15%
45,000-49,999	80%	20%
50,000-59,999	76%	24%
60,000-75,000	73%	27%
>75,000	70%	30%

Lower Columbia River White Sturgeon Management

A Joint State Agreement has been in effect and renewed every one to three years since 1997 with adjustments as necessary to protect sturgeon populations while maintaining harvest opportunity. For detailed information, see ***2012 Joint Staff Report: Stock Status and Fisheries for Sturgeon and Smelt*** dated January 19, 2012. A new three-year Accord was adopted in 2011. The current Accord is similar in structure to past agreements, with the WFWC, OFWC, and the two state directors providing management guidelines for white sturgeon fisheries

REVIEW OF MAINSTEM, SELECT AREA, AND TRIBUTARY FISHERIES

Non-Indian Fisheries

Past Mainstem Commercial Winter Sturgeon and Salmon Seasons

Reduced salmon fishing opportunities during the mid-1970s through the late 1990s greatly increased the popularity and importance of white sturgeon for both commercial and recreational fisheries. The healthy white sturgeon population allowed the commercial industry to develop stable fisheries in a time when commercial salmon fishing opportunities had been drastically reduced. A similar lack of stable recreational salmon fisheries, and increased recognition of white sturgeon as a sport fish have resulted in increased popularity of sturgeon angling since the mid-1980s. In recent years, reduced white sturgeon catch guidelines have impacted the stability of all Columbia River white sturgeon fisheries.

Since the adoption of the first Joint State Sturgeon Management Agreement in 1997, commercial sturgeon fisheries have been managed to remain within catch guidelines while maximizing economic benefit and achieving conservation objectives for other species. The harvestable number of white sturgeon is allocated 80% to recreational fisheries and 20% to commercial fisheries. Weekly landing limits have remained a valuable tool in maintaining consistent commercial fisheries since first adopted in 2002. Annual fishing plans for distribution of commercially harvestable sturgeon are developed each year with industry input to provide predictable commercial fishing opportunities and stable markets throughout the year.

Season structure of winter commercial sturgeon fisheries has been similar in recent years, with one or two fishing periods conducted each week from early to mid-January through mid- to late February.

Winter commercial salmon seasons have been established since 1878. Since 1957, all non-Indian commercial fisheries have been restricted to Zones 1-5 (Columbia River mouth upstream to Beacon Rock) and treaty Indian commercial fisheries to Zone 6 (Bonneville Dam to McNary Dam; Figure 2). To reduce catch of upriver spring Chinook, no commercial salmon fishing was allowed upstream of Kelley Point at the Willamette River mouth during winter salmon seasons from 1975-2007. A minimum mesh size restriction of 7¼-inches was enacted in 1970 to reduce steelhead handle. Subsequent to the prohibition of sales of steelhead in 1975, the minimum mesh size was increased to 8-inches to further reduce steelhead handle. This mesh size remained in effect until the introduction of small mesh “tangle nets” and live-capture techniques in 2002. No winter gillnet salmon seasons occurred in the lower river during 1995 and 1997-1999; however, small numbers of spring Chinook were landed in conjunction with winter target sturgeon seasons during these years. Winter season fishing dates, mesh size restrictions, and landings are included in Table 18.

The adoption of the Willamette River spring Chinook FMEP in 2001 required the release of unmarked spring Chinook in commercial and recreational freshwater fisheries. The first spring Chinook mark-selective commercial fishery occurred in 2001. This live-capture fishery consisted of a permit fishery with participation limited to 20 vessels. The fishery consisted of one 8-hour fishing period per week during the 4-week period from April 23 through May 18.

The first full fleet live-capture commercial fishery took place in 2002. The fishery was limited to commercial fishers who held appropriate licenses and gear, and had attended a state-sponsored workshop concerning live-capture techniques. The 2002 fishery regulations included a 5½-inch maximum mesh size restriction, 150-fathom (900 feet) maximum net length, soak times not to exceed 45 minutes, use of recovery boxes on lethargic or bleeding fish, and allowed sales of sturgeon and adipose fin-clipped Chinook. The 2003 winter salmon fishery incorporated many of the general fishery regulations adopted in 2002 except gear regulations were modified in response to the high steelhead handle observed in 2002. Large mesh nets (8-inch minimum) were required during the early part of the season to minimize steelhead handle, and the maximum mesh size for tangle nets was reduced from 5½ inches to 4¼ inches to improve capture condition by minimizing the frequency of gill-capture for steelhead. The voluntary use of nets fitted with steelhead exclusion panels was also initiated in 2003. Beginning in 2004, test fishing was implemented as a tool to help determine the optimum time for fishing periods based on Chinook and steelhead catch rates.

Since 2004, winter/spring salmon seasons have been conducted according to guiding principles and fishery management objectives adopted by the WFWC and OFWC. These principles and objectives provide the Joint Staff with guidance when shaping and managing fisheries. In addition, a winter season fishing plan has been developed annually in cooperation with the Columbia River Commercial Fishery Advisory Group which gives the commercial industry a plan for marketing and provides a basis for making in-season management decisions. This plan typically outlines a weekly schedule of test fishing to determine the relative abundances of hatchery spring Chinook, wild spring Chinook, and steelhead. After test fishing results are known, the decisions of whether to fish or not and what gear to use can be made. Fishing periods are scheduled to maximize retention of hatchery spring Chinook and minimize handle of steelhead and unmarked Chinook. This process continues until either the upriver Chinook impact allocation, the hatchery Willamette harvest allocation, or the wild winter steelhead impact limit are reached; however, the upriver spring Chinook impact allocation is typically most constraining.

In December 2003, the TAC reviewed preliminary results of post-release mortality studies conducted from 2001-2003 and concluded that, for 8-inch-mesh gear, estimated mortality of released Chinook should be 40%, and mortality of released steelhead should be 30%. For 4¼-inch tangle nets, the TAC concluded that the estimated post-release mortality rate for Chinook should be 18.5% and, until steelhead-specific studies could be conducted, the rate for steelhead should be assumed to be the same, based on similarities in the capture profiles of steelhead and Chinook in 4¼-inch nets. Based on a review of the data, TAC further concluded that 8-inch nets reduced the capture of steelhead compared to Chinook, and fisheries using 9-inch or larger mesh would be expected to capture even fewer steelhead. In 2007, additional data became available indicating that the mortality rate for Chinook released from tangle nets was 14.7%. Given this new information, the release mortality rate for Chinook released from tangle nets was reduced from 18.5% to 14.7% beginning in 2008. The release mortality rate for steelhead caught in tangle nets remained at 18.5%, and release mortality rates for fish caught with large mesh gear (8-inch minimum) remained unchanged at 40% for Chinook and 30% for steelhead.

In 2008 and 2009 all commercial openings were shifted to areas upstream of Kelley Point, in response to low predicted returns of Chinook to the Willamette River. 2009 ex-vessel prices averaged \$6.99 per pound for Chinook and \$2.28 per pound for white sturgeon. Landed catch was sampled at a rate of 52%. Average Chinook weight was 13 pounds. In 2010, two fishing periods occurred (March 30 and April 7) totaling 16 hours for the season. Both openers occurred in Zones 1-4 up to the I-205 Bridge and required tangle net gear. Ex-vessel prices averaged \$6.11 per pound for Chinook and \$2.43 per pound for white sturgeon. Landed catch was sampled at a rate of 50%. Average Chinook weight was 13 pounds.

2011 Winter Commercial Salmon Season

The 2011 commercial fishery was conducted under similar guiding principles, management objectives, and basic fishing plans in effect since 2004. Based on 2011 preseason run size forecasts and the harvest rate schedule in the 2008-2017 MA, non-Indian fisheries were limited to a 1.9% impact rate on listed upriver spring Chinook. As discussed above (see **Non-Indian Impact Allocations of Upriver Spring Chinook**), an impact buffer of 30% was in place prior to a run size update. From the commercial allocation, 0.150% impacts were allocated to Select Area fisheries. Mainstem commercial fisheries were managed for an impact limit of 0.249% prior to a run size update.

The fishery was also managed for hatchery and wild Willamette River spring Chinook in accordance with the Willamette FMEP. Based on the preseason forecast, a total of 46,400 Willamette River hatchery spring Chinook were available for harvest in all fisheries downstream of Willamette Falls (including Columbia River fisheries). Based on the Willamette harvest matrix, 30% of the surplus hatchery fish were allocated to commercial fisheries (Select Area and mainstem). Additional restrictions included a non-Indian fishery impact limit of 2.0% for ESA-listed wild winter steelhead. Since the inception of this mark-selective fishery, regulations have included gear restrictions, limited soak times and mandatory use of recovery boxes. Participating fishers must also have completed the state-sponsored workshop concerning live-capture techniques and were required to cooperate with the onboard observer program conducted by the agencies.

The available catch for commercial fisheries prior to a run size update included 1,900 upriver-stock spring Chinook and around 14,000 hatchery Willamette Chinook. A total of 400 white sturgeon were set aside from the commercial allocation for harvest in spring season fisheries. According to the preseason commercial fishing plan, test fishing would be conducted prior to considering full fleet fisheries, and was expected to begin as early as February 22. Full fleet fisheries were expected to occur on Tuesdays and/or Thursdays, and would not to exceed 24 hours. Commercial fisheries were likely to be conducted during both daylight and nighttime hours. If fisheries were conducted early in the season, large mesh gear would likely used, then transitioning to tangle net by mid-late March dependant on steelhead abundance.

Test fishing occurred weekly from February 22 to April 12, and the final test fishery was conducted on May 9. Data collected provided information on stock composition, mark rates, relative abundance of steelhead and Chinook, and catch rates, which helped staff to determine whether a fishery should be scheduled. All test fishing occurred in Zones 2-3 and used tangle net gear. As has been the case in recent years, all adipose fin-clipped salmon caught during test

fishing operations were kept and sold by WDFW to help fund test fishing and research. Because upriver spring Chinook passage at Bonneville Dam was low early in the run, members of several treaty tribes accompanied test fishing vessels during March and retained 18 unmarked and 20 marked spring Chinook for ceremonial purposes. ESA impacts for these fish are included in the treaty impact summary.

Passage of upriver spring Chinook over Bonneville Dam started off slowly, as has been the case in recent years. During preseason planning, it was anticipated that commercial fishing periods could start by late February or early March, and a Chinook stock ratio of 3:1 (lower: upper) was targeted. With low passage (<50 fish) at Bonneville Dam, the Compact did not consider commercial fisheries until March 15. Test fishing results from March 13 showed improvements in Chinook stock composition, mark rate and Chinook to steelhead ratios compared to the two preceding weeks, however the Chinook catch rate (one Chinook per drift) remained modest. Staff recommended a 10-hour fishing period for the evening of March 16, but the Compact did not adopt a season. Public testimony and industry input was mixed, but all cited a poor Chinook abundance and high river conditions with lots of debris. Results from test fishing on March 20 showed similar Chinook catch rates, but higher steelhead handle compared to the week before. Staff did not call for a Compact and test fishing was scheduled for March 27. Positive test fishing results included a high Chinook catch rate (5/drift) and low steelhead handle. Chinook mark rates were high, although stock composition was 48% upriver Chinook.

The first salmon-directed fishery for 2011 was a modest 4-hour opener on the evening of Tuesday, March 29. The fishery was conducted with tangle net gear from the mouth upstream to the traditional upper boundary of Kelley Point. Tributary mouth sanctuaries were in place to protect ESA-listed steelhead and Chinook. Data collected during the full-fleet fishery indicated the Chinook mark rate was similar to the test fishing data collected on March 27; however the Chinook catch rate (3 fish/ drift) was less. Nearly 1,250 salmon were landed, compared to 2,700 expected, but upriver fish comprised a greater percentage of the catch than expected (70% compared to 50%). Upon the conclusion of the March 29 fishery, an estimated 900 upriver Chinook (~1,300 total Chinook) remained available for commercial harvest prior to a run update.

Test fishing conducted on April 3 indicated Chinook abundance in the river had increased, although Bonneville Dam counts remained low. With a limited number of fish available for commercial harvest, and the volatile nature of the spring Chinook run timing and abundance during early to mid-April, staff continued to put forth recommendations that were very conservative in order to reduce the risk of exceeding pre-update allowances. The Compact met on April 4 to consider a commercial fishing period and take public testimony. The Joint Staff had considered three options prior to making a recommendation. The first consideration was to wait, which was the most conservative option, and carry over the balance of upriver impacts to the 'post update' timeframe. The second consideration was to recommend a short fishing period (~4-hours) similar to March 29, and the third consideration was to impose a Chinook landing limit on each participating vessel. Salmon landing limits was a new concept on the lower Columbia River, but could be useful given the limited number of harvestable fish. Staff recommended the third option; a brief (5-hour) fishing period with Chinook landing limits. The Compact adopted a fishing period, which was conducted from 11 AM to 5 PM on Wednesday April 6 in Zones 1-5 with tangle net gear and all sanctuaries in place. Each participating vessel

was limited to no more than six (6) adult hatchery fish. Catch estimates ranged from 900-1,300 salmon. Actual landings totaled nearly 800 fish, bringing the total landed to date to 2,000 Chinook.

The TAC met on April 25 and again on May 2 to review the upriver spring Chinook run. TAC reported that it was too early to update the run given passage to date and variability in run timing. TAC urged fishery managers to continue the conservative management strategy for all fisheries until a run update was available.

TAC reviewed the run size again on May 9 and officially updated the run. TAC confirmed that the upriver spring Chinook run was tracking to meet, if not exceed, the preseason forecast. This update triggered the removal of the 30% run buffer imposed on all non-Indian fisheries. ESA impacts allocated to mainstem commercial fisheries now totaled 0.515%. In accordance with management plans the States began to implement 'post-update' fisheries. Additional commercial fishing periods were conducted including a 14-hour period on May 12 and a 12-hour period on May 18. Both periods required large mesh gear (8-inch minimum) to reduce steelhead handle and both were conducted in Zones 1-4, upstream to Kelley Point. Landings from these two periods were within expectations and totaled 2,430 Chinook.

Total landings for the 2011 commercial fishery (Tables 18 and 19) included 4,436 hatchery Chinook and 125 white sturgeon. An additional 88 hatchery Chinook were landed during the winter sturgeon season. Released Chinook totaled 1,577 un-clipped Chinook, including 25 released during the winter sturgeon fishery. An additional 186 hatchery fish were released from the April 6 fishery. Stock composition indicated that 71% of the Chinook handled were of upriver origin. Mark rates for Chinook ranged from 71% to 78%, averaging 75% for the season. Winter steelhead handle totaled 393 fish, of which 167 were unmarked (wild and unmarked hatchery fish combined). Wild winter steelhead mortalities resulting from incidental handle were estimated to be 35 fish. Onboard monitoring was conducted during all spring fishing periods. Landed catch was sampled at a rate of 45%. Average Chinook weight was 14 pounds. Ex-vessel prices averaged \$6.05 per pound for Chinook and \$2.46 per pound for white sturgeon.

Past Lower Columbia River Spring Chinook Recreational Fisheries

Under permanent regulations, the mainstem Columbia River from Buoy 10 to the I-5 Bridge (RM 106) is open to angling for spring Chinook salmon during January 1 through March 31. The area from the I-5 Bridge upstream to the Oregon/Washington border (upstream of McNary Dam) has been closed beginning January 1 each year since 1993. The purpose of these regulations is to target early-migrating Willamette spring Chinook and reduce the catch of upriver spring Chinook. During 1995-1999, recreational fisheries for spring Chinook on the lower Columbia River were all but eliminated to protect a weak return of upriver spring Chinook in 1995 and low Willamette spring Chinook runs during 1996-1999. In 2000, biologists predicted the largest upriver run since 1977 (134,000 preseason projection) and an improved Willamette River run size of 59,900, which prompted the OFWC to formally allocate 1,200 Willamette spring Chinook to the mainstem Columbia River recreational fishery. However, problems with the issuance of a Biological Opinion (BO) from the NMFS resulted in an early (March 16) closure of the 2000 recreational fishery (Table 21) and a catch of only 322 adult spring Chinook.

The expected return of 430,400 adult spring Chinook to the Columbia River in 2001, including 364,600 upriver spring Chinook and a majority of adipose fin-clipped hatchery fish, prompted the states to adopt the first mark-selective recreational fishery for spring Chinook on the lower Columbia River effective March 12-April 30, 2001. At the same time, the states opened the area of the Columbia from the I-5 Bridge upstream to Bonneville Dam to spring Chinook angling (Table 21). The recreational fishery had not been open upstream of the I-5 Bridge during the month of April since 1977. The 2001 recreational spring Chinook fishery was both extremely popular and highly successful, with record-high angler effort and catch rates; and in-season management action was necessary to maintain the fishery within ESA guidelines. The states also provided a limited fishery for the mainstem Columbia River from The Dalles Dam upstream to McNary Dam during May 6-8, 2001.

Mark-selective recreational fisheries for spring Chinook have occurred annually since 2001. These fisheries were generally characterized by high effort and catch rates, as well as excellent compliance among anglers with the mark-selective fishing regulations. In 2002, mark-selective, (adipose fin-clipped only) regulations for spring Chinook were permanently adopted for the area downstream of the I-5 Bridge during January 1-March 31. Since 2004, a regulation prohibiting the removal of unmarked fish from the water has been added to provide additional protection for released fish. To date, no studies have been conducted to evaluate the mortality of salmon and steelhead released in mainstem Columbia River recreational fisheries. The TAC conducted extensive literature reviews and concluded that a post-release mortality rate of 10% should be applied to mainstem recreational salmon and steelhead fisheries for management purposes.

The daily bag limit for the recreational spring Chinook fishery downstream of Bonneville Dam was two adult salmonids (steelhead or Chinook in combination) during 2000-2007, except for 2005 when a one-fish bag limit was adopted for the area between Rooster Rock and Bonneville Dam. Beginning in 2008, the daily bag limit was changed to allow only one adult spring Chinook in the daily bag limit for the entire area downstream of Bonneville Dam effective beginning in March (Table 21). In-season management has been necessary in most years to maintain the fishing impacts below ESA guidelines, non-Indian harvest-sharing allocations, and/or catch balancing agreements with the tribes. During all years, the states have attempted to maintain a balanced opportunity for anglers upstream of Bonneville Dam. Regulations for 2000-2011 Columbia River recreational spring Chinook fisheries are listed in Table 21, and catch and effort totals for 2000-2011 are shown in Table 22. Regulations and catch and effort totals for the Zone 6 (Bonneville to McNary Dams) sport fishery are shown in Tables 21 and 23.

2011 Lower Columbia River Spring Chinook Recreational Fishery

In 2011, the total spring Chinook run size was forecast to be 331,800 adults to the mouth of the Columbia, comprised of an upriver component of 198,400 fish and a lower river component of 133,400 fish, including 104,100 Willamette spring Chinook (83,300 hatchery fish). According to the Willamette FMEP and the forecasted Willamette run size, a total of 32,500 adult Willamette hatchery spring Chinook were available for recreational harvest in the lower Willamette and lower Columbia rivers, which was expected to provide full fisheries in both areas. The 2008-2017 MA provided for a 1.9% impact to ESA-listed upriver spring Chinook in all non-Indian fisheries in 2011, based on the upriver spring Chinook run size forecast.

The OFWC and WFWC provided guidance, (see **Non-Indian Impact Allocations of Upriver Spring Chinook**), which combined with catch-balance and pre-update buffer provisions from the 2008-2017 MA, resulted in a total of 7,750 upriver spring Chinook (kept plus release mortalities) available to the sport fishery below Bonneville Dam prior to a run update.

Recreational fishing regulations for the 2011 spring Chinook fishery were adopted at the February 8 Compact hearing. The permanent regulations for the Columbia River from Buoy 10 to the I-5 Bridge began January 1 and remained in effect through February 28, when the adopted winter/spring season took effect. At the hearing the States adopted a March 1-April 4 season for the lower Columbia River between Buoy 10 and Rooster Rock, and the Oregon and Washington banks between Rooster Rock and Bonneville Dam. The two-fish daily bag limit in the area between Buoy 10 and Bonneville Dam was modified to include one adult spring Chinook limit effective March 1 (Table 21). The retention of shad and adipose fin-clipped steelhead was allowed for the duration of the spring Chinook season in all areas.

The Columbia River was initially high, clear and cold as heavy snowpack accumulated across much of the basin during the early part of 2011. During February, lower river tributaries fluctuated between high and muddy and low and clear as freezing levels oscillated in the Cascade and Coast ranges. As a result, fishing conditions were consistently good in the clear Columbia plume from the I-5 Bridge downstream to Bachelor Island and intermittently good below the mouth of the Willamette. The first spring Chinook was sampled on February 5 near St. Helens, but the majority of the early effort and catch occurred upstream from Bachelor Island. The total catch during February was the second highest on record at 327 adult spring Chinook (280 kept and 47 released) and 111 winter steelhead (24 kept and 87 released) from 5,598 angler trips. Upriver spring Chinook comprised 95% of the February catch, and the majority were large, five-year old fish.

Effort increased during early March when the river opened above the I-5 Bridge, but catches were sporadic as the Columbia remained high and cold and lower river tributaries were often turbid. Effort remained the highest in the Portland-Vancouver metropolitan area above the confluence of the Willamette where the water conditions were more consistent. The total catch in March was 4,448 adult spring Chinook (3,349 kept and 1,099 released) and 855 winter steelhead (458 kept and 397 released) from 59,971 angler trips. Based on VSI sampling, the March catch consisted of 83% upriver spring Chinook.

Water conditions remained high and cold, and catches were only about 350 per day during April 1-4 when the river closed as scheduled. The total spring Chinook catch through April 4 was estimated at 5,843 fish (4,511 kept and 1,332 released) with a total of 3,819 upriver fish (kept plus release mortality). The states held a Joint State hearing on April 6 to review catch and passage information for upriver spring Chinook and decided to extend the sport fishery for eight days during April 8-15. Catches remained relatively low (1,732 projected handle) during this time as angling conditions deteriorated further with increased flow and turbidity from the Snake River, and the states held another hearing on April 14 and extended the fishery for four additional days during April 16-19. Angling conditions remained challenging and effort and catches were light; however, the states did not consider any further extension of the fishery due to concern about low passage of spring Chinook at Bonneville Dam. The total catch during April 1-4 and

April 8-19 was 4,954 adult spring Chinook (4,026 kept and 928 released), 102 adipose fin-clipped spring Chinook jacks (kept), and 764 steelhead (583 kept and 181 released) from 48,962 angler trips. The total spring Chinook catch through April 19 was 9,729 fish (7,655 kept and 2,074 released) of which 5,849 were upriver fish (kept plus release mortality), or 75% of the pre-update guideline. Through April 19, a total of 1,803 adult spring Chinook had passed Bonneville Dam.

Chinook passage at Bonneville Dam increased markedly during late April and early May, and the TAC upgraded the upriver run size to 210,000 on May 11. The states held a hearing on May 13 to consider reopening the recreational fishery below Bonneville Dam. At a run size of 210,000 upriver spring Chinook, about 3,800 upriver fish (kept plus release mortality) were available to the recreational fishery below Bonneville Dam, and the states reopened the fishery effective May 15-June 15 from Tongue Point to Beacon Rock, including the Oregon and Washington banks between Beacon Rock and Bonneville Dam. The states also opened the retention of summer steelhead and sockeye in conjunction with the spring Chinook fishery. During this time, flow had increased to over 500 kcfs in response to snowmelt and spilling at dams on the Columbia and Snake Rivers. As a result, boat angler effort was light during the reopening of the fishery, and bank anglers made the majority of the catch, which contained a high proportion of jacks. On May 25, the states met again and extended the boat deadline upstream to Bonneville Dam effective May 27-June 15. The final catch during May 15-June 15 was 5,119 adult spring Chinook (4,039 kept and 1,080 released), 5,440 adipose fin-clipped jacks (kept), 2,667 summer steelhead (2,330 kept and 337 released), and 170 sockeye (134 kept and 36 released) from 40,364 trips. Bank anglers made the majority of the catch of all fish species during May in June.

The final catch in the recreational fishery during February 1 through June 15, 2011 was 14,848 adult spring Chinook (11,694 hatchery Chinook kept and 3,154 unclipped fish released), 5,542 adipose fin-clipped spring Chinook jacks (kept), and 4,397 steelhead (3,395 adipose fin-clipped hatchery fish kept and 1,002 unclipped fish released) from 154,895 angler trips. The upriver spring Chinook catch was 11,889 adult fish (9,241 kept and 2,649 released) with 9,506 kept catch plus release mortalities.

2011 Zone 6 (Bonneville Dam to McNary Dam) Spring Chinook Recreational Fishery

Following Commission guidance, 25% of the recreational ESA impact allocation was dedicated to fisheries upstream of Bonneville Dam, including areas upstream of McNary Dam and fisheries in the Snake River. A total of 0.091% ESA impacts were set aside specifically for the Zone 6 recreational fishery for use prior to a run size update, which translated to around 1,000 Chinook (kept + release mortalities). The fishery opened under mark-selective regulations on March 16 and was scheduled to continue through April 24 from the Tower Island powerlines upstream to the Oregon Washington border, and along the Oregon and Washington banks between Bonneville Dam and Tower Island. Catch during March was poor, in reflection of the low passage counts of Chinook observed at Bonneville Dam. Catch rates did not improve much in April, and it became clear the fishery would not reach the harvest objective by the scheduled closure date. The fishery was extended prior to a run size update which allowed for additional angling opportunity through May 1 (six additional days). Chinook catch through May 1 was low, totaling around 400 Chinook. With 600 Chinook remaining on the pre-update guideline, the

States re-opened the fishery during May 7-10 (four additional days). Catch rates during this opener were very high, estimated at 0.61, and kept catch averaged 400 fish per day. Catch through May 10 was estimated at 2,200 kept (600 released) Chinook from 6,800 angler trips.

TAC provided an official run update on May 9, which lifted the 30% run buffer on non-Indian fisheries. ESA impacts allocated to the Zone 6 sport fishery now totaled 0.114%, which allowed for a total catch of around 1,600 fish. This left no room for additional harvest, so the fishery remained closed. Once Chinook abundance had decreased and the lower river sport fishery was expected to have impacts remaining (based on the current in season run size estimate of 213,400 upriver spring Chinook) the fishery re-opened May 28 and was initially scheduled to close June 3. The fishery was extended through June 15, as catch was modest. Catch estimates for the season include 2,300 Chinook kept and 700 released (Table 23).

2011 Spring Chinook Fisheries Upstream of McNary Dam

A total of 0.137% ESA impacts from the recreational allocation were set aside specifically for recreational fisheries upstream of McNary Dam occurring prior to a run size update. Fisheries conducted upstream of McNary Dam may include Snake River and Ringold recreational fisheries and Wanapum tribal fisheries. Once an official run size update was available, the run buffer was lifted and allocated impacts increased to 0.171. Based on the final 2011 upriver run size and the estimated handle of upriver spring Chinook in these fisheries, the resulting ESA impact rate totaled 0.144% compared to a final guideline of 0.180%.

Snake River Recreational Fisheries

Mark-selective recreational fisheries were conducted in three areas (~31 miles) on the Snake River. Based on preseason run size forecasts and ESA impact allocations, an estimated 600 hatchery fish (and 22 release mortalities) were available for harvest in these areas. Available harvest would be adjusted as in-season run size estimates were available and impact buffers removed. The Ice Harbor fishery opened on April 20 and the Little Goose and Clarkston fisheries opened on April 25. Each section was scheduled to remain open through May 31. Effort during the first two weeks of the Snake River spring Chinook fisheries was very low, as few spring Chinook had entered the river. Around May 1 catch rates began to improve. Once Chinook started moving into the Snake River, catch escalated rapidly as a result of high effort and angler success. TAC officially updated the upriver spring Chinook run on May 9, estimating the return would meet the preseason forecast of 198,400 fish (which freed-up ESA impacts previously set aside), and then upgraded the run to 210,000 fish on May 11. Even with additional ESA impacts now available along with the run upgrade, harvest levels were greater than those allocated to the fishery. The Snake River fisheries closed on May 14 near Ice Harbor and the Little Goose and Clarkston fisheries closed May 16. TAC continued to provide weekly run size estimates, and on May 23 upgraded the run size to 213,400 spring Chinook. In response, the Little Goose and Clarkston fisheries reopened for six days from 28 May to 2 June. Fishing at Little Goose during the second season was very good with catch rates reaching 3.5 hrs per fish kept. Fishing effort and success in the Clarkston area fishery was low during both fishing periods. The Snake River fisheries totaled 60,067 hours of angler effort (9,093 angler days). Total catch consisted of 1,912 adult spring Chinook kept and 356 unmarked adults released (Table 23).

Ringold Hatchery Recreational Fishery

In addition to the fisheries in the Snake River, a recreational fishery occurred on the mainstem Columbia River in the area of Ringold Hatchery for adipose fin-clipped hatchery Chinook for the fourth consecutive year. As with past fisheries, boat angling was prohibited, and bank angling was restricted to the hatchery side of the river only. This fishery opened under permanent regulations on May 1 and was scheduled to remain open through June 30. The fishery closed at 9 PM May 20, citing no returns to the hatchery trap and minimal sport catch and effort. The 2011 season likely marked the final year for the Ringold Hatchery fishery since production of spring Chinook has been discontinued (brood year 2006) at the Ringold facility, and only a few (Age-5) fish were expected to return. Harvest included nine Chinook kept and six released.

Wanapum Tribal Fishery

The Wanapum Tribe did not conduct a C&S fishery in the mainstem Columbia River downstream of Priest Rapids Dam during the spring of 2011.

Lower Columbia River Tributary Spring Chinook Fisheries

Tributary spring Chinook recreational fisheries downstream of Bonneville Dam have been mark-selective since 2001. The 2011 preseason forecast for the Cowlitz River allowed for a daily bag limit of two-adult Chinook throughout the season, while anglers on the Kalama and Lewis rivers were restricted to a one adult daily limit beginning January 1. The Cowlitz River remained open through the entire spring Chinook season (January 1 – July 31). Under emergency actions due to low hatchery returns and poor recreational catches, the Kalama and Lewis rivers were closed to Chinook retention from May 28 –July 31.

Preliminary hatchery adult spring Chinook recreational catch estimates for Washington lower Columbia River tributaries are based upon creel sampling and escapement data until Catch Record Card (CRC) data is available. An estimated 1,200 hatchery adult spring Chinook were harvested in Washington lower Columbia River tributaries in 2011, including 750 from the Cowlitz, 150 from the Kalama and 300 from the Lewis. The total hatchery adult spring Chinook sport catch was less than one-third of the 10-year average of 4,100 fish and the overall harvest rate of 20% was less than the recent 10-year average of 25% (Table 25).

The recreational fishery for spring Chinook on the Sandy River is not sampled for catch and effort during the season; therefore, catch is estimated from angler-returned catch records. Final catch estimates for 2011 are not available at this time due to normal delays in receiving and processing this information. Based on average catch rates from 2006-2010, the 2011 total catch in the Sandy is estimated to be 666 fish (Table 25).

In 2011, the lower Willamette River (downstream of Willamette Falls, including Multnomah Channel and the Clackamas River downstream of the Highway 99 Bridge) opened for retention of spring Chinook seven days per week effective January 1 with a two fish daily bag limit under permanent mark-selective (adipose fin-clip) regulations. No in-season modifications were made in 2011. Fishing conditions in the lower Willamette were exceptional for long periods of time, and as a result, the lower Willamette River recreational catch was high, totaling 26,234 spring Chinook (22,364 kept and 3,870 released). The 2011 catch was almost three times higher than the 2006-2010 average of 8,940 (Table 3). Willamette River anglers harvested 35% of the

available hatchery return. Angler effort (123,519 trips) was 14% higher than in 2010 (108,024 trips) and was 83% higher than the average number of trips from 2006 to 2010 (68,000 trips). The kept catch rate (0.18 Chinook per angler day) was the second highest on record after 2010 (0.21 Chinook per angler day).

The upper Willamette River (upstream of Willamette Falls) spring Chinook recreational fishery opened on January 1, seven days per week, with a two fish daily bag limit under permanent mark-selective regulations. No in-season modifications were made in 2011. Estimates of the 2011 recreational catch for the fishery upstream of Willamette Falls are not yet available because of normal delays in receiving and processing angler catch records. The 1980-2010 recreational catch upstream of Willamette Falls (mainstem and tributaries combined) has ranged from 366 to 13,277 per year, and has represented from 6-26% of the total fish passing Willamette Falls (Table 4).

The lower Clackamas River spring Chinook recreational fishery opened on January 1, seven days per week, with a two fish daily bag limit under permanent mark-selective regulations. No in-season modifications were made in 2011. Anglers caught an estimated 657 spring Chinook (526 kept and 131 released) from 7,518 angler trips. The kept catch was similar to the recent 5-year average of 564 fish. The catch rate of 0.09 spring Chinook per angler day was similar to the recent 10-year average.

Based on mark-recapture studies conducted in the Willamette River during 1999-2001, the post-release mortality for Chinook in the Willamette River and tributaries is estimated to be 12.2%.

Past Summer Commercial Salmon Seasons

Historical summer commercial seasons harvested summer Chinook, sockeye, steelhead, and shad. In 2004, two 12-hour fishing periods occurred downstream of Beacon Rock targeting sockeye but also allowed the retention of Chinook. Prior to 2005, no commercial summer Chinook season had occurred downstream of Bonneville Dam since a two-day season in 1964. The 2005 season consisted of six 10-hour fishing periods between June 23 and July 26 in Zones 1-5 with an 8-inch minimum mesh size requirement. The 2006 season consisted of thirteen 10-12 hour fishing periods between June 26 and July 31, with the same area and gear requirements used in 2005, including a white sturgeon landing limit. Since 2007, the number of fishing periods has been two or three per season. An 8-inch minimum mesh restriction and a weekly white sturgeon landing limit have been in place for Chinook-directed fisheries, which typically occurred in Zones 1-5. A sockeye directed fishery was conducted in 2008 with a 4 ½ inch maximum mesh size in area 2S. Sockeye sales have been allowed in years where escapement goals are expected to be met and ESA impacts are available. Ex-vessel prices in 2010 (per pound landed) averaged \$2.53 for Chinook, for \$3.45 sockeye and \$2.16 for white sturgeon.

2011 Summer Commercial Salmon Season

Based on the preseason forecast and management agreements, 5,675 summer Chinook were available for commercial harvest in 2011. In addition, a total of 700 white sturgeon were available for commercial harvest during the summer season. Two fishing periods were anticipated during the six-week summer season. Regulations included an 8-inch minimum mesh size, tributary mouth sanctuaries to protect ESA-listed steelhead, and a limit of five white

sturgeon per week. Sockeye sales were allowed since ESA impacts were available to cover the minimal catch expected with the gear restriction.

Summer Chinook fishing periods were conducted on the evenings of June 16 and June 22. Both were 8-hours (9 PM – 5 AM) long and occurred in Zones 1-5. Catch from these two fishing periods was roughly 5,000 Chinook, 80 sockeye, and 500 white sturgeon (Table 19). The number of deliveries ranged from 109-124 per period. Ex-vessel prices (per pound landed) averaged \$2.42 for Chinook and \$2.52 for white sturgeon.

On July 5, TAC downgraded the run size forecast to 77,000 fish, and on July 11 refined the run size estimate to 80,000 fish. The downgrade led to a reduction of available summer Chinook for harvest and no additional commercial summer fishing periods were set. In 2011 the Wanapum tribal fishery harvested 55 upper Columbia summer Chinook.

Past Columbia River Summer Steelhead and Summer Chinook Recreational Fisheries

The recreational summer steelhead fishery has been mark-selective since the mid-1980s. Since then, the only closures of the summer steelhead fishery have risen from the need to protect upriver spring Chinook. Under permanent regulations, the mainstem Columbia River is open to the retention of hatchery steelhead beginning May 16 from the Tongue Point/Rocky Point line upstream to the I-5 Bridge, and beginning June 16 from the I-5 Bridge upstream to the Highway 395 Bridge at Pasco, Washington. The steelhead fishery is closed under permanent regulations during April 1-May 15 between Tongue Point and the I-5 Bridge and April 1-June 15 upstream of I-5, when spring Chinook abundance is high. When spring Chinook fisheries are open during these timeframes, the retention of adipose fin-clipped steelhead is allowed in conjunction with those opportunities. Conversely, when too few upriver spring Chinook impacts remain to allow incidental hooking mortality of Chinook during the target steelhead fishery, the steelhead fishery is delayed (as late as June 16), as was the case in 2005, 2008, and 2009. The retention of sockeye in all Columbia River recreational fisheries is prohibited under permanent regulations. The states may allow sockeye retention in the recreational fishery when the run size exceeds 75,000 fish at Bonneville Dam as long as impacts remain less than 1% of the run.

The Columbia River recreational summer Chinook fishery was closed to retention of adult Chinook under permanent regulations during June 1-July 31 every year during 1974-2001. In 2002, the states opened a recreational summer Chinook fishery between Tongue Point and Bonneville Dam during June 28-July 31 for the first time since 1973. A high mark rate of hatchery summer Chinook allowed the states to adopt mark-selective fishery regulations and provide an opportunity to harvest abundant hatchery Chinook while limiting the impact to ESA-listed Snake River wild summer Chinook to less than 1%. In July 2002, the states also opened the area from Bonneville Dam upstream to the Oregon/Washington border to the retention of adipose fin-clipped summer Chinook.

Mark-selective recreational fisheries for summer Chinook also occurred in 2003 and 2004, under the same impact limit of 1% on wild Snake River summer Chinook allowed in the Interim Management Agreement. In these years, the states adopted mark-selective summer Chinook fisheries for the Columbia River from Tongue Point upstream to McNary Dam during June 16-July 31 to match regulations for the summer steelhead season upstream of the I-5 Bridge.

Beginning in 2005, the management period for summer Chinook at or below of Bonneville Dam was reclassified from June 1-July 31 to June 16-July 31, because new information indicated that the June 1-June 15 portion of the summer run typically contained significant numbers of listed Snake River spring/summer Chinook, and the later portion of the run was mostly upper Columbia summer Chinook, which are not listed under the ESA. This reclassification allowed the states to maintain protections for listed Snake River spring/summer Chinook, while allowing for more substantial fisheries on the upper Columbia summer Chinook run. On June 2, 2005, the states adopted a recreational summer Chinook fishery for the Columbia River from Tongue Point upstream to McNary Dam during June 16-July 31 with a daily bag limit of two adipose fin-clipped summer Chinook. While mark-selective regulations were no longer required during the summer Chinook management period, the states initially adopted mark-selective regulations for the Columbia sport fishery due to concern that the summer run might follow the pattern shown by the 2005 spring Chinook run, which returned at less than half of the preseason forecast. By late June, the summer Chinook run size forecast appeared to be on target, and the states allowed the retention of both clipped and unclipped summer Chinook during July 1-31, 2005.

Non-selective summer Chinook fisheries also occurred during 2006-2009. The 2006 fishery was open during June 16-July 31 and produced a catch of nearly 5,000 adult Chinook, which was the highest on record. Summer Chinook run sizes during 2007-2009 were not large enough to allow full, non-selective recreational fisheries, and seasons were shortened to an average of twelve days during those years with average annual catches of 2,200 fish. In an effort to extend recreational fishing opportunity for summer Chinook, the states adopted mark selective (adipose fin-clipped) regulations for the 2010 fishery. The 2010 fishery was open the entire summer season (June 16-July 31). Since 2010, a mortality rate of 15% has been applied for adult summer Chinook released. Also beginning in 2010, the lower boundary of the recreational fishery was extended from Tongue Point downstream to the Astoria-Megler Bridge.

2011 Columbia River Summer Steelhead and Summer Chinook Recreational Fisheries

The 2011 summer steelhead fishery opened May 15 between Tongue Point and Beacon Rock including the Oregon and Washington banks between Beacon Rock and Bonneville Dam in conjunction with reopening the recreational spring Chinook fishery. The retention of sockeye was also opened on May 15 based on the preseason forecast for a run of 161,000 fish. Effective May 27, the fishery was open between Tongue Point and Bonneville Dam. The 2011 recreational summer Chinook fishery was scheduled to be open for adipose fin-clipped Chinook during June 16-July 31 from the Astoria-Megler Bridge upstream to Bonneville Dam with a daily limit of two adult hatchery fish; however, the catch exceeded expectations and the summer Chinook run was less than forecast, so the states closed the fishery effective July 18, 2011.

Downstream from Bonneville Dam during May 15-June 15, spring Chinook anglers made 40,364 trips and caught 5,119 adult spring Chinook (4,039 kept and 1,080 released), 5,440 jacks kept, 2,667 summer steelhead (2,330 kept and 337 released), and 170 sockeye (134 kept and 36 released). During June 16-July 17, summer Chinook anglers made 60,966 trips and caught 7,653 adult summer Chinook (5,160 adipose fin-clipped fish kept and 2,493 unclipped fish released) and 2,307 adipose fin-clipped Chinook jacks (kept). Anglers released another 278 adult summer Chinook during July 18-31 and kept 123 adipose fin-clipped summer Chinook jacks. The

summer steelhead catch during June 16-July 31 was 18,596 summer steelhead (10,590 adipose fin-clipped fish kept and 8,006 unclipped fish released), and the sockeye catch was 1,637 fish (1,293 kept and 344 released). The summer Chinook handle and kept catch were the highest on record (1969). In addition, the summer steelhead handle, kept catch, sockeye handle and kept catch were also the highest on record. Bank anglers benefited from high Columbia River flows during the spring and early summer of 2011 and caught the majority of all the Chinook, sockeye, and steelhead landed during May-July.

Past Select Area Commercial Fisheries

Spring Chinook commercial fisheries in the Select Areas were initiated in Youngs Bay in 1992. Initially, Youngs Bay fisheries were restricted to the spring season, with open periods occurring primarily from late April through early June. Through 1996, fishing time was limited to less than 15 days annually and landings ranged from 155–851 spring Chinook. As production increased, winter and summer seasons were added in an attempt to harvest all returning hatchery adults. Winter seasons during late February through early/mid-March were initiated in 1998 to harvest early returning Age-5 spring Chinook. Starting in 2006, the Youngs Bay winter season has been extended into the mid-March through early-April timeframe. These extended-season fisheries have been constrained to locations in upstream areas of Youngs Bay to reduce harvest of non-local Chinook that are known to “dip in” to lower portions of Youngs Bay in response to tidal fluctuations and river height/flow during this timeframe. Although need for close monitoring is increased during the extension period, adaptive management has provided for important additional opportunity. Beginning in 1999, summer seasons during mid-June through July have been adopted to provide harvest opportunity on late returning Age-4 spring Chinook and early returning SAB fall Chinook. Harvest of Chinook is variable and has ranged from 3,100–20,800 during the years 2000–2010 (excluding 2005). Table 6 lists Chinook harvests during winter, spring, and summer seasons for all Select Area sites since 1993.

Commercial fisheries for spring Chinook in Blind Slough began in 1998 with spring seasons only, until 2000 when the first winter season was established. Weeknight fishing periods have been consistently adopted to minimize interactions with recreational boaters. In most years, fishing periods have opened concurrent with the other Select Area sites to minimize congestion. The spring season fishing area was initially limited to Blind Slough but was expanded downstream to include the waters of Knappa Slough in 1999 as returns increased. Since 2006, the winter season has been expanded into the late-March/early-April timeframe with minimal increase in impacts to ESA-listed upriver stocks. A one-year trial summer season was adopted in Blind and Knappa sloughs in 1999 but resulted in a harvest of only three spring Chinook and no summer seasons have been adopted since. Annual winter/spring season landings have ranged from 60–3,500 Chinook since 1998.

Spring commercial fisheries in Tongue Point were initiated in 1998 and continued through 2003, with trial winter seasons occurring in 2000 and 2001. In most years, seasons and open hours were consistent with Blind/Knappa Slough and Youngs Bay. The spring season fishing area was expanded to include the South Channel in 1999, to reduce congestion during peak fishing periods. Annual Chinook harvest increased dramatically with landings peaking in 2002, when 3,003 fish were landed. High abundance of upriver spring Chinook in this area during the 2003

spring fishery resulted in the cancellation of the season after one fishing period. Production-level releases of spring Chinook at Tongue Point were discontinued in 2000 (Table 5) due to chronic high stray rates of returning adults. Experimental releases have been maintained since 2003 at the relocated MERTS net-pen site and increased releases are scheduled to begin in 2012. Recently, test fishing and full-fleet commercial test fisheries have been conducted in Tongue Point/South Channel and staff is optimistic that spring season fisheries will continue to be feasible.

In Deep River, winter seasons have been adopted annually since 2006 and spring fisheries have been conducted since 2003. Total harvest has ranged from 28 to 415 fish annually (Table 5).

2011 Youngs Bay Winter/Spring/Summer Gillnet Season

Due to the relatively few allowable upriver spring Chinook impacts allocated to Select Area commercial fisheries in 2011 a conservative approach was taken during the development of winter and spring fisheries. No fishing periods during the mid-March through early-April were recommended or adopted for Youngs Bay. Also the first two periods adopted for the spring season were planned to be shorter than usual – six hours each.

The 2011 winter season consisted of twelve 18-hour fishing periods between February 13 and March 11. Two additional 6-hour periods were set for March 14 and 16 but were restricted to waters upstream of the old Youngs Bay Bridge. This strategy of constricting the fishery by area (with in-season flexibility) when non-local stocks may be most abundant appears to be an effective alternative to closing the fishery entirely during this timeframe. The 7-inch minimum mesh size regulation was in effect for all winter fishing periods. As is the case for all commercial fisheries in Youngs Bay, maximum net length was restricted to 250 fathoms with no more than two pounds of leadline per fathom of net, except in the area upstream of the mouth of the Walluski River. The fourteen fishing periods resulted in landings of 83 spring Chinook which is the fifth lowest catch and less than 25% of the average harvest (386) observed since winter seasons began in 1998. Additionally, 12 white sturgeon were landed in the Youngs Bay winter season. A two white sturgeon (per vessel per week) landing limit was in place during the winter, spring, and summer seasons for all Select Areas.

The 2011 spring season in Youngs Bay was scheduled to begin with two 6-hour periods on April 18 and April 21 and continue with five 18-hour periods from April 25–May 6 followed by weekly four-day periods from May 9 through June 10. Higher than expected catch of upriver spring Chinook during the opening periods in all of the Select Area sites, likely influenced by unusually high springtime flows in the Columbia River and delayed timing of the upriver run, prompted significant in-season modification of the spring commercial fishery in Youngs Bay. The 6-hour period on April 21 and the 18-hour period on April 25 were rescinded and two other 18-hour periods on April 28 and May 1 were reduced to five hours each. Fisheries resumed as originally adopted starting on May 3. Retention of non-adipose fin-clipped spring Chinook in Youngs Bay was disallowed during two mainstem commercial fishing periods on May 12 and 18. The 2011 Youngs Bay spring fishery landed 6,829 Chinook and 74 white sturgeon. The Chinook harvest was the second highest on record and 31% higher than the recent ten-year average Chinook harvest (5,225). Throughout the spring season, a 9¾-inch maximum mesh size restriction was in effect.

The 2011 summer season in Youngs Bay was open 6 AM Wednesday through 6 AM Friday weekly from June 15–July 29 with a 9¾-inch maximum mesh size restriction in effect. The Youngs Bay summer fishery landed 1,820 Chinook, more than three times the recent ten-year (2001–2010) average of 562 Chinook and continued the trend of increased annual harvest. The high landings were driven by an exceptional return of early returning SABs fall Chinook destined for Youngs Bay (1,062 landed) and good abundance of Age-4 adults from the net pen production. Sturgeon catch for the Youngs Bay summer fishery was 27 fish. Retention of sturgeon in all Select Area commercial fisheries was closed effective June 27 after the annual catch guideline of 200 fish had been met.

The combined Youngs Bay winter/spring/summer fishery harvest totaled 8,732 Chinook. Stock composition is based on VSI and CWT analysis with a total of 3,074 Chinook (35% of the Chinook catch) examined for fin marks and CWTs, and 182 CWTs collected. The 2011 combined winter/spring/summer catch was comprised of 75.8% spring Chinook and 12.2% SAB fall Chinook destined for Select Area sites, 2.0% upriver spring Chinook, 0.4% upper Columbia summer Chinook (after June 15), 8.4% Willamette River spring Chinook, and 1.3% spring Chinook destined for the Cowlitz, Kalama, or Lewis rivers (CKL). Based on scale readings, which were verified with CWTs, the age composition of the catch was 0% Age-2, 8% Age-3 (primarily SABs), 59% Age-4, 32% Age-5, and 1% Age-6 fish.

2011 Blind Slough/Knappa Slough Winter/Spring Gillnet Season

Similar to 2000–2010, a winter gillnet season with a 7-inch minimum mesh restriction was adopted for Blind Slough (excluding Knappa Slough) in 2011. The adopted season consisted of thirteen 12-hour periods (7 PM – 7 AM) on Wednesday and Sunday nights during February 13–April 4 (except for two Wednesdays: March 23 and 30). The five periods (March 13–April 4) held after the normal end of the winter season represent ongoing efforts to apply adaptive management techniques to allow prudent expansion of the fishery and also to meet the goal of significant and stable opportunity in 2011. During the winter fishing periods, a total of 124 spring Chinook were landed, which is fourth best since 2000 and 24% above the recent ten-year (2001–2010) average Chinook harvest (100). As described for Youngs Bay, a two white sturgeon weekly landing limit was in place for the winter and spring seasons, six sturgeon were landed.

During the spring fishery, the Blind Slough Select Area site expanded to include Knappa Slough down to the east end of Minaker Island, to increase fishing area and maximize the opportunity to harvest local Select Area-origin spring Chinook. The combination of unusually high flows in the mainstem Columbia River and the delayed timing of the upriver spring Chinook run likely contributed to higher than expected catch of upriver spring Chinook in the combined Select Area commercial harvest during the spring season openers. As a result, two Blind Slough/Knappa Slough fishing periods in late April were rescinded. Fisheries resumed as originally adopted starting on April 28. The one exception was a rescheduling of the May 12 fishing period to one day earlier to accommodate a mainstem commercial fishing period. For all periods in May and June, the lower deadline in Knappa Slough was extended further downstream to the western end of Minaker Island. This strategy of area expansion has been successfully employed for several years. A 9¾-inch maximum mesh size restriction was adopted to target Chinook. For both the

winter and spring fisheries in Blind/Knappa sloughs, net length was limited to 100-fathoms with no weight restrictions on the leadline, including allowed use of additional weights and anchors. The 2011 spring fishery consisted of fourteen 12-hour (7 PM – 7 AM) fishing periods on Thursday and Monday nights between April 18 and June 10 (except the one Thursday period in May which was rescheduled to Wednesday). The restricted 2011 Blind Slough/Knappa Slough spring fishery landed 1,486 spring Chinook and 23 white sturgeon. The Chinook harvest was the sixth highest on record and was less than the recent ten-year average (1,700).

The combined Blind Slough/Knappa Slough winter and spring fishery harvest totaled 1,610 Chinook. Stock composition is based on VSI and CWT analysis. A total of 1,034 Chinook (64% of the combined catch) were examined for fin marks and CWTs and 77 CWTs were collected. The catch was comprised of 87.8% spring Chinook destined for Select Area sites, 2.5% upriver spring Chinook, 8.6% Willamette River spring Chinook, and 1.1% Sandy River-origin spring Chinook. Based on scale readings, which were verified with CWTs, the age composition of the catch was 0% Age-3, 48% Age-4, 49% Age-5, and 3% Age-6.

2011 Tongue Point/South Channel Spring Gillnet Full-Fleet Test Fishery.

Efforts to reinstate a spring Chinook fishery in the Tongue Point/South Channel site continued in 2011. At the February 8 hearing, staff recommended a full-fleet experimental test fishery for the spring season. As in past years, test fishing activities were planned to precede the first scheduled period. Results of test fishing would provide data on presence of non-local stocks during this timeframe and would be used to evaluate the risk of proceeding with the full-fleet fishery. The Compact adopted a full-fleet commercial test fishery in the Tongue Point/South Channel site for Monday and Thursday nights (7 PM – 7 AM) starting on April 25 and ending on June 10. The initial period was scheduled for the week following the spring season opener in all of the other sites to reduce the likelihood of encountering ESA-listed upriver spring Chinook. A 9¾-inch maximum mesh restriction was in place. In Tongue Point, nets were restricted to a maximum length of 250 fathoms with standard weight restrictions while nets in South Channel were limited to a maximum length of 100 fathoms and no weight restrictions were in place. Additionally, for the first four weeks all catch had to be sampled by ODFW staff before being transported out of the fishing area; a sampling station was set up at the MERTS dock for this purpose. Beginning May 23 and continuing through the end of the spring season, fishers were required to call ODFW's sampling staff with details on catch and time/location of sale to facilitate sampling efforts.

One commercial fisher was contracted to make four drifts per day for a maximum of four days, encompassing the timeframe just prior to the season openers in the other sites up to the first scheduled period in Tongue Point/South Channel. All test fishing activities were conducted using live-capture methods with an ODFW employee on-board to collect data and direct activities. A total of 16 drifts using 4¼-inch tangle nets were made on April 21, 25, and 26 capturing 14 spring Chinook (10 identified via VSI as lower river stock and 4 as upriver) and one steelhead. Ultimately, the initial full-fleet experimental commercial fishery period on April 25 was rescinded. However, this was due to higher than expected catch of upriver spring Chinook during the opening periods in the other Select Area sites and not necessarily a result of the test fishing data. The Tongue Point/South Channel fishery commenced on April 28 and proceeded as

scheduled for the remainder of the spring season (with the exception of rescheduling the May 12 fishing period to one day earlier to accommodate a mainstem commercial fishing period). The catch sampling requirements were modified slightly in-season – after May 10 the sampling station was discontinued and the requirement for fishers to call in began (earlier than originally planned).

The 2011 full-fleet experimental test fishery in Tongue Point/South Channel consisted of thirteen 12-hour fishing periods and landings totaled 659 spring Chinook and 54 white sturgeon. Stock composition was based on VSI and CWT analysis with a total of 528 Chinook (80% of the catch) examined for fin marks and CWTs, and 62 CWTs being collected. The catch was comprised of 65.0% spring Chinook destined for Select Area sites, 12.1% upriver spring Chinook, 22.3% Willamette River spring Chinook and <1% CKL-origin spring Chinook. Based on scale readings, verified with CWTs, the age composition of the catch was 5% Age-3, 54% Age-4, 40% Age-5, and 0% Age-6 fish.

2011 Deep River Winter/Spring Gillnet Season

The Deep River winter season was expanded to 13 fishing periods of 12-hour duration occurring on Sunday and Wednesday nights (7 PM–7AM) beginning February 13 and ending April 4 (Thursday). The first five weeks of the fishery (through March 17) included both Sunday and Wednesday night fishing periods, followed by single night periods (Sunday night to Monday morning) the last three weeks. The last two of those fishing periods (March 27-28 and April 3-4) were conducted in a reduced fishing area that extended from the Oneida Road boat ramp upstream to the Highway 4 Bridge. This excluded the lower half mile of the usual Deep River fishing area with the intent to reduce potential harvest of upriver Chinook which were expected to be most abundant in the Select Area fisheries in those weeks based on data from past seasons.

A spring season consisting of 16 twelve-hour fishing periods on Sunday and Wednesday nights (7 PM–7 AM) between April 17 and June 9 was adopted at the February 8, 2011 Compact hearing. The fishery began as scheduled on April 17, but the fishing period of April 24-25 was rescinded due to in season concerns of the combined Select Area fisheries reaching the upriver spring Chinook impact allocation. Starting the fourth week in May, fishing periods were rescheduled to Monday and Thursday nights for the final three weeks of the season, concluding on June 10. The final spring season thus consisted of 15 fishing periods in Deep River in 2011.

The fishing area during most periods was restricted to the area from markers at navigation marker #16 upstream to the Highway 4 Bridge. The only exception was the two week period of reduced fishing area (excluding the lower half mile of Deep River) on the March 27-28 and April 3-4 fishing periods, as described under the winter season description above. Gear regulations included a 100-fathom maximum net length, a 7-inch minimum mesh size for the winter season and a 9¾-inch maximum mesh size for the spring season. The use of additional weights or anchors was allowed. As has been the case since the inception of the Deep River spring fishery in 2003, fishers are required to submit all landed catch for biological sampling before being transported out of the fishing area. A WDFW sampling station was set up in the area for this purpose. Consistent with the other Select Areas, weekly white sturgeon landing limits were in place for the winter and spring season.

A total of 19 Chinook and 4 white sturgeon were landed during the winter season, and 81 Chinook and zero white sturgeon were landed during the spring season. The harvest of 100 total Chinook for Deep River in the combined winter and spring seasons was the fifth highest but was the lowest in the last three years, following landings of 122 in 2009 and 415 in 2010.

The Deep River winter/spring fishery stock composition was based on VSI and CWT analysis with a total of 98 Chinook (98% of the catch) examined for fin marks and CWTs, and 13 CWTs being collected. The catch was comprised of 62.0% spring Chinook destined for Select Area sites, 12.0% upriver spring Chinook, 25.0% Willamette River spring Chinook, and 1.0% spring Chinook destined for the Cowlitz, Kalama, or Lewis rivers. Based on scale readings, verified with CWTs, the age composition of the catch was 0% Age-3, 45% Age-4, 55% Age-5, and 0% Age-6.

Select Area Recreational Fisheries

Beginning in 1998, year-round recreational seasons were opened for Chinook and adipose fin-clipped coho in Youngs Bay, Tongue Point, and Blind Slough. Similar regulations were adopted for South Channel and Knappa Slough in 1999 and for Deep River in 2000. In 2003, regulations were adopted to allow year-round angling for adipose fin-clipped steelhead in all Oregon Select Areas. To maintain consistency with mainstem fisheries, mark-selective regulations were permanently adopted for Select Area spring Chinook recreational fisheries effective January 1, 2004. Also in 2004, classification of Tongue Point and South Channel as Select Area recreational fishing sites was rescinded due to discontinuation of production-level spring Chinook releases and because these areas are already open to angling concurrent with the mainstem Columbia River. Brief springtime recreational fishing closures were enacted in the Select Areas during 2004, 2005, and 2010 when the potential for additional impacts to upriver spring Chinook also forced closure of Select Area commercial fisheries.

From 2001 through 2004 and again in 2010 and 2011, effort and harvest in Select Area recreational fisheries increased, due to improved adult returns which resulted in higher quality fishing opportunities. The recreational harvest peaked in 2010 with an estimated 1,250 spring Chinook caught. The 2011 estimate of 754 harvested spring Chinook is the fourth highest catch estimate for recreational fisheries in the Select Areas since 1998. Among the Select Areas, the most popular and productive spring Chinook fisheries have occurred in Blind Slough/Knappa Slough and Youngs Bay during March–May. Based on limited creel survey data, the estimated average annual recreational spring Chinook harvest in Youngs Bay from 1998–2007 was 52 fish per year (range 9–121) with success usually dictated by water conditions. In Blind Slough/Knappa Slough an average of 248 spring Chinook were caught in the years 2000–2007. During the same period, recreational harvest in nearby Gnat and Big creeks ranged from 0–700 fish annually. Decreased adult returns, especially to Blind Slough/Knappa Slough, had resulted in less than average catch and effort during 2005–2009. In 2011, with the third highest return of Select Area-produced spring Chinook, recreational harvest was above average in the Select Areas and adjacent tributaries. Due to limited resources to carry out a statistical creel program, formal estimates of recreational catch are not possible for the 2008–2010 Select Area spring Chinook fisheries. However, in 2011 an estimate was made using expanded punch card estimates, trends

in the Select Area commercial fisheries and comparative statistics of years with limited creel information. Harvest is reported in Table 6.

2011 Commercial Shad Seasons

Under permanent regulations the lower Columbia River was open to commercial shad fishing in Area 2S (upstream of navigation aid #50 near Gary Island) from 3:00 p.m. to 10:00 p.m. daily, Monday through Friday (except on the observed Memorial Day holiday), from May 10 through June 20. The 2011 season was extended one additional week to provide additional harvest opportunity. Regulations for the Area 2S shad fishery since 1996 have included the following gear specifications designed to minimize the handle of salmonids: mesh size restriction of 5 $\frac{3}{8}$ to 6 $\frac{1}{4}$ -inches, ten-pound mesh breaking strength, and net not to exceed 40 meshes in depth or 150 fathoms in length. The shallower and shorter nets have proven to substantially reduce the handle of salmonids compared to gear used in shad fisheries prior to 1996. Only shad may be kept and sold, and all salmon, steelhead, walleye, and sturgeon are required to be released immediately. The 2011 fishery produced landings of 8,930 shad (approximately 24,100 pounds), which was improved over 2009-2010 landings but still the third lowest catch since 1977. The recent trend of low harvest is likely due to a relatively low market value for shad and declining shad returns.

The Washougal Reef commercial shad fishery was also open in 2011 from 8:00 PM-midnight on the same dates as the Area 2S fishery. No effort or landings were reported for this fishery.

As part of ongoing commercial gear evaluations initiated in 2009, ODFW issued two experimental gear permits in 2011 to evaluate the use of purse seine gear for targeting shad. Although high river flows hampered effort, approximately 6,700 shad were harvested during late May through mid-June.

2011 Non-Indian Impacts to ESA-Listed Stocks

The management intent for 2011 spring Chinook fisheries was conservation of Columbia River salmon and steelhead runs, to remain within the impact rates and catches of upriver stocks allowed in the MA and to reach the objectives outlined in Commission guidance. The 2011 impact limit for ESA-listed upriver spring Chinook in non-Indian Columbia River fisheries was 1.9%, based on the preseason forecast (and in season) , but based on the post season run size, a 2.0% impact rate was allowed. Although the final ESA impacts allowed for non-Indian fisheries ended up being 2.0%, fisheries were managed for 1.9% since the run size was right at the cusp of an impact increase, and the states continued to manage conservatively.

The final non-Indian impact rate was 1.45% for the Snake River ESU and 1.37% for the upper Columbia ESU. The recreational impact total was 0.79% (1.20% allocated) and the commercial impact total was 0.67% (0.70% allocated). Since non-Indian fisheries are managed to remain within both the allowable ESA limit and the catch-balance guidelines outlined in the 2008-2017 MA, fisheries are halted once either of the two constraints are met. In 2011 although the recreational fisheries were well within the allocated ESA allowance, the fishery was constrained by mortalities of upriver Chinook. The opposite was true for commercial fisheries, where the ESA impacts were met before the allowed upriver mortality cap was reached. When reviewing allowable and actual catch data for 2011, it is important to keep in mind that it was only after the

post-season run reconstruction that the ESA impact limit increased to 2.00%, and along with that increase came an increase in allowable catch. In season, fisheries were managed based on an estimated return of 210,000 to 217,000 which only allowed for an impact limit of 1.9% and the coinciding lower allowable catch.

2011 Non-Indian Fisheries - Comparison of Allowed and Actual ESA-impacts and catch (kept plus release mortalities) of adult upriver Spring Chinook.						
2011 Non-Indian Fishery	Post Season					
	(221.1K run size, 2.0% impact limit)					
	ESA Impact	Actual	% of Allowed	Allowed Catch	Actual	% of Allowed
Downstream of Bonneville Dam (LCR)	0.900	0.538	60	12,648	9,505	75
Bonneville Dam to OR/WA border	0.120	0.136	113	1,686	2,379	141
Uppr Col/Snake	0.180	0.113	63	1,012	1,957	193
Sport total (60% of total)	1.200	0.787	66	15,347	13,842	90
SAFE	0.150	0.133	89	333	304	91
Mainstem	0.550	0.536	97	6,494	3,511	54
Commercial total (35% of total)	0.700	0.669	96	6,827	3,815	56
NI Total	1.900	1.456	77	22,174	17,657	80
Commission unallocated (5% of total)	0.100					
ESA Impact	2.000	1.456				

Impacts to wild winter steelhead were minimal in 2011, as they have been for the past several years. Impacts total 0.3% from non-Indian mainstem fisheries, which is well within the 2.0% ESA impact rate limit. Total impacts to Snake River sockeye are estimated to be 0.9%, compared to the allowable impact rate of 1.0%. Impacts to wild Willamette River spring Chinook are reported separately by ODFW in an annual report submitted to NOAA Fisheries and were not available when this report was completed.

Summer Chinook fisheries operated under principles described in the Management Guidelines section of this report. The preseason allocation was for 27,136 fish for treaty Indian and non-Indian harvest. The actual run size of 80,574 changed the allocation to 23,189 for each. The preliminary non-Indian harvest for Columbia River fisheries is estimated to be 20,782, including 3,263 summer Chinook for non-tribal ocean harvest.

2011 Non-Treaty Summer Chinook Fisheries Summary¹			
Fishery	<u>Non-Indian Allocation</u>		<u>Actual</u>
	Pre-season	Post Season	Chinook Catch ²
PFMC Ocean Fisheries	3,263	3,263	3,263
<u>Below Priest Rapids</u>			
Recreational Below Bonneville	4,231	3,662	5,576
Commercial Below Bonneville	5,675	4,522	5,004
Recreational Bonn. to PRD	1,444	899	215
Below PRD Sum	11,350	9,043	10,795
<u>Above Priest Rapids</u>			
Wanapum Tribal	400	300	55
Colville Tribal	6,028	5,153	1,123
Recreational above PRD	6,096	5,380	5,546
Above PRD Sum	12,524	10,883	6,724
Non-Treaty Total	27,136	23,189	20,782

¹. All data preliminary

². Includes kept and release mortalities

Treaty Indian Fisheries

Treaty Indian harvest of spring Chinook primarily occurs in C&S fisheries except in years of high abundance, such as in 2000-2004 and 2008-2011, when commercial fisheries have been allowed. Steelhead and a few spring Chinook are incidentally harvested in the winter season sturgeon gillnet fishery, and limited incidental handling mortality could occur if the tribal shad trap-net or other experimental shad fishery is pursued.

Treaty Indian commercial and C&S fisheries, including dipnet and hook and line fisheries, are managed individually by the four Columbia River treaty tribes through regulations and permits. The tribes employ a creel based catch-monitoring system. The tribes have defined regulations concerning lawful gear, fishing area, notice restrictions, and other miscellaneous regulations concerning the tribal C&S and commercial fisheries. Tribal staffs monitor the fisheries and provide in-season accounting of catch and impacts. The tribes implement commercial spring Chinook fisheries depending on the run size and bring any commercial proposal before the Compact to approve purchase of harvested fish by non-Indians. Since 2004, the tribes have had directed commercial gillnet fisheries in the summer season targeting upper Columbia River summer Chinook. The tribes may also use some portion of their allowed sockeye harvest rate for commercial purposes. The tribes monitor and provide accounting for any commercial fisheries that occur.

2011 Treaty Indian Winter Season Fisheries

The 2011 winter sturgeon setline fishery was open in all of Zone 6 from January 1 to January 31 with landings totaling 70 white sturgeon (68 in the Bonneville Pool and 2 in The Dalles Pool).

The winter gillnet commercial fishery was open from February 1- March 21 in Zone 6, except the Bonneville Pool was closed February 5 and 6. The gillnet fishery resulted in landings of 1,590 sturgeon in Bonneville Pool, 328 sturgeon in The Dalles Pool, and 881 sturgeon in John Day Pool which were 80 %, 33% and 88%, respectively, of the commercial guidelines for these pools. No mesh restrictions were in place and sales of platform/ hook and line caught fish was allowed. The 2011 winter gillnet season commercial white sturgeon catch of 2,799 fish was the second highest commercial catch observed since at least 1992. Seven Chinook, 247 steelhead and 103 walleye were also sold to commercial buyers. The winter season steelhead catch has generally been low in recent years, due to most fishers targeting sturgeon. Most of the steelhead harvested in the 2011 winter season were caught in the John Day Pool and thus were most likely hold-over summer steelhead.

The total tribal commercial catch for 2011 was 2,869 white sturgeon or 72% of the combined Zone 6 treaty guideline (Table 16). The total 2011 winter catch is shown by pool in the table below and combined in Table 26.

2011 Treaty Indian Winter Commercial Landings From Setline, Gillnet, Platform and Hook & Line					
Pool	Steelhead	White Sturgeon		Walleye	Chinook
		Setline	Gillnet		
Bonneville	36	68	1,590	15	3
The Dalles	10	2	328	6	0
John Day	201	0	881	82	4
Total	247	70	2,799	103	7

2011 Treaty Indian Mainstem Spring and Summer Chinook and Sockeye Fisheries

The tribal intent for 2011 spring Chinook fisheries was to remain within impact rates allowed by the 2008-2017 MA. The preseason planning for the 2011 treaty mainstem harvest included an expected allowed harvest rate of 9.1% on upriver spring Chinook based on the 198,400 forecasted run. The tribes also planned on a 29.8% harvest rate on Upper Columbia summer Chinook based on the 91,100 forecasted run. Based on a preseason forecast for sockeye, the tribal fisheries planned for a 7% harvest rate.

The four tribes issued permits for gillnet C&S fisheries for spring Chinook from late March through early May. The platform/hook and line fishery retained spring Chinook and steelhead for subsistence purposes throughout the spring season. Commercial sales of fish harvested in platform and hook and line fisheries (including the hook and line fishery downstream of Bonneville Dam during periods when it was open) was authorized beginning May 10. The tribes did not authorize any commercial gillnet fishing in 2011. The estimated C&S gillnet permit catch was 8,918 spring Chinook. The estimated catches for the platform and hook-and-line

(C&S and commercial) fisheries were 4,317 spring Chinook upstream of Bonneville and 2,291 downstream of Bonneville Dam. Total harvest of upriver spring Chinook was 15,533 or 7.0% total harvest rate compared to a 10.0% management limit (Table 7). The impact on the ESA-listed wild Snake River spring/summer Chinook and ESA listed upper Columbia spring Chinook was 7.4%. The differential between the total harvest rate and the wild harvest rate results from differential harvest of marked and unmarked Chinook in mark-selective fisheries between the Columbia River mouth and Bonneville Dam.

During the summer management period, the Zone 6 platform/hook-and-line catch of summer Chinook and commercial gillnet fishery combined was 20,645 (25.6% of the river mouth return; Table 10). The harvest was less than the 23,189 allowed.

There were 12,849 sockeye caught in Zone 6 platform and hook-and-line fisheries and in commercial gillnet fisheries. The catch was 6.9% of the 2011 actual return as compared to the allowed harvest rate of 7%. The TAC estimated that 132 of the sockeye caught were Snake River sockeye (Table 16).

Steelhead harvest during winter and spring fisheries was minimal, estimated at 357 fish. Platform fisheries were not sampled in 2011 to determine a steelhead hatchery-to-wild ratio, and there is no definitive method of determining the number of winter steelhead or hold-over summer steelhead in the early season catch. Most of the summer steelhead landed would be expected to be Skamania Index or Group A-index summer steelhead. Some of the winter and spring season catch may have been winter steelhead and hold-over summer steelhead from the 2010-2011 run. The summer season harvest was estimated at 3,993 steelhead.

2011 Treaty Indian Tributary Fisheries

Preliminary landings from Yakama Nation tributary fisheries are estimated at 8,849 adult Chinook. These totals include 272 adults from the Wind River, 166 adults Chinook from the Klickitat River, 233 adult Chinook from the Icicle River, 1,735 adult Chinook from the Yakima River and 6,443 Chinook adults from Drano Lake. Sales of fish were allowed concurrent with mainstem sales. Steelhead harvest in tributary fisheries is not available at this time. Tributary fisheries also occurred by other tribes in the Hood, Deschutes, John Day, Umatilla, Walla Walla and various Snake Basin tributaries.

2011 Ceremonial and Subsistence Entitlement

The 2008-2017 MA as well as the expired CRFMP identified a minimum C&S annual “safety net” to the Columbia River treaty tribes of the opportunity to harvest 10,000 spring and summer Chinook, or be provided with hatchery fish of equivalent quality. After spring and summer fisheries are accounted for, the balance of the “safety net” is to be provided to the tribes by the states of Oregon and Washington. The 2011 upriver spring and summer Chinook returns were sufficient to allow for the full entitlement to be harvested in treaty fisheries.

2011 Ceremonial and Subsistence Entitlement Summary		
C&S permit gillnet spring fishery	8,918	spring Chinook
Winter commercial gillnet fishery	7	spring Chinook
Zone 6 Platform/hook and line winter/spring fishery	4,317	spring Chinook
Below Bonneville Platform/hook and line/spring fishery (includes fish donated from NI test fishery)	2,291	spring Chinook
Spring commercial gillnet fishery	0	spring Chinook
Spring Chinook Subtotal	15,533	spring Chinook
Below Bonneville Platform/hook and line summer fishery	0	summer Chinook
Summer commercial gillnet fishery and Zone 5 Platform hook and line fishery	20,645	summer Chinook
Summer Chinook Subtotal	20,645	summer Chinook
<i>Total spring and summer Chinook</i>	<i>36,178</i>	

2011 Shad Fisheries

There was no directed treaty commercial harvest of shad in 2011 using the trap just upstream from The Dalles Dam Oregon shore fish ladder. An estimated 500-1,000 fish were caught in the Zone 6 platform fishery which were mostly sold. The Yakima Nation tested a fish wheel to harvest shad, but the tests did not result in any shad harvest.

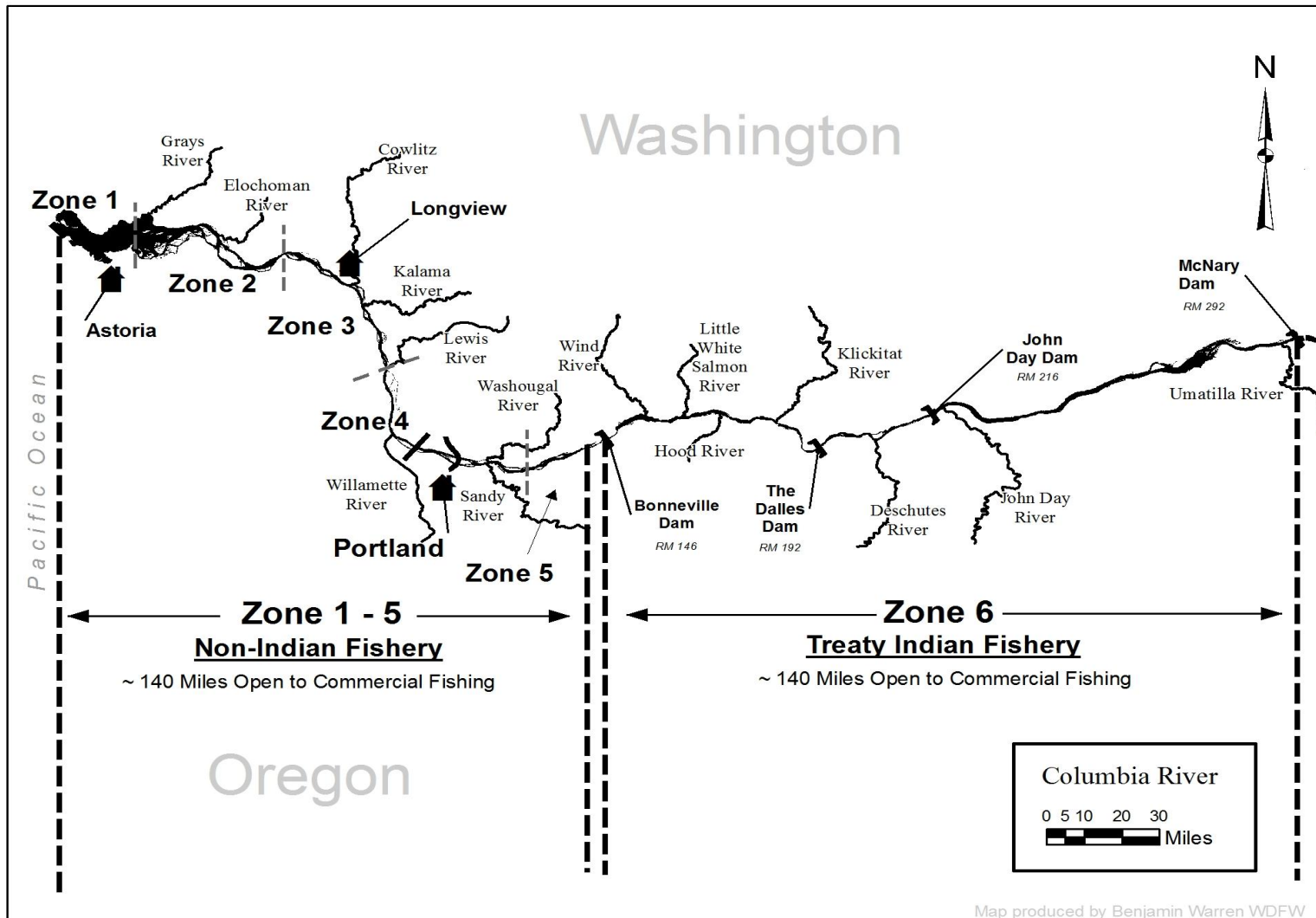


Figure 2. Map of the Columbia River Downstream of McNary Dam Showing Areas Open to Commercial Fishing.

2012 WINTER, SPRING, AND SUMMER SEASON EXPECTATIONS

2012 Management Guidelines

All fisheries conducted in 2012 will be managed in accordance with the 2008-2017 MA, UCMA, Willamette FMEP, and Commission guidance as applicable.

According to the harvest rate schedule in the 2008-2017 MA and the 2012 upriver spring Chinook preseason forecast, winter/spring season fisheries will be managed not to exceed a total ESA impact limit of 13% (2.2% for non-Indian fisheries and 10.8% for treaty fisheries) of the upriver spring Chinook run. In addition, non-Indian fisheries will be managed to meet the catch balance provisions in the 2008-2017 MA for upriver spring Chinook. Under these provisions, non-Indian fisheries will be managed to remain within ESA impact limits and catch balance guidelines. Non-Indian fisheries for 2012 will operate with a buffer in place, which will limit spring Chinook catch prior to a run size update. Fisheries harvesting Willamette spring Chinook will be managed to ensure hatchery escapement targets and wild fish impact limitations outlined in the Willamette River FMEP are achieved. Impacts to wild winter steelhead will be limited to 2%.

Mainstem summer Chinook fisheries will be managed based on the 2008-2017 MA, the UCMA, and Commission guidance. Based on the preseason forecast, harvestable sockeye may be available and retention of sockeye could be allowed in some fisheries. Impacts of up to 1% will be available for non-Indian fisheries and 7% for treaty Indian fisheries. Impacts to ESA-listed upriver summer steelhead in non-Indian fisheries occur as release mortalities during mainstem recreational and commercial fisheries and will be limited to 2%.

Fisheries will also be managed according to the amended 2011-2013 Joint State Accord for Columbia River Sturgeon Management. This Accord revision considers recent guidance from the Commission and Directors to manage 2012 fisheries for a 16% harvest rate compared to the 22.5% harvest rate used in 2011.

Recognizing the complexities of managing mixed stock fisheries, the Compact will continue to be cautious and conservative by shaping and adopting seasons that minimize impacts on ESA-listed and depressed runs while maximizing opportunities to harvest abundant hatchery fish.

2012 Non-Indian Fisheries

Commercial Winter Sturgeon Fishery

(Compact consideration at the January 26, 2012 hearing)

- Reduced fishing periods likely

Commercial Spring Chinook Fisheries

(Compact consideration at the January 26, 2012 hearing)

- Mark-selective fishery – release of all non-adipose fin clipped salmon required.
- Catch expectations and impact limits are set forth in the 2008-2017 MA and the Willamette FMEP.
- Regulations similar to previous years (net type, net length, soak times, recovery boxes, and observers).
- Fishery structure designed to maximize harvest of hatchery Chinook while minimizing handle of ESA-listed salmonids.
- Fishing plan (expected days when test fishing and commercial fishing periods are expected to occur) similar to previous years. Staff met with the Columbia River Commercial Advisory Group in January to solicit input in developing a fishing plan.

Lower Columbia River Spring Chinook Recreational Fishery

(Joint State consideration at the January 26, 2012 hearing)

- Mark-selective fishery – release of all non-adipose fin clipped salmon required.
- Catch expectations and impact limits are set forth in the 2008-2017 MA and the Willamette FMEP.
- Under permanent regulations, the fishery is open for adipose fin-clipped Chinook and adipose fin-clipped steelhead from Buoy 10 upstream to the I-5 Bridge during January 1 through March 31.
- The staff met with the Columbia River Recreational Advisory Group in January to solicit input in developing the 2012 season.

Bonneville to McNary Dam Spring Chinook Recreational Fishery

(Joint State consideration at the January 26, 2012 hearing)

- Mark-selective fishery – release of all non-adipose fin clipped salmon required.
- Catch expectations and impact limits are set forth in the 2008-2017 MA and Commission guidance.

Select Area Commercial Fisheries

(Compact and Oregon State consideration at the January 26, 2012 hearing)

- Winter and/or spring seasons are expected for Youngs Bay, Blind Slough/Knappa Slough, and Deep River, and a summer season is expected in Youngs Bay.
- A winter season extension in upper Youngs Bay, similar in structure to that in 2011, may be considered.

- A spring full-fleet test fishery starting in late April will likely be proposed for Tongue Point/South Channel.
- Fisheries will be structured and managed for stability while minimizing harvest of non-target stocks.
- Impacts to ESA-listed salmonids will be included in the commercial share of total non-Indian impacts.
- Season proposals for 2012 will be similar to previous years and will reflect input from the January 12, 2012 public meeting concerning Select Area spring Chinook fisheries.

Columbia River Steelhead Recreational Fishery

(Season as per permanent regulations; Joint State consideration at January 26, 2012 hearing)

- Dates: January 1–March 31 and May 16–December 31 for the area from the Tongue Point/Rocky Point line to the I-5 Bridge; January 1–March 31 and June 16–December 31 for the area from the I-5 Bridge upstream to Highway 395 Bridge at Pasco, WA. Seasons are generally also open for retention of steelhead concurrent with Chinook retention seasons.
- Retention of sockeye may be allowed.

Columbia River Summer Chinook Recreational and Commercial Fisheries

- According to the 2008-2017 MA, and the preseason run size, harvestable summer Chinook are split evenly between treaty and non-treaty fisheries.
- The UCMA calls for the majority of the non-treaty allocation to be harvested in areas upstream of Priest Rapids Dam.
- Summer Chinook recreational fisheries will likely be mark-selective in most Columbia River fisheries.
- Retention of sockeye may be allowed.
- Season will be developed during the North of Falcon process in March/April 2012.

Commercial Shad Fishery

- In Area 2S; open hours of 3-10 PM on all weekdays (except the observed Memorial Day holiday from May 10 through June 20).
- A commercial shad season for the Washougal Reef area will not likely be proposed for 2012
- Additional shad harvest may occur via Oregon experimental gear permits if additional gear testing is warranted.

2012 Treaty Indian Fisheries

Treaty Winter Commercial Fisheries

- The winter sturgeon setline fishery occurs by permanent regulation from January 1 through January 31.
- The winter gillnet fishery occurs by permanent regulation in Zone 6 from February 1 to March 21. The fishery will be managed similar to recent years. The fishery will be managed

for pool-specific guidelines. The fishery will close early in any pool if sturgeon harvest guidelines are met.

- The 2012 winter season fisheries are expected to have effort similar to 2011, and to accrue similar impacts to salmon and steelhead.

Treaty Indian Spring Season Fisheries

- The treaty tribes have not yet determined the structure of the 2012 spring Chinook fisheries.
- Based on the 2008-2017 MA, the tribes will be allowed a 10.8% harvest rate on upriver spring Chinook if the run returns at the pre-season forecast level. The tribes will manage fisheries in-season and make adjustments as necessary based on the agreed harvest rate schedule and the actual river mouth run size.
- Steelhead harvest and stock composition is expected to be comparable to historic levels.

Treaty Indian Summer Season Fisheries

- The treaty tribes have not yet determined the structure of the 2012 summer Chinook fisheries.
- Harvest will be managed in accordance with the 2008-2017 MA and the actual river mouth run size adjusted for expected summer Chinook harvest in PFMC area ocean fisheries.
- Steelhead harvest is expected be comparable to historic levels.
- Limited commercial sales of sturgeon in summer season gillnet openings may occur and or setline fisheries could occur to provide access to harvestable sturgeon if fish remain on the treaty guideline.

Treaty Indian Shad Fisheries

- Implementation of a shad trap fishery at The Dalles Dam east ladder exit is unlikely and will depend on identifying a market as well as agreements with the USACE.
- Platform fisheries are also expected, primarily in the Cascade Locks area. These shad are kept for subsistence or sold direct to the public or to commercial buyers.
- The tribes may continue to experiment with new gear types and locations for shad fishing.

MISCELLANEOUS REGULATIONS

Miscellaneous regulations including dam sanctuaries, river mouth closures, gear requirements, sturgeon rules, etc., will be included in the January 26, 2012 Winter Fact Sheet.

The Sturgeon Management Task Force is scheduled to meet in February to discuss and develop management recommendations for 2012 Zone 6 white sturgeon fisheries.

Table 1. Minimum Adult Spring Chinook Run Entering the Columbia River, 1980-2011. ¹

Year	Select Areas ²	Cowlitz River	Kalama River	Lewis River	Sandy River	Willamette River ³	Upriver Run ⁴	Total
1980-84 Ave.		22,737	4,165	3,834	2,020	64,800	63,521	161,077
1985-89 Ave.		11,176	1,552	10,312	1,980	93,700	105,481	224,201
1990		7,555	1,987	9,299	3,527	127,900	105,715	255,983
1991		8,945	2,613	8,334	3,652	105,530	64,479	193,553
1992		10,353	2,430	6,025	8,551	72,197	95,691	195,247
1993	851	9,458	2,874	8,195	6,369	62,778	119,963	210,488
1994	155	3,149	1,265	3,068	3,498	48,834	24,095	84,064
1990-94 Ave.	503	7,892	2,234	6,984	5,119	83,448	81,989	187,867
1995	201	2,102	697	3,726	2,529	40,854	12,792	62,901
1996	789	1,787	627	1,730	3,801	33,358	55,552	97,644
1997	1,821	1,877	505	2,196	4,410	34,536	124,321	169,666
1998	2,313	1,055	407	1,611	3,577	43,497	44,308	96,768
1999	1,980	2,069	977	1,753	3,585	52,584	43,067	106,015
1995-99 Ave.	1,421	1,778	643	2,203	3,580	40,966	56,008	106,599
2000	6,710	2,199	1,418	2,515	3,641	55,788	186,715	258,986
2001	9,638	1,609	1,796	3,777	5,329	78,436	440,336	540,921
2002	12,233	5,215	2,932	3,520	5,905	120,164	335,214	485,183
2003	8,729	15,998	4,565	5,057	5,615	123,352	242,605	405,921
2004	11,624	16,521	4,339	7,426	12,680	143,242	221,675	417,507
2000-04 Ave.	9,787	8,308	3,010	4,459	6,634	104,196	285,309	421,703
2005	2,550	9,358	3,389	3,511	7,668	59,495	106,911	192,882
2006	7,577	6,967	5,482	7,331	4,382	59,311	132,583	223,633
2007	6,902	3,974	8,036	7,596	2,813	39,943	86,247	155,511
2008	4,493	2,986	1,617	2,252	5,994	27,016	178,629	222,987
2009	3,975	5,977	402	1,485	2,429	39,400	169,296	222,964
2005-09 Ave.	5,099	5,852	3,785	4,435	4,657	45,033	134,733	203,594
2010	25,915	8,830	918	2,337	7,710	110,500	315,345	471,555
2011	11,748	4,064	764	1,436	4,348	80,254	221,157	323,771

^{1.} Tributary run sizes are to the tributary mouth and include hatchery returns or dam counts, recreational catch estimates, and estimates of natural spawning populations. Willamette return is to the Columbia River mouth and includes jacks.

^{2.} Minimum run sizes for SAFE stocks is based only on harvest of returning adults in Select Area commercial and recreational fisheries. Estimates of escapement are not available. SAFE run size includes minor catches of non-local spring Chinook and early returning Select Area Bright fall Chinook.

^{3.} Includes adults and jacks. Includes Clackamas River return.

^{4.} Upriver counts prior to 2005 are adjusted for new management spring management period. Counts include Snake River summer Chinook and continue through June 15 at Bonneville Dam. Adjustments may result in data being inconsistent with data found elsewhere in this document.

Table 2. Predicted and Actual Spring Chinook Entering the Columbia River, 1985-2011 and 2012 Projections.

Year	Willamette River			Cowlitz, Kalama, & Lewis Rivers Combined (Adults)			Upriver (Adults) ¹		
	(All Age Classes)			Preseason Forecast	Actual Return	% of Predicted	Preseason Forecast	Actual Return	% of Predicted
	Preseason Forecast	Actual Return	% of Predicted						
1985	70.0	68.1	97	--	14.4	--	52.6	84.7	161
1986	65.0	73.6	113	--	16.7	--	115.0	120.6	105
1987	78.0	93.6	120	--	37.0	--	79.7	99.8	125
1988	97.0	118.1	122	32.0	24.9	78	53.4	97.0	182
1989	102.0	114.9	113	16.1	22.3	139	92.7	82.6	89
1990	128.0	130.6	102	18.6	18.8	101	120.8	99.1	82
1991	110.0	109.9	100	19.7	19.9	101	61.9	59.2	96
1992	106.0	75.0	71	26.6	18.8	71	71.4	89.8	126
1993	70.0	65.9	94	21.3	20.5	96	76.2	111.0	146
1994	75.0	49.6	66	12.3	7.5	61	49.0	20.8	42
1995	49.0	42.6	87	4.6	6.5	142	12.0	9.8	82
1996	41.0	34.8	85	4.4	4.1	94	37.2	51.5	138
1997	30.0	35.3	118	4.5	4.6	102	67.8	114.0	168
1998	33.7	45.1	134	2.9	3.1	106	36.2	38.3	106
1999	46.5	54.2	117	3.9	4.8	123	24.6	38.7	157
2000	59.9	57.5	96	6.0	6.1	102	134.0	178.6	133
2001	61.0	80.4	132	4.8	7.2	150	364.6	416.5	114
2002	73.8	121.7	165	6.7	11.7	174	333.7	295.1	88
2003	109.8	126.6	115	11.6	25.6	221	145.4	208.9	144
2004	109.4	144.4	132	27.3	28.3	104	360.7	193.4	54
2005	116.9	61.0	52	24.8	16.3	66	254.1	106.9	42
2006	46.5	59.7	128	15.2	19.8	130	88.4	132.6	150
2007	52.0	40.5	78	15.9	19.6	123	78.5	86.2	110
2008	34.0	27.0	79	12.4	6.9	55	269.3	178.6	66
2009	37.6	39.4	105	7.2	7.9	109	298.9	169.3	57
2010	62.7	110.5	176	19.4	12.1	62	470.0	315.3	67
2011	104.1	80.3	77	10.6	6.3	59	198.4	221.2	111
2012	83.4			12.1			314.2		

¹. Includes Snake River summer Chinook since 2005 and reflects new spring management period of Jan- Jun 15. Data prior to 2005 has not been adjusted. Adjustments may result in data being inconsistent with data found elsewhere in this document.

Table 3. Components (in Thousands) of the Minimum Willamette River Spring Chinook Run and Percentage Caught in Lower Willamette Recreational Fishery, 1970-2011. Includes Jacks.

Year	Minimum	Mainstem		Run	Lower		Willamette	Run
	Run	Columbia River		Entering	Willamette River			
	Entering	Comm. ¹	Sport ²	Willamette	Recreational Catch ³	% of	Falls	Entering
	Columbia			River	Number ⁴	Run	Count	Clackamas
	River							River
1970-1974								
Average	71.6	10.1	2.6	58.9	18.2	31	38.3	2.1
1975-1979								
Average	56.6	5.4	1.6	49.5	15.1	32	31.1	3.0
1980-1984								
Average	64.8	4.4	1.7	58.6	13.9	23	35.5	8.7
1985-1989								
Average	93.7	9.8	2.2	81.7	19.6	24	53.6	7.7
1990-1994								
Average	86.2	6.5	3.5	76.1	19.8	26	44.8	10.4
1995	42.6	0.1	0.0	42.6	14.7	35	20.6	6.4
1996	34.8	0.1	0.0	34.6	6.1	18	21.6	5.9
1997	35.3	0.3	0.0	35.0	1.9	5	26.9	5.8
1998	45.1	0.1	0.0	45.0	2.8	6	34.5	7.4
1999	54.2	0.3	0.0	53.9	5.5	10	40.4	7.4
1995-1999								
Average	42.4	0.2	0.0	42.2	6.2	14	28.8	6.6
2000	57.5	1.1	0.2	56.2	9.0	16	39.1	7.8
2001	80.3	3.5	3.8	72.9	7.6	10	54.0	10.8
2002	121.7	7.4	5.2	109.1	10.8	10	83.1	14.4
2003	126.6	1.8	7.2	117.6	13.5	11	87.7	15.4
2004	144.4	7.2	5.9	131.3	12.0	9	96.7	21.9
2000-2004								
Average	106.2	4.2	4.5	97.4	10.6	11	72.1	14.1
2005	61.0	2.3	2.8	55.8	5.8	10	36.6	12.7
2006	59.7	2.7	2.0	55.0	7.2	13	37.0	10.4
2007	40.5	1.3	1.6	37.6	5.7	15	23.1	8.6
2008	27.0	0.1	0.2	26.7	4.6	17	14.7	7.2
2009	39.4	0.3	1.4	37.7	4.5	12	28.5	4.3
2005-2009								
Average	45.5	1.3	1.6	42.6	5.6	13	28.0	8.6
2010	110.5	3.3	5.4	101.8	22.7	21	67.1	11.0
2011	80.3	2.3	2.1	75.9	22.8	28	45.1	6.8

^{1.} Includes spring Chinook destined for the Willamette River landed in Select Area commercial fisheries of Youngs Bay (since 1992), Tongue Point (since 1998), and Blind Slough (since 1998). Also, includes estimated release mortalities from Lower Columbia mainstem commercial selective fisheries since 2001.

^{2.} Includes spring Chinook destined for the Willamette River landed in Columbia River boat and/or bank fisheries. Also includes estimated hook and release mortalities in the Lower Columbia mainstem selective recreational fishery since 2001.

^{3.} Lower Willamette recreational fishery managed for quotas in 1996, 1997, 1998, 1999, and 2000. 2009 season was set based on a closure date of April 30 and 3 days per week fishing allowed from March 19-April 30.

^{4.} Includes estimated hook and release mortalities in the Lower Willamette selective recreational fishery since 2000.

Table 4. Willamette Falls Spring Chinook Escapement, Upper Willamette Recreational Catch, Number Returning to Hatcheries, and Tribal Use, 1980-2011. Includes jacks.

Year	Upper Willamette Recreational Catch			Upper Willamette Hatchery Return		Clackamas Hatchery Return	Received by Columbia River Tribes ²
	Willamette Falls Count ¹	Number	% of Will. Falls Count	Number	% of Will. Falls Count		
1980	26,973	1,954	7	8,302	31	1,024	--
1981	30,057	2,241	7	9,198	31	1,065	--
1982	46,195	3,687	8	13,780	30	573	--
1983	30,589	1,877	6	10,372	34	1,923	--
1984	43,452	3,123	7	15,433	36	2,521	--
1985	34,533	2,510	7	10,785	31	944	--
1986	39,155	2,708	7	12,591	32	776	--
1987	54,832	6,442	12	16,517	30	1,005	--
1988	70,451	8,536	12	22,534	32	1,253	3,700
1989	69,180	9,375	14	27,349	40	865	2,520
1990	71,273	10,856	15	29,692	42	1,847	1,425
1991	52,516	8,323	16	20,685	39	2,776	2,992
1992	42,004	7,424	18	15,743	37	4,535	2,206
1993	31,966	8,161	26	14,636	46	4,635	1,386
1994	26,102	4,273	16	9,795	38	3,675	3,193 ³
1995	20,592	3,380	16	8,757	43	3,112	1,504 ⁴
1996	21,605	5,041	23	10,056	47	3,044	4,386 ⁵
1997	26,885	4,022	15	14,752	55	2,670	539
1998	34,461	6,125	18	16,414	48	4,530	7,590
1999	40,410	6,367	16	18,725	46	4,562	7,689
2000	39,073	5,119	13	16,158	41	4,296	0
2001	53,973	5,758	11	20,256	38	6,155	0
2002	83,136	12,625	15	32,049	39	6,219	0
2003	87,749	11,050	13	25,528	29	5,336	0
2004	95,970	13,277	14	33,560	35	11,231	0
2005	36,633	4,583	13	15,386	42	6,792	0
2006	37,041	5,749	16	16,678	45	7,359	0
2007	23,098	2,133	9	9,756	42	6,106	0
2008	14,672	931	6	7,957	54	5,223	0
2009	28,514	3,769	13	14,424	51	2,853	0
2010	67,059	11,794	18	29,670	44	5,484	0
2011	45,147	NA	NA	26,812	59	3,908	0

^{1.} Includes jacks.

^{2.} Given toward the treaty tribes' minimum ceremonial and subsistence entitlement per the Columbia River Fish Management Plan.

^{3.} Columbia treaty tribes at Willamette Falls also harvested 759 Chinook and 396 marked summer steelhead.

^{4.} Columbia treaty tribes at Willamette Falls also harvested 29 Chinook June 12-17 and 112 summer steelhead.

^{5.} Columbia treaty tribes at Willamette Falls also harvested 12 Chinook.

Table 5. Smolt Releases at Select Area Fisheries Enhancement Project Sites, Brood Years 1996-2009.

Brood Year	Species ¹	Release Site									
		Youngs Bay			Blind Slough Net Pens	Tongue Point			Deep River Net Pens	Steamboat Slough Net Pens	Select Area Total
		South Fork Klaskanine Hatchery	Klaskanine Hatchery	Youngs Bay Net Pens		Tongue Point Net Pens	Tongue Pt. MERTS Net Pens	John Day R. Net Pens			
1996	CHS	--	--	456,282	223,318	253,770	--	--	56,414	--	989,784
	SAB	--	603,960	463,703	27,413	27,482	--	--	--	--	1,122,558
	CO	550,427	--	1,119,632	144,958	119,611	--	--	208,350	--	2,142,978
1997	CHS	--	--	426,418	200,007	224,277	--	--	39,678	--	890,380
	SAB	--	769,126	117,571	--	--	--	--	--	--	886,697
	CO	429,652	--	2,101,573	197,089	204,143	--	--	414,108	210,530	3,557,095
1998	CHS	--	--	464,650	196,401	250,009	--	--	--	--	911,060
	SAB	--	703,200	221,971	--	--	--	--	--	--	925,171
	CO	610,658	--	1,819,500	195,645	754,123	--	--	431,143	191,543	4,002,612
1999	CHS	--	--	537,898	250,396	--	--	--	159,565	--	947,859
	SAB	--	408,492	153,928	--	--	--	--	--	--	562,420
	CO	344,738	--	1,724,031	299,411	655,613	--	--	395,337	208,966	3,628,096
2000	CHS	--	--	478,062	390,908	--	--	--	95,940	--	964,910
	SAB	--	669,913	205,145	--	--	--	--	--	--	875,058
2001	CHS	--	--	453,008	426,309	--	30,385	27,412	141,904	--	1,079,018
	SAB	--	620,527	467,056	--	--	--	--	--	--	1,087,583
	CO	641,555	--	1,686,711	316,804	675,712	--	--	366,435	239,635	3,926,852
2002	CHS	639,446	--	455,825	408,495	--	20,913	27,143	97,318	--	1,649,140
	SAB	--	702,188	780,314	--	--	--	--	--	--	1,482,502
	CO	--	--	1,470,914	298,748	--	697,522	--	357,200	204,600	3,028,984
2003	CHS	458,659	--	457,994	433,044	--	26,344	26,955	254,471	--	1,657,467
	SAB	53,963	679,153	519,676	--	--	--	--	--	--	1,252,792
	CO	--	--	1,146,068	309,527	--	202,727	--	144,900	--	1,803,222
2004	CHS	566,030 ²	--	391,843	451,388	--	57,114	25,451	336,300	--	1,828,126
	SAB	45,247	735,066	161,237	--	--	--	--	--	--	941,550
	CO	--	--	1,125,609	305,573	--	194,442	--	201,300	--	1,826,924
2005	CHS	--	--	417,662	272,226	--	76,877	27,272	263,300	--	1,057,337
	SAB	628,888	--	476,497	--	--	--	--	--	--	1,105,385
	CO	--	--	1,157,746	304,558	--	174,547	--	420,000	--	2,056,851
2006	CHS	--	--	543,803	312,612	--	79,343	--	121,500	--	1,057,258
	SAB	708,412	--	564,641	--	--	--	--	--	--	1,273,053
	CO	282,201	232,455	768,960	310,133	--	597,754	--	368,000	--	2,559,503
2007	CHS	--	--	457,161	280,437	--	103,060	--	279,811	--	1,120,469
	SAB	674,181	--	574,020	--	--	--	--	--	--	1,248,201
	CO	470,135	510,061	1,014,141	300,036	--	477,830	--	706,150	--	3,478,353
2008	CHS	--	--	804,665	265,832	--	101,700	--	363,000	--	1,535,197
	CHF	--	--	--	--	--	--	--	700,000 ³	--	700,000
	SAB	714,118	--	702,659	--	--	--	--	--	--	1,416,777
	CO	347,494	561,968	783,092	417,506	--	483,412	--	747,000	--	3,340,472
2009	CHS	--	--	702,609	253,503	--	100,557	--	234,000	--	1,290,669
	CHF	--	2,100,365	--	--	--	--	--	700,000 ³	--	2,800,365
	SAB	685,056	--	229,105	--	--	--	--	--	--	914,161
	CO	368,980	397,419	796,443	388,505	--	479,365	--	692,000	--	3,122,712

^{1.} CHS = Spring Chinook, CHF = Fall Chinook, SAB = Select Area Bright Fall Chinook, CO = coho.

^{2.} Released early (September 26, 2005) due to disease.

^{3.} Fall Chinook releases are tule stock.

Table 6. Winter/Spring/Summer Season Commercial and Recreational Chinook Harvest in Select Area Sites, 1993-2011.

Year	Commercial					Recreational ²						Sum
	Youngs Bay	Blind Slough	Tongue Point ¹	Deep River	subtotal	Youngs Bay	Blind Slough	Tongue Point	SAFE Tributaries	Deep River	subtotal	
1993	851	--	--	--	851	--	--	--	--	--	0	851
1994	155	--	--	--	155	--	--	--	--	--	0	155
1995	201	--	--	--	201	--	--	--	--	--	0	201
1996	789	--	--	--	789	--	--	--	--	--	0	789
1997	1,821	--	--	--	1,821	--	--	--	--	--	0	1,821
1998	2,167	60	31	--	2,258	55	--	--	--	--	55	2,313
1999	1,298	458	199	--	1,955	25	--	--	--	--	25	1,980
2000	4,731	818	947	--	6,496	14	121	--	120	--	255	6,751
2001	5,593	2,045	1,631	--	9,269	50	400	--	50	--	500	9,769
2002	6,643	2,053	3,003	--	11,699	121	430	1	--	--	552	12,251
2003	5,300	2,041	348	117	7,806	51	493	--	450	--	994	8,800
2004	6,916	3,531	--	115	10,562	96	285	--	700	--	1,081	11,643
2005	969	1,377	--	60	2,406	9	81	--	67	--	157	2,563
2006	5,798	1,419	--	28	7,245	53	73	--	210	--	336	7,581
2007	5,209	1,536	--	29	6,774	45	100	--	49	--	194	6,968
2008	3,195	1,004	259	28	4,486	--	--	--	--	--	100	4,586
2009	3,123	797	133	122	4,175	--	--	--	--	--	100	4,275
2010	20,751	2,999	727	415	24,892	250	200	--	800	--	1,250	26,142
2011 ³	8,732	1,610	659	100	11,101	--	--	--	--	--	754	11,855

^{1.} No winter, spring, or summer seasons occurred in Tongue Point/South Channel from 2004 – 2007. Volunteer test fishing in mid-April 2008 resulted in a full-fleet experimental fishery beginning in late April and continuing through the remainder of the spring season. Abbreviated full-fleet experimental fisheries occurred in late April, 2009 and in late April – early June, 2010 and 2011 following test fishing activities.

^{2.} From 1998 – 2007 annual estimates of recreational harvest were made starting when effort was first observed in a particular site. In 2008- 2010 resources were not available to formally estimate recreational harvest so estimates are based on anecdotal sources.

^{3.} Preliminary.

Table 7. Estimated Numbers of Adult Upriver Spring Chinook Entering the Columbia River.

Return Year	Upriver Run ³	Harvest Impact Downstream of Bonneville Dam (Zones 1-5)					BON Dam Count	Harvest Impact Bonneville Dam upstream to McNary Dam (Zone 6)					Escapement Total ⁵ %Run	
		Non-Indian (NI) Catch ¹						Treaty Catch ²						
		Comm.	Sport	Misc. ⁴	Treaty	Grand Total		NT Sport	Winter Gillnet	Comm. Gillnet	C&S & Platform	Grand Total		
80-84	63,521	951	320	182		1,452	62,069	0	1,008	0	2,306	3,313	58,756	92%
85-89	105,481	2,308	805	222		3,334	102,146	0	208	0	5,991	6,199	95,947	91%
1990	105,715	2,082	3,117	150		5,349	100,366	0	4	0	6,924	6,928	93,438	88%
1991	64,479	897	1,539	120		2,556	61,923	0	5	0	3,871	3,876	58,047	90%
1992	95,691	235	1,183	162		1,580	94,111	0	48	0	5,711	5,759	88,352	92%
1993	119,963	238	412	373		1,023	118,940	0	0	0	7,296	7,296	111,644	93%
1994	24,095	441	408	86		935	23,160	0	10	0	1,151	1,161	21,999	91%
1995	12,792	0	9	2		11	12,781	0	13	0	620	633	12,148	95%
1996	55,552	5	10	41		56	55,496	0	0	0	2,911	2,911	52,585	95%
1997	124,321	9	16	44		69	124,252	0	14	0	8,309	8,323	115,929	93%
1998	44,308	0	14	27		41	44,267	0	1	0	2,224	2,225	42,042	95%
1999	43,067	2	16	26		44	43,023	0	1	0	1,983	1,984	41,039	95%
2000	186,715	88	110	177		375	186,340	0	31	1,348	9,973	11,352	174,988	94%
2001	440,336	1,579	22,714	964		25,257	415,079	167	160	43,630	10,985	54,942	360,137	82%
2002	335,214	9,507	16,245	667		26,419	308,795	1,716	48	24,209	9,208	35,181	273,614	82%
2003	242,605	2,758	9,581	765		13,104	229,501	1,860	857	8,348	9,090	20,155	209,346	86%
2004	221,675	5,989	17,138	251		23,379	198,296	1,616	2	8,368	9,114	19,100	179,196	81%
2005	106,911	2,247	7,235	42		9,524	97,387	388	1	0	6,163	6,552	90,836	85%
2006	132,583	2,106	4,187	133		6,425	126,158	1,245	0	0	8,401	9,646	116,513	88%
2007	86,247	1,436	3,927	54		5,418	80,829	1,368	3	0	5,624	6,995	73,835	86%
2008	178,629	5,907	19,612	385	830	26,734	151,895	2,196	0	12,314	8,247	22,757	129,138	72%
2009	169,296	4,172	15,246	371	2,018	21,807	147,489	290	0	0	11,083	11,373	136,116	80%
2010	315,345	7,458	23,535	1,824	5,139	37,956	277,389	3,512	0	25,008	12,807	41,327	236,062	75%
2011	221,157	3,410	9,506	519	2,291	15,726	205,431	2,379	7	0	13,235	15,621	189,810	86%

1. Includes kept plus release mortalities.
2. Ceremonial and subsistence includes catch by gillnet, dipnet, and hook-and-line since 1982.
3. Run sizes adjusted to reflect the counting period from January 1- June 15. Run includes upriver spring Chinook and Snake River summer Chinook.
4. Includes Select Area, shad, test, experimental fisheries and research.
5. Bonneville count minus Zone 6 harvest.

Table 8. Estimated Numbers of Adult Upper Columbia Wild Spring Chinook Entering the Columbia River.

Year	Return to Columbia River		Non-Indian Wild Catch ¹		Treaty Wild Catch ²		Total Wild Catch		Wild Passage Loss ³		Wild Escapement ⁴	
	Total	Wild	No.	% of Run	No.	% of Run	No.	% of Run	No.	% of Run	No.	% of Run
	1980	16,946	7,128	12	0.2	229	3.2	241	3.4	4,114	57.7	2,772
1981	14,152	6,049	82	1.4	305	5.0	387	6.4	2,409	39.8	3,253	53.8
1982	15,866	6,320	110	1.7	434	6.9	544	8.6	2,761	43.7	3,015	47.7
1983	16,169	7,296	350	4.8	294	4.0	643	8.8	2,366	32.4	4,286	58.7
1984	16,783	6,815	234	3.4	452	6.6	687	10.1	1,447	21.2	4,681	68.7
1985	28,951	10,417	376	3.6	354	3.4	730	7.0	637	6.1	9,050	86.9
1986	29,421	8,059	164	2.0	467	5.8	631	7.8	1,802	22.4	5,625	69.8
1987	25,490	8,917	137	1.5	538	6.0	676	7.6	1,790	20.1	6,452	72.4
1988	21,043	7,600	485	6.4	502	6.6	987	13.0	882	11.6	5,731	75.4
1989	18,699	7,576	179	2.4	566	7.5	745	9.8	2,638	34.8	4,193	55.3
1990	12,021	4,503	226	5.0	295	6.6	521	11.6	1,134	25.2	2,848	63.2
1991	8,670	2,491	98	3.9	150	6.0	248	9.9	678	27.2	1,566	62.9
1992	20,742	4,428	72	1.6	266	6.0	338	7.6	806	18.2	3,283	74.2
1993	26,024	4,703	39	0.8	286	6.1	325	6.9	780	16.6	3,598	76.5
1994	3,422	1,088	43	3.9	52	4.8	95	8.7	356	32.8	637	58.5
1995	1,647	255	0	0.1	13	4.9	13	5.0	120	46.9	123	48.1
1996	3,427	545	1	0.1	29	5.2	29	5.3	216	39.6	300	55.1
1997	9,677	1,234	1	0.1	83	6.7	83	6.8	397	32.2	753	61.0
1998	4,501	545	1	0.1	27	5.0	28	5.1	152	27.9	365	66.9
1999	4,873	495	1	0.1	23	4.6	23	4.7	135	27.4	336	67.9
2000	22,339	1,253	2	0.2	76	6.1	79	6.3	341	27.2	833	66.5
2001	51,847	6,266	96	1.5	819	13.1	915	14.6	561	9.0	4,799	76.6
2002	37,123	2,788	55	2.0	297	10.7	352	12.6	637	22.8	1,804	64.7
2003	23,806	2,114	36	1.7	166	7.9	202	9.6	414	19.6	1,499	70.9
2004	15,552	2,407	53	2.2	208	8.6	261	10.9	458	19.0	1,690	70.2
2005	16,199	3,241	54	1.7	202	6.2	255	7.9	603	18.6	2,383	73.5
2006	15,116	1,456	20	1.4	96	6.6	116	7.9	412	28.3	929	63.8
2007	6,577	484	6	1.3	33	6.9	40	8.2	35	7.1	410	84.7
2008	15,426	876	19	2.2	120	13.7	139	15.9	28	3.2	709	81.0
2009	12,635	1,027	19	1.8	88	8.6	107	10.4				
2010	37,362	3,231	65	2.0	479	14.8	543	16.8	126	3.9	2,567	79.5
2011	16,527	2,183	30	1.4	160	7.3	190	8.7	264	12.1	1,729	79.2

^{1.} Includes incidental release mortalities in mainstem recreational and commercial fisheries. Includes Wanapum tribal harvest.

^{2.} Since 1982 C&S catch includes gill net, dip net and hook and line. Includes harvest downstream of BON from C&S fishery

^{3.} Bonneville Dam through McNary Dam: calculated by Zone 6 escapement minus Rock Island Dam passage.

^{4.} Estimated Rock Island Dam passage.

Table 9. Estimated Numbers of Adult Snake River Wild Spring/Summer Chinook Entering the Columbia River.

Year	Return to Columbia River		Non-Indian Wild Catch ¹		Treaty Wild Catch ²		Total Wild Catch		Wild Passage Loss ³		Wild Escapement ⁴	
	Total	Wild	No.	% of Run	No.	% of Run	No.	% of Run	No.	% of Run	No.	% of Run
1980	27,323	20,968	35	0.2	674	3.2	709	3.4	13,604	65	6,134	29
1981	35,177	24,774	336	1.4	1,249	5.0	1,585	6.4	11,024	44	11,318	46
1982	39,947	27,628	479	1.7	1,898	6.9	2,378	8.6	13,425	49	11,307	41
1983	28,116	20,948	1,005	4.8	843	4.0	1,848	8.8	8,675	41	9,845	47
1984	20,980	14,126	485	3.4	938	6.6	1,423	10.1	4,433	31	7,929	56
1985	40,698	14,866	536	3.6	505	3.4	1,041	7.0	2,549	17	10,682	72
1986	64,546	20,096	410	2.0	1,165	5.8	1,574	7.8	6,527	32	11,359	57
1987	52,294	15,874	244	1.5	959	6.0	1,203	7.6	3,951	25	10,140	64
1988	54,076	17,369	1,108	6.4	1,148	6.6	2,256	13.0	3,536	20	11,182	64
1989	35,513	14,722	348	2.4	1,100	7.5	1,448	9.8	6,437	44	6,499	44
1990	41,333	17,596	883	5.0	1,153	6.6	2,036	11.6	5,702	32	9,357	53
1991	23,681	13,115	516	3.9	788	6.0	1,304	9.9	5,793	44	5,756	44
1992	39,716	20,676	334	1.6	1,244	6.0	1,579	7.6	6,007	29	12,677	61
1993	41,190	17,928	147	0.8	1,090	6.1	1,238	6.9	3,845	21	12,531	70
1994	7,713	3,721	146	3.9	179	4.8	325	8.7	1,444	39	1,856	50
1995	5,268	3,399	3	0.1	168	4.9	171	5.0	2,042	60	1,167	34
1996	16,798	9,042	9	0.1	474	5.2	483	5.3	4,771	53	3,643	40
1997	82,882	9,565	5	0.1	640	6.7	646	6.8	3,744	39	5,042	53
1998	26,748	13,762	13	0.1	691	5.0	704	5.1	5,682	41	7,291	53
1999	13,621	5,770	6	0.1	266	4.6	272	4.7	2,643	46	2,853	49
2000	63,887	13,856	28	0.2	842	6.1	870	6.3	4,730	34	8,187	59
2001	261,253	63,401	946	1.5	8,282	13.1	9,228	14.6	9,116	14	44,572	70
2002	172,758	52,746	973	1.8	5,621	10.7	6,594	12.5	15,711	30	29,872	57
2003	139,672	51,369	893	1.7	4,033	7.9	4,926	9.6	13,781	27	32,080	62
2004	127,555	33,498	713	2.1	2,896	8.6	3,609	10.8	8,314	25	20,967	63
2005	50,164	15,274	261	1.7	951	6.2	1,212	7.9	3,893	25	9,832	64
2006	53,250	16,820	239	1.4	1,105	6.6	1,344	8.0	5,840	35	9,340	56
2007	46,054	10,614	137	1.3	731	6.9	867	8.2	2,489	23	6,903	65
2008	101,075	24,060	532	2.2	3,286	13.7	3,818	15.9	2,352	10	17,171	71
2009	90,286	20,512	335	1.6	1,763	8.6	2,098	10.2	3,408	17	14,313	70
2010	166,666	34,955	661	1.9	5,178	14.8	5,839	16.7	2,082	6	25,211	72
2011	127,537	31,642	461	1.5	2,326	7.3	2,786	8.8	3,990	13	23,844	75

^{1.} Includes incidental mortalities in mainstem recreational and commercial fisheries and Snake River recreational fisheries.

^{2.} Since 1982 C&S catch includes gill net, dip net and hook-and-line. Includes harvest downstream of BON from C&S fishery.

^{3.} Bonneville Dam to Lower Granite Dam: calculated by Zone 6 escapement - (Snake River Recreational + Tucannon River escapement + Lower Granite Dam escapement).

^{4.} Lower Granite Dam passage plus Tucannon River escapement

Table 10. Estimated Numbers of Adult Upper Columbia Summer Chinook Entering the Columbia River.

Year	Upriver Run ¹	Catch downstream of Bonneville Dam (Zones 1-5)				BON Dam Count	Catch Bonneville Dam upstream to McNary Dam (Zone 6)		Escapement ⁴ No. %	
		Non-Indian (NI)					NT Sport	Treaty Catch ³		
		Sport	Comm.	Misc ²	Treaty					
1980	22,498			16		22,482	1,181	21,301	95%	
1981	18,746			9		18,737	1,364	17,373	93%	
1982	14,369			117		14,252	1,295	12,957	90%	
1983	13,145			92		13,053	297	12,756	97%	
1984	18,765			22		18,743	457	18,286	97%	
1985	18,522			36		18,486	1,453	17,033	92%	
1986	18,752	0		109		18,643	1,116	17,527	93%	
1987	22,715	6		141		22,567	1,684	20,883	92%	
1988	22,720	9		81		22,630	1,497	21,133	93%	
1989	22,201	20		9		22,172	100	22,072	99%	
1990	18,794	4		15		18,775	111	18,664	99%	
1991	14,323	1		9		14,313	171	14,142	99%	
1992	9,428	16		35		9,377	46	9,331	99%	
1993	14,021	16		81		13,925	328	13,597	97%	
1994	14,691	28		23		14,640	171	14,469	98%	
1995	12,455	14		0		12,441	417	12,024	97%	
1996	12,080	34		15		12,031	374	11,657	96%	
1997	17,709	16		6		17,687	270	17,417	98%	
1998	15,536	27		1		15,508	335	15,173	98%	
1999	21,867	51		1		21,815	395	21,420	98%	
2000	22,595	17		0		22,578	209	22,369	99%	
2001	52,960	64		1		52,895	692	52,203	99%	
2002	89,524	1,447		8		88,069	113	85,863	96%	
2003	83,058	1,945		36		81,077	417	76,363	92%	
2004	65,623	1,246	219	3		64,155	261	55,500	85%	
2005	60,272	1,621	2,787	0		55,864	487	47,735	79%	
2006	77,573	4,926	4,819	9		67,819	346	51,154	66%	
2007	37,035	2,214	1,122	0		33,699	194	28,130	76%	
2008	55,532	2,140	1,370	59		51,963	1,072	41,862	75%	
2009	53,881	2,341	2,524	22	0	48,994	193	37,151	69%	
2010	72,346	2,738	4,720	20	230	64,638	156	48,913	68%	
2011	80,574	5,576	5,004	0	0	69,994	208	49,141	61%	

^{1.} Includes only upper Columbia summer Chinook and reflects new summer management period of Jun 16-Jul 31. All data has been adjusted. Adjustments may result in data being inconsistent with data found elsewhere in this document. Non-Indian catch includes incidental release mortalities

^{2.} Includes incidental non-retention mortality in commercial test, research, shad, and sockeye fisheries, and harvest in SAFE fisheries.

^{3.} Includes commercial and C&S catches.

^{4.} Bonneville counts minus Zone 6 harvest.

Table 11. Wild Winter Steelhead Minimum Run Size Estimate and Forecast, 2001-2012.

Year	Min. Col R Return	Non-Indian Release Mortalities			Escapement	Forecast
		Mainstem		Tributary ¹ Sport		
		Comm.	Sport			
2001	21,825	100	22	165	21,538	--
2002	33,711	3095	34	403	30,180	--
2003	23,452	217	23	308	22,904	15,500
2004	29,566	238	30	334	28,964	32,200
2005	14,672	77	15	170	14,410	27,000
2006	16,708	14	17	403	16,274	16,000
2007	15,072	75	15	363	14,619	16,100
2008	13,943	9	14	300	13,620	15,300
2009	11,575	4	11	292	11,268	15,200
2010	20,035	89	19	248	19,679	20,100
2011	16,752	35	17	214	16,486	
2012						15,300

¹ Washington tributaries only. Data based on historical exploitation rates and may not reflect actual impacts.

Table 12. Upriver Summer Steelhead Passage at Bonneville Dam (April-October), 1948-2011.

Year	Skamania		Group A Index		Group B Index		Total Passage		
	Wild	Total	Wild	Total	Wild	Total	Hatchery	Wild	Total
1984	2,490	20,780	52,447	195,751	13,768	98,011	245,837	68,705	314,542
1985	3,690	19,990	51,922	281,504	12,986	40,870	273,766	68,598	342,364
1986	5,520	24,830	56,570	287,508	9,984	64,016	304,279	72,074	376,353
1987	7,380	17,790	106,690	238,283	13,990	44,959	172,972	128,060	301,032
1988	4,180	22,360	64,331	173,151	17,742	81,643	190,901	86,253	277,154
1989	3,770	15,730	57,513	193,079	12,367	77,604	212,763	73,650	286,413
1990	3,690	18,710	27,102	115,628	8,811	47,174	141,909	39,603	181,512
1991	1,220	10,880	60,264	234,048	6,207	28,265	205,501	67,692	273,193
1992	2,940	14,910	44,294	241,524	12,715	57,438	253,924	59,948	313,872
1993	1,250	14,360	28,650	136,701	4,378	36,169	152,952	34,278	187,230
1994	1,380	12,330	21,212	120,971	5,152	27,463	133,020	27,744	160,764
1995	1,150	8,220	25,997	180,037	1,847	13,221	172,484	28,994	201,478
1996	1,310	10,830	25,721	174,464	3,912	18,693	173,044	30,943	203,987
1997	930	11,890	30,852	208,209	3,913	36,663	221,067	35,695	256,762
1998	1,610	9,440	34,836	134,687	3,415	40,241	144,507	39,861	184,368
1999	1,310	7,160	56,626	176,466	3,740	22,137	144,087	61,676	205,763
2000	5,728	16,619	63,628	216,723	8,368	40,909	196,527	77,724	274,251
2001	7,952	28,725	137,230	515,079	12,047	86,426	473,001	157,229	630,230
2002	9,671	24,991	87,276	323,124	32,333	129,882	348,717	129,280	477,997
2003	1,801	14,154	67,049	305,795	6,417	37,228	281,909	75,268	357,177
2004	3,289	20,148	60,421	250,615	9,202	37,398	235,248	72,912	308,161
2005	2,123	11,221	58,917	251,631	9,619	48,968	241,161	70,659	311,820
2006	2,181	9,882	63,735	245,168	8,466	74,128	254,796	74,382	329,178
2007	1,727	9,475	77,268	258,848	9,015	51,073	231,386	88,010	319,396
2008	4,489	15,832	81,648	245,823	18,529	93,429	250,418	104,666	355,084
2009	3,528	13,884	154,045	543,195	13,727	44,540	430,319	171,300	601,619
2010	10,357	29,270	120,531	304,002	22,364	77,146	257,166	153,252	410,418
2011	2,814	9,750	101,263	318,125	7,771	36,996	253,023	111,848	364,871

Run Year ¹	Group A		Group B		Combined		Total % Wild
	Wild	Total	Wild	Total	Wild	Total	
1984-85					24,500	104,400	23%
1985-86					26,700	116,300	23%
1986-87	16,443	86,233	5,477	43,743	21,920	129,976	17%
1987-88	19,935	52,178	5,240	18,323	25,175	70,501	36%
1988-89	15,698	60,561	4,587	26,595	20,285	87,156	23%
1989-90	16,818	82,388	8,110	49,100	24,928	131,488	19%
1990-91	4,734	30,087	4,483	26,814	9,217	56,901	16%
1991-92	13,896	83,535	3,198	15,554	17,094	99,089	17%
1992-93	13,620	97,053	5,778	31,351	19,398	128,404	15%
1993-94	7,332	41,989	1,790	17,685	9,122	59,674	15%
1994-95	5,873	37,829	2,231	9,409	8,104	47,238	17%
1995-96	6,733	69,588	1,338	9,688	8,071	79,276	10%
1996-97	5,980	73,055	1,645	13,856	7,625	86,911	9%
1997-98	7,418	74,244	1,324	12,126	8,742	86,370	10%
1998-99	7,078	50,917	2,302	19,760	9,380	70,677	13%
1999-00	9,997	63,212	885	9,643	10,882	72,855	15%
2000-01	17,666	97,171	2,885	19,959	20,551	117,130	18%
2001-02	37,545	234,615	3,174	33,851	40,719	268,466	15%
2002-03	28,308	150,577	13,623	71,599	41,931	222,176	19%
2003-04	21,908	140,136	7,261	32,572	29,169	172,708	17%
2004-05	18,296	121,688	4,774	29,958	23,070	151,646	15%
2005-06	14,356	123,223	3,480	31,961	17,836	155,184	11%
2006-07	7,877	108,319	1,633	40,847	9,510	149,166	6%
2007-08	11,138	127,497	2,916	26,611	14,054	154,108	9%
2008-09	20,035	126,321	5,729	52,549	25,764	178,870	14%
2009-10	38,320	300,045	4,395	23,337	42,715	323,382	13%
2010-11	34,362	162,494	10,478	45,802	44,840	208,296	22%
2011-12	33,188	146,243	4,886	24,904	38,073	171,147	22%

¹. Run year = July 1 through June 30 of following year. 2011-2012 counts are only through December 31, 2011.

Table 14. Minimum Numbers (in Thousands) of Lower River Summer Steelhead Entering the Columbia River, 1980-2011.

Year	Lower Col. Recreational Catch (May-June) ¹	Tributary					Minimum Run
		Recreational Catch ²		Dam Counts ³	Hatchery Returns ⁴		
		OR	WA		OR	WA	
1980	0.3	3.8	18.1	20.5		5.1	47.8
1981	1.9	2.5	22.9	23.0		6.3	56.6
1982	1.8	3.6	18.7	19.2		5.8	49.1
1983	0.8	1.5	6.8	8.6		2.0	19.7
1984	2.7	6.2	11.3	43.7	0.2	4.6	68.7
1985	1.8	3.9	15.9	32.3	0.2	3.0	57.1
1986	3.0	4.4	26.9	53.3		2.3	89.9
1987	1.6	4.2	17.4	33.6		1.6	58.4
1988	2.7	7.0	14.2	50.7		3.3	77.9
1989	1.7	3.5	12.6	13.4		3.8	35.0
1990	2.2	5.1	17.2	31.8		5.6	61.9
1991	1.2	3.0	15.0	10.4		2.2	31.8
1992	1.2	3.0	17.6	23.1		3.1	48.0
1993	1.8	3.2	20.0	17.3		4.7	47.0
1994	1.2	2.1	23.0	15.4		5.6	47.3
1995	1.4	1.5	13.0	15.1	0.1	7.8	38.9
1996	1.2	1.0	15.1	7.8	0.2	9.9	35.2
1997	1.9	1.4	6.0	17.5	0.1	3.7	30.6
1998	1.2	1.4	5.0	15.3		5.4	28.3
1999	1.3	1.5	6.3	12.4		4.6	26.1
2000	1.6	1.7	10.2	13.1	0.4	9.6	36.6
2001	2.0	3.1	19.7	28.4	1.9	16.4	71.5
2002	4.4	6.0	33.3	35.2	2.8	33.8	115.5
2003	2.7	2.7	26.1	17.5	4.5	23.0	76.5
2004	3.0	5.6	42.4	36.4	2.4	23.1	112.9
2005	2.1	2.0	15.3	14.6	4.1	18.8	
2006	3.0	4.3	29.5	17.0	1.3	24.8	
2007	2.7	3.8	12.4	13.1	1.2	9.2	
2008	2.0	5.3	22.6	14.2	0.9	20.6	
2009	1.4	5.3	16.8	15.2	0.7	19.1	
2010	4.2	4.1	22.0	25.9	1.0	26.3	
2011	4.4	4.1	17.7	20.5	0.6	17.1	

^{1.} Does not include release mortalities. Beginning in 1977, May-June lower Columbia recreational catch determined to be mostly lower river stock.

^{2.} From Oregon and Washington catch record estimates. 2010 and 2011 based on 2005-2009 average

^{3.} Willamette Falls (Willamette R.), North Fork Dam (Clackamas R.), and Marmot Dam through 2007 only (Sandy R); hatchery fish only.

^{4.} Washington - Skamania, Lewis River, and Cowlitz hatcheries and beginning in 1998 Kalama River hatcheries. Oregon - Sandy (1999 onward) and Clackamas (1984-1987 and 1995 onward) hatcheries.

Table 15. Minimum Numbers (in Thousands) of Upriver Summer Steelhead Entering the Columbia River, 1980-2011.

Year	Lower Columbia Recreational Catch ¹	Bonneville Dam Counts ³	Minimum Run
1980	2.0	127.6	129.6
1981	3.1	157.9	161.0
1982	2.5	156.2	158.7
1983	2.9	217.6	220.5
1984	5.4	314.5	320.0
1985	6.0	342.4	348.4
1986	8.0	376.4	384.4
1987	4.9	301.0	305.9
1988	7.7	277.2	284.9
1989	6.4	286.4	292.8
1990	4.0	181.5	185.5
1991	6.0	273.2	279.2
1992	9.7	313.9	323.6
1993	8.1	187.2	195.3
1994	4.0	160.8	164.7
1995	6.8	201.5	208.3
1996	5.1	204.0	209.1
1997	5.2	256.8	261.9
1998	3.6	184.4	188.0
1999	5.8	205.8	211.6
2000	8.2	274.3	282.5
2001	9.4	630.2	639.7
2002	7.5	478.0	485.5
2003	6.9	357.2	364.0
2004	5.8	309.0	314.7
2005	5.3	312.5	317.8
2006	7.1	329.2	336.2
2007	8.0	319.4	327.4
2008	7.1	355.1	362.2
2009	7.3	601.6	608.9
2010	14.1	410.4	424.5
2011	20.7	363.5	384.2

^{1.} Recreational catch based on timing of the catch: May 1-October 31 (1969-1976) and July 1-October 31 beginning in 1977. Includes catches from Buoy 10 recreational fishery (OR only) beginning in 1992.

^{2.} Commercial catch of steelhead by non-Indians (1969-1974) was based on timing of the catch: spring through October. Sale of steelhead by non-Indians prohibited since 1975.

^{3.} April through October.

Table 16. Estimated Number of Sockeye Entering the Columbia River, Mainstem Harvest, and Escapement.

Year	Columbia River Mouth ¹	Non-Indian Catch ²	Bonn. Dam Count	Treaty Catch ³	Snake River Sockeye				Escapement	
					At Col R. Mouth	Non-Indian Catch ²	Treaty Catch ³	Lower Granite Esc. ⁴	Wenatchee ⁵	Okanogan ⁶
					1980	58,886	4	58,882	636	108
1981	56,037	0	56,037	1,507	236	0	6	218	16,490	28,234
1982	50,319	100	50,219	775	261	1	4	211	23,732	19,005
1983	100,628	83	100,545	3,349	241	0	8	216	60,345	27,925
1984	161,886	9,345	152,541	24,616	148	9	23	105	35,795	81,054
1985	200,724	32,213	166,340	49,969	59	10	15	35	49,137	52,989
1986	59,963	1,840	58,123	6,672	28	1	3	20	16,077	34,788
1987	145,546	28,553	116,993	39,560	55	11	15	29	29,558	40,120
1988	99,757	17,632	79,714	30,990	45	8	14	23	15,069	33,978
1989	47,475	36	41,884	2,138	4	0	0	4	21,184	15,976
1990	49,754	173	49,581	2,716	1	0	0	1	34,847	7,609
1991	76,484	3	76,481	3,271	10	0	0	9	35,094	27,490
1992	85,000	8	84,992	2,185	2	0	0	2	26,555	41,951
1993	91,710	64	80,178	5,020	18	0	1	17	37,311	27,849
1994	12,858	1	12,678	472	3	0	0	3	9,314	1,666
1995	9,662	1	8,773	445	5	0	0	5	4,474	4,892
1996	30,896	25	30,255	1,414	3	0	0	3	7,559	17,701
1997	47,470	12	46,927	2,046	18	0	1	17	11,064	25,754
1998	13,220	2	13,218	425	4	0	0	3	3,379	4,669
1999	17,878	1	17,877	704	20	0	1	18	4,260	12,388
2000	93,755	364	93,391	2,910	352	1	11	337	19,084	59,944
2001	120,314	1,688	114,933	7,300	49	1	3	45	38,618	74,490
2002	50,461	14	49,610	2,564	77	0	4	73	31,946	10,659
2003	39,375	0	39,375	1,090	28	0	1	26	4,424	28,820
2004	129,932	672	123,320	4,317	117	1	4	113	25,328	77,492
2005	77,329	0	72,448	2,766	20	0	1	19	15,656	53,218
2006	37,067	1	37,066	1,596	79	0	3	16	9,756	22,064
2007	26,059	0	24,376	1,414	58	0	3	55	4,439	22,282
2008	214,402	821	213,607	9,017	983	4	41	907	32,396	165,334
2009	178,959	1,160	177,823	9,731	1,625	11	88	1,406	29,724	134,937
2010	387,858	242	386,355	26,125	2,596	2	175	2,406	42,672	291,764
2011	187,307	1,708	185,796	12,849	1,919	18	132	1,502	14,015	111,508

1. Upriver run is larger of Bonn. Count + Zones 1-5 harvest or Priest Rapids count + Snake River count + Zone 1-6 harvest.
2. Non-Indian harvest may include kept fish and incidental release mortalities in Zones 1-6.
3. Treaty harvest includes sockeye kept in Zones 1-6, which includes harvest downstream of Bonneville Dam.
4. Prior to 1992, Lower Granite Dam sockeye counts may include kokanee. Since 1992 video counts or length measurements are used to identify true sockeye.
5. Beginning in 1979, the Wenatchee estimate is based on Rock Island or Priest Rapids Dam counts minus Rocky Reach Dam totals, except Priest Rapids count minus Wells count in 1995.
6. The Okanogan estimate is based on the Rocky Reach Dam counts until 1966. Wells Dam counts are used beginning with 1967.

Table 17. Commercial Landings of Shad in Area 2S, Washougal Reef, and Treaty Indian Fisheries and Minimum Shad Run Size (in Thousands), 1977-2011.

Year	Area 2S		Washougal Reef		Total Zone	Treaty Indian	Total	Run Size ³	% of Run
	Days	Catch ¹	Days	Catch ¹	1-5 Catch ²	Catch	1-6 Catch		Landed
1977	12	42.4	39	--	61.9	0.6	62.5	929.4	6.7
1978	19	101.7	28	--	113.6	5.6	119.2	1,369.8	8.7
1979	14	117.4	28	-	120.3	7.9	128.2	1,548.7	8.3
1980	19	21.9	32	--	23.2	0.2	23.4	1,223.8	1.9
1981	19	15.5	32	--	21.8	0.0	21.8	1,159.9	1.9
1982	19	72.5	29	--	75.0	1.5	76.5	1,133.4	6.7
1983	19	84.9	29	--	85.0	0.3	85.3	2,082.6	4.1
1984	14	14.4	24	--	18.1	3.1	21.2	1,336.1	1.6
1985	15	33.7	20	--	35.4	0.0	35.4	1,455.0	2.4
1986	19	80.5	24	7.6	88.2	0.7	88.9	1,474.9	6.0
1987	21	103.2	26	4.1	108.7	12.3	121.0	1,417.8	8.5
1988	19	97.4	24	8.9	108.4	19.2	127.7	2,156.1	5.9
1989	19	36.2	28	15.4	51.6	0.1	51.7	3,105.3	1.7
1990	19	161.8	29	6.0	167.8	0.2	168.0	4,012.0	4.2
1991	19	38.8	29	4.9	43.7	<0.1	43.8	2,363.1	1.9
1992	17	130.2	22	11.1	141.3	0.3	141.7	3,070.3	4.6
1993	16	139.2	21	5.3	144.7	1.0	145.7	2,671.3	5.5
1994	15	46.9	30	10.8	57.7	15.3	73.0	1,996.2	3.7
1995	22	54.4 ⁴	29	6.7	61.1	49.6	110.7	2,159.5	5.1
1996	24	60.1	29	1.0	61.1	282.8	343.9	2,905.8	11.8
1997	24	20.3	30	4.6	24.9	10.2	35.1	2,748.1	1.3
1998	24	24.4	31	0.0	24.5	24.1	48.6	2,294.9	2.1
1999	24	39.7	31	0.0	39.7	13.8	53.5	1,880.5	2.8
2000	29	30.4	34	0.0	30.5	0.1	30.6	1,709.5	1.8
2001	29	17.0	--	--	26.2 ⁵	5.6	31.8	2,908.4	1.1
2002	29	37.1	--	--	37.1	14.5	51.6	3,430.2	1.5
2003	29	79.2	--	--	79.2	105.8	185.0	4,800.1	3.9
2004	29	48.4	--	--	48.4	30.0 ⁶	78.4	5,680.4	1.4
2005	26	48.8	30	0.0	48.8	30.0 ⁶	78.8	6,323.5	1.2
2006	27	21.1	--	--	21.1	NA	NA	4,833.9	NA
2007	29	14.1	--	--	14.1	NA	NA	3,756.8	NA
2008	31	12.5	--	--	12.5	NA	NA	2,269.1	NA
2009	15	1.4	--	--	1.4	NA	NA	1,726.6	NA
2010	29	2.5	--	--	2.5	NA	NA	1,319.5	NA
2011	33	8.9	33	0.0	8.9	NA	NA	1041.3	NA

^{1.} Washougal Reef landings included in Area 2S landings until 1986. No season set since 2001, except for 2005 and 2011.

^{2.} Includes landings during sockeye seasons, Select Area fisheries, and John Day River shad fisheries in some years.

^{3.} Run size includes Zone 1-5 commercial catch, Columbia and Willamette sport catch, and the greater shad passage from either Bonneville or The Dalles dams (shad counting at The Dalles Dam was discontinued beginning in 2011).

^{4.} Limited experimental fishery with three boats.

^{5.} Includes shad caught in experimental tangle net permit fishery for spring Chinook.

^{6.} Precise catch estimates not available.

Table 18. Season Dates, Gear Restrictions, and Commercial Landings during Non-Indian Winter (January-March) and spring (April-June 15) Mainstem Seasons, 1970-2011.

Year	Season	Fishing Days	Mesh Size ²	Commercial Landings ¹	
				Chinook	White Sturgeon
1970-1974 Avg		13	7¼" min.	14,400	1,500
Range	Feb 19-Mar 10	9-15		12,500-17,200	800-3,400
1975-1979 Avg		8	8" min.	7,900	2,100
Range	Feb 26-Mar 11	5-11		4,700-13,500	1,000-2,700
1980-1984 Avg		8	8" min.	6,000	2,300
Range	Feb 16-Mar 11	1-12		400-9,600	900-3,700
1985-1989 Avg		12		13,200	1,500
Range	Jan 25-Mar 11	8-17	8" min. – 9" min.	400-18,300	500-1,700
1990-1994 Avg		13		7,900	1,300
Range	Jan 25-Mar 11	6-20	8" min. – 9" min.	1,500-18,300	700-3,000
1995-1999 Avg		7		<100	1,600
Range	Jan 11-Feb 26	0-13	8" min. – 9" min.	0-100	600-2700
2000	Jan 10-Feb 11	10	9" min.	17	1,200
	Feb 13-29	7	9" min.; above Kelley Pt.	0	325
	" "		8" min; below Kelley Pt.	479	736
2001	Jan 8-Feb 9	10	9" min.	71	2,634
	Feb 26-Mar 9	6	8" min; below Kelley Pt.	5,373	425
2002	Jan 7-Feb 15	11	9" min.	146	2,625
	Feb 25-Mar 27	15	5½" max.	14,238	99
2003	³ Jan 7-28	4	9" min.	2	1,490
	Feb 17 and 19	2	8" min.	519	21
	Mar 21	1	4¼" max.	2,527	6
2004	³ Jan 13-Feb 11	5	9" min.	48	1,696
	Mar 2-Mar 19	6	9" min.	3,490	159
	Mar 23-Mar 30	3	4¼" max.	9,620	15
2000-2004 Avg		16		7,306	2,287
2005	³ Jan 18-Feb 25	7	9" min.	94	473
	Mar 1-Mar 16	5	9" min.	1,489	58
	Mar 29-April 1	2	4¼" max.	3,606	12
2006	³ Jan 10-Feb 22	10	9" min.	39	288
	Feb 23-Mar 15	5	8" min.	994	88
	May 16-Jun 2	6	8" min.	3,356	1,563
2007	³ Jan 9-Feb 23	9	9" min.	194	1,424
	Mar 6	1	8" min.	434	19
	Mar 20-23	2	4¼" max.	2,292	15
	Jun 14-15	1	8" min.	30	13
2008	³ Jan 8 – Feb 29	11	9" min.	14	869
	Apr 1 – 15	3	4¼" max.	5,658	17
2009	³ Jan 6 – Feb 13	8	9" min.	18	1,697
	March 29 – April 14	3	4¼" max.	4,150	21
2005-2009 Avg		15		4,474	1,311
2010	³ Jan 19 – Feb 17	5	9" min.	75	518
	Mar 30 – April 7	2	4¼" max.	8,966	28
2011	³ Jan 18 – Feb 9	4	9" min.	88	50
	Mar 29 – April 6	2	4¼" max.	2,006	7
	May 12 – 19	2	8" min.	2,430	118

^{1.} Sale of steelhead prohibited since 1975. Catches ranged from 2,100 to 8,500 steelhead during 1970-74.

^{2.} Since 1997, maximum mesh size of 9¾" unless specified otherwise.

^{3.} Catch updated with preliminary fish ticket landings.

Table 19. Fishing Periods, Gear, and Associated Sturgeon Catch for Winter, Spring, and Summer Mainstem Columbia River Commercial Seasons, 2011.

Season	Fishing Period	Hrs	Zones	Mesh	STG Limit ¹	Del.	Chinook	Sockeye	WSTG	GSTG
Winter Sturgeon	6 PM Jan. 18 – 6 PM Jan.19	24	1-5	9-9 ³ / ₄ "	10	7	0	--	21	Prohibited
	6 PM Jan.25 – 6 PM Jan. 26	24	1-5	9-9 ³ / ₄ "	10	7	4	--	8	Prohibited
	6 PM Feb 1– 6 PM Feb. 2	24	1-5	9-9 ³ / ₄ "	10	10	9	--	3	Prohibited
	6 PM Feb. 8 – 6 PM Feb. 9	24	1-5	9-9 ³ / ₄ "	10	31	75	--	18	Prohibited
							88	0	50	0
Spring Salmon	7:30 PM – 11:30 PM March 29	4	1-4 ³	≤4 ¹ / ₄ "	None	154	1,234	--	4	Prohibited
	11 AM – 5 PM April 6	6	1-5	≤4 ¹ / ₄ "	None	148	772 ⁴	--	3	Prohibited
	3 PM May 12 – 5 AM May 13	14	1-4 ³	8-9 ³ / ₄ "	None	108	1,607	0	59	Prohibited
	5 PM May 18 – 5 AM May 19	12	1-4 ³	8-9 ³ / ₄ "	None	69	823	0	59	Prohibited
							4,436	0	125	0
Summer	9 PM Jun. 16 – 5 AM Jun 17	8	1-5	8-9 ³ / ₄ "	5	126	2,485	24	286	Prohibited
	9 PM Jun. 22 – 5 AM Jun 23	8	1-5	8-9 ³ / ₄ "	5	109	2,519	58	217	Prohibited
							5,004	82	503	0
Season Total							9,528	82	678	

1. White sturgeon possession and sales limit (per vessel per week). The retention of green sturgeon is prohibited.
2. No sockeye sales allowed until May.
3. Zones 1-4 mouth upstream to Kelley Point.
4. Six adipose fin-clipped Chinook per vessel limit.

Table 20. Estimates of the Spring Chinook Stock Composition (in Thousands) in Mainstem Lower Columbia Commercial Fisheries, 1990-2011.

Year	February – March Kept Catch by Stock					April – June 15 Kept Catch by Stock				
	Willamette River	C,K,L,S ¹	Upriver	SAFE	Feb-Mar Total	Willamette River	C,K,L,S ¹	Upriver	SAFE	Apr-Jun Total
1990	15.5	0.7	2.1	--	18.3	--	--	--	--	--
1991	11.2	0.5	0.9	--	12.6	--	--	--	--	--
1992	3.9	1	0.2	--	5.1	--	--	--	--	--
1993	0.8	0.4	0.2	--	1.4	--	--	--	--	--
1994	0.1	0.4	0.4	--	0.9	--	--	--	--	--
1995	--	--	--	--	--	--	--	--	--	--
1996	0.1	<0.1	<0.1	--	0.2	--	--	--	--	--
1997	0.1	0	<0.1	--	0.2	--	--	--	--	--
1998	<0.1	0	0	--	<0.1	--	--	--	--	--
1999	<0.1	<0.1	<0.1	--	0.1	--	--	--	--	--
2000	0.4	<0.1	0.1	<0.1	0.5	--	--	--	--	--
2001	2.8	0.2	1.6	0.8	5.4	--	--	--	--	--
2002	5.4	0.5	8.3	0.3	14.5	--	--	--	--	--
2003	0.8	0.1	2.1	<0.1	3.1	--	--	--	--	--
2004	5.7	1.3	5.3	0.9	13.2	--	--	--	--	--
2005	2.1	1.1	2.0	0.0	5.2	--	--	--	--	--
2006	0.5	0.3	0.2	<0.1	1.0	1.6	0.8	1.0	<0.1	3.4
2007	0.9	0.6	1.3	<0.1	2.8	<0.1	<0.1	<0.1	<0.1	<0.1
2008	<0.1	0.0	<0.1	0.0	<0.1	0.0	<0.1	5.6	0.0	5.6
2009	<0.1	<0.1	<0.1	0.0	<0.1	<0.1	0.0	4.1	0.0	4.1
2010	<0.1	<0.1	<0.1	0.0	<0.1	1.5	0.2	7.3	0.0	9.0
2011	0.3	<0.1	0.9	<0.1	1.3	0.8	0.1	2.2	<0.1	3.2

¹ C = Cowlitz River, K = Kalama River, L = Lewis River, and S = Sandy River

Table 21. Columbia River Recreational Spring Chinook Fishing Regulations, 2000-2011.				
Year	Buoy 10 to Tongue Point	Tongue Point to I-5 Bridge	I-5 Bridge to Bonneville Dam	Bonneville Dam to McNary Dam
2000	Open January 1-March 15. Two adult spring Chinook daily bag limit.	Open January 1-March 15. Two adult spring Chinook daily bag limit.	Closed.	Closed.
2001	Open January 1-April 17 and April 25-29. Two adult spring Chinook daily bag limit. Adipose fin-clipped spring Chinook only, beginning March 12.	Open January 1-April 17 and April 25-29. Two adult spring Chinook daily bag limit. Adipose fin-clipped spring Chinook only, beginning March 12.	Open March 12-April 17 and April 25-29. Two adult spring Chinook daily bag limit. Adipose fin-clipped spring Chinook only.	Open May 6-8 from The Dalles Dam upstream to McNary Dam. Two adult spring Chinook daily bag limit. Adipose fin-clipped spring Chinook only.
2002	Open January 1-April 28 and May 5-15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open January 1-April 28 and May 5-15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open March 16-April 28 and May 5-15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open March 16-May 15 from The Dalles Dam upstream to McNary Dam and April 3-May 15 from Tower Is. powerlines to The Dalles Dam. Two adipose fin-clipped adult spring Chinook daily bag limit.
2003	Open January 1-April 5 and April 9-12, 16-19, 23-26, 30-May 3, May 7-10, and May 14-15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open January 1-April 5 and April 9-12, 16-19, 23-26, 30-May 3, May 7-10, and May 14-15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open February 15-April 5. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open February 15-May 3, May 7-10, and May 14-15 from Tower Is. powerlines upstream to McNary Dam plus the Oregon Bank from Bonneville to Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.
2004	Open January 1-April 30. Two adipose fin-clipped adult spring Chinook daily bag limit. Unlawful to remove unclipped fish from the water (added as permanent regulation).	Open January 1-April 30. Two adipose fin-clipped adult spring Chinook daily bag limit. Unlawful to remove unclipped fish from the water (added as permanent regulation).	Open March 16-April 21. Two adipose fin-clipped adult spring Chinook daily bag limit. Unlawful to remove unclipped fish from the water (added as permanent regulation).	Open March 16-May 6 from Tower Is. powerlines upstream to McNary Dam plus the Oregon Bank from Bonneville Dam to Tower Is. Two adipose fin-clipped adult spring Chinook daily limit. Unlawful to remove unclipped fish from the water (added as permanent regulation).
2005	Open January 1-April 20. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open January 1-April 20 and June 4-15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open March 16-April 20 and June 4-15. Open Sunday, Monday and Tuesday only with a one-fish daily salmonid limit during March 16-April 20 between Rooster Rock and Bonneville Dam. Otherwise, two adipose fin-clipped adult spring Chinook daily bag limit.	Open March 16-April 20 and June 4-15 from Tower Is. powerlines upstream to McNary Dam plus the Oregon Bank between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.
2006	Open January 1-April 13. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open January 1-April 13 and May 17-June 15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open May 17-June 15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open March 16-April 30 and May 13-June 15 from Tower Is. powerlines upstream to McNary Dam plus the Oregon bank between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.
2007	Open January 1-April 15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open January 1-April 15 and May 16-June 15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open June 6-15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open March 16-May 3 and June 6-15 from Tower Is. powerlines upstream to McNary Dam plus the Oregon bank between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.

Table 21. Columbia River Recreational Spring Chinook Fishing Regulations, 2000-2011 continued.

Year	Buoy 10 to Tongue Point	Tongue Point to I-5 Bridge	I-5 Bridge to Bonneville Dam	Bonneville Dam to McNary Dam
2008	Open January 1- February 24 under permanent rules, then March 24-April 4 with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open January 1- February 24 under permanent rules, then March 24-April 4 upstream to Hayden Island powerlines with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 16-April 20 from Hayden Island powerlines upstream to Bonneville Dam (except closed Tuesdays March 25, April 1, 8, and 15). One adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 16-May 10 from Tower Is. powerlines upstream to McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.
2009	Open January 1-February 28 under permanent rules. Open March 1-15, 19-21, 26-28, April 2-4, 9-11, and 16-18 with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open January 1-February 28 under permanent rules. Open March 1-15, 19-21, 26-28, April 2-4, 9-11, and 16-18 upstream to the Hayden Island powerlines with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 1-22, 25-28, April 1-4, 8-11, 15-18, and 22 from Hayden Island powerlines upstream to Bonneville Dam with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 16-April 30 from Tower Is. powerlines upstream to McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.
2010	Open January 1-February 28 under permanent rules. Open March 1-April 18 (except closed Tuesdays March 9, 16, 23, and 30) with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open January 1-February 28 under permanent rules. Open March 1-April 18 (except closed Tuesdays March 9, 16, 23, and 30) with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open from I-5 to I-205 plus the Oregon and Washington banks between I-205 and Bonneville Dam during March 1-14, 18-20, 25-27, and April 1-3 (except closed Tuesday March 9) with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 16-May 9 from Tower Is. powerlines upstream to McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.
2011	Open January 1-February 28 under permanent rules. Open March 1-April 4 and April 8-19 with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open January 1-February 28 under permanent rules. Open March 1-April 4, April 8-19, and May 15-June 15 with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 1-April 4 and April 8-19 from the I-5 Bridge to Rooster Rock plus the Oregon and Washington banks between I-5 and Bonneville Dam. Open May 15-26 from the I-5 Bridge to Beacon Rock plus the Oregon and Washington banks between Beacon Rock and Bonneville Dam. Open May 27-June 15 from the I-5 Bridge to Bonneville Dam. One adipose fin-clipped adult spring Chinook in the daily bag limit throughout the entire season.	Open March 16-May 1, May 7-10, and May 28-June 15 from Tower Is. powerlines upstream to the Oregon/Washington border above McNary plus the Oregon and Washington banks between Bonneville Dam and Tower Is. powerlines. Two adipose fin-clipped adult spring Chinook daily bag limit.

Table 22. Salmonid Angler Trips and Adult Chinook Catch by Month on the Lower Columbia River, 2000-2011.

2000					2001					2002				
Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook	
			Kept	Released				Kept	Released				Kept	Released
2000	Feb	1,523	0	0	2001	Feb	5,017	84	0	2002	Feb	5,147	18	6
	Mar	8,360	322	0		Mar	44,356	4,550	2,323		Mar	35,629	2,036	1,699
	Apr	0	0	0		Apr	122,939	21,077	13,138		Apr	107,906	14,428	9,846
	May	6,156	0	92		May	5,330	0	56		May	31,445	3,982	2,670
	Jun	10,369	0	171		Jun	13,155	0	503		Jun 1-27	13,919	0	895
	Jul	17,669	0	170		Jul	19,157	0	386		Jun 28-30	5,591	472	221
2000	Total	44,077	322	433	2001	Total	209,954	25,711	16,406	2002	Total	234,966	21,816	16,061

2003					2004					2005				
Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook	
			Kept	Released				Kept	Released				Kept	Released
2003	Feb	9,573	209	223	2004	Feb	9,467	48	31	2005	Feb	7,551	39	0
	Mar	65,841	5,597	3,193		Mar	44,576	2,614	727		Mar	36,865	1,899	542
	Apr	66,351	9,110	4,729		Apr	102,058	21,078	6,482		Apr	65,705	8,653	2,389
	May	24,875	1,976	1,122		May	5,891	0	180		May	4,082	0	143
	Jun 1-15	7,776	0	106		Jun 1-15	2,046	0	59		Jun 1-15	10,492	724	486
	Jun 16-30	15,114	1,348	908		Jun 16-30	17,929	619	844		Jun 16-30	12,824	669	485
	Jul	24,053	506	763		Jul	21,875	500	422		Jul	25,681	902	15
2003	Total	213,583	18,746	11,044	2004	Total	203,842	24,859	8,745	2005	Total	163,200	12,886	4,060

2006					2007					2008				
Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook	
			Kept	Released				Kept	Released				Kept	Released
2006	Feb	2,471	19	0	2007	Feb	4,405	24	0	2008	Feb	4,150	3	1
	Mar	27,418	1,810	413		Mar	27,949	1,110	311		Mar	35,453	4,107	668
	Apr	33,750	3,595	712		Apr	34,890	4,507	924		Apr	63,369	15,930	2,463
	May	12,225	634	345		May	10,989	505	234		May	0	0	0
	Jun 1-15	10,971	927	991		Jun 1-15	4,777	330	179		Jun 1-15	0	0	0
	Jun 16-30	19,088	3,360	5		Jun 16-30	23,732	2,214	0		Jun 16-30	30,505	2,051	463
	Jul	24,714	1,564	11		Jul	16,036	0	219		Jul	20,783	0	427
2006	Total	130,637	11,909	2,477	2007	Total	122,778	8,690	1,867	2008	Total	154,260	22,091	4,022

2009					2010					2011				
Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook	
			Kept	Released				Kept	Released				Kept	Released
2009	Feb	4,539	34	1	2010	Feb	7,614	128	40	2011	Feb	5,598	280	47
	Mar	55,061	3,906	933		Mar	65,160	6,646	989		Mar	59,971	3,349	1,099
	Apr	82,693	12,983	2,304		Apr	99,001	22,473	3,407		Apr	48,962	4,026	928
	May	0	0	10		May	6,196	0	311		May	21,237	1,687	385
	Jun 1-15	4,109	0	148		Jun 1-15	7,005	0	608		Jun 1-15	19,127	2,352	695
	Jun 16-30	23,569	1,749	381		Jun 16-30	26,932	1,866	845		Jun 16-30	30,858	3,787	1,731
	Jul	39,644	507	469		Jul	43,729	673	483		Jul	44,960	1,373	1,040
2009	Total	209,615	19,179	4,246	2010	Total	255,637	31,786	6,683	2011	Total	230,713	16,854	5,925

Table 23. Recreational Fisheries Upstream of Bonneville Dam ¹.

Zone 6 Spring Chinook Recreational Fishery				
Year	Kept	Released	Season	General Area
2000			No Season	
2001	157	105	May 6-8	The Dalles Dam- McNary Dam
2002	1,609	1,073	Mar 16- May 15	The Dalles Dam - McNary Dam
2003	1,744	1,163	Feb 15- May 16 (4d/wk in May)	BON- McNary
2004	1,519	971	Mar 16- May 6	BON- McNary
2005	363	245	Mar 16- Apr 21, June 4-15	BON-McNary, BON-Hwy 395
2006	1,220	677	Mar 16- Apr 30, May 12-jun 15	BON-McNary, BON-Hwy 395
2007	1,343	561	Mar 16-May 3, June 6-15	BON- McNary
2008	2,130	660	Mar 16-May 10	BON- McNary
2009	284	58	Mar 16-April 30	BON- McNary
2010	3,431	809	Mar 16-May 10	BON- McNary
2011	2,308	712	Mar 16-May 1, May 7-10, May 28-Jun 2	BON- Oregon/Washington border
Snake River Spring Chinook Recreational Fishery				
	Kept	Released	Season	General Area
2000			No Season	
2001	1,439	558	May 1-31	Little Goose Dam (LGO), Lower Granite Dam (LRG)
2002	866	351	Apr 25-Jun 2 (4d/wk)	LGO
2003	513	405	Apr 26- Jun 15	LGO
2004	1,224	337	April 16- May 7	LGO
2005	77	83	June 11- 30	LGO
2006	192	100	May 17- Jun 30	LGO
2007	284	67	May 9- Jun 30	LGO
2008	515	128	Apr 22/Apr 24- May 11	Ice Harbor (IHD)/ LGO
2009	498	100	April 24- May 17	LGO
2010	1,663	199	April 20/24- May 21	IHD/ LGO/LRG/Clarkston
2011	1,913	357	April 20/25- May 13/15, May 28-Jun 2	IHD/ LGO/Clarkston
Zone 6 Summer Chinook Recreational Fishery				
	Kept	Released	General Season	General Area
2000			No Season	
2001			No Season	
2002	110		July 9- July 31	BON - Hwy 395
2003	376		June 16-July 31	BON - Hwy 395
2004	232		June 16-July 31	BON - Hwy 395
2005	450		June 16-July 31	BON - Hwy 395
2006	357	--	June 16-July 31	BON - Priest Rapids Dam
2007	198	--	June 16-July 3	BON - Priest Rapids Dam
2008	1,077	--	June 16-July 1	BON - Priest Rapids Dam
2009	200	--	July 1- 31	BON - Priest Rapids Dam
2010	150	75	June 16-July 31	BON - PRD
2011	194	137	June 16-July 31	BON - PRD

1. Columbia River data based on Catch Record Cards through 2009. Snake River based on creel.

Table 24. Estimates of the Spring Chinook Stock Composition (in Thousands) in Mainstem Lower Columbia Recreational Fisheries, 1990-2011.

Year	February – March Kept Catch by Stock					April – June 15 Kept Catch by Stock				
	Willamette River	C,K,L,S ¹	Upriver	SAFE	Feb-Mar Total	Willamette River	C,K,L,S ¹	Upriver	SAFE	Apr-Jun Total
1990	6.8	0.3	2.0	--	9.1	2.0	<0.1	1.1	--	3.1
1991	3.5	0.6	1.5	--	5.6	--	--	--	--	--
1992	3.1	1.0	1.2	--	5.3	--	--	--	--	--
1993	0.3	0.2	0.1	--	0.6	0.6	0.3	0.3	--	1.2
1994	1.0	0.3	0.2	--	1.5	0.3	0.1	0.2	--	0.6
1995	--	--	--	--	--	--	--	--	--	--
1996	0.0	0.0	0.0	--	0.0	--	--	--	--	--
1997	0.0	0.0	0.0	--	0.0	--	--	--	--	--
1998	<0.1	<0.1	0.0	--	0.1	--	--	--	--	--
1999	0.0	0.0	0.0	--	0.0	--	--	--	--	--
2000	0.2	<0.1	0.1	--	0.4	--	--	--	--	--
2001	0.8	0.1	3.7	--	4.6	2.8	0.4	17.9	--	21.1
2002	0.6	0.1	1.4	--	2.1	4.5	0.5	13.5	--	18.5
2003	1.1	0.2	4.5	--	5.8	5.9	0.8	4.3	--	11.0
2004	1.0	0.3	1.3	--	2.6	4.5	1.3	15.2	--	21.0
2005	0.7	0.4	0.8	--	1.9	2.1	1.2	6.1	--	9.4
2006	0.7	0.3	0.9	--	1.9	1.4	0.6	3.1	--	5.1
2007	0.4	0.2	0.5	<0.1	1.1	1.2	0.8	3.3	<0.1	5.3
2008	0.1	0.3	3.7	--	4.1	0.1	0.2	15.6	--	15.9
2009	0.4	0.2	3.3	<0.1	3.9	0.9	0.4	11.6	--	13.0
2010	2.0	0.3	4.4	--	6.7	3.2	0.5	18.7	--	22.4
2011	0.5	0.1	3.1	--	3.6	1.6	0.3	6.2	<0.1	8.1

¹ C = Cowlitz River, K = Kalama River, L = Lewis River, and S = Sandy River.

Table 25. Adult Spring Chinook Recreational Catch and Harvest Rates for the Cowlitz, Kalama, Lewis, and Sandy Rivers

Year ¹	Cowlitz River		Kalama River		Lewis River		Sandy River		Total	
	Kept Catch	Harvest Rate	Kept Catch	Harvest Rate	Kept Catch	Harvest Rate	Kept Catch	Harvest Rate	Kept Catch	Harvest Rate
1980-84 Ave.	7,094	31%	1,292	31%	2,554	67%	1,269	62%	12,215	32%
1985-89 Ave.	2,888	26%	568	38%	6,262	61%	815	41%	10,549	42%
1990	2,636	35%	887	45%	7,143	77%	2,058	58%	12,724	57%
1991	3,417	38%	1,404	54%	6,201	74%	1,950	53%	12,972	55%
1992	2,134	21%	749	31%	4,385	73%	2,223	26%	9,491	35%
1993	2,897	31%	1,472	51%	6,102	74%	2,416	38%	12,887	48%
1994	1,076	34%	229	18%	1,942	63%	1,322	38%	4,569	42%
Ave.	2,432	32%	948	40%	5,155	72%	1,994	43%	10,529	47%
1995	33	2%	3	0%	2,437	65%	1,151	46%	3,624	40%
1996	29	2%	190	30%	351	20%	1,299	34%	1,869	24%
1997	144	8%	5	1%	781	36%	1,203	27%	2,133	24%
1998	0	0%	0	0%	228	14%	1,006	28%	1,234	19%
1999	491	24%	8	1%	692	39%	1,481	41%	2,672	32%
Ave.	139	7%	41	0	898	35%	1,228	35%	2,306	28%
2000	538	24%	397	28%	1,260	50%	1,268	35%	3,463	35%
2001	54	3%	407	23%	2,020	53%	1,580	30%	4,061	32%
2002	1,655	32%	551	19%	1,369	39%	1,588	27%	5,163	29%
2003	3,029	19%	830	18%	1,920	38%	1,595	28%	7,374	24%
2004	1,929	12%	960	22%	2,966	40%	4,452	35%	10,307	25%
Ave.	1,441	18%	629	22%	1,907	44%	2,097	31%	6,074	27%
2005	1,301	14%	1,051	31%	1,557	44%	1,844	24%	5,753	24%
2006	842	12%	1,395	25%	2,737	37%	903	21%	5,877	24%
2007	746	19%	2,056	26%	3,521	46%	393	14%	6,716	30%
2008	604	20%	243	15%	850	38%	866	14%	2,563	20%
2009	1,823	31%	113	28%	394	27%	347	14%	2,677	26%
Ave.	1,063	19%	972	25%	1,812	38%	871	17%	4,717	25%
2010 ²	2,100	24%	200	26%	950	34%	1,027	13%	4,277	22%
2011 ²	750	18%	150	20%	300	21%	666	15%	1,866	18%

^{1.} 1995-2001 and 2008 harvest rates reflect fishery restrictions due to extremely low returns.

^{2.} Data preliminary.

Year	Season ¹	Peak Net Count	Numbers of Fish Sold Commercially ²			
			Chinook	Steelhead	Sturgeon	Walleye
1977-1981 Ave.	Feb 1-Apr 1 ³	170	1,400	3,700	110	--
Range		87-246	30-2,800	2,600-4,900	20-220	
1982-1986 Ave.	Feb 1-Mar 21 ^{4,5}	107	50	4,700	670	--
Range		61-180	5-100	3,000-7,800	70-1,700	
1987-1991 Ave.	Feb 1-Mar 21 ^{4,5}	183	100	6,700	2,100	500
Range		124-299	0-280 ⁶	2,100-10,800	1,300-3,100	130-1,030
1992	Feb 1-Mar 21 (48 days)	161 (Mar 9)	47	4,600	625 ⁷	350
1993	Feb 1-Mar 20 (47 days)	78 (Mar 18)	0	2,400	2,000	180
1994	Feb 1-Mar 19 (34 days)	120 (Mar 16)	10	2,100	1,500	190
1995	Feb 1-Mar 18 (33 days)	83 (Mar 16)	13	2,100	1,950	730
1996	Feb 1-Mar 16 (32 days)	--	0	90	480	230
1997	Feb 3-Mar 21 (35 days)	--	14	220	2,600	190
1998	Feb 2-Mar 14 (30 days)	--	1	150	2,800	120
1999	Feb 1-Mar 20 (40 days)	--	1	89	1,700	160
2000	Feb 1-Mar 21 (48 days)	--	31	2	2,251	307
2001	Feb 1-Mar 14 (41 days)	--	160	230	1,961	86
2002	Feb 1-Mar 21 (48 days)	--	45	78	1,529	76
2003	Feb 1-Mar 21 (48 days)	--	857	788	1,339	113
2004	Feb 2-Mar 10 (37 days)	--	2	70	1,748	48
2005	Feb 1-Mar 16 (44 days)	--	1	8	1,754	27
2006	Feb 1-Mar 21 (48 days)	--	1	139	815	186
2007	Feb 1-Mar 21 (49 days)	--	3	558	1,114	85
2008	Feb 1-Mar 21 (48 days)	--	0	334	1,588	20
2009	Feb 2-Mar 21	--	0	0	1,602	1
2010	Feb 1-Mar 3	--	0	12	2,889	2
2011	Feb 1-Mar 21	--	7	247	2,869	103

¹ Season dates during 1994-1999 (except March, 1999) include weekend closures of 42-48 hours.

² Treaty Indian sales to licensed fish buyers.

³ The 1980 season ended on March 15. The ending date for all other years was April 1.

⁴ The 1989 season ended on March 26. The end date for all other years was March 21.

⁵ Walleye sales not accounted for prior to 1989.

⁶ Includes two late fall Chinook in 1991.

⁷ Sturgeon sales prohibited beginning noon March 5.

Year	Season	Numbers of Fish Sold Commercially to wholesale fish buyers			
		Chinook	Steelhead	Sockeye	Walleye
2009	Jun 1-14	1,039	44	11	1
2010 ¹	April 27-May 19	2,090	46	0	1
2011 ^{1,2}	May 10-June 15	10,519	124	0	0

¹ Includes platform and hook and line fisheries.

² Includes both adult and jack Chinook.

Table 28. Summer Season Treaty Commercial Gillnet Landings, 2009-2011.					
Year	Season	Numbers of Fish Sold Commercially to wholesale fish buyers			
		Chinook	Steelhead	Sockeye	Walleye
2009	Jun 16- Jul 17	9,730	1,040	5,958	6
2010 ¹	June 16- Jul 29	15,569	10,957	21,843	57
2011	June 16-July 31	17,521	2,683	4,763	55

¹ Includes platform and hook and line fisheries.