



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

**2011 JOINT STAFF REPORT:  
STOCK STATUS AND FISHERIES FOR  
SPRING CHINOOK, SUMMER CHINOOK, SOCKEYE,  
STEELHEAD, AND OTHER SPECIES,  
AND MISCELLANEOUS REGULATIONS**

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## **INTRODUCTION**

This report describes winter/spring and summer season fisheries in the mainstem Columbia River and includes a summary of 2010 winter/spring and summer fisheries and management guidelines and expectations for 2011 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 2011 winter/spring and summer management season is scheduled for 10 AM, Tuesday February 8, 2011 at the Museum of the Oregon Territory, 211 Tumwater Drive, Oregon City, 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**

Non-Indian commercial seasons in the mainstem Columbia River and Select Areas include the winter (January through mid-April), spring (mid-April through mid-June), summer (mid-June through July), and fall (August through October). Winter 2011 seasons for non-Indian commercial mainstem white sturgeon were adopted at the December 17, 2010 Compact hearing.

At the February 8 hearing, the Compact will consider the following non-Indian seasons: 1) mainstem winter/spring seasons for spring Chinook; 2) recreational seasons for white sturgeon for the remainder of 2011; 3) winter, spring, and summer seasons in Select Area fishing sites. 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 occurs from mid-April to mid-June, 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, due to lower returns to the Willamette in general and fewer Age-5 Willamette fish in the 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, recent information indicates that the wild percentage of the run may



be higher. 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.

### ***2010 Return***

The Willamette River return of 110,536 spring Chinook entering the Columbia River in 2010 was 181% more than the 2009 return of 39,410 fish and was 76% greater than the preseason forecast of 62,700 (Tables 1 and 2). The 2010 return was made up of 2,861 Age-3, 89,533 Age-4, 17,977 Age-5, and 165 Age-6 Chinook. Approximately 15% (16,537) of the 2010 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.

### ***2010 Escapement***

Passage of spring Chinook over Willamette Falls in 2010 (67,059 fish) increased by 135% compared to 2009 (28,514 fish; Table 3). From 1975-2009, the number of spring Chinook passing Willamette Falls ranged from 14,700 to 96,700 and averaged 42,000 fish. Of the fish passing Willamette Falls, about 52,800 were hatchery fish, which exceeded the 20,000 hatchery fish escapement goal specified in the Willamette Fishery Management and Evaluation Plan (FMEP).

The Columbia River treaty tribes were able to meet the minimum ceremonial and subsistence (C&S) entitlement set forth in the 2008-2017 Management Agreement through their own fishing efforts in 2010. As a result Willamette River hatchery spring Chinook were not provided as part of the minimum C&S entitlement to treaty tribes. Approximately 1,400 surplus spring Chinook from McKenzie Hatchery were provided to Oregon coastal tribes in 2010.

### ***2011 Forecast***

The ODFW staff is forecasting a return of 104,100 Willamette River spring Chinook to the Columbia River mouth in 2011 which would be greater than the 2006-2010 average actual

returns (Table 2). Age-specific returns for 2011 are expected to total 1,300 Age-3s (range 779-1,685), 39,800 Age-4s (range 35,000-51,582), 62,400 Age-5s (range 47,917-78,302), and 600 Age-6s (range 437-637). The 2011 return is expected to include about 20,800 non-fin-clipped fish (20% of total return), based on the proportions of unmarked fish seen in the 2009-2010 returns.

### **Clackamas River Spring Chinook**

#### ***2010 Return***

The run entering the Clackamas River generally increased from an annual average of 2,600 in the 1970s, 8,200 in the 1980s, and 8,500 in the 1990s, to 14,100 in the early 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. The returns in 2008 and 2009 were below the recent average with 7,200 in 2008 and 4,300 in 2009. In 2010, 10,973 fish returned to the Clackamas River (Table 3).

#### ***2010 Escapement***

The North Fork Dam count of 4,443 spring Chinook in 2010 included 1,430 unmarked fish that were passed upstream, 258 marked fish that were recycled downstream (to provide additional recreational fishing opportunity), and 2,755 marked fish that were taken directly to Clackamas Hatchery where the swim-in return was 5,484 fish. An estimated 46 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.

#### ***2011 Forecast***

The ODFW staff is forecasting a return of 12,200 spring Chinook to the Clackamas River. The 12,200 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, 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 2010 adult spring Chinook return to the Sandy River is estimated at 8,057 adults, compared to the 2010 forecast of 3,700 adults. The 2011 forecast is 5,500 adult fish, based on 2008-2010 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 mid-March to mid-May. 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 2010 Cowlitz River adult spring Chinook return of 8,900 fish was about 30% less than the preseason forecast of 12,500. The 2010 return was greater than the recent ten-year (2000-2009) average of 7,100 adults. The minimum hatchery escapement goal of 1,250 adults was met with 5,900 adults (and 1,800 jacks) returning to the hatchery. Natural spawning escapement for 2010 is estimated at 700 adults, which is the recent ten-year average. 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 6,600 adult spring Chinook are expected to return to the Cowlitz River in 2011, which is less than the recent ten-year (2001-2010) average of 7,700 adults.

### ***Kalama River Return and Forecast***

The 2010 Kalama River adult spring Chinook return of 750 adult fish was less than (83%) the preseason forecast of 900 adults, although improved from the previous year's low return of 400 adults. The minimum hatchery escapement goal of 500 adults was met with some restrictions to the recreational fishery. A total of 467 adults and 9 jacks returned to the hatchery. No fish were observed spawning naturally. A run of approximately 600 adults is needed to achieve the minimum hatchery escapement goal, since a portion of the run spawns naturally.

An estimated 600 adult spring Chinook are expected to return to the Kalama River in 2011, which would be the second lowest return since 1998 and 18% of the recent ten-year average of 3,400 adult fish.

### ***Lewis River Return and Forecast***

The 2010 Lewis River adult spring Chinook return of 2,800 fish was less than half of the preseason forecast of 6,000 fish. The 2010 return was the lowest since 1999 and less than the recent ten-year average of 4,500 adults. A total of 1,828 adults and 22 jacks returned to the hatchery in 2010. Natural spawning escapement is estimated to be 157 adults. An adult return of 1,350 fish is needed to achieve the minimum hatchery escapement goal, since a portion of the run spawns naturally. An estimated 3,400 adult spring Chinook are expected to return to the Lewis River in 2011, which is about 76% of the recent ten-year average.

## **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 890,400–1,120,000 smolts annually during 1996–2009, excluding a brief increase to 1.65–1.83 million smolts annually between 2004 and 2006 coincident with an unsuccessful attempt to initiate a program at the South Fork Klaskanine Hatchery (Table 5). In Youngs Bay, annual releases of spring Chinook averaged 444,000 smolts during 1996–2006. Releases have increased recently and now average 473,000 for release years 2007–2009. Releases of spring Chinook smolts into Tongue Point and Blind Slough began in 1996. Since then, smolt releases into Blind Slough have averaged 300,000 smolts annually. Following the 2003 relocation of the Tongue Point netpen site further

into Cathlamet Bay, experimental groups of spring Chinook smolts released from the Tongue Point–MERTS site have ranged from 48,000–104,000 annually. The intent is to increase releases up to pre-2000 levels (approximately 250,000 annually) if attempts to reinstate harvest opportunity are realized. Releases into Deep River began in 1998 and averaged 98,000 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 270,000 since this strategy was initiated.

### ***2010 Returns***

Select Area spring Chinook fisheries are intended to harvest the maximum possible fraction of returning hatchery-produced adults to minimize straying and maximize economic return from the production. Returns of Select Area spring Chinook are measured by commercial landings. Commercial landings of Chinook salmon in 2010 Select Area winter/spring/summer fisheries totaled 24,892 Chinook (24,467 spring Chinook; remainder primarily early-returning SABs) of which 20,751 were landed in Youngs Bay, 2,999 were landed in Blind Slough, 727 in Tongue Point and 415 in Deep River. Landings in 2010 winter/spring/summer SAFE fisheries set a new record, more than doubling the previous high catch (11,699 in 2002), and is over three times the ten-year (2000–2009) average harvest of 7,100 Chinook (Tables 1 and 6). The exceptional harvest was mainly driven by high return rates of Age-4 adults from the Youngs Bay net pen release, although all Select Area sites experienced improved harvest relative to recent years.

### ***2011 Forecast***

The 2011 Select Area spring Chinook adult return will be comprised of Age-5 and Age-4 adults from releases of 1.06 million smolts in 2008 and 1.12 million smolts in 2009 (Table 5). Based on these releases and recent site- and age-specific return rates, 13,300 spring Chinook are expected to return to Select Areas in 2011. Approximately 11,000 fish will return to Youngs Bay, 1,900 fish to Blind Slough/Knappa Slough, 220 fish to Tongue Point/South Channel, and 180 fish to Deep River. The combined Select Area commercial harvest is expected to be above average but reduced from last year's record harvest.

## **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 was 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 2000-2009 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. Prior to the completion of Chief Joseph Dam, the Grand Coulee Dam (RM 597) blocked upriver salmon migration. Upper Columbia River spring Chinook have averaged 16% of the aggregate upriver spring Chinook run since 1980. Returns of upper Columbia spring Chinook to the Columbia River mouth in the 1980s averaged around 20,700 adults, including 7,800 wild fish. Returns severely declined during the 1990s averaging 9,700 adults (2,100 wild). During the 2000s, the annual returns improved, averaging 22,200 adults, including 2,300 wild fish (Table 8).

Snake River spring/summer Chinook have typically represented around 47% of the aggregate upriver spring Chinook run since 1980. 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).

### ***2010 Return***

The 2010 upriver spring Chinook return to the Columbia River mouth totaled 315,345 adults (Table 7) and consisted of 307,500 Age-4 fish and 7,900 Age-5 fish. The return included 169,900 (35,600 wild) adult Snake River spring/summer Chinook and 38,100 (3,100 wild) adult upper Columbia Chinook. The remainder of the run were destined for tributaries in the mid-Columbia. Although the overall return was less than the 470,000 fish forecasted, 2010 still proved to be a very strong return year. The aggregate return was (150%) greater than the recent

ten-year average (2000-2009) of 210,000 adults, and the third highest since at least 1980. The Snake River spring/summer return of nearly 170,000 fish was 153% of the 10-year average and the third highest return since at least 1980. The Snake River wild component was 117% of average and the fourth highest return since 1980. The upper Columbia spring Chinook return exceeded the recent 10-year average nearly two-fold (172%) and was the third highest since at least 1980. The upper Columbia wild component was 136% of the recent 10-year average and the highest return seen since 2001 (Tables 7-9).

During 2005-2009, peak counts and 50% passage dates at Bonneville Dam have been later than the 1977-2004 average. The 2010 return broke this recent trend, and showed a more normal timing curve over Bonneville Dam. The peak count occurred on April 21, followed 10 days later by 50% passage completion on May 1 (compared to the historical average of April 29). Chinook jack counts at Bonneville Dam totaled 16,200 fish, which was less than the 10-year average of 21,300, and followed the very high count observed in 2009.

### ***2011 Forecast***

The spring Chinook forecast produced by TAC for the total upriver run in past years has been derived from traditional cohort relationships, which historically were very strong. Age composition of the upriver run is determined from scale samples collected from landed catch (sport and commercial), from the adult fish trap at Bonneville Dam, and at various hatcheries. As with any predictive model, there has always been variation between the forecasts and actual returns, but overall, the models tended to be unbiased, with predictions having equal likelihood of being over or under the actual returns. However, in recent years, the actual return has been consistently less than the forecast. Similar to 2010, TAC considered alternative methodology and criteria for forecasting the upriver spring Chinook return in 2011. Although this shift in methodology still resulted in a 2010 forecast that was 33% higher than the actual return, it performed much better than prior years' standard models, which would have over-predicted the return by several hundred thousand fish.

After review of numerous alternative 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. Subsets of models were selected for each forecasted group and the final forecasts were ensemble means of these subsets. The 2011 forecast for upriver spring Chinook is 198,400 adults to the Columbia River mouth. This forecast includes 91,100 Snake River fish (24,700 wild) and 22,400 upper Columbia spring Chinook (2,000 wild), with the remainder of the run comprised of spring Chinook returning to mid-Columbia tributaries. The overall return is expected to consist of 158,400 four-year-old fish and 40,000 five-year-old fish. If accurate, this projection would represent the sixth highest return since 1980, and would be similar to the average return observed over the past decade.

The forecast of 91,100 Snake River spring/summer Chinook is 75% of the recent 10-year average of 121,700 fish, and similarly the wild forecast of 24,700 adults is 76% of the recent 10-year average of 32,500 fish. The wild Snake River component is forecasted to represent 27% of total Snake River run, which is equal to the recent 10-year average percentage. The forecast of 22,400 adult Upper Columbia spring Chinook is 95% of the recent 10-year average of 23,800 fish; the wild component of 2,000 fish represents 80% of the 10-year average of 2,500 fish. The wild

component is forecasted to represent 9% of total Upper Columbia spring run, compared to the recent 10-year average of 11%.

### **Washington Tributaries Upstream of Bonneville Dam**

The Washington tributary returns and forecasts listed below are included in the aggregate 2010 return and 2011 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. Production of spring Chinook began 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 (2000-2009) averaged 11,800 (range 3,300 to 25,900) adult spring Chinook each year. The 2010 return of spring Chinook to the Wind River was nearly 10,000 adults, compared to the preseason forecast of 14,000 adults. The 2011 forecast is 4,900 fish, about half of the 2010 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 2010 return of spring Chinook to the Little White Salmon River was the largest return observed since at least 1970, with nearly 24,000 adults returning to the tributary mouth. The return was similar to the preseason forecast of 28,000 adults, and more than twice the size of the recent 10-year average of 10,300 adults. The forecast for 2011 is for another strong return of 12,600 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 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 spring Chinook (adults and jacks) returning to the Klickitat River mouth have ranged from about 900 to 8,400



fish, averaging about 3,000 fish annually. The 2010 return of adult spring Chinook was estimated at just over 4,000 adults to Lyle Falls on the lower Klickitat River based on mark-recapture methods. The forecast for 2010 was for 4,500 adults. The 2011 forecast is 2,100 adults. The recent ten-year average return is 2,000 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 11,000 adult spring Chinook returned to the Yakima River in 2010, which was much less than the 16,600 expected. The 2011 return is forecasted at 10,300 adult spring Chinook, compared to the recent ten-year average of 9,700 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.

Because of run timing similarities, Snake River summer Chinook are included in the Snake River component of the upriver spring Chinook run. The Columbia River summer Chinook run consists only of the upper Columbia component. Columbia River mouth run size 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.

### ***2010 Return***

The 2010 upper Columbia River summer Chinook return totaled 72,300 adults, compared to the preseason forecast of 88,800 adults. The adult return was comprised of 57,000 Age-4 fish, 14,000 Age-5 fish and 1,300 Age-6 fish. Age class proportions included 79% Age-4 fish and 19% Age-5 fish, which is substantially different from average proportions. Typically Age-5 fish represent around 45% of the adult return. The majority of the 2010 forecast shortfall was due to the poor return of Age-5 fish, which was 13,000 fish less than forecast. Overall, the total return was strong and continued the generally upward trend observed since 2000. The 2010 return was the fourth highest since 1980, greater than the recent 10-year average of 59,800 adults and also greater than the 2009 return of 53,900 adults.

### ***2011 Forecast***

The methodology for forecasting summer Chinook returns has historically depended on cohort relationships using linear regression models. Linear regression analysis resulted in a forecast of 91,100 adults for the 2011 upper Columbia River summer Chinook return. The forecast includes 39,100 (43%) Age-4 fish and 50,900 (56%) Age-5 fish. The age class ratios are within the range of those observed in the past ten years, although the Age-4 component is proportionately less than average. Over the past 10-years (2001-10), Age-4 fish have represented 55% of the adult return. If accurate, this projection of 91,100 adults would represent the highest return since at least 1980, and would be 141% of the 10-year average (64,800 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 2001 through 2009 averaged 20,000 fish and ranged between 11,300 and 33,700 fish (Table 11).

### ***2010 Return and 2011 Forecast***

The 2010 wild winter steelhead return to the Columbia River mouth totaled nearly 19,000 fish. The return was similar to the forecast of 20,100 fish. Individual tributary returns were generally greater than the recent five year average, and likely reflect positive ocean conditions during 2009. Passage of wild winter steelhead at Willamette Falls since 2001 has averaged 8,100 fish, but has had a wide range of 2,800 up to 16,000 fish. Passage in 2010 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 2011 forecast for wild winter steelhead is 15,200 returning to the Columbia River mouth. Because the return has been relatively stable over the past five years, and linear regression models did not provide a strong relationship between one-ocean and two-ocean fish, the forecast is equal to the recent five-year average (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, Wind, and Washougal 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 Distinct Population Segments (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 for at least the past 26 years (1984-2009). During 1984-2009 Bonneville Dam passage has ranged from 160,800 fish up to 630,200 fish with an average of 309,000 upriver summer steelhead. The most recent five-year average (2005-2009) is 383,500 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 115,600 fish to 543,200 fish over the past 26 years, averaging 243,000 fish. The recent 5-year average for Group A steelhead passage has improved to 308,900 fish, mainly due to the large return of 2009. Group B steelhead returns are much smaller than the Group A returns. Group B passage at Bonneville Dam over the past 26 years has ranged from 13,200 fish up to 129,900 fish. The Group B run size has also increased from the long-term average return of 53,000 fish up to the recent five-year average of 62,400 fish. The wild component of the Group B run has increased proportionately to the overall Group B run, and has consistently averaged around 20% of the return.

### ***2010 Return***

The total return to Bonneville Dam (April-October passage) of upriver summer steelhead in 2010 was 410,400 fish, compared to the preseason forecast of 453,000 upriver steelhead. Upriver summer steelhead passage at Bonneville Dam in 2010 was slightly greater (131%) than the average return 309,000 fish. TAC adjusts window observations of steelhead to reflect unclipped hatchery fish based on sampling data collected at the Bonneville Dam adult fish trap.

Although the overall return was only slightly above average, the 2010 Skamania return was the largest return observed since 1984. Skamania stock steelhead passage at Bonneville Dam totaled 29,300 fish including 10,400 wild fish. The wild component typically accounts for 20% of the return on average, but in 2010 the wild component was 35%. Two-salt fish (both hatchery and wild) represented the majority of the return, as is typical for Skamania steelhead. The majority of steelhead passage at Bonneville Dam occurs during July through October. During these months in 2010, a total of 381,200 steelhead passed Bonneville Dam, compared to the recent ten-year average of 380,000 fish and the expected total passage of 436,600. August passage accounted for 41% of the July-October passage, compared the 10-year average of 26%. This proportionately high August passage was balanced out with a lower (37%) than average (44%) September passage, indicating an early-timed return. The 2010 upriver steelhead return to Bonneville Dam included 304,000 Group A stock (120,500 wild) and 77,100 Group B stock (22,400 wild).

Wild steelhead passing Bonneville Dam during April-October in 2010 totaled 153,300 fish, compared to the preseason expectation of 89,900 fish. The wild fish component in 2010 represented 37% of the passage, which is greater than the recent ten-year average of 26%.

### ***2011 Forecast***

The 2011 forecast for upriver summer steelhead at Bonneville Dam had not been developed at the time this report was published. The 2011 forecast will be included in the Fall Joint Staff Report, typically published in late July.

## **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 (completed 1941) in the upper Columbia system; and by

Swan Falls (completed 1901), Sunbeam (completed 1913; removed in 1934), 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).

### ***2010 Return***

The 2010 return of sockeye to the Columbia River of 387,900 adults was much greater than the preseason forecast of 125,800 adults. The 2010 return proved to be a record return (since 1938) and the third consecutive strong return year, following the prior record returns of 2008 and 2009. The 2010 return included 66,300 Wenatchee stock, over 318,900 Okanogan stock, and 2,600 Snake River stock returning to the Columbia River. All components exceeded preseason expectations, including the Wenatchee stock, which had been projected to be below escapement objectives. Sockeye counts at Lower Granite Dam exceeded 2,400 fish, which is the highest count since the facility came online in 1975. The 2010 Columbia River return of Snake River sockeye was the highest observed since at least 1980, far exceeding the recent ten-year average (300 fish) and the record setting return of 2009 (Table 16).

### ***2011 Forecast***

The forecast for the 2011 sockeye run is 161,900 adults to the Columbia River, which includes 33,000 (20%) to the Wenatchee, 126,800 (78%) to the Okanogan, and 2,100 to the Snake River. The 2011 forecast is 167% of the recent 10-year average. The Wenatchee component is forecasted to be 10,000 fish above the escapement objective of 23,000 fish and a return of 33,000 fish would be 120% of the recent 10-year average. The Okanogan component, which has shown an impressive increase in run strength since 2008, is expected to continue this trend and reach 184% of the recent 10-year average of 68,900 fish. Although the Snake River component proportionately is a small component within the total run, a return of 2,100 fish would continue the upward trend observed in the past two years and be six times the recent 10-year average return of 300 fish.

### **Shad**

Shad are an introduced species brought to the West Coast from Pennsylvania in the late 19<sup>th</sup> 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 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.

### ***2010 Return***

The 2010 minimum shad run size was 1.3 million, with a minimum spawning escapement exceeding 1.2 million upstream of The Dalles Dam, plus an unknown number of spawners downstream of The Dalles Dam and downstream of Willamette Falls. The non-Indian (lower Columbia and lower Willamette) recreational and commercial combined catch of 77,800 shad was the lowest since 1985 and amounted to 5.9% of the estimated total minimum run. The 2010 shad run in the Columbia River was the lowest since 1982 and continued a declining trend from the 2005 record return of 6.3 million shad (Table 17).

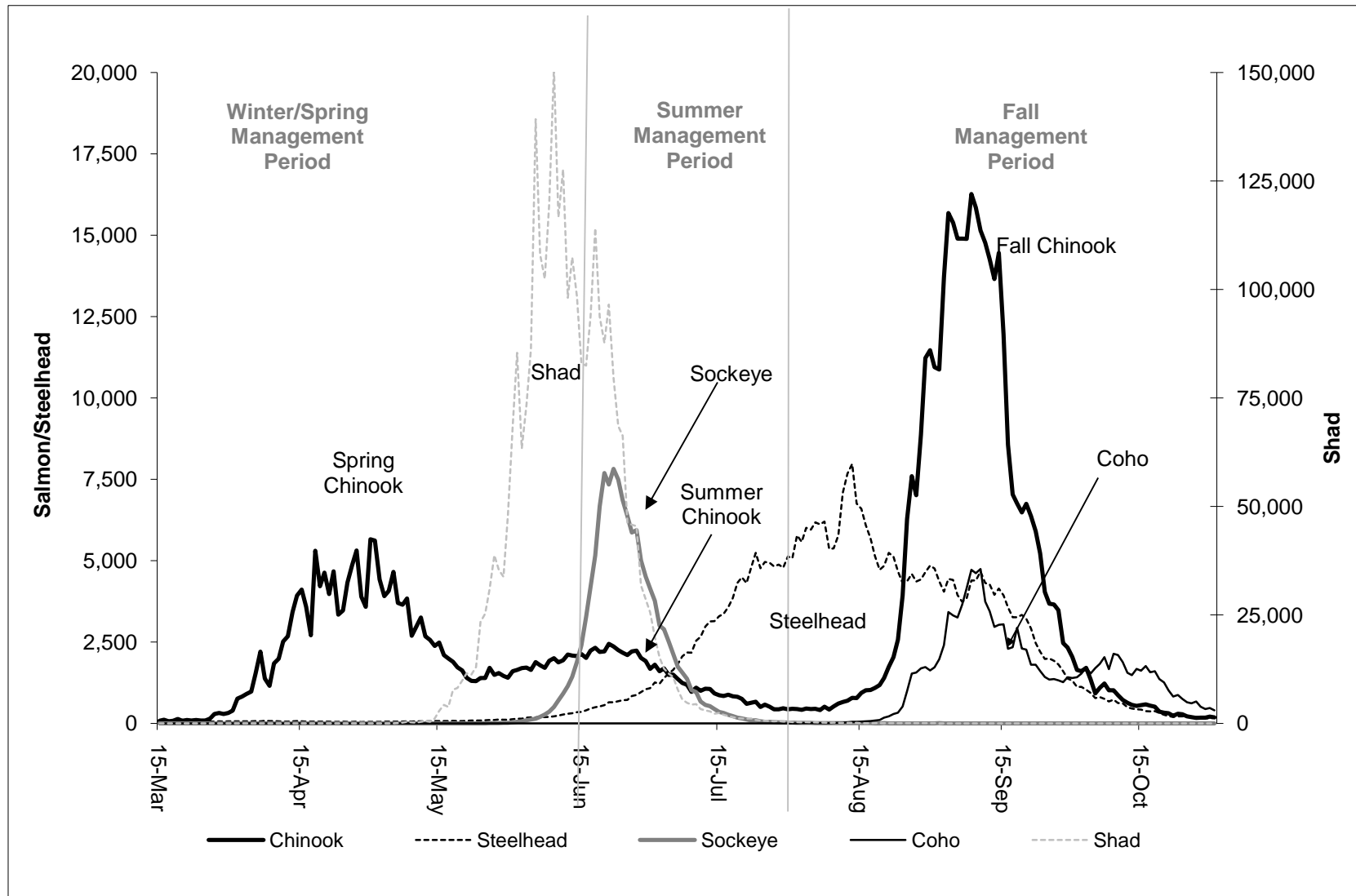


Figure 1. Average Daily Counts of Salmon, Steelhead, and Shad at Bonneville Dam, 2001-2010.

## 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 and are 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 – ESU/DPS <sup>1</sup>	Current Designation	Listing Date	Effective Date
<u>Chinook</u>			
Snake River Fall	Threatened	April 22, 1992	May 22, 1992
<b>Snake River Spring/Summer</b>	Threatened	April 22, 1992	May 22, 1992
<b>Upper Columbia Spring</b>	Endangered	March 24, 1999	May 24, 1999
<b>Upper Columbia Summer/Fall</b>	Not warranted	--	--
<b>Middle Columbia Spring</b>	Not warranted	--	--
<b>Lower Columbia River Spring/Fall</b>	Threatened	March 24, 1999	May 24, 1999
<b>Upper Willamette Spring</b>	Threatened	March 24, 1999	May 24, 1999
Deschutes River Summer/Fall	Not warranted	--	--
<u>Steelhead</u>			
<b>Snake River Basin</b>	Threatened	August 18, 1997	October 17, 1997
<b>Upper Columbia River</b> <sup>2</sup>	Threatened	August 18, 1997	October 17, 1997
<b>Lower Columbia River</b>	Threatened	March 19, 1998	May 18, 1998
<b>Middle Columbia River</b>	Threatened	March 25, 1999	May 24, 1999
Southwest Washington	Not warranted	--	--
<b>Upper Willamette</b>	Threatened	March 25, 1999	May 24, 1999
<u>Sockeye</u>			
<b>Snake River</b>	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
<b>Green Sturgeon- Southern DPS</b>	Threatened	April 7, 2006	July 7, 2006
<b>Eulachon - Southern DPS</b>	Threatened	March 18, 2010	May 17, 2010

<sup>1.</sup> 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.

<sup>2.</sup> 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.

### ***Salmon and Summer Steelhead***

Spring and fall Chinook destined for Columbia River tributaries downstream of the mouth of the Klickitat River (excluding Willamette River Basin spring Chinook) form a single Evolutionarily Significant Unit (ESU) that was listed as threatened under the ESA effective May 24, 1999 (reaffirmed in 2005). This lower Columbia ESU includes wild spring Chinook destined for the Sandy River in Oregon and the Cowlitz, Kalama, and Lewis rivers in Washington. Excluded from the ESU are Carson hatchery (Wind River) spring Chinook and hatchery-reared spring Chinook released at terminal fishery areas in Youngs Bay, Blind Slough, Tongue Point, and Deep River. Populations of spring Chinook in the Willamette, including the Clackamas, are also ESA-listed and classified as a separate ESU.

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.

The upriver wild summer steelhead run is divided into three Distinct Population Segments (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, downgraded to threatened in June, 2009), and 3) the Snake River DPS which includes steelhead returning to the Snake River basin (listed as threatened in October 1997).

### ***Wild Winter Steelhead Management***

All wild winter steelhead are ESA-listed, except those within the Southwest Washington 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. 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.

### ***Green Sturgeon***

The southern distinct population segment (DPS) of the North American green sturgeon (those spawning in the Sacramento River, California) are ESA-listed as threatened. The BO covering non-Indian fisheries described in the “2008-2017 U.S. v Oregon Management Agreement” addresses impacts to green sturgeon. Given that (1) the sale of green sturgeon from Columbia

River commercial fisheries was prohibited effective July 6, 2006, and (2) the retention of green sturgeon in Columbia River recreational fisheries was prohibited effective January 1, 2007, impacts to green sturgeon from fisheries described in this report are expected to be de minimus.

### ***Eulachon***

In March 2010, the NMFS published a rule (75 FR 13012) to list as threatened under the ESA the southern DPS of Pacific eulachon *Thaleichthys pacificus*. This DPS encompasses all populations from the Skeena River in British Columbia south to the Mad River in Northern California. As a result of this listing, the *U.S. v Oregon* TAC submitted to NMFS an addendum to the BA previously submitted which covers Columbia River fisheries through 2017. This addendum addressed the incidental take of ESA-listed eulachon in Columbia River fisheries. Impacts to Columbia River eulachon from fisheries described in this report are expected to be de minimus.

## **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 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 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 fisheries. Non-Indian fisheries in 2010 were restricted to no more than 70% of the available catch specified for treaty fisheries at the preseason forecasted run size for use prior to a run size update. The following table depicts modifications to Table A1 of the MA, reflecting the new catch balancing provisions.

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

Total Upriver Spring and Snake River Summer Chinook Run Size <sup>6</sup>	Snake River Natural Spring/Summer Chinook Run Size <sup>1</sup>	Treaty Zone 6 Total Harvest Rate <sup>2,5</sup>	Treaty Catch Guideline	Non-Treaty Natural Harvest Rate <sup>3</sup>	Non-Treaty Mortality Guideline	Total Natural Harvest Rate <sup>4</sup>	Non-Treaty Natural Limited Harvest Rate <sup>4</sup>
<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. The following table outlines the framework for upper Columbia summer Chinook harvest rates.

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

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.

<b>Treaty Indian Sockeye Harvest Rate Schedule, 2008-2017.</b>	
<b>Upriver Sockeye Run Size</b>	<b>Harvest Rate</b>
<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 pre-season and managing fisheries in-season. In 2010, staff followed the same basic sharing principles utilized in 2009. Policy guidelines for non-treaty spring Chinook fisheries adopted by the Commissions allocated available ESA impacts for upriver spring Chinook among the various fisheries. Of the impacts available, 50% were allocated to sport fisheries and 45% to commercial fisheries, with the remaining 5% un-allocated. In addition to allocating available upriver-stock impacts among the various non-treaty 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-treaty fishery. In 2010, non-Indian fisheries were managed for a 40% run size buffer prior to an in-season run size update (compared to the 30% buffer requirement under the MA in 2010).

### **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-treaty 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.

<b>Upper Columbia Management Agreement: Non-treaty Harvest Framework for Upper Columbia Summer Chinook</b>			
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% 10	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.

<b>Hatchery Spring Chinook Escapement Goals at Willamette Falls and the Clackamas River</b>			
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. 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.

<b>Allocation of Willamette Hatchery Spring Chinook</b>		
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 ***2011 Joint Staff Report: Stock Status and Fisheries for Sturgeon and Smelt*** dated January 11, 2011. As in 2009, a one-year management agreement was adopted for 2010. The 2010 agreement was similar in structure to past agreements, with the WFWC, OFWC, and the two state directors providing management guidelines for 2010 white sturgeon fisheries. The total white sturgeon harvest guideline was reduced by 40% from the 2009 guideline of 40,000 fish, resulting in a total of 24,000 white sturgeon available for harvest in 2010.

## 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 predictable 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. Weekly landing limits have remained a valuable tool in maintaining consistent commercial fisheries since first adopted in 2002. The harvestable number of white sturgeon is allocated 80% to recreational fisheries and 20% to commercial fisheries. Annual fishing plans for distribution of commercially harvestable sturgeon are developed each year 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. Openers 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 2009 three fishing periods occurred (between March 29 and April 14) with deliveries ranging from 72-116 per opener. Due to a second consecutive low return to the Willamette River, all openers occurred in Zones 4-5, in the area above Hayden Island tower lines, similar to the 2008 season. Tangle net gear was required in all openers. No sturgeon landing limits were needed to remain within the winter/spring sturgeon sub-allocation. 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.

### *2010 Winter Commercial Salmon Season*

The 2010 commercial fishery was conducted under similar guiding principles, management objectives, and basic fishing plans in effect since 2004. Based on 2010 preseason run size forecasts and the harvest rate schedule in the 2008-2017 MA, non-Indian fisheries were limited to a 2.6% impact rate on listed upriver spring Chinook. As discussed above (see **Non-Indian Impact Allocations of Upriver Spring Chinook**), an impact buffer of 40% 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 0.552% 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 21,700 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, 17,360 hatchery fish were allocated to recreational fisheries, and 4,340 were allocated to commercial fisheries for use in Select Area and winter mainstem sturgeon fisheries. Additional restrictions included a non-Indian fishery impact limit of 2.0% for ESA-listed wild winter steelhead.

The structure of 2010 spring fishing season was similar in structure to past years. With the improved Willamette run forecast the fleet was able to operate in the more traditional area below the mouth of the Willamette River. The commercial catch expectation prior to a run size update was 8,300 upriver-stock spring Chinook. According to the preseason commercial fishing plan, test fishing would be conducted prior to considering full fleet fisheries. Full fleet fisheries were expected to occur between Monday nights and Wednesday mornings (which coincided with recreational closures on Tuesdays) and not to exceed 24 hours. Commercial fisheries were likely to be conducted during both daylight and nighttime hours. 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.

Test fishing with tangle net gear (4¼-inch mesh) occurred weekly during March and into the first week of April. 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. Most test fishing occurred in Zones 2-3 to maintain the historical data base. In an effort to continue collecting additional information on run strength, additional test fishing took place which was designed to mimic test fishing conducted in the late 1980s near

Corbett and Woody Island. These test fishing periods were conducted on April 12 and 19, and May 10 and 16. The May 16 test fishery used 8-inch mesh, whereas the all other test fishing operations 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, while steelhead and unmarked Chinook were released. 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 early April and retained 26 unmarked and two 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 early to mid- March. With low passage (<200 fish) at Bonneville Dam, the Compact did not consider commercial fisheries until March 22. Test fishing was conducted in Zones 2-3 on March 21 and resulted in a catch rate of three Chinook per drift. Based on the test fishing results, Chinook abundance, stock composition, and mark rate were adequate to justify a commercial fishing period but elevated steelhead abundance complicated use of tangle net gear. Based on this information, staff did not recommend a fishery and scheduled test fishing for the following Sunday.

Results from test fishing on March 28 showed similar Chinook catch rates as the prior week. Steelhead abundance appeared to be past-peak, which would be typical for the last week in March. The first salmon-directed fishery for 2010 was a 12-hour (noon to midnight) opener on Tuesday, March 30. The fishery was conducted with tangle net gear from the mouth upstream to the I-205 Bridge. Tributary mouth sanctuaries were in place to protect ESA-listed steelhead and Chinook. White sturgeon harvest was allowed with a five fish landing limit per vessel per week. Observed Chinook catch rates (2.6 fish/ drift) were similar to those observed (3.1 fish/ drift) during test fishing two nights prior and a total of 3,100 fish were landed.

With 3,100 Chinook landed to date and an estimated 6,500 additional fish available for commercial harvest, test fishing was conducted again on Sunday, April 4. Test fishing results were positive, showing a very high catch rate of 11 Chinook per drift. Bonneville Dam counts remained low however, with only 1,200 spring Chinook counted through April 4. Staff recommended a very conservative four-hour fishing period, recognizing the volatile nature of the spring Chinook run timing and abundance during early to mid-April. The Compact met on April 5 to consider the recommendation and take public testimony. The Joint Staff indicated that further commercial fishing would likely be postponed until May if fishing were not conducted during the proposed small window of opportunity. The Compact adopted the staff recommendation and the second (and final) fishing period took place from 530–930 PM Wednesday, April 7 (4 hours). Catch was expected to range from 5,000-6,500 fish, and the area and gear restrictions were the same as the first period. Landings were 5,900 Chinook from 198 deliveries during this four-hour period.

The TAC met on April 20 and again on April 26 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,

and 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 3 and downgraded it to a range of 310,000 to 370,000 upriver spring Chinook to the Columbia River mouth. A run size in this range reduced non-Indian ESA impacts limits allowed for all fisheries to either 2.2% or 2.3% compared to the 2.6% available at the preseason forecast. By May 24 TAC was able to refine the in-season forecast to 315,000 fish, equating to 2.2% non-Indian ESA impacts. Based on the in-season run size update and catch to date, no additional commercial fisheries were adopted for the remainder of the spring season. Although the commercial fishery retained an available balance of upriver stock impacts, too few overall fish remained available to set a fishery that would remain within catch limits.

Total landings for the 2010 commercial fishery (Tables 18 and 19) included 8,966 hatchery Chinook and 28 white sturgeon. An additional 75 hatchery Chinook were landed during the winter Sturgeon season. Released Chinook totaled 1,684 un-clipped Chinook, including 11 released during the winter sturgeon fishery. Stock composition indicated that 80% of the Chinook handled were of upriver origin. Mark rates for Chinook in both commercial fishing periods were nearly identical, averaging 84% for the season. Winter steelhead handle totaled 1,062 fish, of which 480 were unmarked (wild and unmarked hatchery fish combined). Wild winter steelhead mortalities resulting from incidental handle were estimated to be 89 fish. Onboard monitoring was conducted during both spring fishing periods. A total of 129 drifts were observed with 591 kept Chinook observed, resulting in a 7% observation rate. Landed catch was sampled at a rate of 50%. Average Chinook weight was 13 pounds. Ex-vessel prices averaged \$6.11 per pound for Chinook and \$2.43 per pound for white sturgeon.

### ***Past Lower Columbia River Spring Chinook Recreational Fisheries***

Under permanent regulations, the mainstem Columbia River from the mouth to the I-5 Bridge (RM 106) has been open to angling for spring Chinook salmon January 1 through March 31, and 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 2001 expected return of 430,400 adult spring Chinook to the Columbia River, 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 of each year. 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 post-release 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 two adult fish with only one spring Chinook for the entire area downstream of Bonneville Dam during the majority of the fishery (Table 21). In-season management has been necessary in most years to maintain the fishing impacts below ESA guidelines and/or within non-Indian harvest-sharing allocations. During all years, the states have attempted to maintain a balanced opportunity for anglers upstream of Bonneville Dam. Regulations for 2000-2010 Columbia River recreational spring Chinook fisheries are listed in Table 21, and catch and effort totals for 2001-2010 are shown in Table 22. Regulations and catch and effort totals for the Zone 6 sport fishery are shown in Tables 21 and 23.

### ***2010 Lower Columbia River Spring Chinook Recreational Fishery***

In 2010, the total spring Chinook run size was forecast to be a modern-day record return of 559,900 adults to the mouth of the Columbia, comprised of an upriver component of 470,000 fish and a lower river component of 89,900 fish, including 62,700 Willamette spring Chinook (47,000 hatchery fish). While the 2010 upriver run was predicted to be the largest since at least 1938, the Willamette run size forecast was less than the ten-year average; however, it was the largest since 2004. According to the Willamette FMEP, at the predicted run size and hatchery return about 17,400 Willamette spring Chinook were available for recreational fisheries in the lower Willamette and lower Columbia rivers, which was expected to provide full fisheries in both areas. The “2008-2017 *US v Oregon* Management Agreement” provided for a 2.6% impact to ESA-listed upriver spring Chinook in all non-Indian fisheries in 2010, based on the upriver Chinook run size forecast.

Due to discrepancies between OFWC and WFWC guidance, (see **Non-Indian Impact Allocations of Upriver Spring Chinook**), the agencies' two directors met and provided the following guidance to staff when considering Columbia River recreational fisheries for spring Chinook in 2010:

- ✓ Manage non-treaty fisheries for a 40% run size buffer prior to a run size update,
- ✓ Prior to a run update, the allocation of upriver fish including release mortalities would be:
  - 17,200 upriver spring Chinook for the sport fishery below Bonneville Dam
  - 4,500 fish to be used as follows (based on in-season assessment):
    - To provide a higher degree of certainty of meeting the sport fishery objectives above Bonneville Dam.
    - To provide flexibility to meet the pre-update objectives for the sport fishery below Bonneville Dam.

Recreational fishing regulations for the 2010 spring Chinook fishery were adopted at the February 18 Compact hearing. The permanent recreational season for the Columbia River from Buoy 10 to the I-5 Bridge that began January 1 was allowed to continue through February 28, and the remainder of the season was modified. The lower Columbia between Buoy 10 and the I-5 Bridge was open March 1-April 18, except closed on Tuesdays March 9, 16, 23 and 30. The area from the I-5 Bridge to the I-205 Bridge plus the Oregon and Washington banks between I-205 and Bonneville Dam was open March 1-14 (except closed Tuesday March 9), and then open 3-days per week on Thursday, Friday and Saturdays through April 3 (Open March 18-20, 25-27 and April 1-3). The area from Tower Island powerlines upstream to McNary Dam and along the Oregon and Washington banks between Bonneville Dam and Tower Island was scheduled to be open March 16-May 31. The daily bag limit in the area between Buoy 10 and Bonneville Dam was modified to two adult fish with not more than one spring Chinook effective March 1 (Table 21). The retention of shad and adipose fin-clipped steelhead was allowed for the duration of the spring Chinook seasons in all areas.

The Columbia River and many lower river tributaries were low and clear at the start of 2010 with early snow-pack accumulation running about 30-40% of normal across the basin. January was relatively wet but warm and February was dry and warm, leaving most streams low and clear at the onset of the spring fishing season. The first spring Chinook was sampled on February 18 in Longview, but effort and catches were light through the end of February with an estimated catch of 168 spring Chinook (128 kept and 40 released) from 7,614 angler trips.

Effort increased during early March when the river opened above the I-5 Bridge, but catches lagged behind expectations despite nearly ideal water conditions. The majority of the catch through mid-March were lower river spring Chinook. Upriver fish made a strong showing in late March, but heavy rains flooded all of the lower Columbia River tributaries at the end of the month, and catch rates plummeted downstream of St. Helens. Catch rates were highest in the Portland-Vancouver metropolitan area above the confluence of the Willamette where the water conditions remained ideal. The total catch in March was 7,635 adult spring Chinook (6,646 kept and 989 released), eight spring Chinook jacks, and 399 steelhead (286 kept and 113 released) from 65,160 angler trips, which was the third highest Chinook catch for the month since 1969, despite relatively low early catch rates. Based on VSI sampling, the March catch consisted of 63% upriver spring Chinook.

Water conditions remained marginal downstream of St. Helens but were excellent in the Columbia River above the Willamette and along the Washington bank downstream to Bachelor Island through April 3 when the river above I-5 closed as scheduled. With a limited productive fishing area, up to 900 boats per weekday and 1,500 boats per weekend day packed the river between the I-5 Bridge and Bachelor Island with catch rates of 0.5 to 1.5 Chinook handled per boat. Joint State hearings were held on April 7 and 14 to update catch information for upriver spring Chinook. At the April 7 hearing, the states estimated that anglers had made 90,573 trips through April 4 and landed 11,067 adult spring Chinook, of which 6,922 were upriver fish (kept catch plus release mortalities), or 40% of the pre-update lower river recreational guideline.

By April 7, water conditions and catch rates began to improve rapidly in the area downstream of St. Helens. Effort also increased with 2,300 boats and 700 bank anglers observed on April 10. At the April 14 hearing, the states estimated that anglers had made 125,417 trips through April 11 and handled 21,377 spring Chinook, which brought the cumulative catch of upriver stock (kept and release mortalities) to 14,947 fish, or approximately 87% of the total reserved for the lower river recreational fishery prior to a run size update. With no run size update available from the TAC, the sport fishery was projected to exceed the 17,200 upriver Chinook guideline prior to the scheduled closure date; however, the states used their management flexibility from the additional 4,500 fish set aside at the beginning of the season to allow the sport fishery to continue through April 18 as scheduled. Angler effort reached its peak of 2,600 boats and 1,500 bank anglers observed on the April 17 flight. Catch rates remained high during April 7-18, averaging 0.83 Chinook handled per boat (range 0.54-1.08) for the entire lower Columbia. The final April catch was higher than projected with a total of 25,880 adult spring Chinook caught (22,473 kept and 3,407 released) from 99,001 trips. Based on VSI sampling, upriver spring Chinook comprised 83.0% of the April catch.

The final catch in the recreational fishery during February 1 through April 18, 2010 was 33,683 adult spring Chinook (29,247 hatchery Chinook kept and 4,436 unclipped fish released), 84 spring Chinook jacks kept, and 1,225 winter steelhead (1,007 hatchery fish kept and 218 unclipped fish released) from 171,775 angler trips. The total effort was the third highest, and the number of spring Chinook kept was the highest since selective fisheries for spring Chinook were initiated in 2001, although the total number of Chinook handled was much higher in 2001. The upriver spring Chinook catch was 23,535 fish (kept catch plus release mortalities), or 136% of the guideline set aside for the lower Columbia River recreational fishery prior to the run size update.

### ***2010 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 0.104% ESA impacts were initially set aside specifically for the Zone 6 recreational fishery for use prior to a run size update. The fishery opened under mark-selective regulations on March 16 and was scheduled to continue through May 31 from the Tower Island powerlines upstream to McNary Dam 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 improved dramatically

in early April, and continued through the month. By May 9, staff estimated a catch of 3,400 Chinook. With the likelihood of a run size downgrade based on TACs in-season estimate, the fishery would likely meet the allowable catch (and ESA impact allocation) prior to the scheduled closure date of May 31. The fishery closed effective May 10. Catch estimates include 3,400 Chinook kept and 800 released (Table 23). Based on the 2010 upriver run size and an estimated handle of 4,200 upriver spring Chinook, the recreational fishery in Zone 6 had an impact rate of 0.134 % compared to a final guideline of 0.110%.

### ***2010 Spring Chinook Fisheries Upstream of McNary Dam***

A total of 0.156% 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 include Snake River and Ringold recreational fisheries and Wanapum tribal fisheries. Based on the 2010 upriver run size and the estimated handle of 2,388 upriver spring Chinook, fisheries in areas upstream of McNary Dam had an impact rate of 0.203% compared to a final guideline of 0.165%.

### ***Snake River Recreational Fisheries***

Mark-selective recreational fisheries were expanded to four areas on the Snake River. The Ice Harbor fishery opened April 20 from the Highway 12 Bridge near the mouth of the Snake River upstream to Ice Harbor Dam. The Little Goose, below Lower Granite and below Clarkston fisheries opened on April 24. The Little Goose fishery has occurred annually since 2001 and it included the area from the Texas Rapids boat launch upstream to the Corps of Engineers boat launch approximately one mile upstream of Little Goose Dam. The Lower Granite fishery area opened downstream of Lower Granite Dam extending downstream about five miles to Casey Creek. The Clarkston fishery area was open from Blyton Landing boat launch upstream about nineteen miles to a boat dock behind the Quality Inn in Clarkston. All areas were proposed to remain open during daylight hours seven days per week through June 30. The daily limit in each area was two adipose fin-clipped adult Chinook and four adipose clipped jacks, except at the “Wall” below Little Goose Dam where the limit was one adipose clipped adult and one clipped jack per day. On May 17, the run size was downgraded, which resulted in a reduction in available impacts and catch for all recreational fisheries. With fewer impacts available, the result was an early closure effective at the end of the day on May 21. Total catch consisted of 1,663 adult spring Chinook kept and 199 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 third consecutive year. Boat angling was prohibited with bank angling restricted to the hatchery side of the river only. This fishery opened May 1 and was scheduled to remain open seven days a week through June 16 during daylight hours with a daily limit of two adipose fin-clipped Chinook. On May 17, the run was downgraded which resulted in an early closure on May 22. A total of 466 adult Chinook were kept and 44 released. The 2010 season likely marked the final year for the Ringold Hatchery fishery since production of spring Chinook has been discontinued at the Ringold facility.



### Wanapum Tribal Fishery

In 2010 the Wanapum Tribe conducted a C&S fishery in the mainstem Columbia River downstream of Priest Rapids Dam during the spring for the first time since 2004. Harvest included 14 hatchery fish and 2 wild upper Columbia spring Chinook.

### ***Lower Columbia River Tributary Spring Chinook Fisheries***

Tributary spring Chinook recreational fisheries downstream of Bonneville Dam have been mark-selective since 2001. The 2010 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 March 1. The tributaries remained opened through the entire spring Chinook season (January 1 – 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 3,300 hatchery adult spring Chinook were harvested in Washington lower Columbia River tributaries in 2010, including 2,100 from the Cowlitz, 200 from the Kalama and 1,000 from the Lewis. The total hatchery adult spring Chinook sport catch was less than the 10-year average of 3,900 fish and the overall harvest rate of 27% was equal to the 10-year average (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 2008-2010 are not available at this time due to normal delays in receiving and processing this information. Based on average catch rates from 2003-2008, the 2010 total catch in the Sandy is estimated to be 1,542 fish.

In 2010, 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. The 2010 lower Willamette River recreational catch was 25,454 spring Chinook (22,329 kept and 3,125 released). The 2010 kept catch was almost four times higher than the recent 5-year average of 5,600 (Table 3). Willamette River anglers harvested 26% of the available hatchery return. Angler effort in 2010 (108,024 trips) was more than three times higher than in 2009 (32,469 trips) and was 39% higher than the number of average trips from 2000-2009 (78,000 trips). The kept catch rate in 2010 (0.21 Chinook per angler day) was 124% of the prior record catch rate (0.17 in 1992).

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 2010. Estimates of the 2009-2010 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 1980-2009 recreational catch upstream of Willamette Falls (mainstem and tributaries combined) has ranged from 366 to 13,277 per year, and has represented from 3-26% 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 2010. Anglers caught an estimated 844 spring Chinook (737 kept and 107 released) from 7,550 angler trips. The kept catch and effort were well above the recent 5-year averages of 430 fish and 4,900 trips. The catch rate of 0.10 spring Chinook per angler day was equal to the recent 10-year average.

Based on mark-recapture studies conducted in the Willamette River during 1999-2001, 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 allowing 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. A limit of three white sturgeon per vessel per week was in place throughout the season. For 2007, two periods occurred in Zones 1-5 with an 8-inch minimum mesh restriction and a weekly landing limit of five white sturgeon per vessel. Both fisheries were ten-hour periods from 7 PM to 5 AM, occurring on June 25-26 (98 deliveries) and July 2-3 (77 deliveries). In 2008, three 10-hour fishing periods were conducted during June 24 through July 8 with an 8-inch minimum mesh size restriction. A weekly limit of five white sturgeon per vessel was in place for all three periods. A total of 83 sockeye were also landed in these three periods. Also in 2008, one sockeye-directed fishery occurred in the 2S area (Washougal to Beacon Rock) on July 30. The fishery was a six-hour daylight fishery with a 4 ½ inch mesh size restriction. A total of 296 sockeye were caught. The 2009 commercial season consisted of three commercial fishing periods with 8-inch minimum mesh requirements and a weekly sturgeon harvest limit of 5 fish. Sockeye retention was allowed. The number of deliveries ranged from 91-109 per period. Ex-vessel prices (per pound landed) averaged \$2.53 for Chinook, for \$3.45 sockeye and \$2.16 for white sturgeon.

### ***2010 Summer Commercial Salmon Season***

Based on the preseason forecast and management agreements, 5,450 summer Chinook were available for commercial harvest in 2010. In addition, a total of 554 white sturgeon were available for commercial harvest during the summer season. Around three fishing periods were anticipated during the six-week summer season. Commercial fishing periods were conducted on the evenings of June 17 and June 22 (10 hours each) with an 8-inch minimum mesh restriction. Tributary mouth sanctuaries were in place to protect ESA-listed steelhead. A limit of three white sturgeon per week was in place throughout the season. Sockeye sales were not allowed due to projected low escapement to the Wenatchee River. The Wenatchee run size was later upgraded after the final summer commercial season was completed.

The first summer Chinook fishery was a 10-hour (7 PM – 5 AM) fishery on June 17-18 in Zones 1-4, up to the I-205 Bridge. Restricting the fishery to the area below I-205 was designed to allow harvest of upper Columbia River summer Chinook entering the Columbia River, while avoiding any additional harvest of spring/summer Chinook remaining near Bonneville Dam. The second fishing period occurred on June 22-24 (7 PM – 5 AM) in Zones 1-5. Actual catch from these two fishing periods was roughly 4,700 Chinook and 300 white sturgeon (Table 19). The number of deliveries ranged from 116-120 per period. Ex-vessel prices (per pound landed) averaged \$3.28 for Chinook and \$2.08 for white sturgeon.

On June 30, TAC downgraded the run size forecast to 82,000 fish, and on July 7 further reduced the run size estimate to 75,000 fish. The downgrade led to a reduction of available summer Chinook for harvest and no additional commercial summer fishing periods were set.

In 2010 the Wanapum tribal fishery harvested 48 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 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 closed (as late as June 16), as was the case in 2005, 2008, and 2009. The retention of sockeye in all Columbia River non-Indian fisheries is prohibited unless opened under emergency rule. Sockeye retention may be allowed when run sizes are greater than 75,000 and escapement goals are expected to be met.

The Columbia River recreational summer Chinook fishery was closed to retention of adult Chinook salmon 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 to provide an opportunity to harvest abundant hatchery Chinook while limiting the impact to ESA-listed wild Snake River summer Chinook to less than 1%. In July 2002, the states also opened the area from Bonneville Dam upstream to the Oregon/Washington border for the retention of adipose fin-clipped summer Chinook.

Mark-selective recreational fisheries for summer Chinook also occurred in 2003 and 2004, with 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.

In 2005, the states delayed the traditional May 16 opening of the lower Columbia recreational summer steelhead fishery downstream of the I-5 Bridge until May 22 due to concerns regarding the upriver spring Chinook run size. Once the upriver run size was updated, concerns were alleviated and the spring Chinook fishery was reopened on June 4. The summer steelhead fishery upstream of the I-5 Bridge, which was scheduled to open June 16, also opened on June 4.

Beginning in 2005, the management period for upper Columbia River 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 summer 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 also 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 lower Columbia sport fishery due to concerns 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 appeared to be on target, and the states allowed the retention of both clipped and unclipped summer Chinook during July 1-31.

The 2006 summer steelhead fishery opened downstream of the I-5 Bridge as scheduled on May 16, and beginning May 17 the states reopened the spring Chinook fishery from Tongue Point upstream to Bonneville Dam. In conjunction with the spring Chinook fishery above I-5, the states allowed the retention of adipose fin-clipped summer steelhead. A non-mark-selective recreational fishery for summer Chinook occurred downstream of Bonneville Dam during June 16 to July 31, but sockeye retention was prohibited. The area upstream of Bonneville Dam was also open for non-mark-selective retention of summer Chinook during June 16 through July 31.

The 2007 summer steelhead fishery downstream of the I-5 Bridge opened as scheduled on May 16. In addition, the states also reopened the spring Chinook fishery between Tongue Point and the I-5 Bridge on May 16. Beginning June 6, 2007 the states reopened the spring Chinook fishery from I-5 upstream to Bonneville Dam and allowed the retention of adipose fin-clipped summer steelhead in conjunction with adipose fin-clipped spring Chinook. Retention of summer Chinook (not mark-selective) was allowed during June 16-30, but sockeye retention was prohibited.

In 2008, spring fisheries exceeded the allowable upriver spring Chinook impact, and the 2008 summer steelhead fishery downstream of the I-5 Bridge was delayed until June 16 in order to avoid any additional handle of upriver spring Chinook in this fishery. The retention of summer Chinook was allowed during June 21-28 based on the preseason forecast of 52,000. Sockeye retention was initially prohibited in 2008, based on the preseason run size forecast. Sockeye

counts at Bonneville Dam totaled 51,000 fish through June 18; prompting TAC to upgrade the sockeye run to 100,000. Based on this information, the states allowed the retention of sockeye in conjunction with the recreational summer Chinook fishery and subsequently extended the sockeye retention fishery through July 6 based on another update from TAC that the sockeye run would be 210,000 fish. Beginning in 2008, all sockeye were considered part of the adult salmon limit regardless of size.

In 2009, non-Indian spring Chinook fisheries were near the maximum allowable impact to upriver spring Chinook. On May 11 TAC downgraded the upriver run size to 120,000-150,000 fish, which was much less than the preseason forecast. As a result the states delayed the May 16 opener of the summer steelhead fishery downstream of the I-5 Bridge until June 12 to avoid any further impact to upriver spring Chinook. Sockeye retention was initially scheduled to be allowed in conjunction with the summer steelhead season through July 31 based on the preseason run size forecast of 183,800 sockeye; however, the sockeye fishery also remained closed until June 12 to limit spring Chinook impacts. A non-mark-selective recreational summer Chinook fishery was open during June 22-July 5 with a daily limit of two adult fish downstream of Bonneville Dam. The total summer steelhead catch in the lower Columbia River during June 12-July 31, 2009 was 17,782 fish (9,602 kept and 8,180 released). The total summer Chinook catch was 2,256 adult fish kept during June 22-July 5. The total sockeye catch in fisheries downstream of Priest Rapids during June 12-July 31 was 900 fish kept and 85 released, which is the second highest recreational catch of sockeye on record. Sockeye catch in 2009 sport fisheries upstream of Priest Rapids is not available. Colville tribal fisheries harvested 14,422 sockeye and the Wanapum tribal fishery harvested 188 sockeye.

In 2009, in the area from Bonneville upstream to Priest Rapids Dam during July 1-31 a non-mark selective fishery occurred for adult summer Chinook. Sockeye retention was also allowed. Recreational fisheries upstream of Priest Rapids kept 2,447 (114 released) summer Chinook. Colville fisheries harvested 942 summer Chinook (1,181 released).

### ***2010 Columbia River Summer Steelhead and Summer Chinook Recreational Fisheries***

The 2010 summer steelhead fishery opened May 16 below the I-5 Bridge and June 16 above the I-5 Bridge per permanent regulations. The 2010 recreational summer Chinook fishery was open for adipose fin-clipped Chinook during June 16-July 31 with a daily limit of two adult fish based on the preseason forecast of 88,800. At the request of participants in the Pacific Fishery Management Council North of Falcon (NOF) process, the lower boundary for the summer Chinook fishery was expanded to include the area between the Astoria-Megler Bridge and Tongue Point. The retention of sockeye was prohibited at the outset of 2010 because the Wenatchee sockeye return was forecasted to be below escapement. Sockeye counts at Bonneville were tracking well ahead of expectations and TAC upgraded the sockeye run size to 250,000 on June 23. At a run of 250,000 sockeye, the Wenatchee escapement goal of 23,000 fish was expected to be reached. Based on this information the states allowed the retention of sockeye in the recreational fishery beginning June 26 through July 31 from the Astoria Bridge upstream to Priest Rapids Dam.

Downstream from Bonneville Dam, during May 16-June 15, steelhead anglers made 13,201 trips and caught 2,715 summer steelhead (2,318 adipose fin-clipped steelhead kept and 397 unclipped

steelhead released), 919 adult spring Chinook (released), 184 adipose fin-clipped spring Chinook jacks (kept), and 390 sockeye (released). During June 16-July 31, salmonid anglers made 70,661 angler trips and caught 3,867 adult summer Chinook (2,539 adipose fin-clipped fish kept and 1,328 unclipped fish released), 319 adipose fin-clipped Chinook jacks (kept), 17,748 summer steelhead (9,972 adipose fin-clipped fish kept and 7,776 unclipped fish released), and 834 sockeye (218 kept and 616 released). Selective regulations for summer Chinook allowed the fishery to remain open despite a downgrade in the run size. The summer steelhead catch during June and July was near the 17,782 steelhead handled during the same period in 2009, which was the highest steelhead catch during that time since at least 1974. The total sockeye handle of 1,226 (including two fish released in August) was the highest on record. Bank anglers benefited from high Columbia River flows during the spring and early summer of 2010 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. Initial 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 Select Area Bright (SAB) fall Chinook. Harvest of Chinook is variable and has ranged from 3,100–6,900 during the years 2000–2009 (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 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 additional 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. Recently, test fishing and full-fleet commercial test fisheries have been conducted in Tongue Point/South Channel and staff is optimistic that increased spring Chinook releases and spring season fisheries will be feasible in the near future.

Spring fisheries have been conducted in Deep River since 2003 with harvest ranging between 28–176 fish annually. Winter seasons have been adopted annually since 2006 and have generated little effort and no salmonid catch until the 2009 season, likely a result of increased spring Chinook releases beginning in brood year 2003 (Table 5).

### ***2010 Youngs Bay Winter/Spring/Summer Gillnet Season***

The 2010 winter season consisted of nine fishing periods between February 21 and March 15 (12- to 18-hour). The winter season extension consisted of one 12-hour period (March 14) set for the entire bay, followed by two 12-hour periods and one 4-hour period upstream of the old Youngs Bay Bridge between March 21 and 29. One additional 4-hour period was originally adopted for April 5 but was rescinded in-season due to higher than expected abundance of upriver spring Chinook during the previous period. Consistent with preseason planning and public input, this structure for the winter-to-spring season “bridge” period was designed to provide opportunity with the maximum area possible. 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, although higher than expected abundance of upriver spring Chinook did necessitate additional in-season action in 2010. 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 13 fishing periods resulted in landings of 1,023 spring Chinook which is the second highest catch and three times the average harvest (333) observed since winter seasons began in 1998. Additionally, 28 white sturgeon were landed in the Youngs Bay winter season. A five white sturgeon (per vessel per week) landing limit was in place for the entirety of the winter season.

The 2010 spring season in Youngs Bay began on April 15 with periods scheduled to occur on Mondays and Thursdays nights through April 30 followed by weekly four-day periods from May 3 through June 11. Unusually high catch of upriver spring Chinook during the first two periods prompted significant in-season modification of the spring commercial fishery in Youngs Bay. The remainder of the periods in April were rescinded, the four-day period scheduled for the week of May 4 was modified into two four-hour periods (Wednesday and Friday), and the following

week's period was reduced to 2 1/2 days – delayed until 7 p.m. on Tuesday. Fisheries resumed as originally adopted starting the week of May 17. The 2010 Youngs Bay spring fishery landed 18,756 Chinook and 55 white sturgeon. Sturgeon retention in all Select Area commercial fisheries was closed effective May 18 after the catch guideline had been met. The Chinook harvest was the highest ever recorded and nearly five times the recent ten-year average Chinook harvest (3,900). Throughout the spring season, a 9¾-inch maximum mesh size restriction was in effect.

The 2010 summer season in Youngs Bay was open 6 AM Wednesday through 6 AM Friday weekly from June 16–July 30. As in the spring fishery, a 9¾-inch maximum mesh size restriction was in effect. The Youngs Bay summer fishery landed 972 Chinook, twice the ten-year (2000–2009) average Chinook harvest of 485 fish and continued the trend of increased annual harvest. The high landings were driven by a good abundance of early returning SABs fall Chinook destined for Youngs Bay (425 landed) and the exceptional return of Age-4 adults from the net pen production. No white sturgeon were harvested since sturgeon retention in all Select Area commercial fisheries was closed effective May 18 after the catch guideline had been met.

The combined Youngs Bay winter/spring/summer fishery harvest totaled 20,751 Chinook. Stock composition is based on VSI and CWT analysis with a total of 8,252 Chinook (40% of the Chinook catch) examined for fin marks and CWTs, and 432 CWTs collected. The 2010 combined winter/spring/summer catch was comprised of 85.0% spring Chinook and 2.1% SAB fall Chinook destined for Select Area sites, 6.3% upriver spring Chinook, 0.1% upper Columbia summer Chinook (after June 15), 5.9% Willamette River spring Chinook, and 0.7% spring Chinook destined for the Cowlitz, Kalama, Lewis, or Sandy rivers. Based on scale readings, which were verified with CWTs, the age composition of the catch was <1% Age-2 (all SAB jacks), 2% Age-3, 90% Age-4, 8% Age-5, and 0% Age-6 fish.

### ***2010 Blind Slough/Knappa Slough Winter/Spring Gillnet Season***

Similar to 2000–2009, a winter gillnet season with a 7-inch minimum mesh restriction was adopted for Blind Slough (excluding Knappa Slough) in 2010. The adopted season consisted of eleven 12-hour periods (7 PM – 7 AM) on Wednesday and Sunday nights during February 21–April 5 (except February 24 and March 31, both Wednesdays). The six periods (March 14–April 5) 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 2010. During the winter fishing periods, a total of 319 spring Chinook were landed, which is the highest on record and much greater than the recent ten-year (2000–2009) average Chinook harvest (78). As described for Youngs Bay, a five white sturgeon landing limit was in place for the winter season, however no white 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. Due to the unusually high abundance of upriver spring Chinook in the combined Select Area commercial harvest during the spring season openers, three fishing periods in late April were rescinded and two in early May were rescheduled. Fisheries resumed as originally adopted starting the week of May 17. For all



periods in May and June, the lower deadline in Knappa Slough was extended further downstream to the western end of Minaker Island, as usual. 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 2010 spring fishery consisted of fourteen 12-hour (7 PM – 7 AM) fishing periods on Thursday and Monday nights between April 15 and June 11 (except that the first two Monday periods in May were rescheduled to Tuesdays). The restricted 2010 Blind Slough/Knappa Slough spring fishery landed 2,680 spring Chinook and 22 white sturgeon. The Chinook harvest was the second highest on record and was greater than the recent ten-year average (1,600).

The combined Blind Slough/Knappa Slough winter and spring fishery harvest totaled 2,999 Chinook. Stock composition is based on VSI and CWT analysis. A total of 2,140 Chinook (71% of the combined catch) were examined for fin marks and CWTs and 140 CWTs were collected. The catch was comprised of 91.9% spring Chinook destined for Select Area sites, 2.2% upriver spring Chinook, 5.8% Willamette River spring Chinook and 0.1% spring Chinook destined for the Cowlitz, Kalama, or Lewis rivers. Based on scale readings, which were verified with CWTs, the age composition of the catch was 0% Age-3, 74% Age-4, 26% Age-5, and 0% Age-6.

#### ***2010 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 2010. At the February 18 hearing, staff recommended a full-fleet experimental test fishery for the spring season. Again, 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 on Monday and Thursday nights (7 PM – 7 AM) starting on April 19 and ending on June 11. 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 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. The new lower deadline was recommended and adopted as an additional precautionary measure. This new Tongue Point deadline has been used since 2008 and is described as “a line extended from the upstream (southern most) pier (#1) at the Tongue Point Job Corps facility through navigation marker #6 to Mott Island”. The deadline is approximately one mile upstream from the deadline used in 2003 and prior. 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 17 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 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 technician on-board to collect data and direct activities. Sixteen drifts using 4¼-inch tangle nets were made on April 12 and 17 capturing 55 spring Chinook (44 identified via VSI as lower river stock and 11 as upriver) and two steelhead. Because the abundance of non-target fish was low relative to effort expended, the full-fleet experimental commercial fishery commenced on April 19 as scheduled.

Initially, periods were adopted for Monday and Thursday nights (7 PM – 7 AM) from April 19 through June 11. As with the spring commercial fisheries in the other Select Area sites, several of the late-April and early May periods of the full-fleet experimental test fishery in Tongue Point/South Channel were rescinded following the initial period. The fishery reopened on May 7 and, for the most part, proceeded as originally adopted except the May 10 period was rescheduled to Tuesday May 11 and shortened to eight hours, concurrent with adjustments made in the other sites.

The 2010 full-fleet experimental test fishery in Tongue Point/South Channel consisted of twelve (8 to 12-hour) fishing periods and landings totaled 727 spring Chinook and 92 white sturgeon.

Stock composition was based on VSI and CWT analysis with a total of 571 Chinook (79% of the catch) examined for fin marks and CWTs, and 56 CWTs being collected. The catch was comprised of 72.5% spring Chinook destined for Select Area sites, 10.3% upriver spring Chinook, and 17.2% Willamette River spring Chinook. Based on scale readings, verified with CWTs, the age composition of the catch was <1% Age-3, 85% Age-4, 15% Age-5, and 0% Age-6 fish.

### ***2010 Deep River Winter/Spring Gillnet Season***

A winter season was conducted at the Deep River site for the sixth consecutive year in 2010. The winter season was expanded to 12 fishing periods (two per week) of 12-hour duration occurring on Monday and Wednesday nights (7 PM–7AM) beginning February 22 and ending April 1 (Thursday). Two additional 12-hour periods originally set for the Monday and Wednesday nights of April 5 and April 7 were rescinded in season to reduce risk of upriver Chinook encounters. Those rescinded periods fell within the peak harvest time in Deep River, with landings of 110 Chinook the week preceding and 107 the week following the rescinded periods.

A spring fishery consisting of 17 fishing periods occurring on Sunday and Wednesday nights (7 PM–7 AM) between April 14 and June 10 was adopted at the February 18, 2010 Compact hearing. The fishery began as scheduled on April 14, but four fishing periods (April 21, 25, 28 and May 9) were rescinded due to in season concerns of the combined Select Area fisheries reaching the upriver spring Chinook impact allocation. Early May fishing periods were rescheduled to Tuesday and Thursday nights (May 5 and 7), and nine fishing periods were reinstated for Sunday and Wednesday nights from May 12 to June 9. The final spring fishery thus consisted of 13 fishing periods in Deep river in 2010.

The fishing area during all periods was restricted to the area from markers at navigation marker #16 upstream to the Highway 4 Bridge. Gear regulations included a 100-fathom maximum net length, a 7-inch minimum mesh size for the winter season and a 93/4-inch maximum mesh size for the spring season. As in Blind Slough and Knappa Slough, 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. Concurrent with the other Select Areas, weekly white sturgeon landing limits were in place for the winter and spring season.

A total of 239 Chinook and 14 white sturgeon were landed during the winter season, and 176 Chinook and zero white sturgeon were landed during the spring season. Sturgeon retention was prohibited beginning May 18 once the harvest guideline was reached. Chinook harvest was record-setting for Deep River in both the winter and spring seasons, and the combined total of 415 spring Chinook was over three times the previous record of 122 landed in 2009.

The Deep River winter/spring fishery stock composition was based on VSI and CWT analysis with a total of 415 Chinook (100% of the catch) examined for fin marks and CWTs, and 51 CWTs being collected. The catch was comprised of 52.3% spring Chinook destined for Select Area sites, 12.5% upriver spring Chinook, 33.0% Willamette River spring Chinook, and 2.2% 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, 73% age-4, 27% age-5, and <1% 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 and 2005, when the potential for additional impacts to upriver spring Chinook also forced closure of Select Area commercial fisheries; the recreational fisheries were closed for a brief period in the spring of 2010.

From 2001 to 2004 both 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 2004 with an estimated 1,081 spring Chinook caught. 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 2010 the record return of Select-Area-produced spring Chinook provided for exceptional recreational fisheries 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 2010 Select Area spring Chinook fisheries. However, based on anecdotal information, recreational harvest is estimated at 1,250 adipose fin clipped spring Chinook in 2010, which would be a new record high catch. This information will be compared with catch record card data once it is available. Harvest is reported in Table 6.

### ***2010 Commercial Shad Seasons***

Under permanent regulations the lower Columbia River is open to commercial shad fishing in Shad Area 2S 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 annually. 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<sup>3</sup>/<sub>8</sub> to 6<sup>1</sup>/<sub>4</sub>-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 the 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 2010 shad fishery produced landings of 2,500 shad (nearly 6,800 pounds), which continued the recent trend of low harvest, due to both poor market value for shad and the lower than usual returns of shad observed in the past few years (Table 17).

### ***2010 Non-Indian Impacts to ESA-Listed Stocks***

The 2010 impact limit for ESA-listed upriver spring Chinook in non-Indian Columbia River fisheries was 2.6%, based on the preseason forecast. Commission guidance from Oregon and Washington was not consistent, so staff applied the lowest of the two impact allocation guidelines to recreational and commercial fisheries, resulting in 50% of the allowable non-Indian ESA impacts being allocated to recreational fisheries and 45% to commercial fisheries (including Select Areas) and held 5% of the unallocated impacts in reserve. The states also created a run size buffer of 40% by calculating available harvest levels at an assumed run size of 282,000 upriver stock fish, versus the 470,000 fish forecast. In total, 0.86% impacts, or 33% of the allowed impacts based on the preseason forecast, were held in reserve as a conservation measure until a run size update was available.

The final non-Indian impact rate was 2.05%, compared to the allowable impact rate limit of 2.2% based on the final upriver run size. The final recreational impact total was 1.18% (1.10% allowable) and the final commercial impact total was 0.87% (0.99% allowable).

2010 Non-Indian Upriver Spring Chinook Impacts					Catch Balance (kept and release mortalities)		
Fishery	Prior to				Post		
	Run Update <sup>1</sup>	Full Season <sup>2</sup>	Actual Impacts	% of Allowed	Season Allowed	Actual Used	% of Allowed
Mainstem Commercial	0.55%	0.84%	0.40%	47%	12,057	7,458	
Select Area Commercial	0.15%	0.15%	0.47%	312%	473	1,476	
<b>Total Commercial</b>	<b>0.70%</b>	<b>0.99%</b>	<b>0.87%</b>	<b>88%</b>	<b>12,530</b>	<b>8,934</b>	<b>71%</b>
Below Bonneville Sport	0.78%	0.83%	0.84%	102%	16,996	23,535	
Bonneville–McNary Sport	0.10%	0.11%	0.13%	122%	2,266	3,512	
Above McNary	0.16%	0.17%	0.20%	123%	2,228	2,166	
<b>Total Sport</b>	<b>1.04%</b>	<b>1.10%</b>	<b>1.18%</b>	<b>107%</b>	<b>21,490</b>	<b>29,214</b>	<b>136%</b>
<b>In-season Total</b>	1.74%	2.09%			34,020	38,148	
Management Buffer	0.86%	0.11%					
<b>Total</b>	<b>2.60%</b>	<b>2.20%</b>	<b>2.05%</b>	<b>93%</b>	<b>34,020</b>	<b>38,148</b>	<b>112%</b>

<sup>1</sup>. Includes Commission-specified buffers.

<sup>2</sup>. 5% of non-Indian impacts remain unallocated.

Impacts to wild winter steelhead were minimal in 2010, as they have been for the past several years. Impacts total 0.57% from 2010 non-Indian mainstem fisheries, which is well within the 2% ESA impact rate limit. Total impacts to Snake River sockeye are estimated to be 0.1%, compared to the allowable impact rate of 1%. 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 forecast for summer Chinook was for a run of 88,800 to the Columbia River mouth. The preseason allocation was for 25,500 fish for treaty Indian and non-Indian harvest. The actual run size of 72,346 changed the allocation to 19,330 for each. The preliminary non-Indian harvest for Columbia River fisheries is estimated to be 15,149, including 1,200 summer Chinook for non-tribal ocean harvest.

2010 Non-Treaty Summer Chinook Fisheries Summary <sup>1</sup>	
Fishery	Chinook Catch <sup>2</sup>
PFMC Ocean Fisheries (sport and commercial)	1,200
Below Priest Rapids	
Recreational Below Bonneville	2,738
Commercial Below Bonneville	4,740
Recreational Bonn. to PRD	161
Below PRD Sum	7,639
Above Priest Rapids	
Wanapum Tribal	48
Colville Tribal	3,331
Recreational above PRD	2,931
Above PRD Sum	6,310
Non-Treaty Total	15,149

<sup>1</sup>. All data preliminary

<sup>2</sup>. 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 2008-2010, 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 experimental target shad trap-net fishery is pursued.

Treaty Indian commercial and C&S fisheries, including dipnet and fisheries, are managed individually by the four Columbia River treaty tribes through a permit and 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.

### *2010 Treaty Indian Winter Season Fisheries*

The 2010 winter sturgeon setline fishery was open in all of Zone 6 from January 1 to January 31 with landings totaling 137 white sturgeon.

The winter gillnet commercial fishery was open from February 1-11 in Bonneville Pool, February 1-26 in The Dalles Pool, and February 1-March 3 in John Day Pool. These seasons resulted in landings of 1,403 sturgeon in Bonneville Pool, 1,184 sturgeon in The Dalles Pool, and 302 sturgeon in John Day Pool which were 100 %, 118% and 90%, respectively, of the guidelines. No mesh restrictions were in place and sales of platform/ hook and line caught fish was allowed. The 2010 winter gillnet season commercial white sturgeon catch of 2,889 fish was the highest commercial catch observed since at least 1992. Twelve steelhead and no Chinook and 2 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.

The total tribal commercial catch for 2010 was 3,026 white sturgeon or 111% of the combined Zone 6 treaty guideline (Table 16). The total 2010 winter catch is shown by pool in the table below and combined in Table 26.

<b>2010 Treaty Indian Winter Commercial Landings From Setline, Gillnet, Platform and Hook &amp; Line</b>					
Pool	Steelhead	White Sturgeon		Walleye	Chinook
		Setline	Gillnet		
Bonneville	0	137	1,403	1	0
The Dalles	12	0	1,184	1	0
John Day	0	0	302	0	0
<b>Total</b>	<b>12</b>	<b>137</b>	<b>2,889</b>	<b>2</b>	<b>0</b>

### ***2010 Treaty Indian Mainstem Spring and Summer Chinook and Sockeye Fisheries***

Tribal intent for 2010 spring Chinook fisheries was to remain within impact rates allowed by the 2008-2017 MA. The preseason planning for the 2010 treaty mainstem harvest included an expected allowed harvest rate of 13.4% on upriver spring Chinook based on the 470,000 forecasted run. The tribes also planned on a 28.7% harvest rate on Upper Columbia summer Chinook based on the 88,800 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 late April. The platform/hook and line fishery retained spring Chinook and steelhead for subsistence purposes only until sales were allowed beginning April 27. Two weekly commercial gillnet fishing periods took place during April 27-30 and May 11-14, that harvested a total of 25,008 spring Chinook. The estimated C&S gillnet permit catch was 9,367 spring Chinook. The estimated catches for the platform and hook-and-line (C&S and commercial) fisheries were 3,440 spring Chinook upstream of Bonneville and 5,139 downstream of Bonneville Dam. Total harvest of upriver spring Chinook was 42,954 or 13.6% total harvest rate compared to a 10.8% management limit (Table 7). The impact on the ESA-listed wild Snake River spring/summer Chinook and ESA listed upper Columbia spring Chinook was 14.8%. 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 was 15,569. There were also 230 summer Chinook caught downstream of Bonneville Dam. During 2010, the total summer Chinook harvest was 15,799 (21.8% of the river mouth return; Table 10). The harvest was less than the 19,330 allowed.

There were 24,843 sockeye caught in Zone 6 platform and hook-and-line fisheries and in commercial gillnet fisheries. There were also 1,282 sockeye harvested in fisheries downstream of Bonneville Dam. The overall catch of 26,125 was 6.7% of the 2010 actual return as compared to the allowed harvest rate of 7%. The TAC estimated that 175 of the sockeye caught were Snake River sockeye (Table 16).

Steelhead harvest during winter and spring fisheries was minimal, estimated at 295 fish. Platform fisheries were not sampled in 2010 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 2009-2010 run. The summer season harvest was estimated at 10,957 steelhead.

### ***2010 Treaty Indian Tributary Fisheries***

Preliminary landings from Yakama Nation tributary fisheries are estimated at 16,242 adult Chinook. These totals include 53 adults from the Wind River, 580 adults Chinook from the

Klickitat River, 1,006 adult Chinook from the Icicle River and 14,643 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.

**2010 Ceremonial and Subsistence Entitlement**

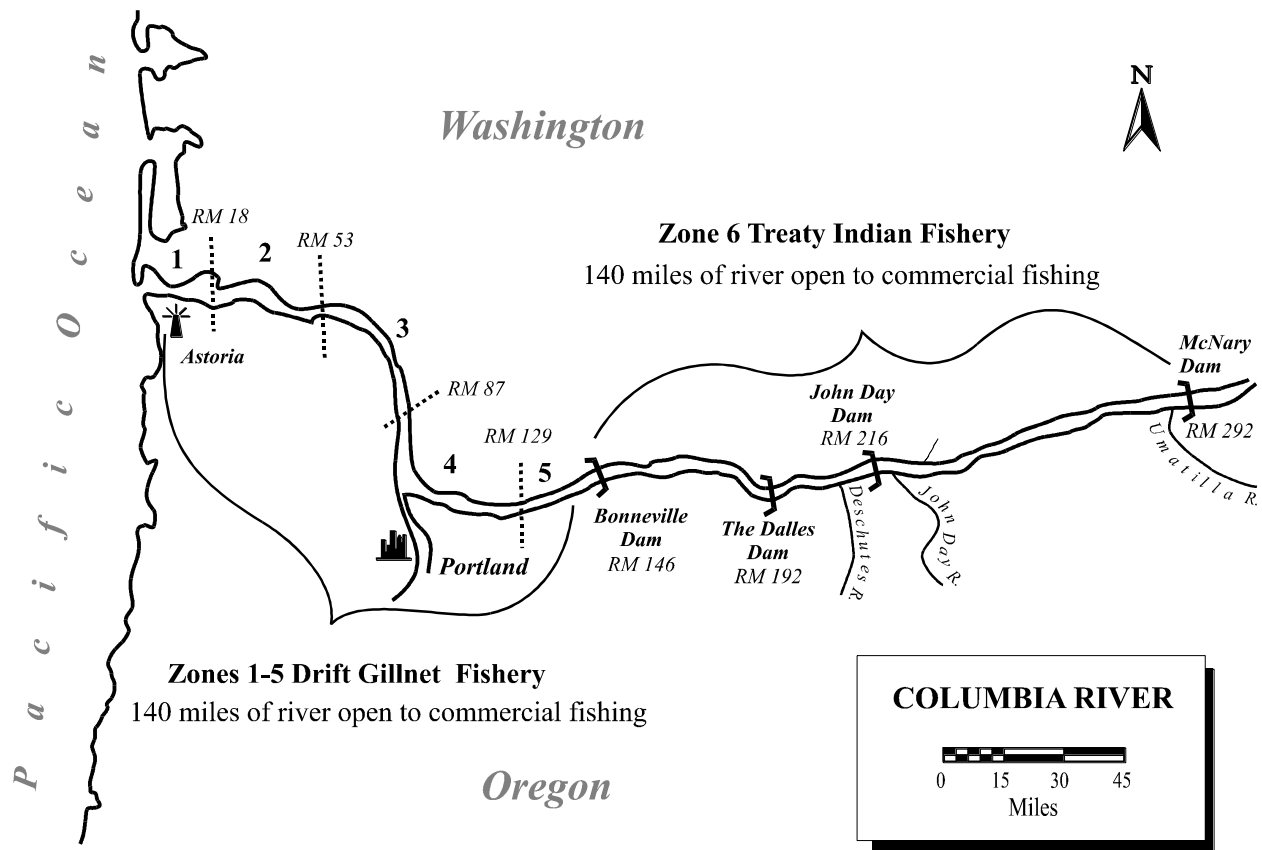
The 2008-2017 MA as well as the expired CRFMP identified a minimum C&S annual entitlement to the Columbia River treaty tribes of the opportunity to harvest 10,000 spring and summer Chinook, or be provided with hatchery fish of equivalent quality. After spring and summer fisheries are accounted for, the balance of the entitlement is to be provided to the tribes by the states of Oregon and Washington. The 2010 upriver spring and summer Chinook returns were sufficient to allow the full entitlement to be harvested in treaty fisheries.

<b>2010 Ceremonial and Subsistence Entitlement Summary</b>		
C&S permit gillnet spring fishery	9,367	spring Chinook
Winter commercial gillnet fishery	0	spring Chinook
Zone 6 Platform/hook and line winter/spring fishery	3,440	spring Chinook
Below Bonneville Platform/hook and line/spring fishery (includes fish donated from NI test fishery)	5,139	spring Chinook
Spring commercial gillnet fishery	25,008	spring Chinook
Spring Chinook Subtotal	42,954	spring Chinook
Below Bonneville Platform/hook and line summer fishery	230	summer Chinook
Summer commercial gillnet fishery and Zone 5 Platform hook and line fishery	15,569	summer Chinook
Summer Chinook Subtotal	15,799	summer Chinook
<b>Total spring and summer Chinook</b>	<b>58,753</b>	

**2010 Shad Fisheries**

There was a short directed treaty commercial harvest of shad in 2010 using a trap just upstream from The Dalles Dam Oregon shore fish ladder. The harvest in this fishery is not available yet. An estimated 750-1,000 fish were caught in the Zone 6 platform fishery which were mostly sold.





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

## **2011 WINTER, SPRING, AND SUMMER SEASON EXPECTATIONS**

### **2011 Management Guidelines**

All fisheries conducted in 2011 will be managed in accordance with the 2008-2017 MA, UCMA, Willamette FMEP, and Commission guidance as applicable. Staff will be meeting with the Commissions in January and February regarding spring Chinook and white sturgeon. Results of the Commission decisions are expected to be available at the February 8 Compact/Joint State hearing.

According to the harvest rate schedule in the 2008-2017 MA and the 2011 upriver spring Chinook pre-season forecast, winter/spring season fisheries will be managed not to exceed a total ESA impact limit of 11% (1.9% for non-Indian fisheries and 9.1% 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 MA for upriver spring Chinook. Under these provisions, non-Indian fisheries will be managed to remain within ESA impacts, but also to not exceed the total allowable catch available for treaty fisheries. Non-Indian fisheries for 2011 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.

Mainstem summer Chinook fisheries will be managed based on the 2008-2017 MA, the UCMA, and Commission guidance. Based on the pre-season 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 wild steelhead in non-Indian fisheries occur as release mortalities during mainstem recreational and commercial fisheries and will be limited to 2%.

The Joint State Accord for Columbia River Sturgeon Management expired on December 31, 2010. The Commissions will provide guidance regarding white sturgeon management during the months of January and February.

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.

### **2011 Non-Indian Fisheries**

#### ***Commercial Winter Sturgeon Fishery***

- The currently adopted season consists of four, 24-hour weekly fishing periods in Zones 1-5 from January 18 - February 9, 2011.
- Season dates, gear restrictions, and expected catches are included in Fall Fact Sheet #12 and associated action notices dated December 17, 2010.

### ***Commercial Spring Chinook Fisheries***

*(Compact consideration at the February 8, 2011 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 February 8, 2011 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 2011 season.

### ***Bonneville to McNary Dam Spring Chinook Recreational Fishery***

*(Joint State consideration at the February 8, 2011 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 February 8, 2011 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 2010, may be considered.
- A spring full-fleet test fishery starting in late April may 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 2011 will be similar to previous years and will reflect input from the January 24, 2011 public meeting concerning Select Area spring Chinook fisheries.

***Columbia River Steelhead Recreational Fishery***

*(Adopted season as per permanent regulations)*

- 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 Upper Columbia Management Agreement calls for the majority of the non-treaty allocation to be harvested in areas upstream of Priest Rapids Dam.
- Washington and Oregon Commission guidance is pending for the allocation of summer Chinook between commercial fisheries and recreational fisheries downstream 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 2011.

***Commercial Shad Fishery***

*(Adopted season as per permanent regulations)*

- 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 be proposed for 2011.

**2011 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, with the potential for a days-per-week season. The fishery will be managed for pool-specific guidelines. The fishery will close early in any pool if sturgeon harvest guidelines are met.
- The 2011 winter season fisheries are expected to have effort similar to 2010, 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 2011 spring Chinook fisheries.
- Based on the 2008-2017 MA and the pre-season run size forecast, the tribes are allowed a 9.1% harvest rate on upriver spring Chinook. . 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 2011 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.

***Treaty Indian Shad Fisheries***

- Implementation of a shad trap fishery at The Dalles Dam east ladder exit 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 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., are usually adopted annually at the first Compact hearing of the management year (December). The Joint Staff will include any recommended changes to miscellaneous regulations in the February 8, 2011 Winter Fact Sheet.

The Sturgeon Management Task Force met on January 19, 2011 to discuss and develop management recommendations for 2011 Zone 6 white sturgeon fisheries. The following table reflects the 2011 harvest guidelines recommended by the SMTF as a result of that meeting.

<b>2011 Zone 6 Sturgeon Harvest Guidelines</b>			
	<u>Tribal</u>	<u>Sport</u>	<u>Total</u>
Bonneville Dam to The Dalles Dam	2,000	2,000	4,000
The Dalles Dam to John Day Dam	1,000	300	1,300
John Day Dam to McNary Dam	1,000	500	1,500
Total	4,000	2,800	6,800

<b>Table 1. Minimum Adult Spring Chinook Run Entering the Columbia River, 1980-2010. <sup>1</sup></b>								
Year	Select Areas <sup>2</sup>	Cowlitz River	Kalama River	Lewis River	Sandy River	Willamette River <sup>3</sup>	Upriver Run <sup>4</sup>	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	2,686	40,854	12,792	63,058
1996	789	1,787	627	1,730	3,997	33,358	55,552	97,840
1997	1,821	1,877	505	2,196	4,625	34,536	124,321	169,881
1998	2,258	1,055	407	1,611	3,768	43,497	44,308	96,904
1999	1,955	2,069	977	1,753	3,985	52,584	43,067	106,390
1995-99 Ave.	1,405	1,778	643	2,203	3,812	40,966	56,008	106,815
2000	6,496	2,199	1,418	2,515	3,641	55,788	186,715	258,772
2001	9,269	1,609	1,796	3,777	5,329	78,436	440,336	540,552
2002	11,699	5,215	2,932	3,520	5,903	120,164	335,214	484,647
2003	7,808	15,998	4,565	5,057	5,600	123,352	242,605	404,985
2004	10,562	16,521	4,339	7,426	12,675	143,242	221,675	416,440
2000-04 Ave.	9,167	8,308	3,010	4,459	6,630	104,196	285,309	421,079
2005	2,406	9,358	3,389	3,511	7,668	59,495	106,911	192,738
2006	7,245	6,967	5,482	7,331	4,382	59,311	132,583	223,301
2007	6,774	3,974	8,036	7,596	2,813	39,943	86,247	155,383
2008	4,486	2,986	1,617	2,252	5,447	27,016	178,629	222,433
2009	4,175	5,977	402	1,485	2,921	39,400	169,296	223,656
2005-09 Ave.	5,017	5,852	3,785	4,435	4,646	45,033	134,733	203,501
2010	24,892	8,849	764	2,797	8,057	107,675	315,345	468,379

<sup>1.</sup> Tributary run sizes are to the tributary mouth and include hatchery returns or dam counts, recreational catch estimates, and estimates of natural spawning populations.

<sup>2.</sup> Minimum run sizes for SAFE stocks is based only on harvest of returning adults. 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.

<sup>3.</sup> Includes Clackamas River returns.

<sup>4.</sup> 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, 1985-2010 and 2011 Projections.**

Year	Willamette River (All Age Classes)			Cowlitz, Kalama, & Lewis Rivers Combined (Adults)			Upriver (Adults) <sup>1</sup>		
	Preseason	Actual	% of	Preseason	Actual	% of	Preseason	Actual	% of
	Forecast	Return	Predicted	Forecast	Return	Predicted	Forecast	Return	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	12.4	64	470.0	315.3	67
2011	104.0			10.6			198.4		

<sup>1</sup> 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, 1970-2010. Includes Jacks.**

Year	Minimum Run	Mainstem Columbia River		Run	Lower Willamette River		Willamette Falls Count	Run Entering Clackamas River
	Entering Columbia River	Comm. <sup>1</sup>	Sport <sup>2</sup>	Entering Willamette River	Recreational Catch <sup>3</sup>	% of Run		
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

<sup>1.</sup> 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.

<sup>2.</sup> 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.

<sup>3.</sup> 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.

<sup>4.</sup> 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, 1980-2010. Includes jacks.**

Year	Upper Willamette Recreational Catch			Upper Willamette Hatchery Return		Clackamas Hatchery Return	Received by Columbia River Tribes <sup>2</sup>
	Willamette Falls Count <sup>1</sup>	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 <sup>3</sup>
1995	20,592	3,380	16	8,757	43	3,112	1,504 <sup>4</sup>
1996	21,605	5,041	23	10,056	47	3,044	4,386 <sup>5</sup>
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	NA	NA	14,424	51	2,853	0
2010	67,059	NA	NA	29,670	44	5,484	0

<sup>1</sup>. Includes jacks.

<sup>2</sup>. Given toward the Treaty Tribes' minimum ceremonial and subsistence entitlement per the Columbia River Fish Management Plan.

<sup>3</sup>. Columbia Treaty Tribes at Willamette Falls also harvested 759 Chinook and 396 marked summer steelhead.

<sup>4</sup>. Columbia Treaty Tribes at Willamette Falls also harvested 29 Chinook June 12-17 and 112 summer steelhead.

<sup>5</sup>. Columbia Treaty Tribes at Willamette Falls also harvested 12 Chinook.

**Table 5. Smolt Releases at Select Area Fisheries Enhancement Project Sites, Brood Years 1996-2008.**

Brood Year	Species <sup>1</sup>	Release Site									
		Youngs Bay			Big Creek Hatchery	Blind Slough Net Pens	Tongue Point				
		South Fork Klaskanine Hatchery	Klaskanine Hatchery	Youngs Bay Net Pens			Tongue Point Net Pens	Tongue Pt. – MERTS Net Pens	John Day R. Net Pens	Deep River Net Pens	Steamboat Slough Net Pens
1996	CHS	--	--	456,282	--	223,318	253,770	--	--	56,414	--
	SAB	--	603,960	463,703	--	27,413	27,482	--	--	--	--
	CO	550,427	--	1,119,632	--	144,958	119,611	--	--	208,350	--
1997	CHS	--	--	426,418	--	200,007	224,277	--	--	39,678	--
	SAB	--	769,126	117,571	--	--	--	--	--	--	--
	CO	429,652	--	2,101,573	--	197,089	204,143	--	--	414,108	210,530
1998	CHS	--	--	464,650	--	196,401	250,009	--	--	--	--
	SAB	--	703,200	221,971	--	--	--	--	--	--	--
	CO	610,658	--	1,819,500	--	195,645	754,123	--	--	431,143	191,543
1999	CHS	--	--	537,898	--	250,396	--	--	--	159,565	--
	SAB	--	408,492	153,928	--	--	--	--	--	--	--
	CO	344,738	--	1,724,031	--	299,411	655,613	--	--	395,337	208,966
2000	CHS	--	--	478,062	--	390,908	--	--	--	95,940	--
	SAB	--	669,913	205,145	--	--	--	--	--	--	--
	CO	583,248	--	1,688,696	--	343,842	667,758	--	--	354,557	273,108
2001	CHS	--	--	453,008	--	426,309	--	30,385	27,412	141,904	--
	SAB	--	620,527	467,056	--	--	--	--	--	--	--
	CO	641,555	--	1,686,711	--	316,804	675,712	--	--	366,435	239,635
2002	CHS	639,446	--	455,825	--	408,495	--	20,913	27,143	97,318	--
	SAB	--	702,188	780,314	--	--	--	--	--	--	--
	CO	--	--	1,470,914	--	298,748	--	697,522	--	357,200	204,600
2003	CHS	458,659	--	457,994	--	433,044	--	26,344	26,955	254,471	--
	SAB	53,963	679,153	519,676	--	--	--	--	--	--	--
	CO	--	--	1,146,068	--	309,527	--	202,727	--	144,900	--
2004	CHS	566,030 <sup>2</sup>	--	391,843	--	451,388	--	57,114	25,451	336,300	--
	SAB	45,247	735,066	161,237	--	--	--	--	--	--	--
	CO	--	--	1,125,609	--	305,573	--	194,442	--	201,300	--
2005	CHS	--	--	417,662	--	272,226	--	76,877	27,272	263,300	--
	SAB	628,888	--	476,497	--	--	--	--	--	--	--
	CO	--	--	1,157,746	--	304,558	--	174,547	--	420,000	--
2006	CHS	--	--	543,803	--	312,612	--	79,343	--	121,500	--
	SAB	708,412	--	564,641	--	--	--	--	--	--	--
	CO	282,201	232,455	768,960	--	310,133	--	597,754	--	368,000	--
2007	CHS	--	--	457,161	--	280,437	--	103,060	--	279,811	--
	SAB	674,181	--	574,020	--	--	--	--	--	--	--
	CO	470,135	510,061	1,014,141	--	300,036	--	477,830	--	706,150	--
2008	CHS	--	--	804,665	--	265,832	--	101,700	--	363,000	--
	CHF	--	--	--	--	--	--	--	--	700,000 <sup>3</sup>	--
	SAB	714,118	--	702,659	--	--	--	--	--	--	--
	CO	347,494	561,968	783,092	--	417,506	--	483,412	--	747,000	--

<sup>1.</sup> CHS = Spring Chinook, CHF = Fall Chinook, SAB = Select Area Bright Fall Chinook, CO = coho.

<sup>2.</sup> Released early (September 26, 2005) due to disease.

<sup>3.</sup> Fall Chinook releases are tule stock.

**Table 6. Winter/Spring/Summer Season Commercial and Recreational Chinook Harvest in Select Area Sites, 1993-2010.**

Year	Commercial					Recreational <sup>2</sup>						Sum
	Youngs Bay	Blind Slough	Tongue Point <sup>1</sup>	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 <sup>3</sup>	20,751	2,999	727	415	24,892	250	200	--	800	--	1,250	26,142

<sup>1.</sup> 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 following test fishing activities.

<sup>2.</sup> 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.

<sup>3.</sup> Preliminary.

**Table 7. Estimated Numbers of Adult Upriver Spring Chinook Entering the Columbia River, 1980-2010.**

Return Year	Upriver Run <sup>3</sup>	Harvest Impact Downstream of Bonneville Dam (Zones 1-5)					BON Dam Count	Harvest Impact Bonneville Dam upstream to McNary Dam (Zone 6)					Escapement Total <sup>5</sup> %Run	
		Non-Treaty (NT) Catch <sup>1</sup>						Treaty Catch <sup>2</sup>						
		Comm.	Sport	Misc. <sup>4</sup>	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	54,775	360,137	82%
2002	335,214	9,507	16,245	667		26,419	308,795	1,716	48	24,209	9,208	33,465	273,614	82%
2003	242,605	2,758	9,581	765		13,104	229,501	1,860	857	8,348	9,090	18,295	209,346	86%
2004	221,675	5,989	17,138	251		23,379	198,296	1,616	2	8,368	9,114	17,484	179,196	81%
2005	106,911	2,247	7,235	42		9,524	97,387	388	1	0	6,163	6,164	90,836	85%
2006	132,583	2,106	4,187	133		6,425	126,158	1,245	0	0	8,401	8,401	116,513	88%
2007	86,247	1,436	3,927	54		5,418	80,829	1,368	3	0	5,624	5,627	73,835	86%
2008	178,629	5,907	19,612	385	830	26,734	151,895	2,196	0	12,314	8,247	21,391	129,138	72%
2009	169,296	4,172	15,246	371	2,018	21,807	147,489	290	0	0	11,083	13,101	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	42,954	236,062	75%

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-Treaty Wild Catch <sup>1</sup>		Treaty Wild Catch <sup>2</sup>		Total Wild Catch		Wild Passage Loss <sup>3</sup>		Wild Escapement <sup>4</sup>	
	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	38.9
1981	14,375	6,145	83	1.4	310	5.0	393	6.4	2,499	40.7	3,253	52.9
1982	16,261	6,477	112	1.7	445	6.9	557	8.6	2,905	44.9	3,015	46.5
1983	16,433	7,415	356	4.8	298	4.0	654	8.8	2,475	33.4	4,286	57.8
1984	17,153	6,965	239	3.4	462	6.6	702	10.1	1,582	22.7	4,681	67.2
1985	29,369	10,567	381	3.6	359	3.4	740	7.0	777	7.4	9,050	85.6
1986	29,872	8,182	167	2.0	474	5.8	641	7.8	1,916	23.4	5,625	68.7
1987	26,319	9,207	142	1.5	556	6.0	698	7.6	2,058	22.3	6,452	70.1
1988	21,536	7,778	496	6.4	514	6.6	1,010	13.0	1,037	13.3	5,731	73.7
1989	19,196	7,778	184	2.4	581	7.5	765	9.8	2,819	36.2	4,193	53.9
1990	12,248	4,588	230	5.0	301	6.6	531	11.6	1,209	26.4	2,848	62.1
1991	8,831	2,537	100	3.9	153	6.0	252	9.9	719	28.3	1,566	61.7
1992	21,276	4,542	73	1.6	273	6.0	347	7.6	911	20.1	3,283	72.3
1993	26,747	4,833	40	0.8	294	6.1	334	6.9	902	18.7	3,598	74.4
1994	3,716	1,182	46	3.9	57	4.8	103	8.7	442	37.4	637	53.9
1995	1,656	257	0	0.1	13	4.9	13	5.0	121	47.1	123	47.8
1996	3,420	544	1	0.1	29	5.2	29	5.3	215	39.5	300	55.2
1997	9,694	1,236	1	0.1	83	6.7	83	6.8	399	32.3	753	60.9
1998	4,490	543	1	0.1	27	5.0	28	5.1	151	27.8	365	67.1
1999	4,901	501	1	0.1	23	4.6	24	4.7	139	27.7	338	67.5
2000	22,441	1,268	3	0.2	77	6.1	80	6.3	349	27.5	839	66.2
2001	51,914	6,364	97	1.5	831	13.1	928	14.6	576	9.1	4,867	76.5
2002	37,215	2,841	65	2.3	303	10.7	368	13.0	645	22.7	1,834	64.6
2003	23,815	2,176	43	2.0	171	7.9	214	9.8	421	19.3	1,542	70.9
2004	15,633	2,795	64	2.3	242	8.6	306	10.9	540	19.3	1,952	69.8
2005	16,243	2,619	45	1.7	163	6.2	208	8.0	491	18.7	1,920	73.3
2006	15,116	1,368	21	1.5	90	6.6	111	8.1	385	28.1	873	63.8
2007	6,628	481	8	1.6	33	6.9	41	8.5	36	7.5	405	84.1
2008	15,392	1,326	33	2.5	181	13.7	214	16.2	36	2.7	1,076	81.2
2009	17,608	1,832	32	1.7	156	8.5	187	10.2			1,776	96.9
2010	38,083	3,147	70	2.2	466	14.8	535	17.0	164	5.2	2,453	78.0

<sup>1.</sup> Includes incidental release mortalities in mainstem recreational and commercial fisheries. Includes Wanapum tribal harvest.

<sup>2.</sup> Since 1982 C&S catch includes gill net, dip net and hook and line. Includes harvest downstream of BON from C&S fishery

<sup>3.</sup> Bonneville Dam through McNary Dam: calculated by Zone 6 escapement minus Rock Island Dam passage.

<sup>4.</sup> 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-Treaty Wild Catch <sup>1</sup>		Treaty Wild Catch <sup>2</sup>		Total Wild Catch		Wild Passage Loss <sup>4</sup>		Wild Escapement <sup>5</sup>	
	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	6,646	32
1981	35,730	25,163	341	1.4	1,269	5.0	1,610	6.4	11,388	45	12,153	48
1982	40,943	28,317	491	1.7	1,946	6.9	2,437	8.6	14,054	50	11,819	42
1983	28,575	21,290	1,021	4.8	857	4.0	1,878	8.8	8,987	42	10,424	49
1984	21,443	14,437	496	3.4	958	6.6	1,454	10.1	4,713	33	8,266	57
1985	41,286	15,081	544	3.6	512	3.4	1,056	7.0	2,748	18	11,273	75
1986	65,537	20,404	416	2.0	1,183	5.8	1,599	7.8	6,811	33	11,989	59
1987	53,995	16,390	252	1.5	990	6.0	1,242	7.6	4,428	27	10,716	65
1988	55,343	17,776	1,134	6.4	1,175	6.6	2,309	13.0	3,890	22	11,573	65
1989	36,456	15,113	358	2.4	1,129	7.5	1,487	9.8	6,790	45	6,833	45
1990	42,114	17,928	899	5.0	1,175	6.6	2,074	11.6	5,995	33	9,851	55
1991	24,118	13,357	525	3.9	803	6.0	1,328	9.9	6,012	45	6,013	45
1992	40,739	21,209	343	1.6	1,276	6.0	1,619	7.6	6,499	31	13,083	62
1993	42,335	18,427	151	0.8	1,121	6.1	1,272	6.9	4,309	23	12,840	70
1994	8,376	4,042	158	3.9	195	4.8	353	8.7	1,736	43	1,954	48
1995	5,297	3,418	3	0.1	169	4.9	172	5.0	2,060	60	1,186	35
1996	16,764	9,023	9	0.1	473	5.2	482	5.3	4,754	53	3,788	42
1997	83,027	9,584	5	0.1	642	6.7	647	6.8	3,760	39	5,177	54
1998	26,684	13,729	13	0.1	689	5.0	702	5.1	5,650	41	7,376	54
1999	13,696	5,802	6	0.1	267	4.6	273	4.7	2,673	46	2,856	49
2000	64,179	13,919	28	0.2	846	6.1	874	6.3	4,789	34	8,255	59
2001	261,588	63,482	913	1.4	8,293	13.1	9,206	14.5	9,204	14	45,281	71
2002	173,187	52,877	902	1.7	5,635	10.7	6,537	12.4	15,825	30	30,213	57
2003	139,730	51,392	751	1.5	4,035	7.9	4,785	9.3	13,801	27	32,325	63
2004	128,216	33,713	688	2.0	2,915	8.6	3,603	10.7	8,472	25	21,367	63
2005	50,301	15,317	249	1.6	954	6.2	1,203	7.9	3,932	26	10,118	66
2006	53,250	16,824	229	1.4	1,106	6.6	1,335	7.9	5,843	35	9,480	56
2007	46,412	10,700	124	1.2	737	6.9	860	8.0	2,566	24	7,093	66
2008	100,850	24,014	488	2.0	3,168	13.2	3,656	15.2	2,314	10	17,573	73
2009	93,160	21,183	341	1.6	1,546	7.3	1,887	8.9	4,010	19	14,965	71
2010	169,884	35,613	628	1.8	4,688	13.2	5,316	14.9	2,624	7	26,619	75

<sup>1.</sup> Includes incidental mortalities in mainstem recreational and commercial fisheries and Snake River recreational fisheries.

<sup>2.</sup> Since 1982 C&S catch includes gill net, dip net and hook-and-line. Includes harvest downstream of BON from C&S fishery.

<sup>3.</sup> Bonneville Dam to Lower Granite Dam: calculated by Zone 6 escapement - (Snake River Recreational + Tucannon River escapement + Lower Granite Dam escapement).

<sup>4.</sup> 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 <sup>1</sup>	Catch downstream of Bonneville Dam (Zones 1-5)				BON Dam Count	Catch Bonneville Dam upstream to McNary Dam (Zone 6)		Escapement <sup>4</sup>	
		Non-Treaty (NT)			Treaty		NT Sport	Treaty Catch <sup>3</sup>		
		Sport	Comm.	Misc <sup>2</sup>					No.	%
1980	22,498		16	0		22,482	0	1,181	21,301	95%
1981	18,746		9	0		18,737	0	1,364	17,373	93%
1982	14,369		117	0		14,252	0	1,295	12,957	90%
1983	13,145		92	0		13,053	0	297	12,756	97%
1984	18,765		22	0		18,743	0	457	18,286	97%
1985	18,522		36	0		18,486	0	1,453	17,033	92%
1986	18,752	0	109	0		18,643	0	1,116	17,527	93%
1987	22,715	6	141	0		22,567	0	1,684	20,883	92%
1988	22,720	9	81	0		22,630	0	1,497	21,133	93%
1989	22,201	20	9	0		22,172	0	100	22,072	99%
1990	18,794	4	15	0		18,775	0	111	18,664	99%
1991	14,323	1	9	0		14,313	0	171	14,142	99%
1992	9,428	16	35	0		9,377	0	46	9,331	99%
1993	14,021	16	81	0		13,925	0	328	13,597	97%
1994	14,691	28	23	0		14,640	0	171	14,469	98%
1995	12,455	14	0	0		12,441	0	417	12,024	97%
1996	12,080	34	15	0		12,031	0	374	11,657	96%
1997	17,709	16	6	0		17,687	0	270	17,417	98%
1998	15,536	27	1	0		15,508	0	335	15,173	98%
1999	21,867	51	1	0		21,815	0	395	21,420	98%
2000	22,595	17	0	0		22,578	0	209	22,369	99%
2001	52,960	64	1	0		52,895	0	692	52,203	99%
2002	89,524	1,447	8	0		88,069	98	2,093	85,878	96%
2003	83,058	1,945	0	36		81,077	361	4,297	76,419	92%
2004	65,623	1,246	219	3		64,155	226	8,394	55,535	85%
2005	60,272	1,621	2,787	0		55,864	450	7,642	47,772	79%
2006	77,573	4,926	4,819	9		67,819	346	16,319	51,154	66%
2007	37,035	2,214	1,122	0		33,699	194	5,375	28,130	76%
2008	55,532	2,140	1,370	59		51,963	1,072	9,029	41,862	75%
2009	53,881	2,341	2,524	22		48,994	193	11,650	37,151	69%
2010	72,346	2,738	4,720	20	230	64,638	145	15,569	48,924	68%

<sup>1</sup> 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-Treaty catch includes incidental release mortalities

<sup>2</sup> Includes incidental non-retention mortality in commercial test, research, shad, and sockeye fisheries, and harvest in SAFE fisheries.

<sup>3</sup> Includes commercial and C&S catches.

<sup>4</sup> Bonneville counts minus Zone 6 harvest.

Year	Min. Col R Return	Non-Indian Release Mortalities		Escapement	Forecast	
		Mainstem				Tributary <sup>1</sup> Sport
		Comm.	Sport			
2001	21,825	100	22	165	21,538	--
2002	33,711	3095	34	403	30,179	--
2003	23,452	217	23	3,083	20,129	15,500
2004	29,566	238	30	334	28,964	32,200
2005	14,672	77	15	170	14,410	27,000
2006	16,606	14	17	399	16,176	16,000
2007	15,015	75	15	365	14,560	16,100
2008	14,016	9	14	300	13,693	15,300
2009	11,479	4	11	288	11,176	15,200
2010	19,000	89	19	248	18,644	20,100
2001	21,825	100	22	165	21,538	--

<sup>1</sup> Washington tributaries only. Data based on historical exploitation rates.

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



Run Year <sup>1</sup>	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	20,010	126,229	5,661	52,641	25,671	178,870	14%
2009-10	38,312	300,052	4,396	23,338	42,708	323,390	13%
2010-11	29,943	148,054	9,424	39,232	39,367	187,286	21%

<sup>1</sup> Run year = July 1 through June 30 of following year. 2010-2011 counts are only through October 31, 2010.

**Table 14. Minimum Numbers (in Thousands) of Lower River Summer Steelhead Entering the Columbia River, 1980-2010.**

Year	Lower Col. Recreational Catch (May-June) <sup>1</sup>	Recreational Catch <sup>2</sup>		Tributary	Hatchery Returns <sup>4</sup>		Minimum Run
		OR	WA	Dam Counts <sup>3</sup>	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	2.6	26.1	17.5	4.5	23.0	76.4
2004	3.0	5.5	42.4	36.4	2.4	23.1	112.8
2005	2.1	1.8	26.3	14.6	4.1	23.2	72.1
2006	3.0	4.2	29.4	17.0	1.3	18.8	73.7
2007	2.7	3.5	12.4	13.1	1.2	24.8	57.7
2008	2.0	5.1	24.0	14.2	0.9	9.2	55.4
2009	1.4	4.5	18.1	15.2	0.7	19.7	59.6
2010 <sup>5</sup>	4.2	3.8	22.0	25.9	1.0	26.3	83.2

<sup>1</sup> Beginning in 1977, May-June lower Columbia recreational catch determined to be mostly lower river stock.  
<sup>2</sup> From Oregon and Washington catch record estimates, Washington catches prior to 1975 not corrected for non-response bias. Oregon catch unavailable for 1969-1974.  
<sup>3</sup> Willamette Falls (Willamette R.), North Fork Dam (Clackamas R.), and Marmot Dam through 2007 only (Sandy R); hatchery fish only.  
<sup>4</sup> 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.  
<sup>5</sup> Data Preliminary since 2007.

**Table 15. Minimum Numbers (in Thousands) of Upriver Summer Steelhead Entering the Columbia River, 1980-2010.**

Year	Lower Columbia Catch		Bonneville Dam Counts <sup>3</sup>	Minimum Run
	Recreational <sup>1</sup>	Commercial <sup>2</sup>		
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

<sup>1.</sup> 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 estuary recreational (Buoy 10) fishery beginning in 1992.

<sup>2.</sup> 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.

<sup>3.</sup> April through October.

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

Year	Columbia River Mouth <sup>1</sup>	Non-Treaty Catch <sup>2</sup>	Bonn. Dam Count	Treaty Catch <sup>3</sup>	Snake River Sockeye				Wenatchee <sup>5</sup>	Okanogan <sup>6</sup>
					At Col R. Mouth	Non-Treaty Catch <sup>2</sup>	Treaty Catch <sup>3</sup>	Lower Granite Esc. <sup>4</sup>		
1980	58,886	4	58,882	636	108	0	1	96	22,751	26,573
1981	56,037	0	56,037	1,507	236	0	6	218	20,811	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	64,002	27,925
1984	161,886	9,345	152,541	24,616	148	9	23	105	41,471	81,054
1985	200,724	32,213	166,340	49,969	59	10	15	35	64,465	52,989
1986	59,963	1,840	58,123	6,672	28	1	3	20	16,876	34,788
1987	145,546	28,553	116,993	39,560	55	11	15	29	35,463	40,120
1988	99,757	17,632	79,714	30,990	45	8	14	23	17,045	33,978
1989	47,475	36	41,884	2,138	4	0	0	4	29,125	15,976
1990	49,754	173	49,581	2,716	1	0	0	1	37,035	7,609
1991	76,484	3	76,481	3,271	10	0	0	9	43,806	27,490
1992	85,000	8	84,992	2,185	2	0	0	2	39,053	41,951
1993	91,710	64	80,178	5,020	18	0	1	17	58,307	27,849
1994	12,858	1	12,678	472	3	0	0	3	10,705	1,666
1995	9,908	1	8,773	445	5	0	0	5	4,474	4,892
1996	30,939	25	30,255	1,414	3	0	0	3	7,759	17,701
1997	47,470	12	46,927	2,046	18	0	1	17	14,927	25,754
1998	13,220	2	13,218	425	4	0	0	3	5,087	4,669
1999	19,076	1	17,877	704	21	0	1	18	4,260	12,388
2000	93,755	364	93,391	2,910	352	1	11	337	32,119	59,944
2001	120,314	1,688	114,933	7,300	49	1	3	45	45,104	74,490
2002	50,461	14	49,610	2,564	77	0	4	73	35,510	10,659
2003	39,375	0	39,375	1,090	28	0	1	26	5,932	28,820
2004	129,932	672	123,320	4,317	117	1	4	113	43,605	77,492
2005	77,329	0	72,448	2,766	20	0	1	19	18,993	53,218
2006	37,067	1	37,066	1,596	79	0	3	16	9,756	22,064
2007	26,536	0	24,376	1,414	59	0	3	55	4,439	22,282
2008	214,402	821	213,607	9,017	983	4	41	907	35,491	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	61,420	291,764

<sup>1.</sup> Upriver run is larger of Bonn. Count + Zones 1-5 harvest or Priest Rapids count + Snake River count + Zone 1-6 harvest.

<sup>2.</sup> Non-Treaty harvest may include kept fish and incidental release mortalities in Zones 1-6.

<sup>3.</sup> Treaty harvest includes sockeye kept in Zones 1-6, which includes harvest downstream of Bonneville Dam.

<sup>4.</sup> Prior to 1992, Lower Granite Dam sockeye counts may include kokanee. Since 1992 video counts or length measurements are used to identify true sockeye.

<sup>5.</sup> 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.

<sup>6.</sup> 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), 1977-2010.**

Year	Area 2S		Washougal Reef		Total Zone	Treaty Indian	Total		% of Run
	Days	Catch <sup>1</sup>	Days	Catch <sup>1</sup>	1-5 Catch <sup>2</sup>	Catch	1-6 Catch	Run Size <sup>3</sup>	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 <sup>4</sup>	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 <sup>5</sup>	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 <sup>6</sup>	78.4	5,680.4	1.4
2005	26	48.8	30	0.0	48.8	30.0 <sup>6</sup>	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

- <sup>1.</sup> Washougal Reef landings included in Area 2S landings until 1986. No season set since 2001, except for 2005.
- <sup>2.</sup> Includes landings during sockeye seasons, Select Area fisheries, and John Day River shad fisheries in some years.
- <sup>3.</sup> Run size includes Zone 1-5 commercial catch, Columbia and Willamette sport catch, and the greater shad passage from either Bonneville or The Dalles dam.
- <sup>4.</sup> Limited experimental fishery with three boats.
- <sup>5.</sup> Includes shad caught in experimental tangle net permit fishery for spring Chinook.
- <sup>6.</sup> 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, 1970-2010.**

Year	Season	Fishing		Commercial Landings <sup>1</sup>	
		Days	Mesh Size <sup>2</sup>	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	Feb 11-Mar 9	20	"	18,300	700
1991	Feb 10-Mar 1	13	"	12,600	800
1992	Feb 16-28	10	"	5,100	1,200
1993	Feb 16-19 & Mar 2-5	6	8" min.	1,500	1,000
1994	Feb 15-Mar 9	15	"	1,900	3,000
1990-1994 Avg		13		7,900	1,300
1995	None	0	--	--	--
1996	Feb 18-22	3	8" min.	100	600
1997	Jan 27-Feb 18	7	8¾" min.	100	2,700
1998	Jan 12-Feb 13	10	9" min.	<100	2,700
1999	Jan 11-Feb 26	13	9" min.	<100	1,800
1995-1999 Avg		7		<100	1,600
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	<sup>3</sup> 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	<sup>3</sup> 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	<sup>3</sup> 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	<sup>3</sup> 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	<sup>3</sup> 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	<sup>3</sup> Jan 8 – Feb 29	11	9" min.	14	869
	Apr 1 – 15	3	4¼" max.	5,658	17
2009	<sup>3</sup> 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	<sup>3</sup> Jan 19 – Feb 17	5	9" min.	75	518
	Mar 30 – April 7	2	4¼" max.	8,966	28

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.

<b>Table 19. Fishing Periods, Gear, and Associated Sturgeon Catch for Winter, Spring, and Summer Mainstem Columbia River Commercial Seasons, 2010.</b>										
Season	Fishing Period	Hrs	Zones	Mesh	STG Limit <sup>1</sup>	Del.	Chinook	Sockeye	WSTG	GSTG
Winter Sturgeon	6 PM Jan. 19 – 6 PM Jan. 20	24	1-5	9-9¾"	15	19	0	--	118	Prohibited
	6 PM Jan.26 – 6 PM Jan. 27	24	1-5	9-9¾"	15	21	0	--	141	Prohibited
	6 PM Feb 2– 6 PM Feb. 3	24	1-5	9-9¾"	15	14	3	--	99	Prohibited
	6 PM Feb. 9 – 6 PM Feb. 10	24	1-5	9-9¾"	15	21	10	--	106	Prohibited
	6 PM Feb. 16 – 6 PM Feb. 17	24	1-5	9-9¾"	15	36	62	--	54	Prohibited
						22	75	0	518	0
Spring Salmon	Noon – Midnight March 30	12	1-4 <sup>3</sup>	≤4¼"	5	170	3,041	--	11	Prohibited
	5:30 PM – 9:30 PM April 7	4	1-4 <sup>3</sup>	≤4¼"	5	207	5,925	--	17	Prohibited
						189	8,966	0	28	0
Summer	7 PM Jun. 17 – 5 AM Jun 18	10	1-4 <sup>3</sup>	8-9¾"	3	124	2,518	--	143	Prohibited
	7 PM Jun. 22 – 5 AM Jun 23	10	1-5	8-9¾"	3	128	2,202	--	146	Prohibited
						126	4,720	0	289	0
<b>Season Total</b>							<b>13,761</b>	<b>0</b>	<b>835</b>	<b>0</b>

1. White sturgeon possession and sales limit (per vessel per week). The retention of green sturgeon is prohibited.
2. No sockeye sales allowed during mainstem spring/summer seasons in 2010.
3. Zones 1-4 mouth upstream to the I-205 Bridge.

**Table 20. Estimates of the Spring Chinook Stock Composition (in Thousands) in Mainstem Lower Columbia Commercial Fisheries, 1990-2010.**

Year	February – March Catch by Stock					April – June 15 Catch by Stock				
	Willamette River	C,K,L,S <sup>1</sup>	Upriver	SAFE	Feb-Mar Total	Willamette River	C,K,L,S <sup>1</sup>	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

<sup>1</sup> C = Cowlitz River, K = Kalama River, L = Lewis River, and S = Sandy River.



**Table 21. Columbia River Recreational Spring Chinook Fishing Regulations, 2000-2010.**

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.
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.

**Table 22. Salmonid Angler Trips and Adult Chinook Catch by Month on the Lower Columbia River, 2000-2010.**

Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook	
			Kept	Released				Kept	Released
2001	Feb	5,017	84	0	2006	Feb	2,471	19	0
	Mar	44,356	4,550	2,323		Mar	27,418	1,810	413
	Apr	122,939	21,077	13,138		Apr	33,750	3,595	712
	May	5,330	0	56		May	12,225	634	345
	Jun	13,155	0	503		Jun 1-15	10,971	927	991
	Jul	19,157	0	386		Jun 16-30	19,088	3,360	5
2001	Total	209,954	25,711	16,406		Jul	24,714	1,564	11
					2006	Total	130,637	11,909	2,477
Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook	
			Kept	Released				Kept	Released
2002	Feb	5,147	18	6	2007	Feb	4,405	24	0
	Mar	35,629	2,036	1,699		Mar	27,949	1,110	311
	Apr	107,906	14,428	9,846		Apr	34,890	4,507	924
	May	31,445	3,982	2,670		May	10,989	505	234
	Jun 1-27	13,919	0	895		Jun 1-15	4,777	330	179
	Jun 28-30	5,591	472	221		Jun 16-30	23,732	2,214	0
	Jul	35,329	880	724		Jul	16,036	0	219
2002	Total	234,966	21,816	16,061	2007	Total	122,778	8,690	1,867
Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook	
			Kept	Released				Kept	Released
2003	Feb	9,573	209	223	2008	Feb	4,150	3	1
	Mar	65,841	5,597	3,193		Mar	35,453	4,107	668
	Apr	66,351	9,110	4,729		Apr	63,369	15,930	2,463
	May	24,875	1,976	1,122		May	0	0	0
	Jun 1-15	7,776	0	106		Jun 1-15	0	0	0
	Jun 16-30	15,114	1,348	908		Jun 16-30	30,505	2,051	463
	Jul	24,053	506	763		Jul	20,783	0	427
2003	Total	213,583	18,746	11,044	2008	Total	154,260	22,091	4,022
Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook	
			Kept	Released				Kept	Released
2004	Feb	9,467	48	31	2009	Feb	4,539	34	1
	Mar	44,576	2,614	727		Mar	55,061	3,906	933
	Apr	102,058	21,078	6,482		Apr	82,693	12,983	2,304
	May	5,891	0	180		May	0	0	10
	Jun 1-15	2,046	0	59		Jun 1-15	4,109	0	148
	Jun 16-30	17,929	619	844		Jun 16-30	23,569	1,749	381
	Jul	21,875	500	422		Jul	39,644	507	469
2004	Total	203,842	24,859	8,745	2009	Total	209,615	19,179	4,246
Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook	
			Kept	Released				Kept	Released
2005	Feb	7,551	39	0	2010	Feb	7,614	128	40
	Mar	36,865	1,899	542		Mar	65,160	6,646	989
	Apr	65,705	8,653	2,389		Apr	99,001	22,473	3,407
	May	4,082	0	143		May	6,196	0	311
	Jun 1-15	10,492	724	486		Jun 1-15	7,005	0	608
	Jun 16-30	12,824	669	485		Jun 16-30	26,932	1,866	845
	Jul	25,681	902	15		Jul	43,729	673	483
2005	Total	163,200	12,886	4,060	2010	Total	255,637	31,786	6,683

**Table 23. Recreational Fisheries Upstream of Bonneville Dam <sup>1</sup>.**

<b>Zone 6 Spring Chinook Recreational Fishery</b>				
<b>Year</b>	<b>Kept</b>	<b>Released</b>	<b>Season</b>	<b>General Area</b>
2000			No Season	
2001	157	105	May 6-8	The Dalles - McNary
2002	1,609	1,073	Mar 16- May 15	The Dalles - McNary
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
<b>Snake River Spring Chinook Recreational Fishery</b>				
	<b>Kept</b>	<b>Released</b>	<b>Season</b>	<b>General Area</b>
2000			No Season	
2001	1,439	558	May 1-31	Little Goose Dam (LGO)
2002	866	351	Apr 25-May 27/Jun 2 (4d/wk)	LGO
2003	513	426	Apr 26- Jun 15	LGO/ Lower Granite to ID
2004	1,224	347	April 16- May 7	LGO
2005	76	92	June 11- 30	LGO
2006	190	106	May 17- Jun 30	LGO
2007	287	83	May 9- Jun 30	LGO
2008	511	145	Apr 22/Apr 24- May 11	Ice Harbor/ LGO
2009	508	104	April 24- May 17	LGO
2010	1,663	199	April 24- May 22	
<b>Zone 6 Summer Chinook Recreational Fishery</b>				
	<b>Kept</b>	<b>Released</b>	<b>General Season</b>	<b>General Area</b>
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 - Priest Rapids Dam

<sup>1</sup> Columbia River data based on Catch Record Cards through 2008. Snake River based on creel.

**Table 24. Estimates of the Spring Chinook Stock Composition (in Thousands) in Mainstem Lower Columbia Recreational Fisheries, 1990-2010.**

Year	February – March Kept Catch by Stock					April – June 15 Kept Catch by Stock				
	Willamette		Upriver	SAFE	Feb-Mar Total	Willamette		Upriver	SAFE	Apr-Jun Total
	River	C,K,L,S <sup>1</sup>				River	C,K,L,S <sup>1</sup>			
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

<sup>1</sup> 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 <sup>1</sup>	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%
<b>Ave.</b>	<b>2,432</b>	<b>32%</b>	<b>948</b>	<b>40%</b>	<b>5,155</b>	<b>72%</b>	<b>1,994</b>	<b>43%</b>	<b>10,529</b>	<b>47%</b>
1995	33	2%	3	0%	2,437	65%	1,308	49%	3,781	41%
1996	29	2%	190	30%	351	20%	1,495	37%	2,065	25%
1997	144	8%	5	1%	781	36%	1,418	31%	2,348	26%
1998	0	0%	0	0%	228	14%	1,197	32%	1,425	21%
1999	491	24%	8	1%	692	39%	1,882	47%	3,073	35%
<b>Ave.</b>	<b>139</b>	<b>7%</b>	<b>41</b>	<b>0</b>	<b>898</b>	<b>35%</b>	<b>1,460</b>	<b>39%</b>	<b>2,538</b>	<b>30%</b>
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%
<b>Ave.</b>	<b>1,441</b>	<b>18%</b>	<b>629</b>	<b>22%</b>	<b>1,907</b>	<b>44%</b>	<b>2,097</b>	<b>31%</b>	<b>6,074</b>	<b>29%</b>
2005	1,301	14%	1,051	31%	1,557	44%	1,844	25%	5,753	24%
2006	842	12%	1,395	25%	2,737	37%	903	19%	5,877	24%
2007	746	19%	2,056	26%	3,521	46%	393	12%	6,716	29%
2008	604	20%	243	15%	850	38%	346	6%	2,043	17%
2009	1,823	31%	113	28%	394	27%	897	31%	3,227	30%
<b>Ave.</b>	<b>1,063</b>	<b>19%</b>	<b>972</b>	<b>25%</b>	<b>1,812</b>	<b>38%</b>	<b>877</b>	<b>19%</b>	<b>4,723</b>	<b>25%</b>
2010 <sup>2</sup>	2,100	24%	200	26%	950	34%	1,542	19%	4,792	23%

<sup>1.</sup> 1995-2001 and 2008 harvest rates reflect fishery restrictions due to extremely low returns.

<sup>2.</sup> Data preliminary.

**Table 26. Winter Season Commercial Gillnet Landings in Treaty Indian Fisheries, 1977-2010.**

Year	Season <sup>1</sup>	Peak Net Count	Numbers of Fish Sold Commercially <sup>2</sup>			
			Chinook	Steelhead	Sturgeon	Walleye
1977-1981 Ave. Range	Feb 1-Apr 1 <sup>3</sup>	170 87-246	1,400 30-2,800	3,700 2,600-4,900	110 20-220	--
1982-1986 Ave. Range	Feb 1-Mar 21 <sup>4,5</sup>	107 61-180	50 5-100	4,700 3,000-7,800	670 70-1,700	--
1987-1991 Ave. Range	Feb 1-Mar 21 <sup>4,5</sup>	183 124-299	100 0-280 <sup>6</sup>	6,700 2,100-10,800	2,100 1,300-3,100	500 130-1,030
1992	Feb 1-Mar 21 (48 days)	161 (Mar 9)	47	4,600	625 <sup>7</sup>	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 <sup>8</sup>	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

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

<sup>2.</sup> Treaty Indian sales to licensed fish buyers.

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

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

<sup>5.</sup> Walleye sales not accounted for prior to 1989.

<sup>6.</sup> Includes two late fall Chinook in 1991.

<sup>7.</sup> Sturgeon sales prohibited beginning noon March 5.

**Table 27. Spring Season Commercial Landings in Treaty Platform/ Hook & Line Fisheries, 2009-2010.**

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 <sup>1</sup>	April 27-May 19	2,090	46	0	1

**Table 28. Summer Season Commercial Gillnet Landings in Treaty Fisheries, 2009-2010.**

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 <sup>1</sup>	June 16- Jul 29	15,569	10,957	21,843	57

<sup>1</sup> Includes platform and hook and line fisheries.