



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

**2019 JOINT STAFF REPORT:
STOCK STATUS AND FISHERIES FOR
FALL CHINOOK SALMON, COHO SALMON, CHUM
SALMON, SUMMER STEELHEAD,
AND WHITE STURGEON**

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INTRODUCTION

This report describes fall fisheries in the mainstem Columbia River, and includes a summary of 2018 management guidelines and fisheries, and expectations for 2019 fall fish runs and fisheries. This report is part of an annual series produced by the Joint Columbia River Management Staff of the Washington Department of Fish and Wildlife (WDFW) and Oregon Department of Fish and Wildlife (ODFW). The first Columbia River Compact hearing of the 2019 fall management period is scheduled for 10:00 a.m. Tuesday July 30 via teleconference. Members of the *U.S. v Oregon* Technical Advisory Committee (TAC) have reviewed this report.

COMPACT and JOINT STATE PROCESS

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 delegates for the Oregon and Washington agency directors, 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 fishery on escapement, treaty rights, and the impact on species listed under the Endangered Species Act (ESA; Table 1). Working together under the Compact, the states have the responsibility to address the allocation of limited resources between recreational, commercial, and treaty Indian fishers. This responsibility has become increasingly demanding in recent years. The states maintain a conservative management approach when considering Columbia River fisheries that will affect species listed under the ESA.

SEASONS CONSIDERED

At the July 30 hearing, the Compact will consider fall Select Area fisheries, and fall treaty platform and hook-and-line fisheries. A second hearing will occur August 12 to consider non-treaty and treaty mainstem commercial fisheries. Additional Compact and/or Joint State hearings will be scheduled throughout the fall management period as additional information on fish runs and ongoing fisheries become available.

STOCK STATUS

Fall Chinook

Fall Chinook generally enter the Columbia River from late July through October with abundance peaking in the lower river from mid-August to mid-September, and passage at Bonneville Dam peaking in early to mid-September (Figures 1 & 4). Columbia River fall Chinook are comprised of seven management components: Lower River Hatchery (LRH), Lower River Natural-Origin (LRW), Select Area Bright (SAB), Bonneville Pool Hatchery (BPH), Upriver Bright (URB), Pool Upriver Brights (PUB), and Lower River Brights (LRB). The aggregate PUB and LRB returns comprise the mid-Columbia Bright (MCB) stock category. The LRH and BPH components are

considered tule stock, and the LRW, SAB, URB, and MCB components are considered bright stock. General destinations of these various stock components are illustrated in Figure 1.

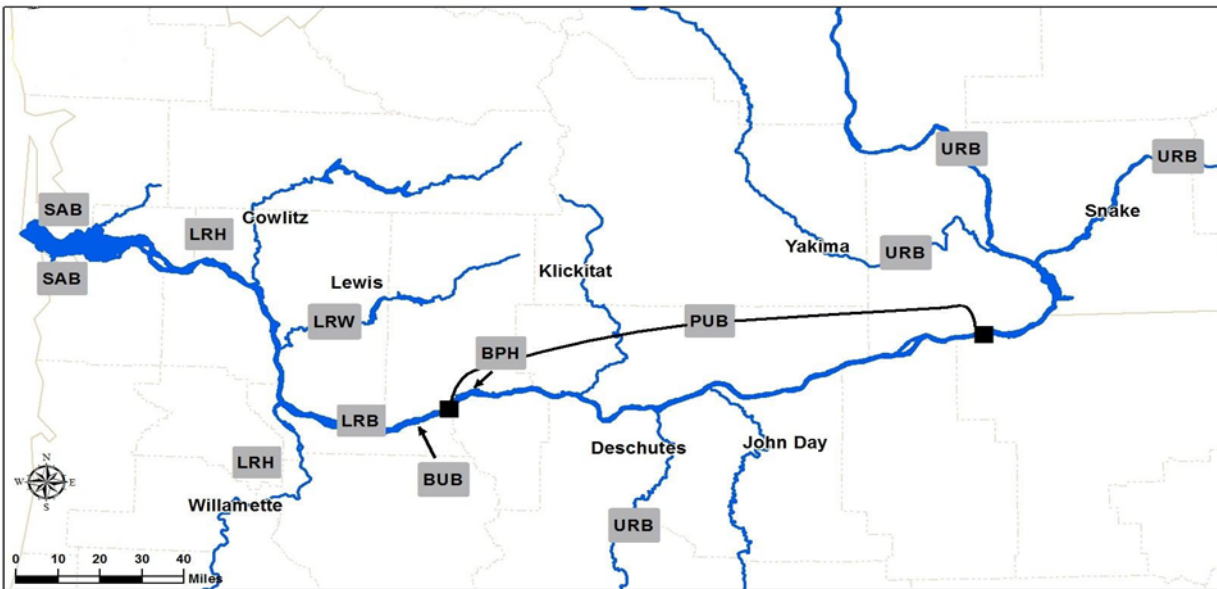


Figure 1. Major Columbia River fall Chinook stock components and general destinations.

The upriver run is comprised of stocks produced upstream of Bonneville Dam, and includes URB, PUB, and BPH. Most of the URB Chinook are destined for the Hanford Reach area of the Columbia River, Priest Rapids Hatchery, areas upstream of Priest Rapids Dam, and the Snake River. Smaller URB components are destined for the Deschutes and Yakima rivers. Snake River natural-origin (SRW) fall Chinook are a sub-component of the URB stock. PUBs are a bright stock reared at Little White Salmon, Umatilla, and Klickitat hatcheries, and released in areas between Bonneville and McNary dams. Natural production of fish derived from PUB stock is believed to also occur in the mainstem Columbia River below John Day Dam, and in the Wind, White Salmon, Klickitat, and Umatilla rivers. The BPH stock is produced primarily at the Spring Creek Hatchery in Bonneville Pool, although natural production of tules also occurs in the Wind, White Salmon, Hood, and Klickitat rivers. Hatchery production of BPH Chinook has been reduced in recent years, and offset by increased tule releases in Oregon facilities downstream of Bonneville Dam. Tule (BPH) passage at Bonneville Dam occurs over a shorter timeframe than for bright (URB and PUB) Chinook (Figure 1).

The lower river run is comprised of stocks produced downstream of Bonneville Dam, and includes LRH, LRW, LRB, and SAB stocks. Of the five lower river stocks, LRH are the only tule strain, the remainder being bright stocks. The LRH stock is currently produced from hatchery facilities (four in Washington and three in Oregon), and includes lower Columbia River (LCR) natural production (LCR natural tules) from most tributaries downstream of Bonneville Dam. Being a tule stock, the LRH fish are generally more mature (darker in color and well-developed gonads) when entering the mainstem, and are quick to reach the tributaries to spawn. The LRW stock is naturally-produced, primarily in the Lewis River system with smaller components also present in the Cowlitz and Sandy rivers. The LRBs are a natural stock that spawn in the mainstem Columbia River approximately three miles downstream from Bonneville Dam. The LRB stock is closely related to URBs, and is thought to have originated from MCB or URB stock. LRBs were originally

considered a component of the MCB stock. Beginning in 1998, this stock was reclassified as a unique subcomponent of the MCB stock. SABs are a hatchery stock that originated from Rogue River stock fall Chinook egg transfers during 1982-1986. Production of this stock is confined to Youngs Bay, with past releases occurring from ODFW's Klaskanine Hatchery, and Clatsop County Fisheries' (CCF) net pens and South Fork Klaskanine Hatchery facilities. Beginning with the 2015 brood, SAB production from the South Fork Klaskanine facility was discontinued.

2018 Returns

The total Columbia River fall Chinook adult return during 2018 was 293,424. The return was 39% of the recent 10-year average (2008-2017) return of 753,350 adults, and substantially less than the preseason forecast of 375,510 fish. The LRW, LRB, and SRW returns exceeded pre-season forecasts, while LRH, BPH, URB, PUB, and SAB returns came in under pre-season forecasts. Passage at Bonneville Dam totaled 187,079 adults, with a peak daily count of 7,842 adult fish. Forecasted and actual returns for 2018 are presented in Table 2. Historical returns by stock are presented in Tables 3 and 4. Forecast accuracy is presented in Table 4. Recent-year average Chinook passage at Bonneville Dam is illustrated in Figures 1 and 4.

The 2018 LRH return was 52,963 adults, 83% of forecast and 58% of the 2008-2017 average of 91,730 fish. Just over 21,000 adult fish returned to Oregon and Washington hatcheries below Bonneville Dam, exceeding the escapement goal of 13,200. LRH hatchery escapements included approximately 16,800 adult fish to Washington hatcheries (8,200 goal) and about 4,300 adult fish to Oregon hatcheries (5,000 goal). A tule production program was initiated in 2008 at Bonneville Hatchery. Eggs were initially transferred from Spring Creek Hatchery and sub-yearling smolts were released beginning in 2009 (2008 BY). This program is now maintained with broodstock collected at Bonneville Hatchery. Currently these fish are grouped with the LRH stock, but because of their origin, these fish could be grouped with the BPH stock, or considered a separate stock. In addition to the established hatchery programs, releases of LRH Chinook also occur from the Deep River net pens and Klaskanine Hatchery. Naturally-spawning LRH fall Chinook accounted for an estimated 10,100 adults in Washington tributaries and 9,000 adult fish in Oregon tributaries. Natural spawners may include a mix of hatchery and natural-origin fish.

The 2018 LRW return totaled 8,270 adults. The return was 105% of forecast and 52% of the 2008-2017 average return of 15,940 fish. The natural spawning escapement to the North Fork Lewis River of 5,200 adults fell short of the escapement goal of 5,700 LRW adults.

The 2018 BPH return of 28,861 adults was 56% of forecast and 33% of the 2008-2017 average return of 86,840 fish. Adult returns of BPH included 10,400 fish to Spring Creek Hatchery, which exceeded the escapement goal of 7,000 adults. An additional 2,100 adult BPH strayed into Bonneville Hatchery. Naturally-spawning BPH fall Chinook accounted for an estimated 340 adult fish in Washington tributaries which may include a mix of hatchery and natural-origin fish.

The 2018 URB return of 149,043 adults was 73% of the forecast and 34% of the recent 10-year (2008-2017) average return of 432,270. The URB return constituted 51% of the Columbia River fall Chinook return. The McNary Dam count (Aug 9 – Oct 31) of 100,030 adult Chinook exceeded the *U.S. v OR* management goal of 60,000 fish. The Hanford Reach fall Chinook spawning escapement in 2018 was 42,300 adult fish. The Deschutes River return of 4,799 adults was 35%

of the recent 10-year average of 13,800 adults. The SRW fall Chinook return of 10,642 fish was 111% of forecast and 59% of the 2008-2017 average (Table 5). The SRW escapement to Lower Granite Dam totaled 7,547 adult fish.

The 2018 MCB adult return included 14,235 LRB stock and 36,009 PUB stock. The LRB return was 379% of the forecast and 491% of the recent 10-year average return of 2,900 fish. The PUB return was 94% of the forecast and 42% of the recent 10-year average of 85,350 fish. PUB hatchery escapement included 4,100 fish to LWSNFH. PUB natural-spawn escapement totaled 3,800 fish in Washington tributaries upstream of Bonneville Dam.

The 2018 SAB return of 4,043 adults was 76% of forecast and 32% of the 2008-2017 average of 12,500 fish. Ninety-five percent of SABs returning in 2018 were harvested in Columbia River fisheries or returned to hatcheries.

2019 Forecast

The forecast for the 2019 fall Chinook adult return to the Columbia River totals 349,700 fish (Table 2). The forecast is 119% of the 2018 actual return (293,424 adults) and 47% of the 2009-2018 average return (737,720 adults). Bright stocks represent 70% of the total forecast. The LRH forecast of 55,100 adults is similar to the 2018 actual return, but well below the 2009-2018 average (90,870 adults). The LRW forecast of 14,100 adults is 88% of the 2009-2018 average of 15,990 adults. The BPH forecast of 48,400 adults is 60% of the 2009-2018 average of 80,350 adults. The forecasted return of 159,300 URB adults represents 46% of the projected total return and is 37% of the 2009-2018 average (427,440 adults). Included in the URB forecast is the SRW forecast of 8,600 adult fish, which is 47% of the 2009-2018 average (18,130 adults) and 81% of last year’s return. The LRB forecast of 7,900 adults is 194% of the recent 10-year average (4,070 adults), and the PUB forecast of 61,800 adults is 72% of the recent 10-year average (85,560 adults). The SAB forecast of 3,100 adult fish is 27% of the 2009-2018 average return (11,610 adults).

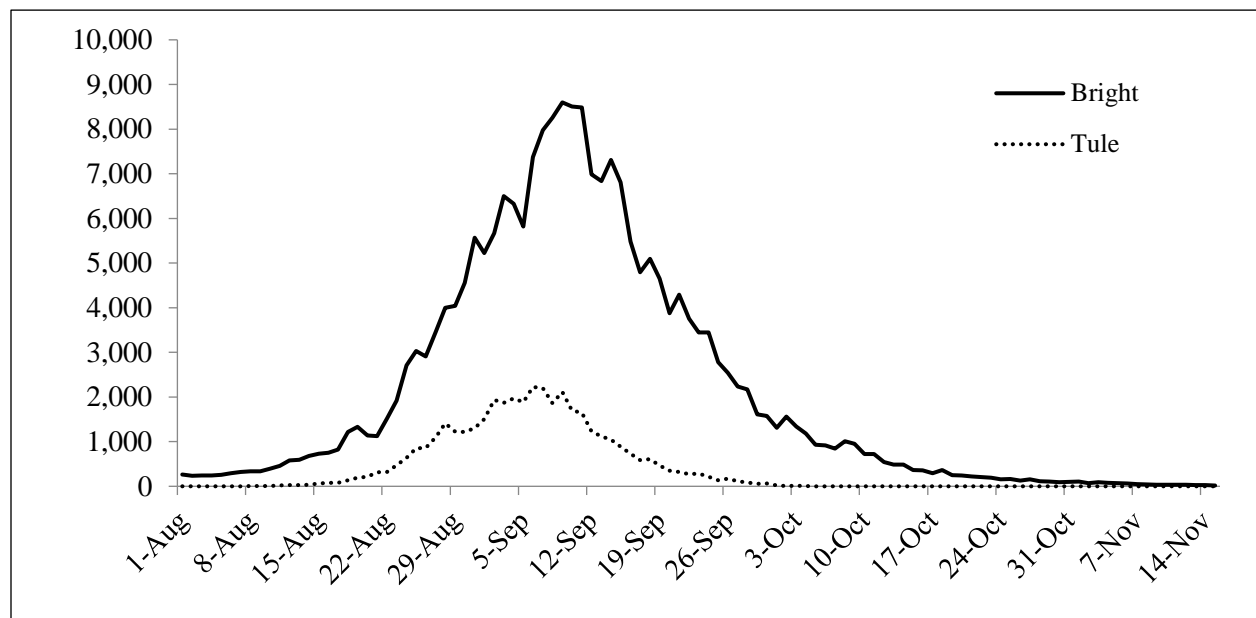


Figure 2. Ten-year average (2009-2018) daily passage of fall Chinook at Bonneville Dam.

Summer Steelhead

The Columbia River summer steelhead run is made up of populations originating from both lower river and upper river tributaries. Summer steelhead enter the Columbia River primarily from April through October each year, with most of the run entering from late June to mid-September. The LCR component is primarily hatchery produced and derived from Skamania stock, and tends to be earlier-timed than the upriver stocks. The Skamania stock was successfully introduced into numerous tributaries below Bonneville Dam, and a few systems above, including the Klickitat and Hood rivers. Peak return timing of the lower river component is in May and June. Summer steelhead caught in mainstem Columbia River fisheries downstream of Bonneville Dam during May and June are categorized as lower river Skamania stock (destined for areas downstream of Bonneville Dam).

Upriver summer steelhead include hatchery and wild fish that pass Bonneville Dam during April through October. Fish passing from April through June are categorized as Skamania stock steelhead, destined mainly for tributaries within Bonneville Pool. Production of Skamania stock steelhead in hatcheries upstream of Bonneville Dam has decreased from historical levels. Steelhead caught in the Bonneville Pool from April 1 through June 30 are categorized as upriver Skamania Steelhead.

Steelhead that pass Bonneville Dam during July through October are categorized as A-Index or B-Index fish, based on fork length (A-Index <78 cm, B-Index \geq 78 cm). B-Index steelhead primarily return to tributaries in the Salmon and Clearwater rivers in Idaho and usually spend two years in the ocean, while A-Index steelhead return to tributaries throughout the Columbia and Snake basins (including the Salmon and Clearwater rivers), and usually spend only one year in the ocean. The run-timing distribution at Bonneville Dam of A-Index and B-Index summer steelhead is shown in Figure 3. Steelhead caught in the mainstem Columbia River downstream of the Snake River from July 1 through October 31 are considered A-Index or B-Index steelhead. Additionally, steelhead caught in the mainstem Columbia River between The Dalles Dam and the mouth of the Snake River from November 1 through June 30 are also considered A-Index or B-Index steelhead.

Summer steelhead passage at Bonneville Dam is illustrated in Figure 4. Summer steelhead passage (returns) over Bonneville Dam is shown in Table 6, and passage over Lower Granite Dam is shown in Table 7. Stock distribution and hatchery/natural-origin determination are based and dependent on biological sampling at the two hydroelectric facilities mentioned. See Table 2 for details on steelhead forecasts.

Steelhead harvest from non-treaty recreational fisheries occurs throughout the Columbia River basin and in Zone 6 from treaty Indian fisheries. Recreational steelhead fisheries are mark-selective, allowing retention of fin-clipped fish only. Treaty Indian steelhead harvest is not mark-selective. The majority of the treaty Indian catch occurs during the fall gillnet fishery; catch also occurs in treaty platform and hook-and-line fisheries. Since the 1990s, the tribes have reduced catch of natural-origin steelhead during fall treaty Indian gillnet seasons. Commercial retention of steelhead in non-treaty fisheries has been prohibited since 1975. Time, area, and gear restrictions are implemented to minimize encounters of steelhead in non-treaty commercial fisheries, although some release mortality does occur.

2018 Returns

The total return to Bonneville Dam (April-October passage) of upriver summer steelhead was 100,483 fish, and included 6,483 Skamania stock, 69,338 A-Index stock, and 24,662 B-Index stock. The 2018 return was 53% of the forecast of 190,350 upriver steelhead. Upriver steelhead passage at Bonneville Dam in 2018 was 33% the recent 10-year (2008-2017) average return of 307,709 fish. Natural-origin fish passage totaled 26,702 fish, which represented 27% of the return, compared to the recent 10-year average of 32% (99,057 fish). Run-size data in this report are adjusted for unclipped hatchery fish based on sampling data collected at the Bonneville Dam adult fish trapping facility (AFF). In 2018, from July through October, 812 steelhead were biologically sampled at the AFF. Sampling at the AFF was restricted at water temperatures over 70°F and halted for 16 sampling days between July 26 and August 20 when water temperatures exceeded 72°F; the sampling restrictions, in combination with the low abundance of B-Index steelhead, resulted in a lower than desired sample size for estimating abundances of A- and B-Index groups.

The majority of summer steelhead passage at Bonneville Dam occurs during July through October. During these months in 2018, an estimated 94,000 steelhead passed Bonneville Dam, compared to the recent 10-year average of 295,427 fish. Passage during 2018 was 50% complete on August 22, compared to the 10-year average 50% passage date of August 13.

The upriver Skamania return to Bonneville Dam totaled 6,483 fish, including 2,595 (40%) natural-origin fish. The Skamania return was 53% of the 2008-2017 average of 12,282 fish. The A-Index return of 69,338 was 27% of the 2008-2017 average of 254,753 fish. Natural-origin fish represented 31% of the A-Index return, similar to the recent 10-year average of 33%. The B-Index return totaled 24,662 fish, which was 61% of the 2008-2017 average of 40,674 fish. Natural-origin fish represented 10% of the B-Index return, about half of the recent 10-year average of 23%.

The steelhead run year at Lower Granite Dam is from July 1 through June 30 of the following year. The 2018-2019 steelhead passage at Lower Granite Dam, from July 1, 2018 to June 30, 2019, was 51,818 fish. Based on passage and visual sampling data, the preliminary stock composition was 16,741 B-Index fish (17% natural-origin) and 35,077 A-Index fish (22% natural-origin). About 20% of the unclipped B-Index fish were hatchery origin and about 8% of the unclipped A-Index fish were hatchery origin.

2019 Forecast

The 2019 forecast for the summer steelhead return to Bonneville Dam is 126,950 upriver fish, including 8,750 Skamania stock (3,200 natural-origin), 110,200 A-Index stock (33,900 natural-origin), and 8,000 B-Index stock (950 natural-origin). Overall, the forecast is 45% of the 2009-2018 average return of 282,249 fish. The Skamania, A-Index, and B-Index forecasts are 77% and 46%, and 24% respectively, of the 2009-2018 average returns (Tables 2 and 6).

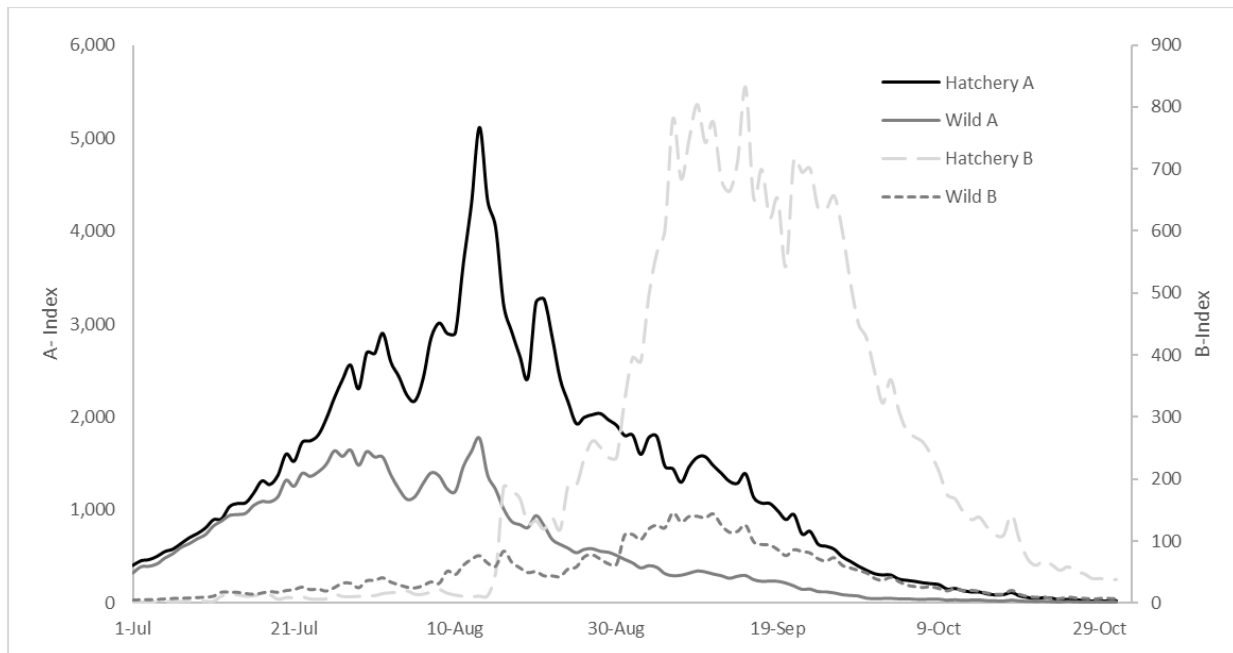


Figure 3. Ten-year average (2009-2018) daily passage of A- and B-Index summer steelhead at Bonneville Dam.

Coho

The Columbia River hatchery Coho return includes both early and late returning stocks. Coho adults are typically age-3 fish, returning to freshwater after only one year in the ocean. Early stock Coho enter the Columbia River from mid-August to early October, with peak entry occurring in early September (Figure 4). In the ocean, early stock Coho tend to remain near the Oregon and southern Washington coasts, and primarily migrate southward from the Columbia River, and are therefore referred to as Type S. Late stock Coho enter the Columbia River from mid-September through December, with peak entry occurring in mid-October. In the ocean, late stock Coho tend to migrate northward from the Columbia River along the Washington coast and Vancouver Island, and are therefore referred to as Type N. Columbia River Coho return primarily to Oregon and Washington hatcheries downstream from Bonneville Dam, although substantial hatchery, and some natural, production now occurs in areas upstream of Bonneville Dam (Tables 8, 9, and 10).

In Oregon, Columbia River tributaries with historical natural Coho production included the Lewis and Clark, Youngs, Klaskanine, Clatskanie, Clackamas, and Sandy rivers, plus Big, Gnat, Beaver, Milton, and Scappoose creeks. Annual spawning fish survey counts conducted in Oregon LCR tributaries from December through February, beginning as early as 1949, indicated that natural-origin Coho might have been extirpated from Oregon's lower Columbia tributaries, excluding the Clackamas and Sandy rivers. Intensive surveys conducted during 1990-1999, resulting in counts of 0.0-0.4 fish per mile, supported this conclusion. Increased numbers of unmarked Coho have been observed in LCR tributaries since 2000, indicating that some remnant Oregon populations may persist in the LCR Basin, but the origin of these fish is unknown. Population-specific estimates of naturally-spawning Coho, and the proportion estimated to be of natural-origin, are shown in Table 11.

Historical natural Coho production areas in Washington included the Grays, Elochoman, Cowlitz, Toutle, Kalama, Lewis, and Washougal watersheds. Stream surveys conducted in Washington from 1945-1979 in the Toutle and lower Cowlitz River tributaries showed a steady decline of naturally-spawning Coho. Smolt traps are currently being used in several Washington tributaries to estimate natural production. Recent-year natural spawn estimates from Washington’s lower Columbia River tributaries are provided in Table 11.

Historical natural Coho production areas above Bonneville Dam included the Spokane, Yakima, Wenatchee, Entiat, Methow, and Snake rivers. The majority of Coho presently passing Bonneville Dam are from the *U.S. v. Oregon* Management Agreement mandated hatchery releases of lower river Coho stocks in the Yakima, Umatilla, Klickitat, Wenatchee, Methow, and Clearwater rivers. The releases outside the Klickitat are primarily intended to restore natural Coho to appropriate habitats above Bonneville Dam, most recently in the Snake, Yakima, Methow, and Entiat rivers. Coho destined for areas upstream of Bonneville Dam have represented an increasing percentage of the total return in response to increased releases above Bonneville Dam. Coho passage at Bonneville Dam is illustrated in Figure 4. The tribes are engaged in increased monitoring and evaluation activities to determine the extent of natural production in areas where Coho have been re-introduced. See Tables 8, 9, and 10 for details on harvest, escapement, passage, and abundance.

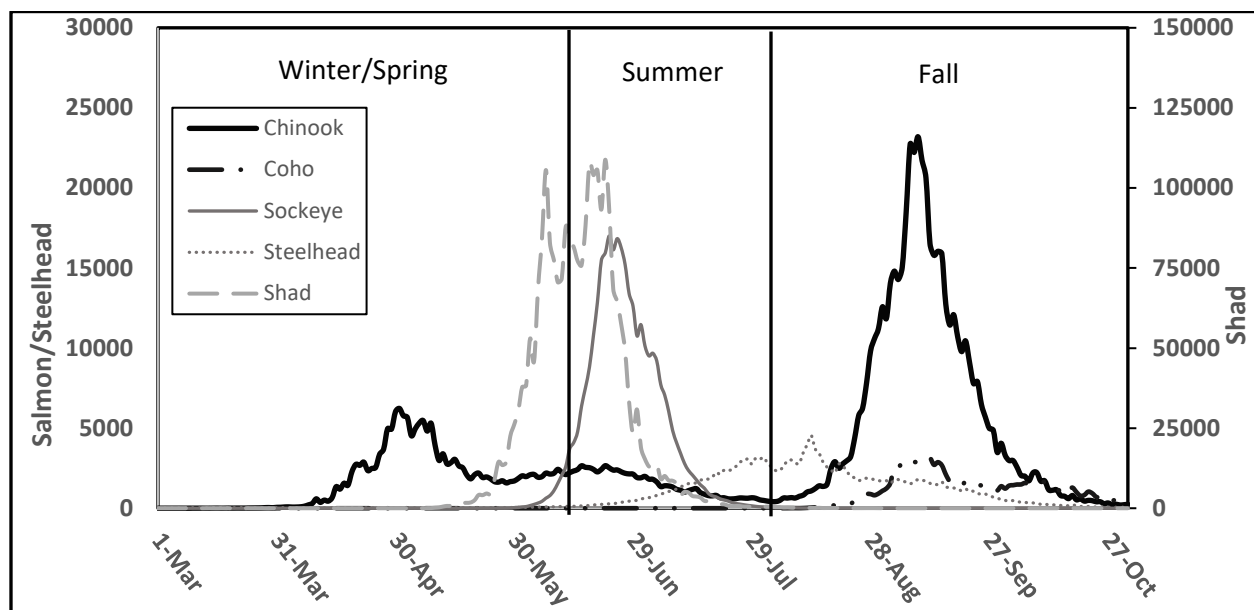


Figure 4. Ten-year average (2009-2018) of daily fish counts at Bonneville Dam.

2018 Returns

The 2018 Columbia River Coho return of 138,380 adult fish was comprised of 78,910 early stock fish and 59,470 late stock fish (Table 2). The return was 65% of the forecasted return of 213,600 adults. The early stock Coho return was 62% of forecast, and the late stock return was 69% of forecast. The Bonneville Dam count of 40,889 adult Coho was roughly half of the 2017 count. Hatchery escapement below Bonneville Dam (42,340 fish) to Washington and Oregon facilities was 30% of the 2008-2017 average. Passage represented 75% of the estimated total ocean abundance of Columbia River Coho destined for areas above Bonneville Dam. The preliminary

natural escapement of Lower Columbia River Coho is 24,300 adults, compared to the 2008-2017 average of 26,600 fish.

2019 Forecast

The 2019 forecast for the Columbia River Coho return is 611,300 adults, which includes 388,000 early stock and 223,300 late stock (Table 2). The forecast is 162% of the 2009-2018 average of 377,900 fish. The individual forecasts for early and late stock Coho are 166% and 155% of the 2009-2018 averages, respectively. Bonneville Dam passage is expected to be 180,336 adult Coho, which represents 64% of the forecasted total ocean abundance of Columbia River Coho destined for areas upstream of Bonneville Dam. Escapement goals of 4,930 early stock and 11,400 late stock adults to hatcheries downstream of Bonneville Dam are expected to be achieved.

Chum

Chum salmon (Chum) return to the LCR from early October through mid-December, with spawning occurring from late October through early January. Chum returns are primarily from natural production. Primary production areas include the Grays River in Washington, smaller tributaries just downstream from Bonneville Dam, and the mainstem Columbia River in specific locations from the I-205 Bridge upstream to Bonneville Dam. A small number of Chum also pass Bonneville Dam each year.

Four small hatchery enhancement programs (three in WA and one in OR) release fed-fry that contribute to the lower Columbia population. The Washougal/Vancouver Hatchery enhancement program provides fed-fry for release into Duncan Creek (BY 2001 to present) and the East Fork Lewis River (BY 2011 to present). The Grays River Hatchery enhancement program has been producing fed-fry for in-basin releases since 1999 (BY 1998). Beginning in 2011 (BY 2010), eyed-egg transfers of Grays River origin Chum to ODFW's Big Creek Hatchery (BCH) have provided fed-fry for release in Oregon waters. In fall 2014, Chum from the 2010 (age-4) and 2011 (age-3) brood years returned to BCH. These adult returns were the first to be incorporated into the BCH broodstock, and egg transfers from Grays River Hatchery were discontinued after 2014.

Washington index areas have been surveyed annually since 1950, and specific areas of the mainstem Columbia River have been surveyed annually since 1998. During 2000-2003, survey areas were expanded to include non-index LCR tributaries (Washington and Oregon) downstream of Bonneville Dam. These non-index stream surveys have continued sporadically since. In some years, significant numbers of Chum have been observed in non-index areas, primarily at the mainstem Columbia River spawning areas between Bonneville Dam and the I-205 Bridge. In 2013, the reporting metric for the LCR Chum abundance index was changed from fish/mile to estimates of escapement. Table 12 has been updated to report escapement estimates for the major populations of LCR Chum. While variable, reported returns to spawning areas outside of the major populations of LCR Chum generally number less than 200 fish annually. The combined estimated return for the major populations in 2018 of approximately 13,900 fish was greater than forecasted and similar to the recent 10-year average return (~14,300 adults).

In fall 2018, returns of Chum to Oregon were very low, similar to the poor returns observed in 2017. In anticipation of these poor returns, 50,000 eggs were collected from Grays River Hatchery Chum to be added to the BCH broodstock. A total of 19 marked females and 20 marked males

returned to BCH and were spawned. An additional 37 unmarked females and 25 unmarked males also returned and were incorporated in the broodstock. It is expected that marked Chum strayed to Washington, as has been seen in previous years, but data are not yet available. Including the 50,000 eggs from the Grays River, approximately 200,000 fed-fry were released from BCH in the spring of 2019.

Because of variable egg collection at BCH over the last few years, the primary broodstock goal is to build it to a consistent release of 200-300,000 fry annually. Once that has been achieved for several consecutive years, we expect there to be sufficient adult returns to re-initiate outplanting of eyed-eggs or adults to reintroduction streams. It is critical that those reintroductions be of a size sufficient to overcome small population dynamics. As such, no outplanting will occur until there are sufficient excess returns at the hatchery to outplant at least 50 pair of adult or 50,000 eggs.

Despite seeing few to no Chum on most spawning surveys in the Oregon portion of the LCR, 25 Chum fry were captured in screw trapping efforts on Bear Creek. No Chum fry were recaptured and no estimate could be made. In previous years, estimates of Chum fry production on Bear Creek ranged as high as 63,000 in 2017. The 2019 Chum return to the Columbia Basin very low, with only 2,500 adults expected. This will cause substantial difficulty in maintaining broodstock releases of 100,000 eggs from BCH.

In 2019, research was conducted to identify whether the parasite *Ceratonova shasta* limits the survival of juvenile Chum. Columbia River Chum marine survival rates are frequently below 0.2%, compared to rates ranging 0.5-3% throughout the rest of the range. To evaluate *C. shasta* as a mortality factor, a series of experiments were completed. In 2018 and 2019, water samples were collected from streams with and without Chum in Oregon and Washington below Bonneville Dam, along with several sites in the Columbia River. Genetic analysis was conducted on the samples at OSU. *Ceratonova shasta* was found throughout the study area, but predominantly in areas without Chum.

Subsequently, two lab trials were conducted. In the first trial, BCH Chum fry were exposed to *C. shasta* at a spore density of 5 spores / L for 2, 7, and 13 day periods. This spore level was chosen to reflect spore densities observed in the Columbia River during juvenile outmigration. After exposure, fry were transferred to clean water where they were reared and observed for signs of disease. All fry in each treatment level died of infection from *C. shasta* within 27 days of exposure.

In the second lab trial, Chum fry from BCH and Washougal Hatchery were exposed to much lower doses of *C. shasta*- 5 spores per fish for 6 hours. As before, fish were held in clean water after the exposure and monitored for signs of disease or death. A total of 75% of Washougal Hatchery fry and 95% of BCH fry died from infection by *C. shasta*.

Finally, a field study was conducted to expose Chum fry from BCH and Washougal Hatchery to ambient levels of *C. shasta* at three locations- the Willamette River, Tongue Point (East side), and the Lewis and Clark River. Fish from each hatchery were held in separate cages at each sentinel site. After a seven day exposure (May 1 – May 8), fish were transferred to the Aquatic Animal Health Lab and reared on clean water. All fry held in the Willamette River died of infection by *C. shasta*. At Tongue Point, all Big Creek fry and all but one Washougal fry died of *C. shasta*. At

the Lewis and Clark site, 60% of Big Creek fry and 30% of Washougal fry died of infection by *C. shasta*.

As of the time of this report, these results are considered preliminary and a full report of the experimental design and findings, including other data on environmental parameters, will be forthcoming.

MANAGEMENT GUIDELINES

Endangered Species Act

Status reviews occurring since 1991 have resulted in the majority of Columbia Basin salmon and steelhead stocks being listed under the ESA (Table 1). 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 state management plan in place for naturally-produced Coho from Oregon tributaries that were listed by the State of Oregon in 1999.

The current BA addresses Columbia River treaty Indian and non-treaty fisheries for upriver Chinook, upriver Coho, Sockeye, steelhead, and White Sturgeon, as described in the *2018-2027 U.S. v Oregon Management Agreement* (2018-2027 MA). The BA was submitted in June 2017, and a Biological Opinion (BO) was subsequently issued by the National Marine Fisheries Service (NMFS) in February 2018.

Columbia River Salmon Management Guidelines

The parties to *U.S. v Oregon* are currently operating under the 2018-2027 MA. This agreement provides specific fishery management constraints for upriver spring, summer, and fall Chinook, upriver Coho, Sockeye, and steelhead. Excerpts from the 2018-2027 MA and other agreements applicable to fisheries considered in this report are included in this section.

Upriver Summer Steelhead

During the fall season, treaty Indian and non-treaty fisheries encountering upriver summer steelhead will be managed according to the harvest rate schedule shown in Table A4 of the 2018-2027 MA. Table A4 only addresses impacts to B-Index steelhead in fall season fisheries; however, the BO does address ESA impact limits to A-Index steelhead in the fall season as well as steelhead impacts in other management periods. All mainstem non-treaty fall fisheries (downstream of the Highway 395 Bridge near Pasco, Washington) are managed not to exceed impact rates of 2% on natural-origin A-Index and natural-origin B-Index steelhead occurring from August through December. Treaty fisheries are managed based on the abundance-based harvest rate schedule for the combined hatchery- and natural-origin B-Index return.

Table A4. Steelhead harvest rate schedule for fall management period.

Forecast Bonneville Total B Steelhead Run Size	River Mouth URB Run Size	Treaty Total B Harvest Rate	Non-Treaty Natural Origin B Harvest Rate	Total Harvest Rate
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<20,000	Any	13%	2.00%	15.00%
20,000	Any	15%	2.00%	17.00%
35,000	>200,000	20%	2.00%	22.00%
B-Index Steelhead are defined as steelhead measuring ≥ 78 cm & passing Bonneville Dam during July 1 and October 31. This harvest rate schedule applies to fall season fisheries only. These fisheries include all mainstem fisheries below the mouth of Snake River from August 1 through October 31 and for mainstem fisheries from The Dalles Dam to the mouth of the Snake River from November 1 through December 31. Also included are fall season treaty fisheries in Drano Lake and tributary mouth fisheries in Zone 6 that impact Snake River steelhead.				

Lower Columbia River natural-origin Coho (LCN Coho)

As part of the 2018-2027 MA, ocean and Columbia River fisheries are managed to provide treaty Indian and non-treaty fisheries the opportunity to each harvest 50% of the upriver adult Coho available for harvest south of the U.S-Canada border. Non-treaty fisheries include commercial and recreational fisheries in the ocean and mainstem Columbia River. For lower river Coho stocks, the exploitation rate (ER) limits are based on impacts to LCN Coho stocks. These ER limits are set annually by NMFS using a harvest matrix that considers parameters of ocean survival and parental escapement. The matrix was updated in 2015 to include additional reference populations. The allocation of non-treaty catch and ESA impacts between ocean and in-river fisheries is determined annually by the states and occurs during the Pacific Fishery Management Council (PFMC) and North of Falcon (NOF) meetings in March and April.

Lower Columbia River natural origin (LCN) Coho - Exploitation Rate Matrix					
Parental Escapement (percent of full seeding)	Marine Survival Index a/				
	Very Low $\leq 0.06\%$	Low $\leq 0.08\%$	Medium $\leq 0.17\%$	High $\leq 0.40\%$	Very High $> 0.40\%$
Normal	10%	15%	18%	23%	30%
Very Low *	$\leq 10\%$	$\leq 15\%$	$\leq 18\%$	$\leq 23\%$	$\leq 30\%$
* In the event that lower Columbia River natural Coho average spawning escapements fall below 30 percent of full seeding when considered as an average of the ten reference populations, b/ the Council shall work to the extent possible to minimize LCN Coho exploitation rates on adult returns from the corresponding brood year, and in no case exceed the exploitation rate for a given marine survival index category.					
a/ Columbia River hatchery Coho jack returns per smolt released.					
b/ Clatskanie River, Scappoose Creek, Elochoman River/Skamokawa River, Grays River/Chinook River, Clackamas, Sandy River, Lower Cowlitz River, Toutle River, Coweeman River, and East Fork Lewis River.					

Lower Columbia River natural-origin tule Chinook (LCR tule)

Fall season fisheries in the Columbia River and ocean that harvest LCR tules are currently managed according to an abundance-based ER schedule that depends on the abundance of LRH Chinook. The LRH Chinook are considered a valid indicator of the relative abundance of LCR (natural) tules. The total allowed ER is shared between ocean and in-river fisheries downstream of Bonneville Dam. The allocation of non-treaty catch and ESA impacts between ocean and in-river fisheries is determined annually by the states and occurs during the PFMC and NOF meetings in March and April.

Exploitation Rate Schedule for LCR Tule Chinook	
LRH Abundance	Exploitation Rate
0-30,000	0.30
30,000 -40,000	0.35
40,000 -85,000	0.38
> 85,000	0.41

Upriver Fall Chinook

Fall season fisheries in the Columbia River Basin below the confluence of the Snake River are managed according to the abundance-based harvest rate schedule from the 2018-2027 MA (Table A3). If non-treaty mark-selective fisheries are implemented that impact URBs, the non-treaty ocean and in-river fisheries may not harvest more than 50% of the harvestable surplus of URBs, consistent with the applicable federal allocation case law.

Upriver fall Chinook escapement goals include 7,000 adult BPH fall Chinook (4,000 females) to Spring Creek Hatchery, and a 60,000 adult URB fall Chinook (natural and hatchery) management goal above McNary Dam.

Table A3. Chinook harvest rate schedule for fall management period.						
Expected URB River Mouth Run Size	Expected River Mouth Snake River Natural-origin Run Size ¹	Treaty Total Harvest Rate	Non-Treaty Harvest Rate	Total Harvest Rate	Expected Escapement of Snake R. Natural-origin Past Fisheries	
<60,000	<1,000	20%	1.50%	21.50%	784	
60,000	1,000	23%	4%	27.00%	730	
120,000	2,000	23%	8.25%	31.25%	1,375	
>200,000	5,000	25%	8.25%	33.25%	3,338	
	6,000	27%	11%	38.00%	3,720	
	8,000	30%	15%	45.00%	4,400	
<ol style="list-style-type: none"> 1. If the Snake River natural fall Chinook forecast is less than the level corresponding to an aggregate URB run size, the allowable mortality rate will be based on the Snake River natural fall Chinook run size. 2. Treaty Fisheries include; Zone 6 Ceremonial, subsistence, and commercial fisheries from Aug 1-Dec 31. 3. Non-Treaty Fisheries include: Commercial and recreational fisheries in Zones 1-5 and mainstem recreational fisheries from Bonneville Dam upstream to the confluence of the Snake River and commercial and recreational SAFE (Selective Areas Fisheries Evaluation) fisheries from August 1-December 31. 4. 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. 5. Fishery impacts in Hanford sport fisheries count in calculations of the percent of harvestable surplus achieved. 6. When expected river-mouth run sizes of naturally produced Snake River Fall Chinook equal or exceed 6,000, the states reserve the option to allocate some proportion of the non-treaty harvest rate to supplement fall Chinook directed fisheries in the Snake River. 						

Annual Non-Treaty Impact Allocation of Upriver Fall Chinook

Based on preseason run size forecasts, a fishing schedule is developed annually for non-treaty recreational and commercial fisheries through the NOF management process. The fisheries described in the following section were structured and guided by preseason planning efforts, and informed by in-season data. Preseason plans for fall fisheries that occurred in 2018 can be found in the “Fall Season Expectations” section of the 2018 Fall Joint Staff Report.

REVIEW OF MAINSTEM AND SELECT AREA FISHERIES

Non-Treaty Commercial Fisheries

Traditional commercial fisheries below Bonneville Dam occurred during "early fall" (August to mid-September) targeting Chinook, and during the "late fall" (mid-September to mid-November)

targeting Coho. Although Coho typically outnumber Chinook in the late fall season catch, Chinook landings have occasionally been significant during the mid-September timeframe. Incidental landings of steelhead occurred in both early and late fall seasons until commercial sales were banned in 1975. Time, area, and gear restrictions have been imposed to reduce the incidental catch of non-target species. See Figure 5 for a map of commercial fishing zones.

Since 1992, fall season commercial fisheries below Bonneville Dam have been reduced in response to ESA listings. During 1995-1998, extremely low Coho abundance curtailed nearly all commercial fishing opportunities during the late fall period. During 1997-2001, early fall fisheries consisted primarily of short fishing periods targeting sturgeon. Since 2002, August fisheries have expanded in time with increased emphasis placed on targeting Chinook. Since 2011, the early fall season has primarily occurred in Zones 4-5 due to ESA constraints and reduced allocation guidelines for LCR tulle Chinook. Late fall season fisheries targeting Chinook typically occur from mid to late September through the end of October within Zones 4-5. Prior to 2006, the majority of the late fall season targeted Coho in Zones 1-3 (below the mouth of the Lewis River). Since 2006, the ESA listing of LCN Coho has reduced Coho fishing opportunity considerably. However, during 2013-2015, mark-selective Coho-target fisheries were implemented using tangle net gear and other live-capture regulations to provide commercial access to harvestable hatchery-origin Coho, while remaining within allowable ESA impact limits.

Reduced non-treaty commercial salmon fishing opportunities in the late 1990s and adoption of Joint State Sturgeon Management Agreements beginning in 1997 resulted in target sturgeon fisheries becoming an important part of fall fishing strategies to allow access to the commercial allocation of White Sturgeon. Sturgeon fishery management changed considerably in 2003 when the annual commercial White Sturgeon allocation was reduced to 20% of the total non-treaty harvest allowed below Bonneville Dam. During 2002-2013, daily and/or weekly possession and sales limits concurrent with salmon fisheries largely replaced directed sturgeon seasons during the fall timeframe. During 2014-2016, policies adopted by the WFWC and OFWC prohibited the retention of White Sturgeon in all non-treaty fisheries downstream of Bonneville Dam (sport and commercial).

2018 Early Fall Commercial Mainstem Fisheries

The 2018 early fall (August) mainstem gillnet season consisted of four fishing periods in Zones 4-5 during August 21-30. The first three periods were nine hours (9 PM-6 AM) followed by a seven-hour period on August 29-30. A 9-inch minimum mesh size restriction was in place for all periods to minimize handle of steelhead and under-sized sturgeon. White Sturgeon sales (44-50 inches FL) were allowed, with a six fish per participating vessel weekly landing limit in effect for the first week and seven fish the following week. The number of deliveries ranged from 58-84 per fishing period. Landings for the early fall season included 8,320 Chinook, 380 Coho, and 413 White Sturgeon. Consistent with the reduced return, Chinook landings were 83% of pre-season expectations; however, impacts for both SRW and LCR natural-origin Chinook were similar to expectations. Coho landings in the early fall season were about two-thirds of the recent 10-year average of 578 fish. An estimated 191 steelhead were handled. See Tables 14-21 for details on season structure and catches.

2018 Late Fall Commercial Mainstem Fisheries

Due to limitations on available SRW/URB impacts, late fall mainstem non-treaty commercial fisheries were not planned during the annual pre-season NOF process. The management intent for this fishery was to wait until mid-September when additional information on Chinook and steelhead run sizes, and corresponding ESA impacts, would be available. Due to the in-season downgrade of the URB return, no late fall mainstem commercial fisheries occurred.

The combined fall season Chinook landings of 8,320 were 78% of combined preseason expectations. Coho landings were 3% of preseason expectations and the lowest since 1998. See tables 14-20 and 22 for details on late fall season structure and harvest.

2018 Fall Seine Fisheries

Due to limited available impacts for URB/SRW Chinook, non-treaty commercial seine fisheries were not considered, and did not occur, in 2018 (Table 23).

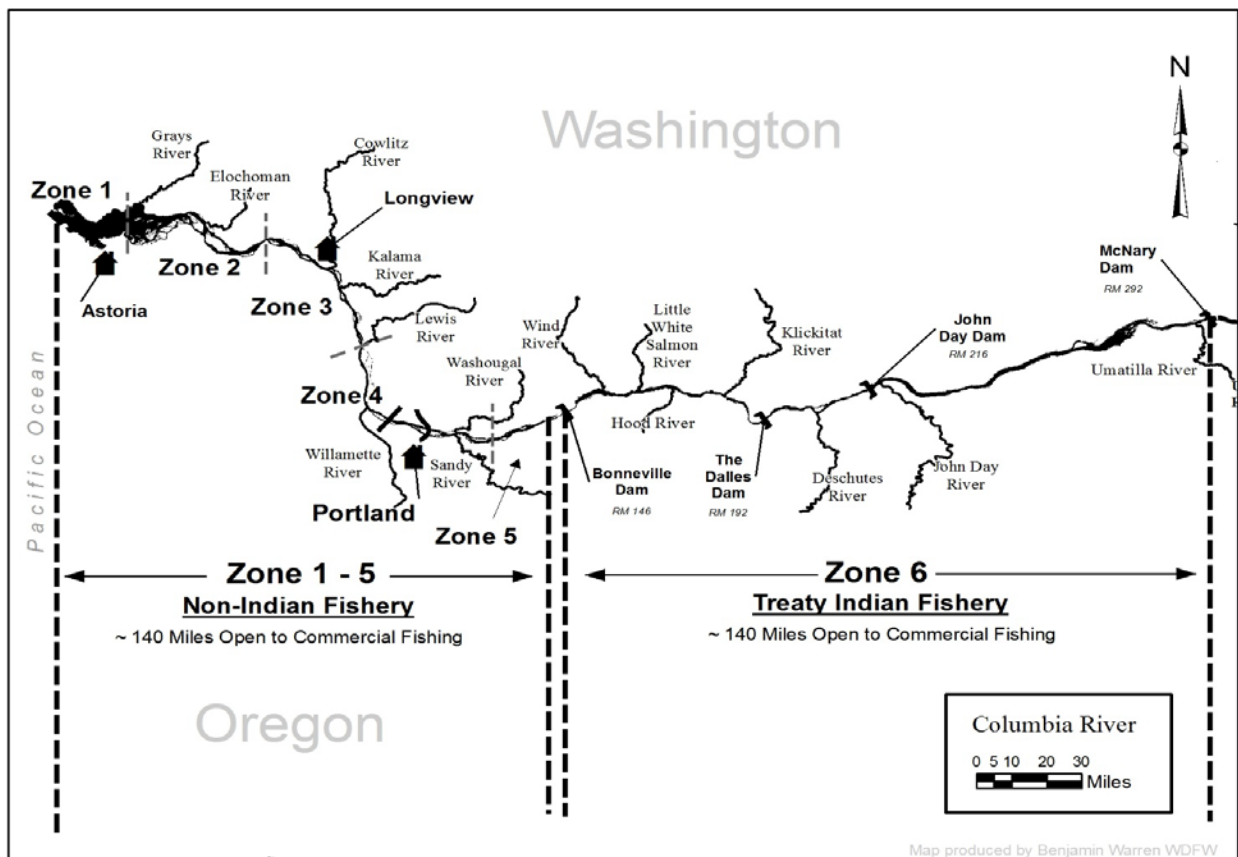


Figure 5. Columbia River commercial fishing zones.

Non-Treaty Recreational Fisheries

The fall recreational salmon fishery occurs throughout the Columbia River with primary catch areas in the estuary (Buoy 10), the LCR between Tongue Point and Bonneville Dam, and the Hanford Reach area below Priest Rapids Dam. The Buoy 10 fishery targets fall Chinook and Coho from the Buoy 10 line upstream to the Tongue Point/Rocky Point line and accounts for the majority of the recreational Coho harvest in the Columbia River. The LCR recreational fishery catches fall Chinook, summer steelhead, and Coho in the mainstem Columbia River from the Tongue Point/Rocky Point line upstream to Bonneville Dam. The Hanford Reach fishery targets fall Chinook in the area downstream of Priest Rapids Dam. Smaller fisheries targeting Chinook, Coho, and steelhead also occur near most tributary mouths on the mainstem Columbia River between Bonneville and McNary dams and in the mainstem upstream of McNary Dam. Additionally, significant fisheries for summer steelhead occur during the late fall and early winter in the mainstem between McNary Dam and the Highway 395 Bridge. In all of these fisheries, regulations require anglers to release all unclipped steelhead and Coho, except anglers may keep unclipped Coho upstream of the Hood River Bridge (RM 170).

The popularity of the LCR fall salmon fishery has grown considerably over the years, and anglers continue to fish successfully in new areas of the lower Columbia for fall Chinook. Historically, high water temperatures on the mainstem during August and September hindered anglers' ability to catch fall Chinook in the shallows, and the majority of the catch occurred at or below tributary mouths where water temperatures were cooler. Beginning in the late 1990s, anglers began targeting fall Chinook in deeper areas of the river with excellent results, especially in and around shipping lanes. The recreational catch of adult fall Chinook on the mainstem has increased from an average of 2,300 during the 1980s, to 5,000 fish during the 1990s, 14,700 during the 2000s, and 25,400 since 2010. Angler trips have also increased from an average of about 41,000 trips in the 1980s, to 54,000 trips in the 1990s, 94,000 trips in the 2000s, and 125,000 trips annually since 2010. Because of the increased effort and catch, the recreational opportunity for fall Chinook on the mainstem Columbia River downstream of Bonneville Dam has been constrained in terms of the daily bag limit and/or fewer fishing days since 2004 in order to meet ESA and harvest-sharing guidelines. The states also adopted mark-selective regulations for fall Chinook on the mainstem between Tongue Point and Warrior Rock during a portion of the season in 2012 through 2017 to reduce impacts to LCR tule fall Chinook.

Similar to the trend in the lower river fishery, Chinook catches in the Buoy 10 fishery have also increased as anglers have become more effective at catching Chinook in this area, especially in recent years with large returns. While the average number of angler trips by decade has remained relatively stable since the 1990s, annual Chinook harvest has increased from an average of 6,700 in the 1990s, 10,000 in the 2000s, to 21,000 since 2010. A significant portion of the Chinook catch in the Buoy 10 fishery is tule stock. The increased Chinook harvest, coupled with a decrease in the allowable ER on LCR tules, has required the states to reduce opportunity for Chinook since 2007, with retention seasons averaging about 30 days during August and early September. Additionally, the states have adopted mark-selective regulations for a portion of the season during 2013-2016 to increase the likelihood of meeting the Chinook retention end-date objective of Labor Day.

2018 Buoy 10 Recreational Fishery

The 2018 Buoy 10 fishery opened August 1 for fall Chinook, adipose fin-clipped Coho, and adipose fin-clipped steelhead. The season started with a daily bag limit of one adult salmonid. Chinook retention was scheduled for August 1 through August 24. Retention of adipose fin-clipped Coho and adipose fin-clipped steelhead was scheduled for August 1 through December 31. On August 25, the daily bag limit was set to increase to two adult salmonids, with only one adipose fin-clipped steelhead allowed. Chinook retention was scheduled to close from August 25 through December 31. The expected harvest (including release mortality) for the Buoy 10 fishery was 15,400 Chinook (1.7% SRW harvest rate; 3.7% LCR natural-origin ER), and 27,500 adipose fin-clipped Coho.

2018 Buoy 10 Fishery- Summary of Retention Regulations	
08/01 to 08/24	One adult salmonid daily bag limit. Coho and steelhead must be adipose fin-clipped.
08/25 to 08/26	Two adult salmonid daily bag limit, only one steelhead allowed. Adipose fin-clipped fish only. Chinook retention prohibited.
08/27 to 09/12	Two adult Coho daily bag limit. Adipose fin-clipped fish only.

The 2018 Buoy 10 fishery opened with about 3,500 angler trips and a Chinook catch rate of about 0.17 kept fish per rod through the first week (August 1 to August 5). Angler trips peaked at over 21,500 in the third week of the fishery (August 12 to August 18). Angler trips averaged about 13,600 per week, with catch rates ranging from 0.12 to 0.34 kept Chinook per rod through August. The peak catch rate of 0.34 kept Chinook per rod occurred during the week of August 19 through August 24. As planned, Chinook retention closed on August 25, and remained closed through December 31. Retention of all steelhead also closed on August 27 due to lower than forecasted returns.

Coho catch rates were low for most of August (0.01 to 0.29 kept fish per rod). The peak catch rate for Coho of 0.29 kept fish per rod occurred during the week of August 26 through September 1. Catch rates dropped back to an average of 0.15 kept fish per rod for September, with weekly catch rates that ranged from 0.13 to 0.16 kept fish per rod. Angling effort dropped drastically after Chinook retention closed, going from over 20,000 trips during the week of August 19 to 24, down to only about 8,700 trips in the last week of August. The average effort from August 25 through September 12 was about 4,200 angling trips per week. Much of the effort shifted upriver where Chinook retention was ongoing. On September 11, Joint Staff had reported (Fall Fact Sheet No.5) that through September 10 the Columbia River fall Chinook return was only about 75% of the preseason forecast. To reduce impacts on fall Chinook, the states of Oregon and Washington closed the Buoy 10 fishery, Select Area fisheries, and Columbia River fisheries up to the 395 Bridge near Pasco, Washington on September 13.

The 2018 Buoy 10 fishery consisted of 67,318 angler trips with a kept catch of 11,620 Chinook and 6,761 adipose fin-clipped Coho (Table 25). Anglers released a total of 5,039 Chinook and 5,890 Coho. The season structure for Chinook matched the preseason agreement. The season structure for Coho and steelhead did not match the preseason agreement in order to prevent further

impacts to steelhead and fall Chinook. The total Chinook kept catch ranked 17th since 1982. Total angler effort ranked fifth since 2010. See Tables 15, 18, 19a, 19b, and 25 for additional detail.

2018 Lower Columbia Mainstem Recreational Fishery

In 2018, the Columbia River recreational fishery opened for Chinook and Coho retention on August 1. Columbia River non-treaty fall fisheries were most constrained by SRW Fall Chinook and secondly by natural-origin B-Index summer steelhead. The states adopted Chinook retention seasons during August 1-September 2 between Tongue Point and Warrior Rock and August 1-September 14 from Warrior Rock to Bonneville Dam. In both areas, the states restricted the daily bag limit to one adult salmonid during Chinook retention seasons. Seasons for hatchery Coho and hatchery steelhead were scheduled to remain open through the end of the year in both areas after Chinook retention closed with a daily bag limit of two adult fish but not more than one steelhead. The states adopted party fishing rules for boat anglers whereby each angler aboard a vessel could continue to deploy gear until the anglers achieved a boat limit. The preseason catch expectation for the 2018 mainstem recreational fishery was 10,100 adult Chinook and 1,600 Coho.

Similar to recent years, high water temperatures had an adverse effect on catch rates in the recreational fishery from Cathlamet upstream to Bonneville Dam during early August. Catch rates exceeded one Chinook per boat at Tongue Point during August 20-22, but only averaged one fish every six boats elsewhere in the river for the month. Through August 31, the total Chinook catch in the recreational fishery was 4,119 adult fish, which was the third lowest Chinook catch for the month since 2005.

Catch rates below Warrior Rock averaged about one Chinook per every two boats during September 1-2, and the area between Tongue Point and Warrior Rock closed as scheduled effective September 3. After the lower river closed for Chinook retention, most anglers shifted into the area upstream of Warrior Rock where Chinook retention remained open. Catch rates above Warrior Rock also averaged about one Chinook kept per every two boats during early September, and the overall Chinook catch was 9,900 fish by September 9, which approached the total expected Chinook catch for the lower Columbia River for the entire season. In addition, URB impacts in the recreational fishery were higher than expected, especially in the area between Tongue Point and Warrior Rock. With Chinook counts at Bonneville tracking below expectations, TAC met on September 10 to review Chinook passage at Bonneville Dam but did not issue a formal run size update. On September 11, the states met and estimated the URB run size at 141,100, or 69% of the preseason forecast, and closed recreational fishing for salmon and steelhead from Buoy 10 to the Oregon/Washington border above McNary effective September 13, 2018. The total Chinook catch in the lower Columbia during September 1-12 was 5,683 adults, which was the lowest fall Chinook catch for the month since 2007.

The 2018 mainstem recreational fishery produced 69,629 angler trips with kept catches of 9,802 adult fall Chinook, 697 Chinook jacks, 650 adult hatchery Coho and 1,104 hatchery summer steelhead (Table 26). The total adult Chinook catch was the lowest since 2007, the angler trip total was the lowest since 1998, and the adult Coho catch was lowest since 2005. Anglers released totals of 877 adult Chinook, 417 adult Coho, and 861 summer steelhead during 2018. See Tables 15, 18, 19a, 19b, and 26 for additional detail.

2018 Columbia Mainstem Recreational Fisheries above Bonneville Dam

The Columbia River is typically open for Chinook and hatchery steelhead and Coho retention during the fall season in the area from Bonneville Dam upstream to the Highway 395 Bridge. Additional areas of the Columbia River upstream of the Highway 395 Bridge, such as the Hanford Reach, are also open during the fall season. Since 2017, fall season catch estimates for the salmon and steelhead fisheries from Bonneville Dam upstream to the Highway 395 Bridge are based on creel programs. The catch from the Hanford Reach fishery is also based on a robust creel program. See Tables 15, 18, 19a, 19b, and 27 for seasons and catch detail.

Bonneville Dam to Highway 395 Fishery

This fishery is often referred to as the ‘Zone 6’ recreational fishery; however, it does extend upstream of McNary Dam to the Highway 395 Bridge. Chinook catch from Bonneville to the Highway 395 Bridge during 2013-2017 ranged from 5,800 to 20,000 adult fish annually, and averaged 11,000 Chinook. The majority of the catch occurs within the Zone 6 area (Bonneville Dam upstream to McNary Dam). Minor catch (2013-2017 average of 666 Chinook) is reported in the area from McNary Dam upstream to the Highway 395 Bridge. Chinook retention was open August 1 through September 12 in 2018. This fishery was scheduled to be open through December 31, but closed early due to an exceedance of SRW Fall Chinook impacts accrued in the non-treaty fisheries. Harvest is estimated at 958 adult Chinook kept (97 released), 12 Coho kept (6 released), and 39 steelhead kept (70 released hatchery- and natural-origin fish) based on creel results (Tables 15, 19a, 19b, and 27). Due to low steelhead returns in 2018, steelhead retention was closed August 27 through December 31.

Hanford Reach Fall Chinook Fishery

The Hanford Reach fall Chinook sport fishery opened from August 16 through October 16 for the area from the Highway 395 Bridge upstream to Priest Rapids Dam with a daily bag limit of two adults. The adult Chinook limit was reduced to one fish effective September 15.

An estimated 8,672 adult fall Chinook, 1,074 jack fall Chinook, and 13 Coho were harvested from about 24,000 angler trips in this fishery. Approximately 133 adult Chinook, 59 jack Chinook, and 15 adult Coho were also caught and released. The 2018 Chinook harvest was the lowest since 2009 (Table 27).

Select Area Fisheries

The Select Area Fisheries Project is a cooperative program that strives to deliver quality commercial and recreational salmon fishing opportunities in areas that maximize the return of hatchery production to fisheries. Hatchery production and targeted commercial fisheries for Coho and Chinook occur in the Select Areas. The Select Areas are off-channel and terminal areas in the Lower Columbia River and include Youngs Bay, Blind Slough/Knappa Slough, and Tongue Point/South Channel in Oregon and Deep River in Washington.

Commercial fisheries in the Select Areas target salmon that return from net-pen and hatchery releases in these areas. Fall commercial fisheries have occurred in Youngs Bay since 1962 and in Blind Slough/Knappa Slough, Tongue Point/South Channel, and Deep River since 1996. Fisheries are managed to remain within allowable harvest impact rates and catch guidelines though Select

Area fall fishery impacts on ESA-listed fish are minimal. Fall fisheries in the Select Areas target hatchery Coho returning to these release sites; however, SAB and LRH fall Chinook are also produced and harvested in Youngs Bay and LRH fall Chinook from Big Creek Hatchery are targeted in Tongue Point/South Channel and Blind Slough/Knappa Slough fisheries. Coho and Chinook produced for Select Areas also contribute to the Columbia River recreational and commercial fisheries, as well as ocean recreational and commercial fisheries.

Recreational fishing occurs in the Select Areas and associated tributaries. Under permanent regulations, Youngs Bay, Blind Slough/Knappa Slough, and Deep River areas are open all year for retention of Chinook and adipose fin-clipped Coho with a daily bag limit of two adult salmonids. Annual catch in fall recreational fisheries in the Oregon Select Areas is estimated at about 879 Chinook and 330 Coho (10 year average; 2008 – 2017).

2018 Select Area Fisheries

During the 2018 fall management period, 6,699 Chinook, 12,169 Coho, and 117 White Sturgeon were landed in the Select Area commercial fisheries. In comparison to previous years, 2018 landings were about 37% and 20% of the recent 5-year average (18,195 and 62,204; 2013-2017) for Chinook and Coho, respectively. Retention of White Sturgeon was allowed in Select Areas for the second consecutive year after a multi-year retention closure which began in 2014. Landings of Select Area commercial fisheries are summarized in Tables 15, 17, 18, and 22. Season structure is described in Table 14.

In Youngs Bay, the commercial fishery was set to open for one 36-hour period per week from August 1 to August 23, two 12-hour periods during the last week of August, and then open continuously from September 3 through October 31 (58 days). Due to an in-season downgrade of the SRW/URB stock fall Chinook run and the non-treaty fisheries exceeding allowable harvest rates, commercial fisheries in Youngs Bay were closed effective September 13 and remained closed through September 22. The first four periods in August are generally Chinook-directed fisheries and the rest target Coho. The upper fishing boundary during the fall season is at Battle Creek Slough. This boundary is downstream from the typical boundary at the confluence Youngs and Klaskanine Rivers and is in place to allow for hatchery escapement of SAB fall Chinook. The maximum mesh size during the Chinook-directed fisheries was 9¾-inches and was reduced to 6-inches during the Coho-directed fisheries. Net length is restricted to 250-fathoms maximum in Youngs Bay. The 2018 fall commercial fishery in Youngs Bay was open for 56 days in which 2,945 Chinook, 4,229 Coho, and 52 White Sturgeon were landed. In comparison to previous years, landings were about 32% and 17% of the recent 5-year averages (9,146 and 24,215; 2013-2017) for Chinook and Coho, respectively.

In Blind Slough/Knappa Slough, the fall commercial fishery was set to open for two 12-hour periods during the last week of August, four 12-hour fishing periods during the first week of September, and four 16-hour periods per week from September 10 to October 26 (34 periods). The total number of planned fishing periods was reduced from previous years to allow for escapement of tule fall Chinook and Coho to Big Creek Hatchery. Due to an in-season downgrade of the SRW/URB stock fall Chinook run and the non-treaty fisheries exceeding allowable harvest rates, commercial fisheries in Blind Slough/Knappa Slough were closed effective September 13 and remained closed through September 22. One additional fishing day on September 23 was

added in-season to augment catches after the closure. The maximum mesh size was 9¾-inches through September 7 and 6-inches thereafter. Net length is restricted to 100-fathoms maximum in Blind Slough/Knappa Slough. The 2018 fall commercial fishery in Blind Slough/Knappa Slough was open for 30 fishing periods in which 1,401 Chinook, 1,477 Coho, and 23 White Sturgeon were landed. In comparison to previous years, landings were about 50% and 22% of the recent 5-year averages (2,820 and 6,831; 2013-2017) for Chinook and Coho, respectively.

In Tongue Point/South Channel, the season structure of the fall commercial fishery was very similar to that of Blind Slough/Knappa Slough. This structure was designed to provide concurrency between the two fishing sites as requested by commercial fishers. All planned commercial periods between the two areas were concurrent except that during September 11 to October 27 the open periods were 18 hours in Tongue Point/South Channel. Due to an in-season downgrade of the SRW/URB stock fall Chinook run and the non-treaty fisheries exceeding allowable harvest rates, commercial fisheries in Tongue Point/South Channel were closed effective September 13 and remained closed through September 28. The maximum mesh size was 6-inches for all fall periods. Maximum net length is 250-fathoms in Tongue Point/South Channel. The 2018 fall commercial fishery in Tongue Point/South Channel was open for 25 fishing periods and 1,035 Chinook, 3,682 Coho, and 32 White Sturgeon were landed. In comparison to previous years, landings were about 27% and 19% of the recent 5-year averages (3,839 and 19,691; 2013-2017) for Chinook and Coho, respectively.

In Deep River, the fall commercial fishery was set to open for two 12-hour periods per week during the last week of August, five 15-hour periods per week from September 3 through September 22 and four 15-hour periods per week from September 24 through October 12. Due to an in-season downgrade of the SRW/URB stock fall Chinook run and the non-treaty fisheries exceeding allowable harvest rates, commercial fisheries in Deep River were closed effective September 13 and remained closed through September 22. One additional fishing period on September 23 was added in-season to augment catches after the closure. The maximum mesh size was 9¾-inches maximum until September 8 and 6-inches thereafter. The reduction in mesh size restriction was intended to reduce handle of Chum and maximize harvest of Coho. Net length is restricted to 100-fathoms maximum in Deep River. The 2018 fall commercial fishery in Deep River was open for 23 fishing periods in which 1,223 Chinook, 2,723 Coho, and 10 White Sturgeon were landed. In comparison to previous years, 2018 landings were about 51% and 24% of the recent 5-year averages (2,389 and 11,466; 2013-2017) for Chinook and Coho, respectively.

The 2018 recreational fisheries in Washington and Oregon Select Areas occurred as per permanent regulations, except an angling closure occurred during September 13-23 due the in-season SRW/URB run downgrade. Recreational catch in the Oregon Select Areas is approximated from expanded harvest cards turned in voluntarily by anglers and are not available until the following calendar year. Estimated catch in 2017 was about 614 Chinook and 226 Coho in Oregon Select Areas and associated tributaries.

Treaty Indian Mainstem Fisheries

During the fall season, treaty Indian fisheries occur in the mainstem Columbia River from just downstream of Bonneville Dam upstream to McNary Dam (Figure 5). They include commercial and ceremonial and subsistence (C&S) fisheries. Like non-treaty fisheries occurring from the

Columbia River mouth upstream to Highway 395 Bridge, treaty mainstem fisheries are managed in accordance with harvest rate schedules in the 2018-2027 *U.S. v. Oregon* Management Agreement. The URB harvest rate is used as a surrogate for harvest rates on SRW Chinook. The B-Index harvest rate is used to control impacts on ESA-listed steelhead. Treaty Indian landings and fishery structures are summarized in Tables 13, 15, 18, and Tables 28-31. ESA impacts are shown in Tables 32 and 36. Fall season treaty Indian tributary fisheries (including those in the Snake Basin) are not discussed in this report.

2018 Treaty Indian Commercial Fisheries

The 2018 treaty Indian fall commercial fishery was managed to target harvestable salmon and steelhead, while limiting impacts on ESA-listed SRW fall Chinook and B-Index summer steelhead. The commercial gillnet salmon fishery occurred between August 27 and October 6, and consisted of six weekly fishing periods ranging from 2.5 to 4.5 days long (22 fishing-days total). This was the fewest open gillnet days since 2002. The standard Spring Creek Hatchery closed area was in effect for the first four gillnet periods. An 8-inch minimum mesh size restriction was in place for all gillnet openings. Aerial surveys were conducted weekly; net counts averaged 489 nets per survey which is slightly below the 10-year average (Table 31). Sale of platform hook-and-line caught fish was open August 1 through December 31. Tribal platform and hook-and-line fisheries downstream of Bonneville Dam were open according to agreements with the States, but there was very little recorded effort or catch (60 Chinook, 20 steelhead, and zero Coho).

Fall season treaty fisheries landed 58,783 Chinook (54,653 adults), 6,208 steelhead, 4,526 Coho, and 40 Sockeye. Sturgeon landings during the fall salmon gillnet season totaled 23 fish and an additional 325 were landed in the late fall setline fishery. A total of 76 walleye were also caught in the salmon gillnet fishery. The tribes allowed legal-sized sturgeon to be retained for subsistence use only during the fall salmon gillnet season while commercial sales were allowed for sturgeon setline fisheries. The Chinook catch was highest in the first and second weeks of September. Of the total catch, 15% of the Chinook, 20% of the steelhead, and 28% of the Coho were taken home or sold directly to the public. Impacts to both URB and SRW Chinook were 20.2%¹. Impacts to total B-Index summer steelhead from treaty Indian fisheries totaled 5.3%, compared to the 13.0% limit.

¹ Depending on the scale of mark-selective fisheries in the lower Columbia River, the SRW harvest rate can be higher than the URB harvest rate.

2018 Fishery Impacts

Fall fisheries are structured to maximize harvest of healthy fish stocks while remaining within ESA-impact guidelines for multiple species/stocks. Tables 32-36 provide impact summaries for treaty Indian and non-treaty fisheries.

For 2018 preseason planning, fisheries could technically have been developed based on an URB run size greater than 200,000 adults and an SRW run size of at least 8,000 adults. However, the non-treaty fishery was fashioned to remain within the lower harvest rates allowed for URB run sizes between 120,000 and 200,000 since the forecast was just over 200,000 URBs. According to Table A3 of the MA, returns greater than 200,000 URBs allow for a harvest rate of 45% (15% non-treaty and 30% treaty Indian), while URB runs between 120,000 and 200,000 are managed to a harvest rate of 31.25% (8.25% non-treaty and 23% treaty).

2018 Management	Total	Goal/ Guideline
Total URB HR	29.57%	31.25%
Non-Treaty	9.35%	8.25%
Treaty Indian	20.22%	23%
Snake River Natural-origin HR	29.57%	31.25%
Non-Treaty	9.35%	8.25%
Treaty Indian	20.22%	23%
LRH Ocean/Inriver ER	34.5%	38%
<i>In-River ER</i>	8.9%	
Non-Treaty Natural-origin A-Index Steelhead	1.4%	2.0%
Non-Treaty Natural-origin B-Index Steelhead	1.0%	2.0%
Treaty Total B-Index Steelhead	5.3%	13.0%
Lower Columbia Chum	0.03%	5.0%
Percent of Upriver Chinook Harvestable Surplus		
Non-Treaty	37%	50%
Treaty Indian	42%	50%
McNary Escapement	100,030	60,000
Percent Upriver Coho to Bonneville Dam	71%	50%

The realized URB harvest rates were 20.22% in treaty Indian fisheries and 9.35% for non-treaty fisheries. As there were no mark-selective non-treaty fall Chinook fisheries in 2018, impacts to SRW fall Chinook also totaled 20.22% from treaty fisheries and 9.35% from non-treaty fisheries. The ER for LCR natural-origin tule Chinook totaled 34.5%, compared to the limit of 38% for combined ocean and inriver (mainstem Columbia River) fisheries. The combined ER for inriver fisheries was 8.9% ER, or 26% of the 34.5% total.

The ER for LCN Coho totaled 11.1%, compared to the limit of 18% in combined ocean and inriver fisheries. The ER from inriver fisheries was 1.7%, or 15% of the 11.1% total.

Impacts to natural-origin B-Index summer steelhead from treaty Indian fisheries totaled 5.3%. Incidental release mortalities from non-treaty fall fisheries resulted in impacts of 1.0% to natural-origin B-Index steelhead, compared to the 2.0% limit.

2019 FALL SEASON FISHERY EXPECTATIONS

Non-Treaty Fisheries

Specific recommendations for fall commercial seasons will be presented at Compact hearings occurring throughout the fall management period. Based on preseason run size forecasts, a preliminary fishing schedule was developed for Columbia River non-treaty fisheries through the NOF management process. As the fall management period progresses, run size updates will occur, which may alter planned fisheries. Upriver Chinook run sizes cannot typically be updated until mid-September. Stock composition and estimated impacts for all fisheries will be updated in-season as catch estimates and stock composition (determined from CWT data) become available. These data may differ from preseason expectations, which could result in modifications to fall fishery plans/seasons.

2019 Non-Treaty Columbia River Fall Fishery Chinook Fishery Plan

The plan reflects the intent of the Washington and Oregon Fish and Wildlife Commission policies/regulations and the management objective to optimize non-treaty (commercial and recreational) fisheries harvest of Chinook and Coho within the limitations of the ESA. The plan was developed during the March and April 2019 PFMC and NOF meetings, which included input from commercial and recreational fishery representatives.

ESA limits (based on preseason forecasts) for 2019 non-treaty fall fisheries include an 8.25% harvest rate (HR) for SRW Chinook (URB stock is the surrogate), a 38% ER for LCR tule Chinook (LRH stock is the surrogate), a 23% ER for LCN Coho (unmarked Coho are the surrogate), a 2% impact rate for natural-origin A-Index steelhead, and a 2% impact rate for natural-origin B-Index steelhead. The ERs for LCR tule Chinook and LCN Coho include impacts from combined ocean and Columbia River fisheries. The most constraining stock for Columbia River fisheries in 2019 is URB Chinook (SRW surrogate). While the preseason forecast of 159,250 adults allows for a HR of 8.25%, due to SRW HR overages in non-treaty fisheries in the past two years, the states have not allocated the full allowable HR for use prior to an inseason run size update. The HR anticipated for in-river fisheries occurring prior to an URB run size update (typically mid-September) is 6.6%. This conservative approach is also intended to insulate Coho-target fisheries from a potential inseason URB run downgrade. Additional fishing opportunity is planned if the URB return is projected to meet or exceed preseason expectations. The forecasted low wild B-Index steelhead run size is also a limiter, therefore steelhead retention in non-treaty fisheries will be limited similar to the management of fisheries in 2017. This conservative approach has required significant preseason recreational and commercial fishery reductions.

The preseason expectation for combined non-treaty Columbia River (inriver) fisheries is 6.6% HR on SRW (6.6% on URBs), an ER of 8.0% on LCR tule Chinook and 4.2% on LCN Coho. Impacts to natural-origin A- and B-Index steelhead are expected to be 0.6% and 1.2% respectively. The SRW HR and LCR tule Chinook ER presented are the pre-URB-update expectations; Coho full season expectations are presented.

The non-treaty conservation burden for ESA-listed Chinook is shared between recreational and commercial fisheries. The sharing for utilized SRW impacts is expected to be 70% recreational

and 30% commercial. In-river sharing of utilized LCR tule impacts are currently expected to be 80% recreational and 20% commercial.

White Sturgeon harvest was prohibited effective January 2014 in all Columbia River fisheries downstream of Bonneville Dam, consistent with policies adopted by the Fish and Wildlife Commissions of both Washington and Oregon. Retention fisheries were reinstated in June 2017, beginning with Estuary recreational and Select Area commercial fisheries. Per Commission guidance, White Sturgeon harvest allocations remain at 80% recreational and 20% commercial.

Goals/expectations for the recreational fishery include:

The Buoy 10 fishery will begin on August 1 with a two adult salmonid daily limit through August 20. The daily limit may not include more than one Chinook, and wild Coho and all steelhead must be released. Mark-selective Chinook regulations are not anticipated. From August 21 through December 31, Chinook retention is scheduled to be closed; the daily limit is two adult hatchery salmonids, with steelhead closed through August. From September 1 on, the daily adult bag limit may not include more than one steelhead. Any decision to extend the fishery or modify bag limits will be made in-season, taking into account fishery performance, inseason run-size updates, and policy objectives. Preseason harvest expectations (including release mortality) total 13,490 Chinook (1.5% URB/SRW harvest rate; 5.9% LCR tule natural-origin ER) and up to 57,500 Coho (including 5,400 unmarked mortalities; 1.8% LCN Coho ER). The expected impact rate for natural-origin A-Index steelhead is 0.01% and 0.00% for B-Index steelhead. The expected impact rate to Chum in this fishery is 0.0%.

The mainstem recreational fishery from the Rocky Point/Tongue Point line upstream to Bonneville Dam will be open August 1 through December 31, but Chinook retention seasons and bag limits vary by river section with the intent of maximizing opportunity within available impacts to SRW Chinook. Preseason harvest expectations (including release mortality) include 4,890 adult Chinook (2.4% SRW HR; 0.2% LCR natural-origin ER), and up to 370 incidental unmarked Coho mortalities; 0.8% LCN Coho ER). The expected impact rates for natural-origin A- and B-Index steelhead are 0.04% and 0.03%, respectively. Impacts to Chum are expected to be minimal at 0.02%.

The following describes the planned season and bag limits by area:

- From the Rocky Point/Tongue Point line upstream to west Puget Island, Chinook retention is allowed August 1 through August 20 with a one adult salmonid daily limit. The area will close for Chinook retention from August 21 through December 31. Beginning August 21, the daily adult limit will increase to two hatchery salmonids, with steelhead closed through August. From September 1 on, the daily adult bag limit may not include more than one steelhead. Any decision to extend the fishery or modify bag limits will be made in-season and will take into account fishery performance, inseason run-size updates, and policy objectives.
- From west Puget Island upstream to the Lewis River/Warrior Rock line, Chinook retention is allowed August 1 through August 27 with a one adult salmonid daily limit. The area will close for Chinook retention from August 28 through December 31. Beginning August 28, the daily adult limit will increase to two salmonids, with steelhead closed through August. From September 1 on, the daily adult bag limit may

not include more than one steelhead. Any decision to extend the fishery or modify bag limits will be made in-season and will take into account fishery performance, inseason run-size updates, and policy objectives.

- From the Lewis River/Warrior Rock line upstream to Bonneville Dam, Chinook retention is allowed August 1 through September 8, with a one adult salmonid daily limit; all steelhead must be released during August. Chinook retention will be closed September 9 through December 31, but the daily adult bag limit will increase to two hatchery fish, but no more than one steelhead.
- The mainstem recreational fishery from Bonneville Dam to the Highway 395 Bridge will begin August 1 with a one adult salmonid daily limit. The season will be managed based on a total harvest expectation of 2,770 adult Chinook (0.7% SRW HR) prior to a run update. The expected impact rates for natural-origin A- and B-Index steelhead are 0.34% and 0.63%, respectively; these rates include impacts from tributary dip-ins. The following areas are closed to steelhead retention during the specified periods:
 - Bonneville Dam upstream to John Day Dam August 1-31,
 - The Dalles Dam upstream to John Day Dam September 1-30,
 - John Day Dam upstream to McNary Dam September 1 through October 31,
 - McNary Dam upstream to Highway 395 at Pasco, Washington October 1 through November 31.

During all fall fisheries from Buoy 10 upstream to the OR/WA border (upstream of McNary Dam), each legal angler aboard a vessel may continue to deploy angling gear until the daily adult salmonid bag limit for all anglers aboard has been achieved. Barbless hooks are not required when fishing for salmonids.

The dates, area restrictions, and catch expectations described above are based on preseason planning and input from the recreational fishing community. In-season events may change many of these expectations.

Goals/expectations for the commercial fishery include:

The August fishery is expected to begin between August 11-17 and continue through the month, with fishing periods occurring one to two days per week, with Monday and Wednesday night openings expected. Fishery structure includes 9-hour (9 PM-6 AM) periods in Zones 4-5 with a 9-inch minimum mesh size. The catch expectation is 8,020 adult Chinook (1.9% SRW harvest rate; 1.0% LCR tule natural-origin ER) and up to 1,000 Coho (0.11% LCN Coho ER). The expected impact rates for natural-origin A- and B-Index steelhead are 0.08% and 0.06%, respectively. No impacts to Chum are expected. Any additional Chinook-directed commercial fisheries will be addressed in-season after the fall Chinook and steelhead run-size updates are available (approximately mid-September).

Potential commercial periods in September would occur in the latter half of the month in Zones 4-5. Periods would likely be 10-hours (8 PM – 6 AM) with an 8 or 9-inch minimum mesh restriction.

Commercial fishing periods targeting hatchery Coho using 3.75-inch tangle nets are planned to occur in October during daylight hours in Zones 1-3. Based on preseason forecasts, approximately 30,500 kept Coho (1.4% LCN Coho ER) are available for commercial Coho-directed fisheries. The adult Chinook catch expectation is 670 fish (0.3% SRW HR; 0.1% LCR tule natural-origin ER). The expected impact rates for natural-origin A- and B-Index steelhead are 0.07% and 0.37%, respectively. Impacts to Chum are expected to be minimal at 0.05%.

The dates, areas, gear restrictions, and catch expectations described above are based on preseason planning and input from the commercial fishing industry. In-season events may change many of these expectations. Mainstem commercial fishing seasons and regulations will be adopted at an August 12 Compact Hearing.

Select Area Fisheries

Based on 2019 run size predictions, an estimated 88,700 Select Area Coho are expected to return for harvest in all Select Area fishing sites combined. This forecast includes 43,600 Coho to Youngs Bay, 22,900 to Tongue Point/South Channel, 9,400 to Blind Slough/Knappa Slough, and 12,800 to Deep River. SAB Chinook harvest is forecasted at 1,600 fish in all Select Areas combined. LRH fall Chinook will also be available for harvest in all sites. The 2019 fall season structure for Select Area commercial fisheries is expected to be similar to the planned schedule for 2018. Fishing periods and regulations will be adopted at the July 30, 2019 Compact hearing. Impacts to ESA-listed stocks in 2019 fall Select Area commercial fisheries are expected to be 0.2% HR for SRW Chinook, 0.4% ER for natural-origin LCR fall Chinook, 0.1% ER for LCN Coho, 0.05% and 0.08% for natural-origin A- and B-Index steelhead, and 0.03% for Chum.

Treaty Indian Fisheries

Treaty Indian commercial gillnet fisheries have typically occurred from mid to late August through late September or early October. Sales of platform and hook-and-line caught fish typically begin August 1, and may extend into late-October or possibly the end of the year. Fishery restrictions may include mesh size restrictions to target Chinook. Area restrictions to reduce impacts on specific Chinook stocks have occurred in the past, but have not occurred recently other than the standard Spring Creek Hatchery closed area. No closed areas besides the standard Spring Creek Hatchery closed area are expected in 2019. This closed area is normally reduced when it becomes clear that Spring Creek Hatchery will meet its broodstock collection objectives. Coho and steelhead harvest rates are expected to be similar to recent-year averages. Sturgeon sales are generally not allowed during fall salmon gillnet fisheries. Sturgeon retention (within a specific size slot) is typically allowed only for subsistence purposes. It is possible that some limited fall season commercial setline fishing for sturgeon could occur in 2019. Fall gillnet fisheries typically consist of 2.5 to 4.5-day weekly fishery periods. The tribes usually choose to begin commercial gillnet fisheries on Mondays. Sales of platform and hook-and-line caught fish, as well as fish caught in Klickitat River and Drano Lake tributary fisheries, are typically allowed throughout the fall period. The tribes plan on managing their fall season platform and hook and line fisheries for both commercial and subsistence use beginning August 1 and will complete their commercial gillnet fishery planning in late July or early August.

For 2019, allowable ESA impact rates (based on preseason forecasts) for treaty fisheries include a limit of 23% on SRW fall Chinook and an ESA limit of 13% on B-Index steelhead, based on preseason forecasts. Actual allowed harvest rates will depend on actual run sizes.

Seasons and regulations for platform/hook-and-line fisheries, including the area downstream of Bonneville Dam will be adopted at the July 30 Compact Hearing. Seasons and regulations for the initial mainstem Treaty gillnet fishing periods are expected to be adopted at the August 12 Compact Hearing.

2019 Columbia River Fall Fishery Model Summary

The following table summarizes Chinook catch, ESA-impact, and passage expectations, based on preseason planning.

Columbia River Fall Chinook Fishery Model Summary

Ocean Option: **Chin2719** 26-Apr-19
 Columbia River Model Option: **Model** **2019 Final Preseason-Buffer - Chin2719**

2019 Final Preseason-Buffer - Chin2719

Management Guidelines	Goal/Guideline	SRW	Total URB
Harvest Rate	31.25%	25.01%	25.01%
Non-Treaty	8.25%	6.58%	6.58%
Treaty	23.0%	18.4%	18.4%
% of Harvestable Surplus		Total	
Non-Treaty	50%	30%	
Treaty	50%	34%	
McNary Escapement	60,000	110,100	
LRH Ocean/Inriver Exp. Rate	38%	35.81%	
Non-Treaty Wild B Index Steelhead	2%	2%	
Treaty Total B Index Steelhead	13%	13%	
Upriver Coho to Bonneville Dam	50%	63%	
Lower Columbia Chum	5%	0.10%	

Non-Treaty Catch Sharing						
SRW - IMPACTS			Brights - Mainstem			
	Impact	Percent		Mortalities	Percent	Harvest
Sport	5.77%	70%	Sport	11,900	70%	11,900
Comm	2.48%	30%	Comm	5,000	30%	5,000
LRH - Impacts			Chinook - Mainstem			
	Impact	Percent		Mortalities	Percent	Harvest
Sport	6.45%	80%	Sport	20,100	68%	20,100
Comm	1.60%	20%	Comm	9,300	32%	9,300
SRW Pre-update IMPACTS			SRW% Set Aside			
	Impact	Percent		Aggregate		
Sport	4.57%	70%		20%	Sport	
Comm	2.01%	30%		19%	Comm	

	Total	LRH	LRW	BPH	URB	LRB	PUB	SAB	SRW	LRH	SRW				
		ER								HR	HR				
Ocean Harvest	53,860	11,280	5,190	12,560	17,310	860	6,660								
Columbia River Run	349,680	55,090	14,110	48,420	159,250	7,910	61,810	3,100	8,600	8.0%	6.4%				
2019 Fisheries															
Harvest Below Bonneville	Fishery Description														
Zone 4-5 Wk 33				Aug 11-17	280	10	0	70	170	0	20	0	10	0.01%	0.11%
Zone 4-5 Wk 34				Aug 18-24	3,210	350	0	1,290	1,200	20	350	10	60	0.39%	0.75%
Zone 4-5 Wk 35				Aug 25-31	4,530	490	20	1,720	1,670	40	590	10	90	0.60%	1.05%
Sept Z 4-5 Wk38-Wk40		Placeholder		Sept 15-28	590	60	10	150	240	30	110	0	10	0.08%	0.15%
Oct Coho Tanglenet		October		Coho target	670	80	60	10	410	0	110	0	20	0.11%	0.26%
Select Areas				Full Season	6,240	4,050	0	260	270	0	90	1,580	10	0.40%	0.17%
Buoy 10 Kept + Morts	2 fish/1 CK	nMSF Aug 1-20	+Aug 20 coho*		13,490	4,520	430	3,350	2,310	80	620	1,100	120	5.92%	1.45%
TP to Lewis	1 fish/2 fish >8/27	nMSF Aug 1-27, CK clsd <Puget I. Aug 2			1,570	30	0	10	1,400	10	90	10	80	0.05%	0.88%
Lewis to Bonn	1 fish/2 fish >9/8	nMSF Aug 1-Sept 8	+Sept 8 coho		3,320	120	0	170	2,470	170	390	0	130	0.18%	1.55%
Tributary Sport	MSF		Full season		3,550	2,300	1,240	0	0	0	0	0	0	0.30%	0.00%
Lower River Total					36,360	12,020	1,770	7,030	10,120	350	2,360	2,710	550	8.05%	6.36%
		*additional coho limits considered inseason													
Bonneville Dam Passage					228,610			36,880	149,130		42,600		8,050		
Harvest Above Bonneville															
Zone 6 - Bonn to Hwy 395	1 Salmonid				2,770				1,100		1,670		60		0.69%
Treaty Comm. and C&S				Average season	64,200			21,300	29,300		13,600		1,580		18.4%
Hanford Reach Sport				Average season	7,360				7,360				0		
McNary Dam Passage					110,070				110,070						
Lower Granite Dam Passage													6,453		

Escapement					43,070		15,580		7,550	27,330	27,330	390			
Hatchery					26,780		12,200			11,460	14,070	240			
Natural					16,290	12,340	3,380	110,070	7,550	15,870	15,870	150			
Hatchery Surplus					33	12,800		5,200			11,460	240			
Natural Surplus						5,608	2,080	50,070							

Table 1. Federally-listed species found in Columbia River fishery management areas.

Species – ESU/DPS ¹	Current Designation	Listing Date	Effective Date
<u>Chinook</u>			
Snake River Fall	Threatened	22-Apr-92	22-May-92
Snake River Spring/Summer	Threatened	22-Apr-92	22-May-92
Upper Columbia Spring	Endangered	24-Mar-99	24-May-99
Upper Columbia Summer/Fall	Not Warranted	--	--
Middle Columbia Spring	Not Warranted	--	--
Lower Columbia Spring/Fall	Threatened	24-Mar-99	24-May-99
Upper Willamette Spring	Threatened	24-Mar-99	24-May-99
Deschutes River Summer/Fall	Not Warranted	--	--
<u>Steelhead</u>			
Snake River Basin	Threatened	18-Aug-97	17-Oct-97
Upper Columbia River ²	Threatened	18-Aug-97	17-Oct-97
Lower Columbia River	Threatened	19-Mar-98	18-May-98
Middle Columbia River	Threatened	25-Mar-99	24-May-99
Southwest Washington	Not Warranted	--	--
Upper Willamette	Threatened	25-Mar-99	24-May-99
<u>Sockeye</u>			
Snake River	Endangered	20-Nov-91	20-Dec-91
Okanogan River	Not Warranted	--	--
Lake Wenatchee	Not Warranted	--	--
Chum – Columbia River	Threatened	25-Mar-99	24-May-99
Coho – Columbia River	Threatened	28-Jun-05	26-Aug-05
Green Sturgeon- Southern DPS	Threatened	7-Apr-06	7-Jul-06
<u>Eulachon</u> - Southern DPS	Threatened	17-Mar-10	17-May-10

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

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

Table 2. Columbia River fall salmonid returns, forecasts and actual, 2018-2019. ^{1,2}

			2018		2019
			Forecast	Return	Forecast
Fall Chinook	LRH - Lower River	Hatchery	63,910	52,963	55,100
	LRW - Lower River	N-O	7,860	8,270	14,100
	BPH - Bonneville Pool	Hatchery	51,420	28,861	48,400
	URB - Upriver Bright		205,060	149,043	159,300
	<i>Snake River</i>	N-O	9,600	10,642	8,600
	LRB - L. River Brights	N-O	3,760	14,235	7,900
	PUB - Pool Upr. Br.	Hatchery	38,200	36,009	61,800
	SAB - Select Area Br.	Hatchery	5,300	4,043	3,100
Total Fall Chinook			375,510	293,424	349,700
Coho	Early stock		127,200	78,913	388,000
	Late stock		86,400	59,467	223,300
	Total Coho		213,600	138,380	611,300
Upriver Summer Steelhead (to Bonneville Dam)	Upriver Skamania Index	Total	7,950	6,483	8,750
		N-O	3,000	2,595	3,200
	A-Index	Total	158,000	69,338	110,200
		N-O	44,800	21,725	33,900
	B-Index	Total	24,400	24,662	8,000
		N-O	3,400	2,382	950
	Total Upriver Steelhead	Total	190,350	100,483	126,950
	N-O	51,200	26,702	38,050	

¹ Columbia River mouth return, except summer steelhead is Bonneville Dam return. Numbers may not sum due to rounding.

² Natural origin (N-O)

Table 3. Stock accountability of adult fall Chinook returning to the Columbia River, 1980-2018.^{1,2}

Return									Total
Year	LRH	LRW	BPH	URB	BUB	LRB ³	PUB	SAB	Return
1980-84 Ave	106,100	21,400	76,200	88,000	3,900		4,000		299,600
1985	111,000	13,300	33,200	196,400	5,700		3,100	1,600	364,300
1986	154,800	24,500	16,600	281,600	14,200		3,200	2,000	496,900
1987	344,000	37,900	9,100	420,700	25,800		31,200	2,300	871,000
1988	309,900	41,700	12,000	339,900	41,900		36,100	3,200	784,700
1989	130,900	38,600	26,800	261,300	65,200		27,900	1,200	551,900
1990	60,000	20,300	18,900	153,600	38,100		20,800	1,100	312,800
1991	62,700	19,800	52,400	103,300	23,800		11,600	2,000	275,600
1992	62,600	12,500	29,500	81,000	20,400		10,700	2,300	219,000
1993	52,300	13,300	16,800	102,900	18,100		9,400	2,100	214,900
1994	53,600	12,200	18,500	132,800	16,600		17,100	3,200	254,000
1995	46,300	16,000	33,800	106,500	14,900		19,300	6,000	242,800
1996	75,500	14,600	33,100	143,100	27,200		32,500	4,700	330,700
1997	57,400	12,300	27,300	161,700	28,700		30,300	3,800	321,500
1998	45,300	7,300	20,200	141,600	8,000	500	28,800	3,300	255,000
1999	39,900	3,300	50,200	165,900	13,700	900	36,200	2,900	313,000
2000	27,000	10,200	20,500	156,600	11,900	700	24,600	3,500	255,000
2001	94,300	15,700	125,000	232,400	42,200	800	33,500	4,900	548,800
2002	156,400	25,200	158,300	279,500	58,300	1,800	48,100	5,700	733,300
2003	154,500	25,400	180,600	374,200	80,600	2,100	67,400	8,100	892,900
2004	109,000	21,100	175,200	362,800	53,300	2,100	67,100	7,100	797,700
2005	79,400	16,300	103,500	277,200	51,400	1,200	47,000	6,600	582,600
2006	57,300	12,600	27,900	230,400	41,600	3,600	35,200	7,200	415,800
2007	32,700	4,900	14,500	114,000	23,500	700	23,400	6,500	220,200
2008	61,600	7,800	93,800	197,300	40,800	2,500	33,000	12,900	449,700
2009	76,600	8,400	49,000	212,100	38,000	900	34,100	10,600	429,700
2010	103,300	11,500	128,600	324,900	28,800	600	49,600	8,600	655,900
2011	109,100	15,400	70,500	322,100	26,600	1,900	58,700	16,400	620,700
2012	85,000	12,100	56,900	297,800	11,600	500	49,300	11,900	525,100
2013	104,800	25,800	86,700	778,300	33,900	1,700	214,000	23,400	1,268,600
2014	101,900	25,800	127,000	684,200	31,600	2,300	169,900	16,500	1,159,200
2015	128,900	32,400	166,500	795,700	35,900	3,400	131,400	11,400	1,305,600
2016	81,500	12,300	41,300	412,900	9,600	11,000	67,200	6,700	642,500
2017	64,600	7,900	48,100	297,400	1,400	4,200	46,300	6,600	476,500
2018	53,000	8,300	28,900	149,000	0	14,200	36,000	4,000	293,400

¹ Numbers may not sum due to rounding.

² The sum of the BUB, LRB, and PUB stocks represent the aggregate mid-Columbia Bright (MCB) stock.

³ LRBs included in BUB stock until 1998 when LRBs designated as a separate stock from BUBs.

Table 4. Predicted and actual returns to the Columbia River of adult fall Chinook, 2012-2018.¹

Stock	Year	Preseason Forecast	Actual Return	Percent of Forecast
Lower River Hatchery (LRH)	2013	86.9	104.8	121%
	2014	100.7	101.9	101%
	2015	96.8	128.7	133%
	2016	142.5	81.5	57%
	2017	98.8	64.6	65%
	2018	62.4	53.0	85%
Lower River Natural Origin (LRW)	2013	14.3	25.8	180%
	2014	33.4	25.8	77%
	2015	19.3	32.4	168%
	2016	22.4	12.3	55%
	2017	13.6	7.9	58%
	2018	7.6	8.3	109%
Bonneville Pool Hatchery (BPH)	2013	36.3	86.7	239%
	2014	103.2	127.0	123%
	2015	163.9	166.4	102%
	2016	100.7	41.3	41%
	2017	164.4	48.1	29%
	2018	50.1	28.9	58%
Upriver Bright (URB)	2013	434.6	784.3	180%
	2014	919.0	684.2	74%
	2015	518.3	795.9	154%
	2016	579.7	412.9	71%
	2017	275.2	297.4	108%
	2018	205.1	149.0	73%
Mid-Columbia Bright (MCB)	2013	97.6	243.4	249%
	2014	344.2	203.8	59%
	2015	114.7	170.6	149%
	2016	99.1	87.8	89%
	2017	48.1	51.9	108%
	2018	42.0	50.2	120%
Select Area Bright (SAB)	2013	8.9	23.4	263%
	2014	10.1	16.5	163%
	2015	12.2	11.4	93%
	2016	15.8	6.7	42%
	2017	13.7	6.6	48%
	2018	5.3	4.1	77%
Columbia River Total	2013	678.6	1,268.4	187%
	2014	1,510.6	1,159.1	77%
	2015	925.3	1,305.4	141%
	2016	960.2	642.5	67%
	2017	613.8	476.5	78%
	2018	372.5	293.5	79%

¹ Numbers may not sum due

Table 5. Estimated Columbia River return of Snake River natural-origin fall Chinook adults, 1986-2018.

Year	Columbia River Return	Non-Treaty Zone 1-5 Harvest	Bonneville Dam Count	Treaty Zone 6 Harvest	Non-Treaty Above BON Harvest ¹	Lower Granite Run Size ²
1986	2,830	652	2,178	723	12	449
1987	1,783	491	1,292	379	2	253
1988	3,558	944	2,614	965	7	368
1989	1,981	373	1,608	608	8	295
1990	508	71	437	169	2	78
1991	1,846	275	1,571	379	17	318
1992	1,289	112	1,178	202	6	549
1993	1,475	107	1,368	270	11	742
1994	958	0	958	173	1	406
1995	1,296	10	1,286	225	9	350
1996	1,729	95	1,634	350	3	639
1997	1,839	99	1,740	459	7	797
1998	730	21	709	165	4	306
1999	2,395	163	2,232	515	11	905
2000	2,612	179	2,432	520	9	1,148
2001	14,133	778	13,355	2,020	63	5,163
2002	3,665	250	3,416	709	11	2,116
2003	8,093	675	7,417	953	33	4,257
2004	8,174	706	7,467	877	21	7,055
2005	9,500	779	8,721	1,434	49	5,299
2006	12,202	928	11,274	2,136	34	4,713
2007	9,878	567	9,311	1,492	64	3,914
2008	8,738	622	8,115	1,615	30	3,937
2009	15,576	1,568	14,008	3,831	53	4,653
2010	12,855	971	11,884	2,141	34	7,302
2011	17,156	2,228	14,928	2,918	53	8,370
2012	19,360	2,641	16,719	3,433	61	12,797
2013	34,669	3,462	31,208	6,429	141	21,124
2014	20,752	2,484	18,268	4,096	32	14,172
2015	24,054	2,530	21,523	4,319	87	16,212
2016	14,493	2,023	12,568	2,907	96	9,772
2017	11,750	1,403	10,997	3,308	86	6,966
2018	10,642	990	9,652	2,152	6	7,547

¹ Recent year harvest data for non-treaty recreational fisheries upstream of Bonneville Dam considered preliminary until catch record card data is finalized.

² Includes release mortalities

Table 6. Returns of upriver summer steelhead to Bonneville Dam (April- October), 1984-2018.

Year	Skamania Index			A-Index				B-Index				Total Passage		
	Hatchery	Natural Origin	Total	Clipped Hatchery	Unclipped Hatchery	Natural Origin	Total	Clipped Hatchery	Unclipped Hatchery	Natural Origin	Total	Hatchery	Natural Origin	Total
1984	--	2,490	20,780	--	--	52,447	195,751	--	--	13,768	98,011	--	68,705	314,542
1985	--	3,690	19,990	--	--	51,922	281,504	--	--	12,986	40,870	--	68,598	342,364
1986	--	5,520	24,830	--	--	56,570	287,508	--	--	9,984	64,016	--	72,074	376,354
1987	--	7,380	17,790	--	--	106,690	238,283	--	--	13,990	44,959	--	128,060	301,032
1988	--	4,180	22,360	--	--	64,331	173,151	--	--	17,742	81,643	--	86,253	277,154
1989	--	3,770	15,730	--	--	57,513	193,079	--	--	12,367	77,604	--	73,650	286,413
1990	--	3,690	18,710	--	--	27,102	115,628	--	--	8,811	47,174	--	39,603	181,512
1991	--	1,220	10,880	--	--	60,264	234,048	--	--	6,207	28,265	--	67,691	273,193
1992	--	2,940	14,910	--	--	44,294	241,524	--	--	12,715	57,438	--	59,949	313,872
1993	--	1,250	14,360	--	--	28,650	136,701	--	--	4,378	36,169	--	34,278	187,230
1994	--	1,380	12,330	--	--	21,212	120,971	--	--	5,152	27,463	--	27,744	160,764
1995	--	1,150	8,220	--	--	25,997	180,037	--	--	1,847	13,221	--	28,994	201,478
1996	--	1,310	10,830	--	--	25,721	174,464	--	--	3,912	18,693	--	30,943	203,987
1997	--	930	11,890	--	--	30,852	208,209	--	--	3,913	36,663	--	35,695	256,762
1998	--	1,610	9,440	--	--	34,836	134,687	--	--	3,415	40,241	--	39,861	184,368
1999	--	1,310	7,160	--	--	56,626	176,466	--	--	3,740	22,137	--	61,676	205,763
2000	--	5,728	16,619	--	--	63,628	216,723	--	--	8,368	40,909	--	77,724	274,251
2001	--	7,952	28,725	--	--	137,230	515,079	--	--	12,047	86,426	--	157,229	630,230
2002	--	9,671	24,991	--	--	87,276	323,124	--	--	32,333	129,882	--	129,280	477,997
2003	--	1,801	14,154	--	--	67,049	305,795	--	--	6,417	37,228	--	75,267	357,177
2004	--	3,289	20,148	--	--	60,421	250,615	--	--	9,202	37,398	--	72,912	308,161
2005	--	2,123	11,221	--	--	58,917	251,631	--	--	9,619	48,968	--	70,659	311,820
2006	--	2,181	9,882	--	--	63,735	245,168	--	--	8,466	74,128	--	74,382	329,178
2007	--	1,727	9,475	--	--	77,268	258,848	--	--	9,015	51,073	--	88,010	319,396
2008	--	4,489	15,832	--	--	81,648	245,823	--	--	18,529	93,429	--	104,666	355,084
2009	--	3,528	13,884	--	--	154,045	543,195	--	--	13,727	44,540	--	171,300	601,619
2010	--	10,357	29,270	--	--	120,531	304,002	--	--	22,364	77,146	--	153,252	410,418
2011	--	2,814	9,750	--	--	101,263	318,125	--	--	7,771	36,996	--	111,848	364,871
2012	--	3,023	10,958	--	--	55,464	192,134	--	--	6,813	27,723	--	65,300	230,815
2013	--	1,661	5,738	--	--	90,496	214,074	--	--	2,907	11,511	--	95,064	231,323
2014	--	4,783	13,526	--	--	109,279	260,130	--	--	13,341	47,057	--	127,403	320,713
2015	--	3,664	8,131	--	--	84,896	234,382	--	--	5,842	18,848	--	94,402	261,361
2016	7,416	4,822	12,238	92,225	7,519	29,146	128,890	33,839	5,608	3,469	42,916	146,607	37,437	184,044
2017	2,255	1,236	3,491	75,690	3,177	27,909	106,776	5,019	804	751	6,574	86,945	29,896	116,841
2018	3,888	2,595	6,483	45,430	2,183	21,725	69,338	19,056	3,224	2,382	24,662	73,781	26,702	100,483

Table 7. Returns of upriver summer steelhead to Lower Granite Dam, 1991-2018.¹

Run Year ²	A-Index				B-Index				Total steelhead return			
	Clipped Hatchery	Unclipped Hatchery	Natural Origin	Total	Clipped Hatchery	Unclipped Hatchery	Natural Origin	Total	Clipped Hatchery	Unclipped Hatchery	Natural Origin	Total
1991-92	69,885	0	14,135	84,020	11,883	0	3,182	15,065	81,768	0	17,317	99,085
1992-93	83,420	0	13,617	97,037	25,566	0	5,777	31,343	108,986	0	19,394	128,380
1993-94	34,657	0	7,332	41,989	15,895	0	1,790	17,685	50,552	0	9,122	59,674
1994-95	31,956	0	5,873	37,829	7,178	0	2,231	9,409	39,134	0	8,104	47,238
1995-96	62,773	0	6,721	69,494	8,317	0	1,334	9,651	71,090	0	8,055	79,145
1996-97	67,075	0	5,980	73,055	12,211	0	1,645	13,856	79,286	0	7,625	86,911
1997-98	67,019	0	7,424	74,443	10,878	0	1,325	12,203	77,897	0	8,749	86,646
1998-99	43,832	0	7,074	50,906	17,455	0	2,301	19,756	61,287	0	9,375	70,662
1999-00	54,119	0	10,184	64,303	8,834	0	914	9,748	62,953	0	11,098	74,051
2000-01	79,589	10	17,689	97,288	17,128	0	2,886	20,014	96,717	10	20,575	117,302
2001-02	191,091	5,979	37,545	234,615	30,677	0	3,174	33,851	221,768	5,979	40,719	268,466
2002-03	110,535	11,734	28,308	150,577	51,358	6,618	13,623	71,599	161,893	18,352	41,931	222,176
2003-04	106,334	11,840	21,892	140,066	23,058	2,132	7,254	32,444	129,392	13,972	29,146	172,510
2004-05	94,225	9,166	18,297	121,688	23,179	2,005	4,774	29,958	117,404	11,171	23,071	151,646
2005-06	96,644	13,903	14,586	125,133	26,143	3,345	3,544	33,032	122,787	17,248	18,130	158,165
2006-07	85,210	15,234	7,877	108,321	33,332	5,880	1,633	40,845	118,542	21,114	9,510	149,166
2007-08	102,374	14,643	11,242	128,259	20,513	3,446	2,924	26,883	122,887	18,089	14,166	155,142
2008-09	94,205	13,079	18,216	125,500	40,713	6,998	5,659	53,370	134,918	20,077	23,875	178,870
2009-10	231,003	30,385	38,210	299,598	16,555	2,700	4,529	23,784	247,558	33,085	42,739	323,382
2010-11	110,750	17,721	34,549	163,020	31,574	4,118	9,584	45,276	142,324	21,839	44,133	208,296
2011-12	113,038	7,930	35,240	156,208	17,801	2,113	4,198	24,112	130,839	10,043	39,438	180,320
2012-13	63,611	4,767	19,806	88,184	13,695	3,970	3,337	21,002	77,306	8,737	23,143	109,186
2013-14	70,332	5,328	23,470	99,130	5,546	1,593	1,885	9,024	75,878	6,921	25,355	108,154
2014-15	89,341	5,755	38,861	133,957	21,067	3,639	6,928	31,634	110,408	9,394	45,789	165,591
2015-16	88,296	4,045	30,806	123,147	8,465	1,408	3,130	13,003	96,761	5,453	33,936	136,150
2016-17	52,825	3,556	12,575	68,956	25,724	4,145	3,001	32,870	78,549	7,701	15,576	101,826
2017-18	56,738	2,258	10,454	69,450	3,845	539	263	4,647	60,583	2,797	10,717	74,097
2018-19 ³	26,626	702	7,749	35,077	13,169	729	2,843	16,741	39,795	1,431	10,592	51,818

¹ Counts adjusted based on biological sampling at Lower Granite Dam.

² Run year is July 1 to June 30 the following year.

³ Preliminary estimates to June 3, 2019. July 1 to December 31, 2018 abundances were based on genetic analysis. March 1 to June 3 abundances were based on visual sampling at Lower Granite Dam. Final estimates based on genetic analysis by December 2019.

Table 8. Adult Coho returns to the Columbia River, 1980-2018.¹

Year	Lower Columbia River									
	Harvest					Hatchery Returns	Natural Escapement	Tributary Dam Count ⁷	Bonneville Dam Count	Total Run ⁸
	Commercial ^{2,3,4}		Recreational ^{5,6}							
	Zones 1-5	SAFE	Estuary	Mainstem	Tributary					
1980-84 ave	108.7	15.4	19.4	0.2	11.3	106.4		4.1	26.8	292.2
1985-89 ave	377.7	39.3	84.1	1.3	12.6	148.9	14.3	6.9	51.7	736.9
1990	47.6	18.6	18.5	0.4	9.7	88.8	10.8	2.0	11.6	208.0
1991	327.1	80.4	209.5	1.1	29.4	243.3	26.4	5.5	58.9	981.5
1992	38.2	15.8	43.1	0.6	8.4	86.9	9.4	5.2	17.8	225.4
1993	20.7	15.0	20.9	0.6	6.3	39.4	3.7	0.8	10.6	117.9
1994	6.0	54.6	1.8	0.9	3.4	78.0	4.2	4.1	20.3	173.4
1995	0.2	21.2	5.0	0.2	2.7	32.2	2.5	2.9	10.4	77.4
1996	5.8	20.4	4.5	0.3	3.6	62.2	4.1	0.6	15.7	117.1
1997	3.8	16.7	20.4	0.8	10.8	69.7	7.1	2.8	24.3	156.4
1998	0.3	22.8	3.2	3.7	3.0	87.9	7.5	1.3	46.3	175.9
1999	57.6	21.5	9.0	1.3	18.6	124.5	14.9	1.0	40.7	289.1
2000	110.2	58.2	21.5	1.6	36.1	228.6	10.3	6.2	85.6	558.3
2001	218.7	33.7	132.0	3.1	74.9	377.3	21.0	8.2	259.5	1,128.3
2002	94.9	68.1	6.2	3.0	24.4	211.1	36.4	3.7	88.1	535.8
2003	143.8	113.5	54.4	1.1	22.5	205.4	35.4	11.4	125.7	713.2
2004	66.6	53.0	15.2	1.3	12.3	173.5	21.0	5.7	115.0	463.5
2005	30.3	64.5	6.9	0.6	9.9	142.3	13.7	3.3	83.3	354.7
2006	27.2	36.2	3.7	1.2	15.3	191.1	23.8	9.5	101.7	409.7
2007	30.2	10.1	8.4	0.9	23.3	161.0	15.3	10.6	89.2	349.0
2008	13.1	47.3	8.6	2.2	40.8	240.9	26.2	6.2	135.5	520.8
2009	43.8	80.4	48.1	4.0	36.5	260.4	29.7	32.3	224.9	760.2
2010	18.9	57.4	8.0	1.6	22.4	189.3	26.0	22.3	120.7	466.5
2011	13.5	48.8	7.6	1.7	16.4	108.3	26.7	8.7	146.5	378.1
2012	2.6	14.5	7.4	0.9	3.8	41.9	17.3	9.1	55.0	152.4
2013	9.8	38.6	7.6	1.0	9.7	81.9	23.0	21.6	59.6	252.8
2014	70.4	166.9	57.7	5.8	46.4	293.2	68.1	32.2	279.7	1,020.5
2015	4.5	26.6	36.9	1.0	6.8	43.5	8.3	4.6	37.4	169.6
2016	1.1	30.3	9.2	1.3	11.0	84.1	21.1	4.8	42.0	204.9
2017	0.9	36.9	18.2	3.1	7.3	61.1	19.8	12.3	76.0	235.7
2018	0.4	11.1	6.8	0.7	6.0	42.3	24.3	6.0	40.9	138.4

¹ Reported in thousands of fish

² Landings since 2003 are preliminary

³ Zones 1-5 (Mainstem) includes jacks

⁴ Jacks landed in SAFE fisheries are not included (except for 1985 and 1986).

⁵ Estuary (Buoy 10) fishery. Catch from this fishery prior to 1982 is included in ocean catch totals. Some non-Columbia River fish are caught in the estuary fishery and are included here.

⁶ Mainstem (LCR) includes catch from above Astoria-Megler Bridge through 1999 and catch from above Tongue Point/Rocky Point thereafter.

⁷ Includes Willamette Falls (Willamette River), North Fork Dam (Clackamas River), and Marmot Dam (Sandy River). No Marmot Dam counts after dam removal in 2007.

⁸ May not match totals found in other sections of this report due to rounding.

Table 9. Early stock adult Coho returns to the Columbia River, 1980-2018.¹

Year	Lower Columbia River									
	Harvest					Hatchery Returns	Natural Escapement	Tributary	Bonneville	
	Commercial ^{2,3,4}		Recreational ^{5,6}					Dam	Dam	Total Run ⁸
	Zones 1-5	SAFE	Estuary	Mainstem	Tributary	Count ⁷	Count			
1980-84	35.2	15.4	20.2	0.2	6.3	63.7		2.8	21.9	157.6
1985-89	126.3	39.3	52.0	1.0	6.8	78.8	6.3	5.5	45.6	360.3
1990	19.7	18.6	12.6	0.3	6.3	41.1	3.8	1.7	8.7	112.8
1991	122.8	80.4	143.3	0.8	15.1	107.2	9.2	4.3	43.2	526.3
1992	3.6	15.8	29.1	0.5	4.1	44.4	3.3	3.4	11.0	115.3
1993	5.9	15.0	16.5	0.5	2.9	22.9	1.3	0.7	8.0	73.7
1994	3.6	54.6	1.4	0.8	2.2	59.6	1.5	3.3	12.5	139.6
1995	0.0	21.2	4.9	0.2	1.6	20.4	0.9	2.3	6.9	58.4
1996	1.7	20.4	3.9	0.2	2.1	44.3	1.4	0.6	8.9	83.6
1997	1.5	16.7	19.3	0.8	6.4	39.1	2.5	2.8	18.4	107.3
1998	0.0	22.8	3.0	3.6	0.7	55.3	2.6	1.0	34.2	123.2
1999	14.0	21.5	7.8	0.9	11.1	60.0	5.2	1.0	32.9	154.4
2000	20.2	58.2	18.7	1.0	26.4	137.2	3.8	5.5	58.9	330.0
2001	67.8	33.7	114.9	2.6	40.1	200.9	7.8	6.3	225.4	699.3
2002	48.1	68.1	5.4	1.1	18.2	101.1	13.4	3.3	50.4	309.0
2003	71.2	113.5	47.4	0.8	18.0	141.3	13.4	10.8	93.8	510.2
2004	16.6	53.0	13.2	0.8	10.0	109.7	8.4	5.0	85.6	302.3
2005	14.3	63.5	6.0	0.3	7.5	88.0	5.5	2.9	63.6	251.7
2006	9.3	36.2	3.2	0.6	10.7	99.7	10.5	8.3	65.4	243.8
2007	7.9	10.1	7.3	0.5	17.1	99.6	6.2	9.7	62.2	220.6
2008	4.4	47.3	7.5	1.3	26.6	131.3	10.4	6.1	85.0	319.8
2009	20.7	80.4	41.9	2.1	20.9	144.7	12.4	31.0	135.6	489.8
2010	3.0	57.4	6.9	0.7	11.3	75.4	12.2	21.8	56.2	244.9
2011	6.2	48.8	6.6	0.9	5.6	48.1	10.9	8.3	117.7	253.1
2012	0.8	14.5	6.4	0.5	1.5	22.1	7.0	9.0	41.1	102.8
2013	3.6	38.6	6.6	0.6	3.0	42.6	9.3	20.4	33.0	157.9
2014	18.2	166.9	50.2	2.5	16.7	128.8	27.6	30.9	181.5	623.4
2015	1.2	26.6	32.1	0.5	3.3	19.3	3.4	4.3	26.9	117.8
2016	0.9	30.3	8.0	0.7	3.8	34.0	8.8	4.3	28.9	119.6
2017	0.6	36.9	15.8	1.1	3.8	27.2	7.6	11.3	47.3	151.6
2018	0.4	11.1	5.9	0.5	3.1	15.0	8.7	5.7	28.6	78.9

¹ Reported in thousands of fish

² Landings since 2003 are preliminary

³ Zones 1-5 (Mainstem) includes jacks

⁴ Jacks landed in SAFE fisheries are not included (except for 1985 and 1986).

⁵ Estuary (Buoy 10) fishery. Catch from this fishery prior to 1982 is included in ocean catch totals. Some non-Columbia River fish are caught in the estuary fishery and are included here.

⁶ Mainstem (LCR) includes catch from above Astoria-Megler Bridge through 1999 and catch from above Tongue Point/Rocky Point thereafter.

⁷ Includes Willamette Falls (Willamette River), North Fork Dam (Clackamas River), and Marmot Dam (Sandy River). No Marmot Dam counts after dam removal in 2007.

⁸ May not match totals found in other sections of this report due to rounding.

Table 10. Late stock adult Coho returns to the Columbia River, 1980-2018.¹

Year	Lower Columbia River									
	Harvest					Hatchery Returns	Natural Escapement	Tributary Dam Count ⁷	Bonneville Dam Count	Total Run ⁸
	Commercial ^{2,3,4}		Recreational ^{5,6}							
Zones 1-5	SAFE	Estuary	Mainstem	Tributary						
1980-84 ave	73.4	0.0	12.1	0.0	5.0	42.7		1.3	4.8	134.6
1985-89 ave	251.4	0.0	32.1	0.4	5.8	70.2	11.6	1.4	6.0	376.6
1990	27.9	0.0	5.9	0.0	3.5	47.7	7.0	0.3	2.9	95.2
1991	204.3	0.0	66.2	0.3	14.3	136.1	17.1	1.3	15.6	455.2
1992	34.7	0.0	14.0	0.0	4.3	42.5	6.1	1.8	6.8	110.2
1993	14.8	0.0	4.4	0.1	3.4	16.5	2.4	0.1	2.7	44.3
1994	2.4	0.0	0.4	0.1	1.2	18.4	2.7	0.9	7.7	33.8
1995	0.2	0.0	0.2	0.0	1.1	11.8	1.7	0.6	3.5	19.0
1996	4.0	0.0	0.6	0.0	1.4	17.9	2.7	0.0	6.8	33.5
1997	2.3	0.0	1.0	0.0	4.4	30.7	4.6	0.0	6.0	49.0
1998	0.2	0.0	0.2	0.2	2.3	32.6	4.9	0.2	12.1	52.7
1999	43.6	0.0	1.2	0.4	7.5	64.5	9.7	0.1	7.8	134.7
2000	89.9	0.0	2.8	0.6	9.8	91.5	6.5	0.6	26.7	228.4
2001	150.9	0.0	17.2	0.5	34.8	176.4	13.2	1.9	34.2	429.1
2002	46.8	0.0	0.8	2.0	6.2	110.0	23.0	0.4	37.7	226.9
2003	72.5	0.0	7.1	0.4	4.4	64.1	22.0	0.6	31.9	203.0
2004	50.0	0.0	2.0	0.5	2.3	63.8	12.6	0.6	29.5	161.2
2005	15.9	1.0	0.9	0.3	2.4	54.2	8.3	0.3	19.7	103.0
2006	18.0	0.0	0.5	0.6	4.6	91.4	13.3	1.2	36.3	165.9
2007	22.3	0.0	1.1	0.3	6.2	61.4	9.1	0.8	27.1	128.4
2008	8.7	0.0	1.1	1.0	14.2	109.6	15.8	0.1	50.5	200.9
2009	23.1	0.0	6.3	1.8	15.7	115.8	17.3	1.2	89.3	270.4
2010	15.9	0.0	1.0	0.9	11.1	113.8	13.7	0.6	64.5	221.6
2011	7.3	0.0	1.0	0.8	10.8	60.1	15.8	0.4	28.8	124.9
2012	1.8	0.0	1.0	0.4	2.3	19.9	10.3	0.1	13.9	49.5
2013	6.1	0.0	1.0	0.3	6.7	39.3	13.6	1.2	26.6	94.9
2014	52.2	0.0	7.5	3.3	29.7	164.5	40.4	1.3	98.2	397.2
2015	3.2	0.0	4.8	0.5	3.5	24.2	4.8	0.3	10.5	51.8
2016	0.3	0.0	1.2	0.7	7.2	50.1	12.3	0.5	13.1	85.3
2017	0.4	0.0	2.4	2.0	3.5	33.9	12.2	1.0	28.7	84.0
2018	0.0	0.0	0.9	0.1	2.9	27.4	15.6	0.3	12.3	59.5

¹ Reported in thousands of fish

² Landings since 2003 are preliminary

³ Zones 1-5 (Mainstem) includes jacks

⁴ Jacks landed in SAFE fisheries are not included (except for 1985 and 1986).

⁵ Estuary (Buoy 10) fishery. Catch from this fishery prior to 1982 is included in ocean catch totals. Some non-Columbia River fish are caught in the estuary fishery and are included here.

⁶ Mainstem (LCR) includes catch from above Astoria-Megler Bridge through 1999 and catch from above Tongue Point/Rocky Point thereafter.

⁷ Includes Willamette Falls (Willamette River), North Fork Dam (Clackamas River), and Marmot Dam (Sandy River). No Marmot Dam counts after dam removal in 2007.

⁸ May not match totals found in other sections of this report due to rounding.

Table 11. Lower Columbia River Coho natural spawner estimates in Oregon and Washington tributaries, 2011-2017.^{1,2}

Population	2011			2012			2013		
	Total	Unmarked	% unmarked	Total	Unmarked	% unmarked	Total	Unmarked	% unmarked
Youngs Bay	476	161	34%	241	129	54%	NA	NA	--
Big Creek	333	160	48%	521	409	79%	NA	NA	--
Clatskanie	1,553	1,546	100%	696	619	89%	685	611	89%
Scappoose	298	298	100%	210	210	100%	979	979	100%
Clackamas	2,498	2,254	90%	1,755	1,580	90%	3,252	3,202	98%
Sandy	3,813	3,494	92%	1,198	1,165	97%	756	667	88%
Lower Gorge-Oregon	471	216	46%	220	96	44%	161	151	94%
Upper Gorge/Hood	743	232	31%	759	169	22%	1,599	561	35%
Grays/Chinook	1,188	65	5%	481	235	49%	1,535	571	37%
Elochoman/Skamokawa	1,193	514	43%	399	255	64%	930	551	59%
MAG	466	380	82%	316	309	98%	550	511	93%
L. Cowlitz (tribs. only)	5,219	4,810	92%	3,016	2,686	--	6,203	5,067	82%
Coweeman	2,243	2,139	95%	671	643	96%	3,225	2,844	88%
Toutle/Green	513	314	61%	499	270	54%	2,284	1,497	66%
SF Toutle	603	515	85%	316	279	88%	1,885	1,619	86%
Upper Cowlitz/Cispus	20,273	7,877	39%	6,814	1,689	25%	5,809	4	0%
Tilton	6,869	2,088	30%	6,630	1,444	22%	6,436	2,744	43%
Kalama ³	197	6	--	125	11	9%	300	30	10%
NF Lewis (Cedar Ck)	946	842	89%	935	827	88%	991	745	75%
EF Lewis	1,424	1,331	93%	1,794	1,672	93%	2,318	2,112	91%
Salmon Creek	1,257	1,220	97%	736	708	96%	1,383	1,354	98%
Washougal	558	497	89%	325	283	87%	647	436	67%
Lower Gorge-Washington ⁴	455	402	88%	264	228	86%	591	470	80%

¹ Proportion unmarked does not include substantial numbers of unmarked adults from RSI programs in the Lower Cowlitz, NF Lewis, and Salmon Creek populations.

² Washington tributary estimates for 2011-2015 updated using new methods.

³ In 2011, no carcasses were recovered to determine proportion unmarked.

⁴ Includes Hamilton, Hardy, and Duncan creeks

Table 11. continued ²

Population	2014			2015			2016			2017		
	Total	Unmarked	% unmarked	Total	Unmarked	% unmarked	Total	Unmarked	% unmarked	Total	Unmarked	% unmarked
Youngs Bay	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
Big Creek	NA	NA	--	NA	NA	--	NA	NA	--	NA	NA	--
Clatskanie	3,397	3,246	96%	249	240	96%	491	464	95%	701	566	81%
Scappoose	1,587	1,587	100%	487	487	100%	1,242	1,200	97%	395	387	98%
Clackamas	12,444	10,670	86%	2,014	1,784	89%	1,787	1,628	91%	8,621	7,598	88%
Sandy	6,111	5,942	97%	464	443	95%	970	939	97%	2,384	2,384	100%
Lower Gorge-Oregon	739	362	49%	48	30	63%	425	395	93%	NA	NA	--
Upper Gorge/Hood	174	42	24%	11	4	36%	163	57	35%	NA	NA	--
Grays/Chinook	2,597	1,640	63%	215	80	37%	655	261	40%	391	95	24%
Elochoman/Skamokawa	3,820	2,500	65%	273	153	56%	772	482	62%	841	688	82%
MAG	2,001	1,761	88%	515	479	93%	983	858	87%	622	573	92%
L. Cowlitz (tribs. only)	19,928	18,400	92%	1,809	1,629	90%	4,517	4,050	90%	3,920	3,008	77%
Coweeman	4,894	4,088	84%	819	651	79%	2,844	2,450	86%	2,008	1,869	93%
Toutle/Green	5,846	3,828	65%	1,119	441	39%	3,295	845	26%	941	568	60%
SF Toutle	9,083	7,343	81%	1,691	897	53%	2,485	1,935	78%	826	710	86%
Upper Cowlitz/Cispus	29,492	6,923	23%	1,328	381	29%	10,428	906	9%	5,985	2,624	44%
Tilton	14,847	9,074	61%	2,504	1,392	56%	7,777	2,666	34%	5,545	2,804	51%
Kalama ³	699	51	7%	110	11	10%	189	57	30%	106	40	38%
NF Lewis (Cedar Ck)	1,569	1,207	77%	225	182	81%	589	464	79%	666	500	75%
EF Lewis	2,845	2,330	82%	319	242	76%	844	441	52%	1,321	773	59%
Salmon Creek	3,417	3,363	98%	606	592	98%	1,707	1,645	96%	1,640	1,521	93%
Washougal	1,485	434	29%	242	73	30%	771	193	25%	761	188	25%
Lower Gorge-Washington ⁴	1,065	773	73%	275	241	88%	675	626	93%	323	278	86%

¹ Proportion unmarked does not include substantial numbers of unmarked adults from RSI programs in the Lower Cowlitz, NF Lewis, and Salmon Creek populations.

² Washington tributary estimates for 2011-2015 updated using new methods.

³ In 2011, no carcasses were recovered to determine proportion unmarked.

⁴ Includes Hamilton, Hardy, and Duncan creeks

Table 12. Columbia River Chum abundance in select Washington tributaries, 2005-2018.

Location	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018 prelim
Crazy Johnson Creek	1,418	3,819	870	1,093	996	865	2,304	3,475	1,925	1,541	4,193	5,987	3,681	897
WF Grays River	1,407	1,377	1,902	793	1,130	1,814	5,996	2,817	1,857	1,145	6,297	19,023	1,930	2,832
Mainstem Grays River	1,379	1,510	1,227	721	750	3,701	2,509	1,717	1,352	2,107	1,091	6,129	1,051	2,887
Grays R. broodstock take	132	119	135	88	107	288	294	220	250	246	128	128	118	250
I-205 area	923	869	576	644	1,154	2,148	4,912	2,586	1,466	1,472	4,757	5,245	1,647	2,425
Multnomah area	214	321	148	31	106	458	647	120	222	334	1,142	1,162	93	111
St Cloud area	97	180	3	1	29	126	343	1	84	85	344	242	103	75
Horsetail area	13	65	25	36	6	54	119	92	59	75	420	656	56	302
Ives area	288	466	132	295	171	214	162	230	175	409	1,306	1,914	347	1,839
Duncan Creek	7	42	9	2	26	48	85	4	27	24	153	208	7	129
Hardy Creek	74	109	12	3	46	175	157	75	56	108	350	354	14	128
Hamilton Creek	178	251	133	118	142	404	542	352	255	260	249	332	162	504
Hamilton Spring Channel	88	227	47	114	94	190	325	137	392	678	1,397	1,265	742	1,534
Grays return I-205 to Bonneville return	4,336	6,825	4,134	2,695	2,983	6,668	11,103	8,229	5,384	5,039	11,709	31,267	6,780	6,866
Sum	6,218	9,355	5,219	3,939	4,757	10,485	18,395	11,826	8,120	8,484	21,827	42,645	9,951	13,913

Table 13. Treaty fall Zone 6 mainstem commercial gillnet seasons, 2018.

Gillnet Salmon and Setline Sturgeon Fisheries				
Days	Season	Dates	Special Regulations	
			Gear	Area/Other
3 1/2	Fall Salmon	Aug 27, 6 AM - Aug 30, 6 PM	Set and Drift gill nets. 8" min. mesh size restriction.	All of Zone 6. Standard dam and river mouth sanctuaries are in effect, including the Spring Creek Hatchery sanctuary (1.5 miles downstream to 1 mile upstream of the hatchery ladder). Salmon, steelhead, shad, yellow perch, bass, walleye, catfish, and carp may be sold.
4 1/2		Sep 3, 6 AM - Sep 7, 6 PM	Same.	Same.
4 1/2		Sep 10, 6 AM - Sep 14, 6 PM	Same.	Same.
3 1/2		Sep 19, 6 AM - Sep 22, 6 PM	Same.	Same.
2 1/2		Sep 26, 6 AM - Sep 28, 6 PM	Same.	Same, except the Spring Creek Hatchery sanctuary has been reduced to a 150-foot radius around the hatchery ladder.
3 1/2		Oct 3, 6 AM - Oct 6, 6 PM	Same.	Same.
20 15 9	Fall Sturgeon Bonneville Pool: Bonneville Pool: The Dalles Pool: John Day Pool	Aug 6, 6 AM - Aug 25, 6 PM Oct 17, 6 AM - Oct 31, 6 PM None Jul 27, 6 AM - Aug 4, 6 PM	Setline gear, with hook size 9/0 or larger.	Standard sanctuaries applicable to setline gear. Sturgeon between 38 - 54 inches in fork length in the Bonneville Pool may and sturgeon between 43 - 54. inches in fork length in the John Day Pool may be kept and sold.

Table 14. Non-treaty fall commercial fishing seasons, 2018.

Main-Stem Commercial Seasons				
Days	Season	Dates	Special Regulations	
			Gear	Area/Other
9 hrs	Early Fall Gill Net	Aug 21, 9 PM - Aug 22, 6 AM	9" min. and 9 3/4" max. mesh size restriction. The multiple net rule is not in effect. Lighted buoys are required between official sunset and sunrise.	Zones 4-5. The Washougal and Sandy River sanctuaries are in effect. Chinook, coho, pink, and sockeye salmon, white sturgeon, and shad may be sold. A maximum of six white sturgeon may be possessed or sold by each participating vessel during each calendar week. The six white sturgeon possession and sales limit applies to mainstem fisheries only.
9 hrs		Aug 23, 9 PM - Aug 24, 6 AM	Same.	Same.
9 hrs		Aug 26, 9 PM - Aug 27, 6 AM	Same.	Same.
7 hrs		Aug 29, 10 PM - Aug 30, 5 AM	Same.	Same, except the weekly vessel sturgeon possession/sales limit increased from six to seven white sturgeon.

Select Area Commercial Seasons				
Days	Season	Dates	Special Regulations	
			Gear	Area/Other
1 1/2	Youngs Bay - Fall	Aug 1, 7 PM - Aug 3, 7 AM	9 3/4" max. mesh size restriction. Nets may not exceed 250 fathoms in length. Leadline not to exceed 2 lbs per fathom. Use of additional weights or anchors attached directly to the leadline is allowed upstream of markers located approximately 200 yards upstream of the mouth of the Walluski River, the waters of the Walluski River upstream of the first dock near the mouth of the Walluski River, and the waters of the Lewis and Clark River upstream of the Alternate Highway 101 Bridge. Red corks are required at 25-fathom intervals and red corks must be in contrast to corks in the remainder of the net. Nets that are fished between the official sunset and official sunrise must have a lighted buoy at the end of the net that is not attached to the boat. Multiple net rule is in effect.	Youngs Bay select fishing area includes all waters upstream of the Highway 101 Bridge, the Walluski River downstream of the Highway 202 Bridge, the Lewis and Clark River downstream of the powerlines located approximately 500 feet southwesterly of Barret Slough, and the Youngs River downstream of the regulatory marker located at the mouth of Battle Creek Slough. All waters are under State of Oregon jurisdiction and are open to Oregon and Washington fishers who possess the appropriate licenses. Chinook, coho, pink, and sockeye salmon, white sturgeon and shad may be sold. A maximum of four white sturgeon with a fork length of 44-50 inches may be possessed or sold by each participating vessel during each calendar week. The four white sturgeon possession and sales limit includes all Select Area fisheries.
1 1/2		Aug 7, 7 PM - Aug 9, 7 AM	Same.	Same.
1 1/2		Aug 14, 7 PM - Aug 16, 7 AM	Same.	Same.
1 1/2		Aug 21, 7 PM - Aug 23, 7 AM	Same.	Same.
12 hrs		Aug 27, 7 PM - Aug 28, 7 AM	Same, except 6" max. mesh size restriction in effect.	Same.
12 hrs		Aug 29, 7 PM - Aug 30, 7 AM	Same.	Same.
11		Sep 3, 7 PM - Sep 13, noon	Same.	Same.
39		Sep 23, 6 PM - Oct 31, noon	Same.	Same, except a maximum of six white sturgeon may be possessed or sold.

Table 14. continued

Select Area Commercial Seasons (continued)				
Days	Season	Dates	Special Regulations	
			Gear	Area/Other
12 hrs	Tongue Point / South Channel - Fall	Aug 27, 7 PM - Aug 28, 7 AM	Tongue Point: 6" max. mesh size restriction. Nets may not exceed 250 fathoms in length and leadline may not exceed 2 lbs per fathom. South Channel: 6" max. mesh size restriction. Nets may not exceed 250 fathoms in length and there is no weight restriction on the leadline. Use of additional weights or anchors attached directly to the leadline is allowed. In both fishing sites, nets that are fished between the official sunset and official sunrise must have a lighted buoy at the end of the net that is not attached to the boat. The multiple net rule is in effect.	Tongue Point Basin fishing area is defined as those waters of the Columbia River bounded by a line from a regulatory marker on the eastern shore of Tongue Point to the flashing green USCG light "3" on the rock jetty at the northwest tip of Mott Island, a line from a regulatory marker at the southeast end of Mott Island northeasterly to a regulatory marker on the northwest shore of Lois Island, and a line from a regulatory marker located on the Oregon shore 300 yards northwest of the railroad bridge crossing the John Day River projecting easterly to a regulatory marker on Lois Island. South Channel is defined as those waters bounded by a line from a regulatory marker on the Oregon shore at John Day Point projecting northeasterly to a regulatory marker on Lois Island, and a line from a regulatory marker on Settler Point projecting northwesterly to the flashing red USCG light "10" then projecting westerly to the eastern tip of Burnside Island. Fishers in Tongue Point area may have on-board un-stored gill nets legal for the South Channel fishing area. Permanent transportation rules are in effect. Chinook, coho, pink, and sockeye salmon, white sturgeon and shad may be sold. A maximum of four white sturgeon with a fork length of 44-50 inches may be possessed or sold by each participating during each calendar week. The four white sturgeon possession and sales limit includes all Select Area fisheries.
12 hrs		Aug 29, 7 PM - Aug 30, 7 AM	Same.	Same.
12 hrs Nightly		Sep 3 - Sep 7, 7 PM - 7 AM nightly	Same.	Same.
18 hrs Nightly		Sep 10 - Sep 13, 4 PM - 10 AM nightly	Same.	Same.
18 hrs Nightly		Oct 1 - Oct 5, 4 PM - 10 AM nightly	Same.	Same, except a maximum of six white sturgeon may be possessed or sold.
18 hrs Nightly		Oct 8 - Oct 12, 4 PM - 10 AM nightly	Same.	Same.
18 hrs Nightly		Oct 15 - Oct 19, 4 PM - 10 AM nightly	Same.	Same.
18 hrs Nightly		Oct 22 - Oct 26, 4 PM - 10 AM nightly	Same.	Same.

Table 14. continued

Select Area Commercial Seasons (continued)				
Days	Season	Dates	Special Regulations	
			Gear	Area/Other
12 hrs	Blind Slough / Knappa Slough - Fall	Aug 27 - Aug 28, 7 PM - 7 AM	9 3/4" max. mesh size restriction. Nets may not exceed 100 fathoms in length. No weight restriction on leadline. Use of additional weights and anchors attached to the leadline is allowed. Nets that are fished between the official sunset and official sunrise must have a lighted buoy at the end of the net that is not attached to the boat. The multiple net rule is in effect.	Blind Slough is defined as those waters of Blind Slough and Gnat Creek from a north-south line formed by regulatory markers at the mouth of Blind Slough to a regulatory marker in Gnat Creek located approximately 0.5 miles southeasterly (upstream) of the Barendse Road Bridge. Knappa Slough is defined as those waters of Knappa Slough, Calendar Slough, and Big Creek Slough bounded to the north (upstream) by a line projecting from a regulatory marker on the eastern shore of Karlson Island to the northernmost regulatory marker at the mouth of Blind Slough and bounded to the west (downstream) by a north-south line projecting through the easternmost tip of Minaker Island and markers on Karlson Island and the Oregon shore. The waters of Knappa Slough within a 100-foot radius of the railroad bridge crossing Big Creek are closed. Chinook, coho, pink, and sockeye salmon, white sturgeon and shad may be sold. A maximum of four white sturgeon with a fork length of 44-50 inches may be possessed or sold by each participating vessel during each calendar week. The four white sturgeon possession and sales limit includes all Select Area fisheries.
12 hrs		Aug 29 - Aug 30, 7 PM - 7 AM	Same.	Same.
12 hrs Nightly		Sep 3 - Sep 7, 7 PM - 7 AM nightly	Same.	Same.
14 hrs Nightly		Sep 10 - Sep 13, 6 PM - 10 AM nightly	Same, except 6" max. mesh size restriction in effect.	Same.
16 hrs Nightly		Sep 23 - Sep 28, 6 PM - 10 AM nightly	Same.	Same, except a maximum of six white sturgeon may be possessed or sold.
16 hrs Nightly		Oct 1 - Oct 5, 6 PM - 10 AM nightly	Same.	Same.
16 hrs Nightly		Oct 8 - Oct 12, 6 PM - 10 AM nightly	Same.	Same.
16 hrs Nightly		Oct 15 - Oct 19, 6 PM - 10 AM nightly	Same.	Same.
16 hrs Nightly		Oct 22 - Oct 26, 6 PM - 10 AM nightly	Same.	Same.

Table 14. continued

Select Area Commercial Seasons (continued)				
Days	Season	Dates	Special Regulations	
			Gear	Area/Other
12 hrs	Deep River - Fall	Aug 27 - Aug 28, 7 PM - 7 AM	9 3/4" max. mesh size restriction. Nets may not exceed 100 fathoms in length. No weight restriction on leadline. Use of additional weights and anchors attached to the leadline is allowed. Nets that are fished between the official sunset and official sunrise must have a lighted buoy at the end of the net that is not attached to the boat. The multiple net rule is in effect.	Deep River select fishing area extending from the USCG channel marker #16 upstream to the West Deep River Road Bridge located at the town of Deep River (concurrent waters up to Highway 4 Bridge, Washington only above). Nets are not allowed to be tied off to any stationary structures and nets may not fully cross the navigation channel. Chinook, coho, pink, and sockeye salmon, white sturgeon and shad may be sold. A maximum of four white sturgeon with a fork length of 44-50 inches may be possessed or sold by each participating vessel during each calendar week. The four white sturgeon possession and sales limit includes all Select Area fisheries.
12 hrs		Aug 29 - Aug 30, 7 PM - 7 AM	Same.	Same.
15 hrs Nightly		Sep 3 - Sep 8, 6 PM - 9 AM nightly	Same.	Same.
15 hrs Nightly		Sep 10 - Sep 13, 6 PM - 9 AM nightly	Same, except a 6" max. mesh size restriction.	Same.
15 hrs Nightly		Sep 23 - Sep 28, 6 PM - 9 AM nightly	Same.	Same, except a maximum of six white sturgeon may be possessed or sold.
15 hrs Nightly		Oct 1 - Oct 5, 6 PM - 9 AM nightly	Same.	Same.
15 hrs Nightly		Oct 8 - Oct 12, 6 PM - 9 AM nightly	Same.	Same.

Table 15. Kept catch in 2018 fall season mainstem fisheries (includes adults and jacks).

Treaty Fisheries^{1,2}						
Fishery ¹	Chinook	Coho	Chum	Pink	Summer Steelhead	White Sturgeon
Commercial Gillnet, Platform. and Hook & Line (8/26-10/6)	56,622	3,881	0	0	5,198	23
Platform, Hook & Line (8/1-26 and 10/8-11/25)	2,161	645	0	0	1,010	0
Fall Setline	0	0	0	0	0	325
Treaty Total	58,783	4,526	0	0	6,208	348
Non-Treaty Fisheries						
Fishery ¹	Chinook	Coho	Chum ³	Pink	Summer Steelhead	White Sturgeon
Early Fall Mainstem Commercial	8,320	380	--	--	--	413
Late Fall Mainstem Commercial	0	0	--	--	--	0
<i>Subtotal</i>	<i>8,320</i>	<i>380</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>413</i>
Beach Seine Commercial	0	0	--	--	--	--
Purse Seine Commercial	0	0	--	--	--	--
<i>Subtotal</i>	<i>0</i>	<i>0</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>
Select Areas Commercial	6,604	12,111	--	2	--	117
<i>Subtotal</i>	<i>6,604</i>	<i>12,111</i>	<i>--</i>	<i>2</i>	<i>--</i>	<i>117</i>
Buoy 10 Sport ⁴	11,620	6,761	--	--	89	--
Lower River Sport ⁴	10,499	682	--	--	1,104	430
Bonn. Dam to Hwy 395 Sport ⁴	1,044	12	--	--	39	--
Hanford Reach Sport ⁴	9,746	13	--	--	46	--
<i>Subtotal</i>	<i>32,909</i>	<i>7,468</i>	<i>--</i>	<i>--</i>	<i>1,232</i>	<i>430</i>
Non-Treaty Total	47,833	19,959	--	--	1,232	960
Grand Total	106,616	24,485	0	2	7,440	1,308

¹. Commercial landings are preliminary. See Tables 13, 14, 16, 20, and 29 for details on specific time, area, and gear restrictions during commercial seasons.

². Includes take-home, sales to wholesale dealers, and direct to public sales.

³. Chum possession and sales prohibited beginning in October 2013.

⁴. Data does not include release mortalities.

Table 16. Fishing periods, gear, and landings from mainstem Columbia River non-treaty commercial seasons, 2018.

Season	Fishing Period	Week	Hours	Zones	Mesh Size	WSTG Limit ¹	Del.	Chinook	Coho	Sockeye	Pink	Chum	White Sturgeon
Spring	No season.	--	--	--	--	--	--	--	--	--	--	Prohibited	--
	<i>Spring Season Totals (and average number of deliveries):</i>							0	0	0	0	0	0
Summer	No season.	--	--	--	--	--	--	--	--	--	--	Prohibited	--
	<i>Summer Season Totals (and average number of deliveries):</i>							0	0	0	0	0	0
August	Aug 21, 9 PM–Aug 22, 6 AM	34	9	4–5	9"–9 3/4"	6	68	1,727	26	--	0	Prohibited	126
	Aug 23, 9 PM–Aug 24, 6 AM	34	9	4–5	9"–9 3/4"	6	78	1,624	34	--	0	Prohibited	103
	Aug 26, 9 PM–Aug 27, 6 AM	35	9	4–5	9"–9 3/4"	7	84	2,380	121	--	0	Prohibited	108
	Aug 29, 10 PM–Aug 30, 5 AM	35	7	4–5	9"–9 3/4"	7	58	2,589	199	--	0	Prohibited	76
	<i>August Season Totals (and average number of deliveries):</i>							72	8,320	380	0	0	0
Late-Fall	No season.	--	--	--	--	--	--	--	--	--	--	Prohibited	--
	<i>Late-Fall Season Totals (and average number of deliveries):</i>							0	0	0	0	0	0
							<u>Ave.Del.</u>	<u>Chinook</u>	<u>Coho</u>	<u>Sockeye</u>	<u>Pink</u>	<u>Chum</u>	<u>White Sturgeon</u>
FALL TOTALS:							72	8,320	380	0	0	0	413
							2018 Grand Totals:	<u>Chinook</u>	<u>Coho</u>	<u>Sockeye</u>	<u>Pink</u>	<u>Chum</u>	<u>White Sturgeon</u>
								8,320	380	0	0	0	413

¹ White Sturgeon possession and sales limit (per vessel per week).

Table 17. Lower Columbia River winter/spring/summer/fall commercial landings, 2018.

Winter/Spring/Summer											
<i>(FINAL – OR/WA Fish Tickets – December 21, 2018)</i>											
<u>Season</u>	<u>CHINOOK</u>		<u>Z 1–5 Spring Chinook</u>		<u>SOCKEYE</u>		<u>SHAD</u>		<u>WHITE STURGEON ¹</u>		
	<u>Mainstem</u>	<u>Numbers</u>	<u>Pounds</u>	<u>Adults</u>	<u>Jacks</u>	<u>Numbers</u>	<u>Pounds</u>	<u>Numbers</u>	<u>Pounds</u>	<u>Numbers</u>	<u>Pounds</u>
Winter Sturgeon <i>(no season during 2018)</i>		0	0	–	–	0	0	0	0	No Retention	--
Spring <i>(no season during 2018)</i>		0	0	0	0	0	0	0	0	No Retention	--
Summer <i>(no season during 2018)</i>		0	0	–	–	0	0	0	0	No Retention	--
Shad (Area 2S)		–	–	–	–	–	–	2,112	5,701	No Retention	--
Mainstem Totals		0	0	–	–	0	0	2,112	5,701	0	0
<i>Select Areas</i>											
Youngs Bay Winter		737	9,287			0	0	0	0	No Retention	--
Youngs Bay Spring		4,796	55,993			0	0	0	0	52	1,568
Youngs Bay Summer		1,400	16,945			6	17	0	0	14	418
Tongue Point Winter		177	2,299			0	0	0	0	No Retention	--
Tongue Point Spring		1,327	16,931			0	0	0	0	81	2,297
Tongue Point Summer		380	5,060			0	0	0	0	94	3,106
Blind & Knappa Sloughs Winter		175	2,290			0	0	0	0	No Retention	--
Blind & Knappa Sloughs Spring		1,532	19,420			0	0	0	0	43	1,269
Blind & Knappa Sloughs Summer		457	5,898			0	0	0	0	12	376
Deep River Winter <i>(no season during 2018)</i>		0	0			0	0	0	0	No Retention	--
Deep River Spring <i>(no season during 2018)</i>		0	0			0	0	0	0	No Retention	--
Select Area Totals		10,981	134,123			6	17	0	0	296	9,034
Lower Columbia River Commercial GRAND TOTALS Winter/Spring/Summer 2018	Chinook	10,981	134,123			6	17	2,112	5,701	296	9,034

Fall											
<i>(FINAL – OR/WA Fish Tickets – December 21, 2018)</i>											
<u>Season</u>	<u>CHINOOK</u>		<u>COHO</u>		<u>PINK</u>		<u>CHUM</u>		<u>WHITE STURGEON ¹</u>		
	<u>Mainstem</u>	<u>Numbers</u>	<u>Pounds</u>	<u>Numbers</u>	<u>Pounds</u>	<u>Numbers</u>	<u>Pounds</u>	<u>Numbers</u>	<u>Pounds</u>	<u>Numbers</u>	<u>Pounds</u>
August (Zone 4–5; 9-9 3/4 inch gillnet)		8,320	128,317	380	2,811	0	0	No Retention		413	13,927
August Subtotals		8,320	128,317	380	2,811	0	0	No Retention		413	13,927
Late-Fall <i>(no season during 2018)</i>		0	0	0	0	0	0	No Retention		0	0
Late-Fall Subtotals		0	0	0	0	0	0	No Retention		0	0
Fall Mainstem Totals		8,320	128,317	380	2,811	0	0	0	0	413	13,927
<i>Select Areas</i>											
Youngs Bay		2,945	31,926	4,229	33,769	0	0	No Retention		52	1,634
Tongue Point		1,035	11,970	3,682	24,679	1	4	No Retention		32	932
Blind Slough & Knappa Slough		1,401	17,609	1,477	10,422	0	0	No Retention		23	741
Deep River		1,223	13,199	2,723	20,398	1	2	No Retention		10	281
Fall Select Area Totals		6,604	74,704	12,111	89,268	2	6	0	0	117	3,588
Lower Columbia River Commercial GRAND TOTALS Fall 2018	Chinook	14,924	203,021	12,491	92,079	2	6	0	0	530	17,515

FINAL GRAND TOTALS 2018	CHINOOK	COHO	PINK	CHUM	WHITE STURGEON ¹
	Numbers	Numbers	Numbers	Numbers	Numbers
	Pounds	Pounds	Pounds	Pounds	Pounds
	25,905	12,491	2	No Retention	826
	337,144	92,079	6		26,549
for Lower Columbia R. Commercial Fisheries	SOCKEYE	SHAD	SMELT (Mainstem)	GREEN STURGEON	
	Numbers	Numbers	Pounds	Numbers	
	Pounds	Pounds		Pounds	
	6	2,112	110	No Retention	
	17	5,701			

¹ The sale of White Sturgeon was allowed during August mainstem commercial seasons below Bonneville Dam; White Sturgeon were also allowed to be sold during Select Area spring, summer and fall seasons from April 19 through October 31.

Table 18. Stock composition of adult fall Chinook catch in mainstem Columbia River fisheries, 2018.¹

<i>Non-Treaty Fisheries</i>	LRH	LRW	BPH	URB	MCB ²	Other ³	Total
Buoy 10 Recreational ⁴	4,160	532	1,544	2,761	206	1,878	11,081
Lower Columbia Recreational ⁴	246	0	907	7,372	1,325	297	10,147
Above Bonneville Dam Recreational ^{4,5}	0	0	0	8,642	977	29	9,648
August Commercial	864	0	2,636	3,279	597	3	7,379
September/October Commercial	0	0	0	0	0	0	0
Select Area Commercial	4,484	0	150	65	16	1,739	6,454
<i>Subtotal</i>	9,754	532	5,237	22,119	3,121	3,946	44,709
<i>Treaty Fisheries</i>							
Sales to Licensed Buyers	56	0	8,979	25,603	11,593	99	46,330
C&S, OTB and other non-ticketed catch	12	0	1,602	4,570	2,122	17	8,323
<i>Subtotal</i>	68	0	10,581	30,173	13,715	116	54,653
Grand Total	9,822	532	15,818	52,292	16,836	4,062	99,362

¹ Based on Big Sheet BS18P; catch totals may not match data presented elsewhere in this report.

² Includes lower river bright (LRB) stock.

³ Out of basin stocks/strays, including Select Area Bright (SAB) fall Chinook.

⁴ Includes release mortalities.

⁵ Bonneville Dam to McNary Dam and Hanford Reach.

Table 19a. Fall season A-Index summer steelhead harvest and incidental release mortalities in mainstem Columbia River non-treaty fisheries, 1999-2018.¹

Year	Commercial Below BON ²		Recreational Below BON ³			Recreational BON Pool			Recreational TDA-Hwy 395			Recreational Dip-Ins ⁴			Fall Season Total	
	Hatchery- Release Mortalities (clipped and unclipped)	Natural- Origin Release Mortalities	Hatchery-Origin		Natural- Origin	Hatchery-Origin		Natural- Origin	Hatchery-Origin		Natural- Origin	Hatchery-Origin		Natural- Origin	Hatchery- Origin	Natural- Origin
			Kept	Rel. Mort.	Rel. Mort.	Kept	Rel. Mort.	Rel. Mort.	Kept	Rel. Mort.	Rel. Mort.	Kept	Rel. Mort.	Rel. Mort.	Total Mort.	Rel. Mort.
1999	125	35	3,577	--	123	472	--	14	3,741	--	112	3,167	--	96	11,082	380
2000	217	67	4,401	--	165	761	--	22	4,102	--	124	9,089	--	264	18,571	642
2001	394	87	4,419	--	192	1,385	--	33	8,979	--	253	17,319	--	412	32,496	978
2002	565	153	2,971	--	139	616	--	21	6,368	--	258	9,230	--	319	19,749	889
2003	1,384	165	3,943	--	182	905	--	35	3,577	--	151	12,772	--	475	22,580	1,007
2004	868	206	2,387	--	95	953	--	39	1,830	--	70	8,362	--	324	14,399	734
2005	549	112	2,462	--	102	686	--	21	4,084	--	136	9,698	--	299	17,479	671
2006	423	120	3,610	--	157	817	--	27	4,010	--	140	9,447	--	308	18,307	751
2007	182	54	4,293	--	158	971	--	29	6,671	--	201	11,586	--	350	23,703	792
2008	404	102	1,952	18	74	1,040	7	30	2,605	24	90	3,950	29	110	10,029	406
2009	781	195	7,068	62	346	1,971	10	53	6,592	61	169	20,180	128	489	36,853	1,252
2010	472	172	4,770	43	230	1,317	10	52	2,361	19	115	6,667	50	262	15,707	830
2011	1,025	290	11,364	167	576	2,860	29	99	4,106	48	140	7,666	82	251	27,346	1,356
2012	417	141	5,166	61	251	918	10	34	4,552	75	152	4,739	59	164	15,997	742
2013	388	175	6,034	51	593	1,107	7	65	2,401	42	102	7,048	67	357	17,144	1,292
2014	572	277	6,184	56	455	1,343	11	75	2,580	28	131	7,426	59	378	18,258	1,316
2015	430	145	4,168	26	228	1,033	5	41	4,685	34	164	10,920	53	418	21,353	997
2016	487	125	1,497	20	73	691	5	18	1,685	18	43	4,086	37	87	8,525	345
2017	264	70	198	43	52	70	3	6	171	97	75	329	158	106	1,332	307
2018	79	29	1,117	6	75	37	0	10	0	0	0	981	21	178	2,242	293
5-yr Ave	366	129	2,633	30	177	635	5	30	1,824	36	82	4,748	65	234	10,342	652
10-yr Ave	491	162	4,757	53	288	1,135	9	45	2,913	42	109	7,004	71	269	16,476	873

¹ From target and non-target fisheries occurring in August-October downstream of The Dalles Dam and in August-December upstream of The Dalles Dam. Stock composition derived from data collected during sampling at Bonneville Dam. Prior to 2008, natural-origin release mortalities displayed include an unknown number of unclipped hatchery-origin fish. Estimates for 2017 and 2018 are preliminary, and all data are subject to change. BON = Bonneville Dam, TDA = The Dalles Dam

² Reflects incidental release mortalities (clipped and unclipped). Includes mortalities from pilot beach seine and purse seine fisheries that occurred in 2015 and 2016. Beginning in 2018, includes estimated mortalities in the Select Area commercial fisheries.

³ Beginning in 2017, includes mortalities from the Bouy 10 recreational fishery.

⁴ Includes dip-in mortalities in select tributaries upstream of Bonneville Dam where non-local steelhead may "dip in" to seek cool-water refuge. Kept catch based on Catch Record Cards when creel-based estimates not available.

Table 19b. Fall season B-Index summer steelhead harvest and incidental release mortalities in mainstem Columbia River non-treaty fisheries, 1999-2018.¹

Year	Commercial Below BON ²		Recreational Below BON ³			Recreational BON Pool			Recreational TDA-Hwy 395			Recreational Dip-Ins ⁴			Fall Season Total	
	Hatchery- Origin Release Mortalities (clipped and unclipped)	Natural- Origin Release Mortalities	Hatchery-Origin		Natural- Origin	Hatchery-Origin		Natural- Origin	Hatchery-Origin		Natural- Origin	Hatchery-Origin		Natural- Origin	Hatchery- Origin	Natural- Origin
			Kept	Rel. Mort.	Rel. Mort.	Kept	Rel. Mort.	Rel. Mort.	Kept	Rel. Mort.	Rel. Mort.	Kept	Rel. Mort.	Rel. Mort.	Total Mort.	Rel. Mort.
1999	52	9	469	--	5	103	--	1	994	--	14	751	--	11	2,369	41
2000	56	14	649	--	31	140	--	4	1,986	--	23	1,979	--	51	4,809	123
2001	214	24	615	--	22	170	--	3	3,199	--	32	4,224	--	53	8,422	134
2002	331	92	550	--	54	191	--	9	5,307	--	154	4,801	--	175	11,181	483
2003	389	62	228	--	19	87	--	5	654	--	25	1,646	--	87	3,004	198
2004	267	69	92	--	6	65	--	3	489	--	16	965	--	38	1,878	132
2005	209	48	179	--	16	101	--	4	1,740	--	59	1,868	--	73	4,098	200
2006	241	26	638	--	15	181	--	3	2,605	--	50	3,802	--	70	7,467	164
2007	145	24	453	--	12	199	--	4	4,795	--	107	4,034	--	84	9,626	231
2008	301	53	639	6	24	322	2	8	2,657	30	36	2,625	21	51	6,602	171
2009	77	24	257	4	26	128	2	5	2,962	61	66	3,141	32	103	6,662	224
2010	245	74	1,264	5	62	433	1	15	2,417	13	68	3,362	14	106	7,755	326
2011	239	29	689	10	21	203	2	4	1,127	21	16	1,468	20	21	3,780	92
2012	63	19	452	10	29	127	3	5	2,477	64	37	1,066	27	27	4,288	116
2013	52	7	105	1	3	49	1	1	693	17	14	698	17	10	1,632	35
2014	151	20	191	6	10	158	4	3	1,184	31	17	1,908	47	32	3,682	83
2015	53	12	44	2	4	46	1	2	840	25	23	645	15	21	1,671	61
2016	64	10	365	15	9	191	3	2	1,629	36	11	2,396	39	21	4,738	53
2017	42	7	30	2	2	10	0	0	13	29	2	41	12	4	179	15
2018	22	3	69	6	3	3	0	0	0	0	0	133	22	18	254	24
5-yr Ave	67	10	140	6	6	82	2	1	733	24	11	1,024	27	19	2,105	47
10-yr Ave	101	21	347	6	17	135	2	4	1,334	30	25	1,486	24	36	3,464	103

¹ From target and non-target fisheries occurring in August-October downstream of The Dalles Dam and in August-December upstream of The Dalles Dam. Stock composition derived from data collected during sampling at Bonneville Dam. Prior to 2008, natural-origin release mortalities displayed include an unknown number of unclipped hatchery-origin fish. Estimates for 2017 and 2018 are preliminary, and all data are subject to change. BON = Bonneville Dam, TDA = The Dalles Dam

² Reflects incidental release mortalities (clipped and unclipped). Includes mortalities from pilot beach seine and purse seine fisheries that occurred in 2015 and 2016. Beginning in 2018, includes estimated mortalities in the Select Area commercial fisheries.

³ Beginning in 2017, includes mortalities from the Bouy 10 recreational fishery.

⁴ Includes dip-in mortalities in select tributaries upstream of Bonneville Dam where non-local steelhead may "dip in" to seek cool-water refuge. Kept catch based on Catch Record Cards when creel-based estimates not available.

Table 20. Time, area, and gear restrictions for early fall non-treaty commercial mainstem fisheries, 2009-2018.

Year/Fishery	Date(s)	Hours	Area	Mesh Size
2009	Aug 4-5, Aug 6-7	7pm – 7am nightly	Zones 1-5	9” min
	Aug 9-10	"	Zones 2-5	"
	Aug 18-19, Aug 20-21	8pm – 6am nightly	Zones 3-5 upstream of Kalama River	"
	Aug 25-26	"	Zone 5	"
2010	Aug 3-4, Aug 5-6	7pm – 7am nightly	Zones 1-5	9” min
	Aug 8-9	"	"	"
	Aug 10-11	"	Zones 2-5	"
	Aug 19-20	8pm – 6am nightly	Zones 4-5	"
	Aug 22-23, Aug 24-25	9pm – 6am nightly	"	"
2011	Aug 4-5	9pm – 6am nightly	Zones 1-5	9” min
	Aug 16-17, Aug 18-19	"	Zones 4-5	"
	Aug 21-22, Aug 23-24	"	"	"
	Aug 25-26, Aug 28-29	"	"	"
	Aug 30-31	"	"	"
2012	Aug 5-6	9pm – 6am nightly	Zones 1-5	9” min
	Aug 12-13, Aug 14-15	"	Zones 4-5	"
	Aug 16-17, Aug 19-20	"	"	"
	Aug 21-22, Aug 23-24	"	"	"
	Aug 26-27, Aug 28-29	"	"	"
2013	Aug 11-12, Aug 13-14	9pm – 6am nightly	Zones 4-5	9” min
	Aug 15-16, Aug 18-19	"	"	"
	Aug 20-21, Aug 22-23	"	"	"
	Aug 25-26	"	"	"
	Aug 28-29	9pm – 2am	"	"
2014 Gillnet	Aug 3-4, Aug 5-6	9pm – 6am nightly	Zones 4-5	9” min
	Aug 7-8, Aug 10-11	"	"	"
	Aug 12-13, Aug 14-15	"	"	"
	Aug 17-18, Aug 19-20	"	"	"
	Aug 21-22, Aug 24-25	"	"	"
	Aug 26-27, Aug 28-29	"	"	"
2014 Seine	Sep 1-2	9pm – 2am	"	"
	Aug 19, 21, 26, 28	6am – 7:30pm	Zones 1-2	3.5” max
2015 Gillnet	Aug 9-10, Aug 11-12	9pm – 6am nightly	Zones 4-5	9” min
	Aug 13-14, Aug 16-17	"	"	"
	Aug 18-19, Aug 20-21	"	"	"
	Aug 23-24, Aug 25-26	"	"	"
	Aug 27-28	"	"	"
	Aug 31	2am – 6am	Zones 4-5	9” min
2015 Seine	Aug 24-26, 31	6am – 8pm	Zones 2-3	3.5” max
	Aug 7-8, Aug 9-10	9pm – 6am nightly	Zones 4-5	9” min
2016 Gillnet	Aug 11-12, Aug 14-15	"	"	"
	Aug 16-17, Aug 18-19	"	"	"
	Aug 21-22, Aug 23-24	"	"	"
	Aug 25-26, Aug 28-29	"	"	"
	Aug 30-31	"	"	"
	Aug 22, 24, 29, 31	6am – 4pm	Zones 2-3 Beach	3.5” max
2016 Seine	"	"	Zones 1, 3 Purse	"
	Aug 22-23, Aug 24-25	9pm – 6am nightly	Zones 4-5	9” min
	Aug 27-28, Aug 29-30	"	"	"
2017 Gillnet	Aug 31-Sep 1	"	"	"
	Aug 21-22, Aug 23-24	9pm – 6am nightly	Zones 4-5	9” min
	Aug 26-27	"	"	"
2018 Gillnet	Aug 29-30	10pm – 5am nightly	"	"

Table 21. Landed catch from early fall non-treaty commercial mainstem fisheries, 1970-2018.

Year	Season ¹	Fishing				Sturgeon ³	
		Days	Chinook	Coho	Steelhead ²	White	Green
1970-74 Ave.	Aug 9-26	12	96,260	29,660	5,800	2,660	1,320
1975-79 Ave.	Aug 8-21	6	51,560	3,320	--	4,500	1,060
1980-84 Ave.	Aug 30-Sep 3 (2 yrs no season)	<0.5	30,600	2,480	--	680	300
1985	None	0	--	--	--	--	--
1986	Jul 30-Aug. 6	4	800	0	--	5,400	5,100
1987	Aug. 9-12	3	11,500	100	--	3,900	3,200
1988	Aug. 14-15	0.5	51,100	300	--	1,700	2,300
1989	Aug. 7-29	13	29,800	100	--	1,800	0
1990	Aug. 12-24	10	6,700	20	--	1,500	0
1991	Aug. 25-29	4	5,400	10	--	500	0
1992	Sept. 8-9	0.5	2,200	400	--	800	1,800
1993	None	0	--	--	--	--	--
1994	None	0	--	--	--	--	--
1995	None	0	--	--	--	--	--
1996	Aug. 26-29	3	4,400	0	--	300	0
1997	Aug. 4 - 25	2	1,300	1	--	1,900	1,500
1998	Aug. 4 - 26	2	1,800	0	--	2,600	700
1999	Aug. 4 - 24	2	1,400	0	--	2,900	500
2000	Aug. 3-23	3	7,400	200	--	2,800	600
2001	Aug. 5-25	7	6,600	660	--	5,700	340
2002	Aug. 4-28	10	19,500	60	--	1,700	0
2003	Aug. 4-28	8	15,700	300	--	2,600	11
2004	Aug. 3-26	8	11,300	40	--	2,500	6
2005	Aug. 4-26	8	11,400	90	--	2,100	30
2006	Aug. 2-25	8	10,700	800	--	1,900	--
2007	Aug. 2-24	4	4,000	60	--	2,700	--
2008	Aug. 3-25	7	14,400	80	--	2,800	--
2009 ⁴	Aug. 4-26	6	28,200	1,300	--	3,000	--
2010	Aug. 3-25	7	21,800	440	--	1,900	--
2011 ⁵	Aug. 4-31	8	25,000	1,600	--	1,300	--
2012	Aug. 5-29	9	23,300	300	--	1,000	--
2013	Aug 11-29	8	44,300	400	--	700	--
2014 ⁶	Aug 3-Sept 2	13	46,900	830	--	--	--
2015 ⁶	Aug 9-31	9.5	33,400	160	--	--	--
2016 ⁶	Aug 7-31	11	46,300	410	--	--	--
2017	Aug 22-Sept 1	5	14,000	220	--	500	--
2018	Aug 21-30	4	8,300	380	--	413	--

¹ Minimum mesh size: 1970-1974 7-1/4"; 1975-1979 8"; and 1980-2018 9" (except: 1980, 1983, & 1992 no mesh restr.; 8" during the following - 1982, 1987, 1988 (below Longview Br.), early-August portions of 2002 & 2003, and early/mid-August portions of 2004-2006).

² Sale of steelhead in non-treaty fisheries prohibited since 1975.

³ Sale of Green Sturgeon prohibited effective July 7, 2006. Retention of White Sturgeon prohibited during 2014-16.

⁴ One Chum salmon was landed during the 2009 August 18-19 fishing period.

⁵ Eight Pink salmon were landed during August 2011.

⁶ Estimated catch from mainstem Columbia River commercial seine fisheries not included; see Table 24.

Table 22. Landed catch from late fall mainstem and Select Area non-treaty commercial fishing seasons, 1980-2018.

Year	Mainstem Season ¹	Mainstem Fishing Days	Chinook		Coho		Chum ^{3,8}	Steelhead ⁴	Sturgeon	
			Columbia Mainstem	Select Area ²	Columbia Mainstem	Select Area ²			White ⁵	Green ⁶
1980-84 Ave.	Sep 10-Nov 16	21	17,880	15,840	101,540	19,960	1,080	--	5,740	670
1985-89 Ave.	Sep 12-Nov 15	39	165,640	16,100	377,380	40,640	1,520	--	3,780	1,320
1990	Sep 18-Oct 31	26	35,300	3,100	47,400	27,600	800	--	3,100	2,200
1991	Sep 10-Nov 5	32	33,500	2,100	324,400	82,100	400	--	2,400	3,200
1992	Sep 22-Oct 30	22	14,100	1,500	37,900	19,600	700	--	4,200	400
1993	Sep 20-Oct 20	17	16,700	300	20,600	15,500	40	--	7,100	2,200
1994	Oct 9-Oct 19	4	1,500	100	6,000	57,800	20	--	3,400	200
1995	Oct 9 & Oct 12	2	50	500	200	22,300	0	--	6,000	400
1996	Sep 16-Oct 25	17	7,600	5,000	5,600	22,400	20	--	6,700	600
1997	Sep 24-Nov 7	23	3,800	4,000	3,800	17,100	39	--	7,900	100
1998	Oct 7-Nov 6	7	1,000	2,100	300	23,600	11	--	8,200	200
1999	Sep 20-Nov 4	23	4,600	2,100	57,600	23,000	101	--	4,300	400
2000	Sep 18-Nov 1	21	3,440	2,300	110,400	58,300	26	--	5,300	700
2001	Sep 17-Oct 31	27	14,900	3,100	219,100	33,800	116	--	20	0
2002	Sep 16-Oct 31	19	16,100	8,700	99,500	70,400	12	--	4,500	200
2003	Sep 15-Oct 31	23	42,700	9,700	149,500	117,100	6	--	3,600	30
2004	Sep 19-Oct 29	16	29,800	12,600	66,500	51,900	90	--	3,300	50
2005	Sep 19-Oct 28	18	16,100	8,700	32,300	65,800	10	--	3,900	20
2006	Sep 19-Oct 25	10	15,300	4,600	27,500	37,700	3	--	3,600	--
2007	Sep 19-Oct 31	26	8,200	4,500	30,100	10,500	38	--	2,900	--
2008	Sep 18 - Oct 31	23	13,700	14,000	13,000	55,200	22	--	3,300	--
2009	Sep 24 - Oct 28	21	6,800	12,000	43,900	81,000	29	--	2,100	--
2010	Sep 22 - Oct 22	11	9,400	20,700	18,500	58,800	275	--	1,500	--
2011	Sep 18 - Oct 20	10	26,400	22,900	11,800	49,500	144	--	1,200	--
2012	Sep 19 - Oct 22	15	13,500	23,700	2,300	15,400	37	--	400	--
2013	Sep 15 - Nov 1	34	40,700	24,200	9,400	42,300	4 ⁸	--	400	--
2014 ⁷	Sep 14 - Oct 31	40	52,200	24,200	68,900	168,600	-- ⁸	--	-- ⁹	--
2015 ⁷	Sep 15 - Oct 20	10	47,800	18,200	3,700	27,400	-- ⁸	--	-- ⁹	--
2016 ⁷	Sep 18-23	2	11,600	12,400	300	34,700	-- ⁸	--	-- ⁹	--
2017	Sep 17-20	2	5,400	12,000	700	38,000	-- ⁸	--	500	--
2018	No season	0	0	6,600	0	12,100	-- ⁸	--	100	--

¹ Number of Oregon and Washington terminal areas and fishing days vary from year to year, and some early fall fisheries are included. Between 1983 and 1995 only Oregon terminal fisheries occurred. Prior to 1979, landings listed for Youngs Bay are minimal since salmon could be sold outside Youngs Bay during concurrent mainstem fishing periods.

² Includes total fall season landings from Washington terminal (1980-1982), Youngs Bay (1980-present), Tongue Point/South Channel, Blind Slough/Knapka Slough, and Deep River (1996-present), and Steamboat Slough (2000-2005) Select Area fisheries.

³ Includes landings from Select Area fall fisheries beginning in 1997.

⁴ Sale of steelhead in non-treaty commercial fisheries prohibited since 1975.

⁵ Includes landings from Select Area fall fisheries.

⁶ Green Sturgeon retention prohibited since July 7, 2006.

⁷ Estimated catch from mainstem Columbia River commercial seine fisheries not included; see Table 24.

⁸ Chum possession and sales prohibited for non-treaty commercial fisheries beginning in October, 2013.

⁹ White Sturgeon retention prohibited during 2014-16.

Table 23. Estimated landed catch from Columbia River non-treaty commercial seine fisheries, 2014-2016. ¹

2014 Commercial Pilot Seine Research Fishery											
Gear	Dates	Fishing				Chinook			Coho		
		Days	Hours	Weeks	Zones	Adults	Jacks	Totals	Adults	Jacks	Totals
Beach Seine	Aug 19-Sep 30	22	12.5-13.5	34-40	1-5	1,133	204	1,337	489	20	509
Purse Seine	Aug 19-Sep 30	22	12.5-13.5	34-40	1-5	1,306	151	1,457	542	19	561
						2,439	355	2,794	1,031	39	1,070
2015 Commercial Seine Fishery											
Gear	Dates	Fishing				Chinook			Coho		
		Days	Hours	Weeks	Zones	Adults	Jacks	Totals	Adults	Jacks	Totals
Beach Seine	Aug 24-Sep 30	23	13-14	35-40	2-4	572	109	681	55	3	58
Purse Seine	Aug 24-Sep 30	23	13-14	35-40	2-4	2,191	121	2,312	509	20	529
						2,763	230	2,993	564	23	587
2016 Commercial Seine Fishery ²											
Gear	Dates	Fishing				Chinook			Coho		
		Days	Hours	Weeks	Zones	Adults	Jacks	Totals	Adults	Jacks	Totals
Beach Seine	Aug 22-Sep 30	20	10	35-40	2-3	1	1	2	13	26	39
Purse Seine	Aug 22-Sep 30	20	10	35-40	1 & 3	1,000	113	1,113	469	96	565
						1,001	114	1,115	482	122	604

¹ Catch estimates based on observation data.

² Seine fisheries allowed one day of non-mark selective Chinook retention and sales: September 14 for beach seine and September 7 for purse seine.

Table 24. Select Area fall commercial fisheries landings, 2009-2018

Year	Site	Chinook	Coho	Pink	Chum	White Sturgeon
2009	Youngs Bay	6,565	49,329		0	72
	Tongue Point	872	16,918		1	11
	Blind Slough ¹	3,991	10,043		0	20
	Deep River	562	4,660		2	11
		11,990	80,950		3	114
2010	Youngs Bay	8,048	27,564		0	37
	Tongue Point	1,402	6,734		0	31
	Blind Slough ¹	10,205	5,201		1	45
	Deep River	1,011	19,260		11	3
		20,666	58,759		12	116
2011	Youngs Bay	12,339	26,538	13	1	No Retention
	Tongue Point	2,527	6,504	19	1	No Retention
	Blind Slough ¹	5,768	1,388	4	2	No Retention
	Deep River	2,295	15,083	6	129	No Retention
		22,929	49,513	42	133	0
2012	Youngs Bay	16,197	5,986		3	No Retention
	Tongue Point	2,466	3,902		0	No Retention
	Blind Slough ¹	3,366	1,534		2	No Retention
	Deep River	1,691	3,932		20	No Retention
		23,720	15,354		25	0
2013	Youngs Bay	14,362	14,254	3	3	39
	Tongue Point	5,843	14,165	5	0	42
	Blind Slough ¹	2,362	3,882	2	1	14
	Deep River	1,595	10,002	5	0	8
		24,162	42,303	15	4	103
2014	Youngs Bay	11,850	65,936	1		No Retention
	Tongue Point	5,471	50,752	0		No Retention
	Blind Slough ¹	4,669	24,620	0		No Retention
	Deep River	2,166	27,262	1		No Retention
		24,156	168,570	2		0
2015	Youngs Bay	6,844	11,500	0		No Retention
	Tongue Point	3,623	9,721	1		No Retention
	Blind Slough ¹	3,407	1,700	1		No Retention
	Deep River	4,305	4,524	1		No Retention
		18,179	27,445	3		0
2016	Youngs Bay	6,398	15,784	0		No Retention
	Tongue Point	2,007	11,284	0		No Retention
	Blind Slough ¹	2,027	1,493	0		No Retention
	Deep River	2,011	6,162	3		No Retention
		12,443	34,723	3		0
2017	Youngs Bay	6,277	13,603	3		115
	Tongue Point	2,251	12,534	0		82
	Blind Slough ¹	1,636	2,460	0		9
	Deep River	1,870	9,382	3		31
		12,034	37,979	6		237
2018	Youngs Bay	2,945	4,229	0		52
	Tongue Point	1,035	3,682	1		32
	Blind Slough ¹	1,401	1,477	0		23
	Deep River	1,223	2,723	1		10
		6,604	12,111	2		117

¹ Includes August target Chinook fishing periods in Knappa Slough.

² Chum possession and sales prohibited beginning in October, 2013 in all Select Area fishing sites.

Table 25. Angler trips and catch in the Buoy 10 recreational fishery, 1982-2018.¹

Fishery	Angler Trips	Chinook		Coho		Total	
		Catch	Catch/ Trip	Catch	Catch/ Trip	Catch	Catch/ Trip
1982 Buoy 10 Total	17,336	723	0.04	18,857	1.09	19,580	1.13
1983 Buoy 10 Total	7,128	604	0.08	3,574	0.50	4,178	0.59
1984 Buoy 10 Total	67,365	12,177	0.18	74,370	1.10	86,547	1.28
1985 Buoy 10 Total	32,156	2,655	0.08	25,387	0.79	28,042	0.87
1986 Buoy 10 Total	102,190	15,600	0.15	120,422	1.18	136,022	1.33
1987 Buoy 10 Total	124,594	42,100	0.34	47,170	0.38	89,270	0.72
1988 Buoy 10 Total	186,051	30,770	0.17	143,417	0.77	174,187	0.94
1989 C&H Total	7,922	492	0.06	3,195	0.40	3,687	0.47
1989 Buoy 10 Total	144,848	15,900	0.11	78,720	0.54	94,620	0.65
1989 Grand Total	152,770	16,392	0.11	81,915	0.54	98,307	0.64
1990 C&H Total	3,225	54	0.02	28	0.01	82	0.03
1990 Buoy 10 Total	76,411	5,149	0.07	18,435	0.24	23,584	0.31
1990 Grand Total	79,636	5,203	0.07	18,463	0.23	23,666	0.30
1991 C&H Total	2,759	39	0.01	1,151	0.42	1,190	0.43
1991 Buoy 10 Total	168,921	11,549	0.07	207,527	1.23	219,076	1.30
1991 Grand Total	171,680	11,588	0.07	208,678	1.22	220,266	1.28
1992 Buoy 10 Total	115,481	10,655	0.09	43,082	0.37	53,737	0.47
1993 Buoy 10 Total	75,774	5,288	0.07	20,932	0.28	26,220	0.35
1994 Buoy 10 Total	9,253	0	0.00	1,795	0.19	1,795	0.19
1995 Buoy 10 Total	25,186	607	0.02	5,026	0.20	5,633	0.22
1996 Buoy 10 Total	18,034	1,409	0.08	4,537	0.25	5,946	0.33
1997 Buoy 10 Total	55,725	13,153	0.24	20,357	0.37	33,510	0.60
1998 Buoy 10 Total	29,998	5,784	0.19	3,175	0.11	8,959	0.30
1998 Astoria Bridge Total	11,044	3,484	0.32	3,142	0.28	6,626	0.60
1998 Grand Total	41,042	9,268	0.23	6,317	0.15	15,585	0.38
1999 Buoy 10 Total	49,568	9,850	0.20	8,960	0.18	18,810	0.38
2000 Buoy 10 Total	72,518	6,085	0.08	21,478	0.30	27,563	0.38
2001 Buoy 10 Total	125,829	12,709	0.10	132,035	1.05	144,744	1.15
2002 Buoy 10 Total	84,434	19,438	0.23	6,205	0.07	25,643	0.30
2003 Buoy 10 Total	88,827	16,316	0.18	54,440	0.61	70,756	0.80
2004 Buoy 10 Total	68,818	16,016	0.23	15,169	0.22	31,185	0.45
2005 Buoy 10 Total	55,183	9,287	0.17	6,878	0.12	16,165	0.29
2006 Buoy 10 Total	40,608	1,710	0.04	3,683	0.09	5,393	0.13
2007 Buoy 10 Total	36,064	3,776	0.10	8,356	0.23	12,132	0.34
2008 Buoy 10 Total	32,467	8,349	0.26	8,573	0.26	16,922	0.52
2009 Buoy 10 Total	72,803	5,941	0.08	48,127	0.66	54,068	0.74
2010 Buoy 10 Total	52,300	6,807	0.13	7,980	0.15	14,787	0.28
2011 Buoy 10 Total	49,409	10,919	0.22	7,614	0.15	18,533	0.38
2012 Buoy 10 Total	65,070	18,550	0.29	7,385	0.11	25,935	0.40
2013 Buoy 10 Total	65,767	22,594	0.34	7,620	0.12	30,214	0.46
2014 Buoy 10 Total	107,522	26,788	0.25	57,744	0.54	84,532	0.79
2015 Buoy 10 Total	108,319	36,535	0.34	36,920	0.34	73,455	0.68
2016 Buoy 10 Total	94,950	17,780	0.19	9,182	0.10	26,962	0.28
2017 Buoy 10 Total	93,547	28,398	0.30	18,834	0.20	47,232	0.50
2018 Buoy 10 Total	67,318	11,620	0.17	6,761	0.10	18,381	0.27

¹ Includes catch and effort from the 1989-1991 Chinook/Hammond fisheries and 1998 Astoria Bridge fishery.

Table 26. Fall salmon angler trips and catch on the lower Columbia River, August-October, 1980-2018.

Year	Angler Trips	Chinook		Coho		Steelhead	
		Adults	Jacks	Adults	Jacks	Kept	Released
1980	25,262	1,155	390	85	81	213	0
1981 ¹	29,213	1,022	1,174	139	579	776	0
1982 ¹	20,909	117	696	96	803	0	0
1983 ¹	26,817	962	1,250	174	2,329	79	0
1984 ¹	38,837	1,472	1,316	715	538	1,747	684
1985 ¹	44,793	2,032	5,449	1,106	444	3,418	593
1986	47,855	2,146	3,136	4,027	503	3,390	1,188
1987	59,322	4,357	1,437	930	3,047	2,274	1,038
1988	51,831	4,443	1,492	475	1,491	3,905	603
1989	64,911	5,523	935	184	382	3,698	897
1990	57,180	3,568	1,257	351	2,919	2,503	588
1991	51,470	2,640	530	1,090	1,277	4,442	850
1992	48,993	1,871	1,401	586	1,511	6,443	879
1993	50,011	3,694	512	551	52	5,958	1,134
1994 ¹	27,678	229	37	941	83	2,854	710
1995 ¹	50,165	4,563	1,172	199	85	5,067	591
1996	55,437	9,324	448	774	61	3,270	386
1997	64,477	8,447	389	813	504	3,065	494
1998 ¹	65,884	6,993	629	595	574	2,747	564
1999 ¹	70,673	8,652	322	1,276	502	4,046	1,282
2000	80,759	7,620	1,332	1,620	2,429	5,050	1,957
2001	97,253	9,355	804	3,068	381	5,034	2,141
2002	110,796	21,182	757	3,011	367	3,521	1,931
2003	113,330	26,195	465	1,145	21	4,171	2,008
2004 ²	87,404	17,719	497	1,273	62	2,479	1,006
2005 ^{1,2}	86,594	18,256	184	586	21	2,641	1,182
2006 ^{1,2}	89,287	13,398	318	1,173	38	4,248	1,723
2007 ^{1,2}	79,793	8,089	634	881	28	4,746	1,693
2008 ^{1,2}	80,772	10,675	770	2,248	327	2,591	1,213
2009 ^{1,2}	117,975	14,711	1,843	3,989	45	7,325	4,380
2010 ^{1,2}	114,285	17,326	949	1,584	19	6,034	3,394
2011 ^{1,2}	147,343	28,169	2,551	1,667	17	12,053	7,729
2012 ^{1,2,3}	128,831	22,438	4,175	884	95	5,618	3,514
2013 ^{2,3}	141,481	31,879	2,583	951	240	6,139	6,471
2014 ^{1,2,3}	143,946	26,336	2,688	5,761	115	6,375	5,269
2015 ^{1,2,3}	131,374	41,525	1,909	995	99	4,212	2,605
2016 ^{1,2,3}	133,300	25,133	1,780	1,317	98	1,852	1,168
2017 ^{1,2,3}	114,721	26,138	1,701	3,114	62	237	881
2018 ^{1,2}	69,629	9,802	697	650	32	1,104	861

¹ Partial Chinook closure year.

² One adult Chinook daily bag limit (adopted during all or part of the fishery).

³ Includes 7-day mark-selective fisheries (MSF) in 2012, 2014, 2015, and 2017, a 20-day MSF in 2013 and a 21-day MSF in 2016.

Table 27. Mainstem fall Chinook recreational fisheries upstream of Bonneville Dam, 2003-2018.

Bonneville Dam to Hwy 395 Recreational Fishery		
Year	Kept Adult Chinook	Chinook Season
2003	4,005	Aug 1 - Dec 31
2004	3,465	Aug 1 - Dec 31
2005	3,515	Aug 1 - Dec 31, Chinook closed Oct 1 - 19
2006	2,224	Aug 1 - Dec 31, Chinook closed Sep 16 - 29
2007	2,763	Aug 1 - Dec 31, Chinook closed Sep 20 - 28
2008	3,125	Aug 1 - Dec 31
2009	3,349	Aug 1 - Dec 31
2010	5,272	Aug 1 - Dec 31
2011	5,212	Aug 1 - Dec 31
2012	5,974	Aug 1 - Dec 31
2013	19,995	Aug 1 - Dec 31
2014	9,864	Aug 1 - Dec 31
2015	13,260	Aug 1 - Dec 31
2016	5,802	Aug 1 - Dec 31
2017	5,851	Aug 1 - Oct 21
2018 ¹	958	Aug 1 - Sept 12, salmon closed Sep 13-Dec 31
Hanford Reach Recreational Fishery		
Year	Kept Adult Chinook	Chinook Season
2003	6,457	Aug 16 - Oct 22
2004	8,082	Aug 16 - Oct 22
2005	7,542	Aug 16 - Oct 22
2006	4,055	Aug 16 - Oct 22
2007	4,614	Aug 16 - Oct 22
2008	5,638	Aug 1 - Oct 22
2009	6,553	Aug 1 - Oct 15
2010	10,985	Aug 1 - Oct 21
2011	11,614	Aug 1 - Oct 21
2012	13,097	Aug 1 - Oct 21
2013	24,906	Aug 1 - Oct 31
2014	28,679	Aug 1 - Oct 31
2015	33,885	Aug 16 - Oct 31
2016	16,859	Aug 16 - Oct 31
2017	11,496	Aug 16 - Oct 31
2018 ¹	8,672	Aug 16 - Oct 16

¹ 2018 Preliminary

Table 28. Treaty fishery open area and Spring Creek Sanctuary restrictions during fall season commercial set gillnet seasons, 1995-2018.

Year	Open Area	Spring Creek Sanctuary
1995	Zone 6	Large sanctuary all season
1996	All of Zone 6 except closed below Hood River Bridge Sep 23-28	Large sanctuary all season
1997	All of Zone 6 except closed below Hood River Bridge Sep 9-13	Large sanctuary Aug 7-Sep 6. Enlarged sanctuary from Light #27 to Light #35, Washington shore to mid-channel, Sep 17-20
1998	All of Zone 6 except closed below Hood River Bridge Sep 8-12	Large sanctuary Sep. 1-12. Enlarged sanctuary from Light #27 to Light #35, Washington shore to mid-channel, September 15-28
1999	Zone 6	Small sanctuary all season
2000	Zone 6	Large sanctuary all season
2001	Zone 6	Large sanctuary Aug 28-Sep 8. Small sanctuary Sep 11-29
2002	Zone 6	Large sanctuary Aug 28-Aug 31. Small sanctuary Sep 11-28
2003	Zone 6	Small sanctuary all season
2004	Zone 6	Small sanctuary all season
2005	Zone 6	Small sanctuary all season
2006	Zone 6	Large sanctuary all season
2007	Zone 6	Large sanctuary all season
2008	Zone 6	Large sanctuary Aug 19 – Sept 26. Sept 30-Oct 10 reduced to 50' radius. No sanctuary Oct 20-23
2009	Zone 6	Large sanctuary 5 of 6 weekly fishing periods. No min. mesh restrictions all season
2010	Zone 6	Small sanctuary all season, except no sanctuary final week (Oct 19-22). 8" min. mesh restrictions on final 3 weekly periods
2011	Zone 6	Standard sanctuary first 5 openings. Small sanctuary final two weeks. 8" min. mesh restrictions all season
2012	Zone 6	Standard sanctuary first 4 openings. Small sanctuary last 3 openings. 8" min. mesh restriction all season.
2013	Zone 6	Standard sanctuary first 3 openings. Small sanctuary last 4 openings. 8" min. mesh restriction all season.
2014	Zone 6	Standard sanctuary first 5 openings. Small Sanctuary last 4 openings. 8" min mesh restriction all season
2015	Zone 6	Standard sanctuary first 5 openings. Small sanctuary last two openings. 8" min mesh restriction all season
2016	Zone 6	Standard sanctuary first 4 openings and 6th opening. Small sanctuary 5th opening and last three openings. 8" min mesh restriction for the first seven out of nine openings.
2017	Zone 6	Standard sanctuary all openings. 8" min mesh restriction for all openings.
2018	Zone 6	Standard sanctuary for first four openings. Small Sanctuary for last two. 8" min mesh restriction for all openings.

Table 29. Fall treaty fishery mainstem Columbia River landings, 1980-2018.

Year	Season ²	Fishing Days ³	Numbers Landed ¹			
			Chinook Adults	Coho	Steelhead ⁴	White Sturgeon ⁵
80-84 ave ⁶	Aug 6- Nov 5	15	41,760	1,640	19,720	260
85-89 ave ⁷⁻¹¹	Aug 23-Oct 15	36.6	116,620	11,880	63,260	3,125
1990 ¹²	Aug. 8-Sept. 29	34	79,300	2,900	30,700	1,700
1991 ¹³	Aug. 12-Oct. 28	20	51,100	12,800	41,100	--
1992	Aug. 10-Oct. 17	32	28,100	1,000	52,400	100
1993	Aug. 9-Oct. 2	26	30,400	1,000	28,800	100
1994 ¹⁴	Aug. 29-Oct. 15	10	33,700	1,300	15,500	500
1995	Aug. 29-Sept. 15	9	41,400	400	20,400	400
1996	Sept. 2-Sept. 28	17	63,200	700	19,000	300
1997	Aug. 27-Sept. 20	16	65,000	600	22,700	<100
1998	Aug. 25-Sept. 25	22	44,700	1,500	12,600	<100
1999	Aug. 31-Oct. 2	22	77,200	2,300	17,300	0
2000	Aug. 30-Sept. 23	17	52,100	6,300	15,500	0
2001 ¹⁵	Aug. 28-Sept. 29	18	103,900	5,400	29,200	806
2002	Aug 28-Sep 28	18.5	129,700	1,600	13,800	300
2003 ¹⁶	Aug 26-Oct 11	27.5	123,600	5,800	14,900	200
2004	Aug 25-Oct 16	30	127,600	10,300	14,600	64
2005	Aug 22-Sept. 30	25	113,500	5,400	13,700	138
2006	Aug 21-Oct 6	29.5	76,290	7,577	21,130	78
2007 ¹⁷	Aug 22-Oct 6	25.5	36,782	8,030	19,457	90
2008 ¹⁷	Aug 19 – Oct 23	37	106,625	21,625	26,339	94
2009 ¹⁷	Aug 24- Oct 1	23	98,622	15,675	36,755	34
2010 ¹⁷	Aug 24- Oct 22	25.5	132,642	11,485	26,733	150
2011 ¹⁷	Aug 22- Oct 6	28.5	114,247	22,941	15,034	853
2012 ¹⁷	Aug 21-Oct 4	22.5	82,879	7,070	15,211	109
2013 ¹⁷	Aug 19-Oct 3	27.5	227,568	8,850	17,156	77
2014 ¹⁷	Aug 18-Oct 16	41.5	264,458	40,480	25,551	76
2015 ¹⁷	Aug 17-Oct 2	33.5	258,957	2,956	16,571	13
2016 ¹⁷	Aug 22-Oct 21	40.5	132,167	6,114	13,555	54
2017 ¹⁷	Aug 21-Oct 5	30.5	117,463	8,731	8,439	71
2018 ¹⁷	Aug 27-Oct 6	22.0	54,653	4,526	6,208	348

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

² For Commercial Gillnet openings - Minimum mesh size: 1970-1974 none; 1975 7-1/2"; 1976-1982 8"; 1983 none; 1984 none, except 8" Oct 9-15; 1985 none, except 8" Sep 14-28; 1986 none, except 8" Sep 6-Oct 4; 1987 none; 1988 none, except 8" Aug 17-27 and Sep 18-24 and 8" and 9" test fishery Sep 28-Oct 1; 1989 8" except none Aug 7-12; 1990 8" except none Sep 3-5, Sep 12-15 below Hood River Br., Sep 17-22, and Sep 24-29; 1991-97 none; 1998 8"; 1999 none except 8" Sep 15-18 and Sep 29-Oct 2; 2000-2002 none.

³ Mainstem commercial seasons only, unless otherwise noted.

⁴ Sales to licensed buyers during sockeye and fall seasons only through 1984. Sales to licensed buyers, general public and C&S catch from 1985-present.

⁵ No sturgeon sales allowed in set net fisheries since 1991. Includes landings in fall set-line fisheries.

⁶ Includes Nov 1-5 coho fishery below Klickitat River.

⁷ Spring Creek sanctuary area open to fishing Aug 23-28 and Aug 29-Sep 3.

⁸ Includes Sep 29-Oct 4 dipnet and experimental gillnet fishery. An additional catch of 1,000 Chinook occurred above Priest Rapids Dam. Over half of the coho catch (24,100) occurred in the Klickitat River dipnet fishery.

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

¹⁰ Includes Sep 28-Oct 1 test fishery in John Day Pool. No sturgeon sales allowed after Sep 3. An additional catch of 2,300 Chinook and an estimated 300 steelhead occurred above Priest Rapids

¹¹ No sturgeon sales allowed. An additional catch of 800 Chinook occurred above Priest Rapids Dam. Includes 6,100 coho captured in an extended Klickitat River dipnet season.

¹² An additional 200 Chinook catch occurred above Priest Rapids Dam. Includes 1,900 coho captured in an extended Klickitat River dipnet season.

¹³ Includes 5,500 coho captured in an extended Klickitat River dipnet season.

¹⁴ An additional catch of 570 Chinook and 70 steelhead occurred above Priest Rapids Dam. An additional catch of 220 Chinook and 80 steelhead occurred above McNary Dam.

¹⁵ Target sturgeon gillnet seasons adopted for Zone 61 (Bonneville Pool) during November 14-30 and Zone 63 (John Day Pool) during November 14-December 7.

¹⁶ Target sturgeon gillnet season adopted for Zone 61 (Bonneville Pool) during December 1-14. No sturgeon were landed.

¹⁷ Includes all fall season harvest – Aug 1-Dec 31.

Table 30. Fall treaty fisheries catch composition, 2018.¹

Fishery			Numbers Landed				
			Chinook ²	Steelhead	Sturgeon	Coho ²	Walleye
Platform, Hook & Line	Weeks 31-34 (8/1-25)	Ticket	1,420	423	0	6	20
		Non-Ticket	251	75	0	5	4
	Late Fall (10/8-12/31)	Ticket	416	155	0	253	0
		Non-Ticket	74	357	0	381	0
	PHL Total:		2,161	1,010	0	645	24
Commercial Gillnet	Week 35 (8/27-8/30)	Ticket	7,445	275	0	205	4
		Non-Ticket	1,314	114	0	36	6
		Total	8,759	389	0	241	10
	Week 36 (9/3-9/7)	Ticket	15,086	1,070	0	957	4
		Non-Ticket	2,662	189	0	169	18
		Total	17,748	1,259	0	1,126	22
	Week 37 (9/10-9/14)	Ticket	11,946	724	0	712	3
		Non-Ticket	2,108	128	8	385	1
		Total	14,054	852	8	1,097	4
	Week 38 (9/19-9/22)	Ticket	6,262	945	0	557	2
		Non-Ticket	1,105	167	4	108	1
		Total	7,367	1,112	4	665	3
	Week 39 (9/26-9/28)	Ticket	4,426	737	0	321	8
		Non-Ticket	781	130	11	81	1
		Total	5,207	867	11	402	9
	Week 40 (10/32-10/6)	Ticket	2,902	611	0	241	3
		Non-Ticket	585	108	0	109	1
		Total	3,487	719	0	350	4
	GN Total:		56,622	5,198	23	3,881	52
	Fall Setline	Weeks 31-34, 42-44 (8/1-25, 10/17-31)			325		
	Grand Total			58,783	6,208	348	4,526

¹ Ticketed catch estimates based on preliminary landings. Non-ticketed catch includes C&S (take home) and sales directly to the public. Includes sales from Zone 6 and downstream of Bonneville Dam, consistent with state/tribal MOUs/MOAs. Commercial gillnet catch includes platform and hook and line catch during the statistical week that the gillnet opening occurred.

² Includes adults and jacks

Table 31. Aerial set net counts for Zone 6 treaty Indian fall gillnet salmon fisheries during statistical weeks, 35-40, 1999-2018.

Year	Number of Set Nets		
	Average	Minimum	Maximum
1999	435	366	468
2000	527	485	626
2001	370	296	452
2002	364	306	436
2003	275	183	331
2004	231	113	297
2005	339	187	450
2006	387	205	502
2007	429	205	528
2008	555	443	691
2009	619	403	707
2010	634	441	758
2011	588	434	672
2012	629	343	762
2013	595	403	726
2014	499	412	571
2015	520	401	671
2016	542	423	703
2017	458	396	515
2018	489	301	622

Table 32. Fall season treaty impact rates on natural-origin and total B-Index (since 2008) upriver summer steelhead, 1999-2018.¹

	Natural Origin Impacts			B-Index Allowed	
	A-Index	B-Index	Total B	Wild	Total B
1999	5.4%	12.6%		15%	
2000	4.3%	14.3%		15%	
2001	4.0%	11.5%		15%	
2002	2.7%	3.4%		15%	
2003	2.5%	14.9%		15%	
2004	3.2%	11.1%		15%	
2005	3.8%	12.3%		15%	
2006	5.2%	16.0%		15%	
2007	3.6%	11.6%		15%	
2008	4.6%	13.3%	14.7%	NA	15%
2009	5.2%	14.4%	17.1%	NA	20%
2010	4.0%	13.3%	15.5%	NA	20%
2011	5.9%	32.7%	25.0%	NA	20%
2012	6.0%	12.7%	13.1%	NA	15%
2013	6.6%	15.6%	13.8%	NA	13%
2014	7.6%	16.4%	13.4%	NA	20%
2015	6.3%	14.4%	15.1%	NA	13%
2016	8.6%	15.6%	10.0%	NA	20%
2017	6.9%	8.3%	6.0%	NA	13%
2018	4.5%	5.7%	5.3%	NA	13%
5-yr Ave	6.8%	12.1%	10.0%		16%
10-yr Ave	6.2%	14.9%	13.4%		17%

¹ Beginning in 2008, under the U.S. v Oregon Management Agreement, treaty fisheries during the fall season are managed for total B-Index impacts (not just wild). The result is that treaty and non-treaty impacts are no longer additive when comparing to allowed rates. All data subject to change. Includes sales to licensed buyers only prior to 1994. Includes sales to the general public and C&S catch beginning in 1994.

² Run sizes prior to 2016 are not corrected for unclipped hatchery origin fish and is therefore unclipped harvest impacts over-estimate of the true wild impact rate.

Table 33. Fall season non-treaty harvest and impact rates on natural-origin A- and B-Index upriver summer steelhead, 1999-2018.¹

Year	Harvest Mortalities		Harvest Impact Rate		Allowed Impact Rate	
	A-Index	B-Index	A-Index	B-Index	A-Index	B-Index
1999	380	41	0.7%	1.1%	2.0%	2.0%
2000	642	123	1.0%	1.5%	2.0%	2.0%
2001	978	134	0.7%	1.1%	2.0%	2.0%
2002	889	483	1.0%	1.5%	2.0%	2.0%
2003	1,007	198	1.5%	3.1%	2.0%	2.0%
2004	734	132	1.2%	1.4%	2.0%	2.0%
2005	671	200	1.1%	2.1%	2.0%	2.0%
2006	751	164	1.2%	1.9%	2.0%	2.0%
2007	792	231	1.0%	2.6%	2.0%	2.0%
2008	406	171	0.5%	0.9%	2.0%	2.0%
2009	1,252	224	0.8%	1.6%	2.0%	2.0%
2010	830	326	0.7%	1.5%	2.0%	2.0%
2011	1,356	92	1.3%	1.2%	2.0%	2.0%
2012	742	116	1.3%	1.7%	2.0%	2.0%
2013	1,292	35	1.4%	1.2%	2.0%	2.0%
2014	1,316	83	1.2%	0.6%	2.0%	2.0%
2015	997	61	1.2%	1.0%	2.0%	2.0%
2016	345	53	1.2%	1.5%	2.0%	2.0%
2017	307	15	1.1%	2.0%	2.0%	2.0%
2018	293	24	1.4%	1.0%	2.0%	2.0%
5-yr Ave	652	47	1.2%	1.2%	2.0%	2.0%
10-yr ave	873	103	1.2%	1.3%	2.0%	2.0%

¹ Harvest mortalities are non-retention mortalities from commercial and recreational fisheries occurring in August-October downstream of The Dalles Dam and in August-December upstream of The Dalles Dam. Prior to 2008, natural-origin release mortalities displayed include an unknown number of unclipped hatchery-origin fish. Estimates for 2017 and 2018 are preliminary, and all data are subject to change.

Table 34. Lower Columbia Natural (LCN) Coho ocean and in-river exploitation rates, 2005-2018.

Year ¹	Exploitation Rates			
	Ocean	In-River ²	Actual	Allowed
2005	11%	7%	18%	21%
2006	7%	7%	13%	15%
2007	12%	7%	19%	20%
2008	4%	4%	7%	8%
2009	11%	11%	21%	20%
2010	8%	7%	14%	15%
2011	6%	8%	14%	15%
2012	10%	3%	13%	15%
2013	10%	3%	13%	15%
2014	12%	5%	17%	23%
2015	17%	7%	24%	23%
2016	8%	2%	9%	18%
2017	7%	4%	11%	18%
2018	9%	2%	11%	18%

¹ LCN Coho listed under the federal Endangered Species Act in August 2005.

² Includes non-treaty mainstem and Select Area commercial and sport fisheries.

Table 35. Lower Columbia River tule fall Chinook exploitation rates, 2006-2018.¹

Year	Exploitation Rates			
	Ocean	Columbia ²	Total	Allowed
2006	35%	11%	46%	49%
2007	41%	9%	50%	42%
2008	27%	7%	35%	41%
2009	23%	11%	34%	38%
2010	29%	6%	35%	38%
2011	24%	11%	35%	37%
2012	33%	10%	43%	41%
2013	24%	9%	33%	41%
2014	33%	7%	40%	41%
2015	28%	7%	35%	41%
2016	26%	10%	36%	41%
2017	28%	8%	36%	41%
2018	26%	9%	35%	38%

¹ Preliminary pending review

² Fall season non-treaty fisheries.

Table 36. Upriver Bright and Snake River natural-origin fall Chinook in-river harvest rates, 2007-2018.

Management Guidelines	Pre-Season		Post Season	
	ESA Allowed	Planned Total	ESA Allowed	Actual Total
Fall Chinook ²				
Snake River natural-origin	45.00%	38.24%	31.25%	29.57%
Non-Treaty	15.00%	8.24%	8.25%	9.35%
Treaty	30.00%	30.00%	23.00%	20.22%
LCN Tule ER (Ocean and Columbia R.)	38.0%	36.3%	38.0%	34.5%
Upriver Summer Steelhead ³				
Non-Treaty natural-origin A-Index Steelhead	2.0%	2.0%	2.0%	1.4%
Non-Treaty natural-origin B-Index Steelhead	2.0%	2.0%	2.0%	1.0%
Treaty Total B-Index Steelhead	15.0%	15.0%	13.0%	5.3%
LCR Coho ER (Ocean and Columbia R.)	18.0%	15.3%	18.0%	11.1%
Lower Columbia Chum	5.0%	0.03%	5.0%	0.05%

¹ Adults only. All data preliminary.

² Non-treaty data includes fisheries from Buoy 10 upstream to Hwy. 395, near Pasco, WA.

³ Non-treaty summer steelhead impacts include tributary catch from "dip-ins".

Table 37. Upriver Bright and Snake River natural-origin fall Chinook in-river harvest rates, 2007-2018.

Upriver Bright Harvest Rates				
Year	Treaty	Non-Treaty	Total	Post-Season Allowed
2007	16.02%	6.60%	22.62%	31.29%
2008	19.91%	7.63%	27.54%	31.25%
2009 ¹	27.35%	10.59%	37.94%	31.25%
2010	18.02%	7.95%	25.97%	33.25%
2011	19.55%	13.40%	32.95%	45.00%
2012	20.53%	14.22%	34.75%	45.00%
2013	20.60%	11.03%	31.63%	45.00%
2014	22.42%	12.47%	34.90%	45.00%
2015	20.07%	11.46%	31.53%	45.00%
2016	23.30%	14.80%	38.10%	45.00%
2017	26.30%	16.10%	42.40%	45.00%
2018	20.22%	9.35%	29.57%	31.25%
Snake River Natural Origin Harvest Rates				
Year	Treaty	Non-Treaty	Total	Post-Season Allowed
2007	16.02%	6.60%	22.62%	31.29%
2008	19.91%	7.63%	27.54%	31.25%
2009 ¹	27.35%	10.59%	37.94%	31.25%
2010	18.02%	7.95%	25.97%	33.25%
2011	19.55%	13.40%	32.95%	45.00%
2012	20.53%	14.22%	34.75%	45.00%
2013	20.70%	10.58%	31.29%	45.00%
2014	22.37%	12.23%	34.60%	45.00%
2015	20.12%	11.21%	31.33%	45.00%
2016	23.30%	14.60%	37.90%	45.00%
2017	26.30%	15.95%	42.25%	45.00%
2018	20.22%	9.35%	29.57%	31.25%

¹ Due to the final SRW abundance, post-season allowed harvest rates were reduced from 27% and 11% for treaty and non-treaty fisheries, respectively.