2022 JOINT STAFF REPORT:
STOCK STATUS AND FISHERIES FOR
SPRING CHINOOK, SUMMER CHINOOK, SOCKEYE,
STEELHEAD, AND OTHER SPECIES

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INTRODUCTION

This report describes winter, spring, and summer season fisheries in the mainstem Columbia River, and includes a review of those fisheries that occurred in 2021. This is the second report of an annual series produced by the Joint Columbia River Management Staff of the Oregon Department of Fish & Wildlife (ODFW) and Washington Department of Fish & Wildlife (WDFW) prior to each major Columbia River Compact/Joint State hearing. The *U.S. v Oregon* Technical Advisory Committee (TAC) has contributed to and reviewed this report.

THE COMPACT/JOINT STATE PROCESS

The Columbia River Compact is an agreement between the states of Oregon and Washington through which the two states set commercial fishing regulations for concurrent jurisdiction waters of the Columbia River. The Columbia River Compact was established in 1915 by the respective state legislatures to resolve the difficulties which arose from the states unilaterally establishing commercial fishing seasons and regulations. The Compact provides that neither state may make, change, alter, or amend its fishing regulations without the consent and approbation of the other. Congress ratified the Compact in 1918.

The Compact is interpreted as being applicable only to commercial fisheries; however, in practice, the states also apply the principle of joint state management to regulation of recreational fisheries occurring in concurrent jurisdiction waters of the Columbia River.

Typically, public hearings are convened to provide a forum in which the states may discuss, negotiate, and reach agreement on specific fishing regulations. The states are typically represented by delegates of 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 fisheries.

When addressing regulations for Columbia River fisheries, the states consider the effect on escapement, treaty rights, and the impact on species listed under the Endangered Species Act (ESA). Working together under the principles of the Compact, the states have the responsibility to address the allocation of limited resources between recreational, commercial, and treaty 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 February 15 hearing, the Select Area commercial winter, spring, and summer fisheries and treaty commercial fisheries will be considered; the mainstem Columbia River recreational spring Chinook fishery will be considered in a hearing scheduled for February 23. Other general permanent fishery rules may also be considered. Modifications to seasons adopted at these hearings and other recreational and commercial seasons will be considered at future hearings as additional information on fish runs and ongoing fisheries become available.

STOCKS CONSIDERED

Spring Chinook

Spring Chinook primarily enter freshwater during February through June to spawn in Columbia River tributaries during August through October. Juveniles generally emigrate from freshwater as yearlings. Returning adults are comprised of lower river (originating from tributaries downstream of Bonneville Dam) and upriver (originating from tributaries upstream of Bonneville Dam) stocks. Adult returns are comprised of Age-4, Age-5, and Age-6 fish. Age-3 fish are referred to as "jacks" and are typically males that return after spending only one year in the ocean. Spring Chinook entering the lower Columbia River during mid-February through March are predominantly larger Age-5 fish destined for lower river tributaries. Age-5 Chinook are dominant throughout March and reach peak abundance in the lower Columbia River by late March. Smaller Age-4 fish enter in increasing numbers after mid-March, reaching peak abundance during April. Upriver spring Chinook of all ages returning to areas upstream of Bonneville Dam begin to enter the Columbia River in substantial numbers after mid-March and generally reach peak abundance at Bonneville Dam in late April to mid-May. Most wild spring Chinook entering the Columbia River are listed under the federal ESA.

Willamette River Spring Chinook

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

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

Historically, wild spring Chinook spawned in nearly all eastside Willamette tributaries upstream of Willamette Falls. During 1952–1968, the U.S. Army Corps of Engineers (USACE) constructed dams on all major eastside tributaries upstream of Willamette Falls, blocking more than 400 stream miles of wild spring Chinook rearing area. Some residual spawning areas remain, including about two-thirds of the McKenzie River and about one-quarter of the North Santiam River; however, upstream dams affect these areas through alteration of flows and temperature. The majority of the Clackamas River Basin remains accessible to natural production, although a three-dam hydroelectric complex (river miles (RM) 23–31) has impacted migration and rearing conditions in the mainstem Clackamas River. The percentage of wild fish in the Willamette spring Chinook population was previously estimated at about 10–12%, with the majority destined for the McKenzie River. However, the wild percentage of the run has been higher in recent years, averaging 22% (range 15–34%) since 2010. Passage over Leaburg Dam on the McKenzie River

and North Fork Dam on the Clackamas River, plus redd counts and dam counts in the North Santiam River, are currently used to index the status of wild spring Chinook populations in the Willamette River Basin. The National Marine Fisheries Service (NMFS) classified spring Chinook destined for the Willamette River upstream of Willamette Falls and the Clackamas River into a single ESU (Evolutionarily Significant Unit) and listed the wild component as a threatened species under the ESA effective May 24, 1999.

Since accurate Willamette River spring Chinook run size estimates became available in 1946 there have been large variations in annual population estimates. The 1953 run was generally believed to be the largest on record, at 125,000 fish, which predominantly consisted of wild fish. The 1953 run was eclipsed by a return of 130,600 spring Chinook in 1990, comprised primarily of hatchery origin fish. A new record run was established in 2004 with a return of 144,400 fish, again comprised primarily of hatchery fish. Previously the 1975 run was considered the lowest on record with 40,775 fish, which consisted primarily of wild fish. The runs in 1996 and 1997 were lower yet with 34,765 and 35,303 fish, respectively. More recently, 2008 and 2019 had returns that were the lowest on record with run sizes of 27,356 and 29,594, respectively, both of which have notable reductions in hatchery origin fish.

Four large hatcheries upstream from Willamette Falls produce up to 5.0 million smolts annually, plus additional fingerlings to seed reservoir and stream areas. About 75% of this hatchery production is funded by USACE as mitigation for the loss of fishing and harvest opportunities due to dam construction. These hatcheries are located on the McKenzie River (McKenzie and Leaburg Hatcheries), North Santiam River (Marion Forks Hatchery and Minto Ponds), South Santiam River (South Santiam Hatchery), and the Willamette River (Willamette Hatchery and Dexter Ponds). Downstream of Willamette Falls, hatchery releases from the Clackamas Hatchery into the Clackamas River total about 0.6 million smolts annually and is funded by NOAA Fisheries (Mitchell Act), Portland General Electric, and the City of Portland.

2021 Return

The 2021 estimate of Willamette River spring Chinook entering the Columbia River was 43,148 (adult and jack) fish. This represents an 9% decrease from the 2020 return of 47,327 fish and was 82% of the preseason forecast of 52,400 (Table 2). The return estimate was comprised of 1,840 Age-3, 29,245 Age-4, 12,063 Age-5, and 0 Age-6 Chinook. Approximately 19% (8,119) of the 2021 Willamette spring Chinook returning to the mouth of the Columbia River were unmarked fish which is less than the previous five-year average of 26.4%. The estimated return to the Columbia River mouth includes fish destined for the Clackamas River.

2021 Escapement

Passage of spring Chinook over Willamette Falls in 2021 totaled 30,025 fish (Tables 3 and 4). From 1980 to 2021, the number of spring Chinook passing Willamette Falls has ranged from 14,672 to 95,970 with the previous ten-year average of 34,796 fish. Of the fish passing Willamette Falls in 2021, 25,402 were hatchery origin which met the pre-season hatchery fish escapement goal of 22,000 specified in the Willamette Fishery Management and Evaluation Plan (FMEP).

2022 Forecast

The ODFW staff forecasts a return of 52,900 Willamette River spring Chinook (adult and jack) to the Columbia River mouth in 2022. This would represent an increase from the previous 5-year (2017–2021) and 10-year (2012–2021) averages of 42,620 and 51,416, respectively (Table 2). The 2022 forecasted return would represent a 22.6% increase from the 2021 actual return of 43,148. Age-specific returns for 2022 are expected to include 1,740 Age-3, 34,962 Age-4, 16,109 Age-5, and 107 Age-6 fish. The 2022 return is expected to include approximately 13,828 unmarked (~26%) and 39,090 (~74%) marked fish, based on the proportions observed in 2017–2021 returns.

Clackamas River Spring Chinook

The spring Chinook run entering the Clackamas River has generally increased over time since the hatchery program was initiated in 1979. Prior to the Clackamas Hatchery spring Chinook program, the average estimated return to the mouth of the Clackamas River was approximately 2,800, all of which were wild origin. Since the initiation of the hatchery program the average annual return of spring Chinook has risen dramatically. From 1980–1999 an annual average of approximately 8,600 spring Chinook returned to the Clackamas River and from 2000 – 2009 the annual average return increased to about 11,400 fish. For the period from 2010–2019, the annual average fell to approximately 6,000 spring Chinook annually (Table 3). The drop in abundance during this period was primarily due to steep declines in returns of hatchery-origin fish. For example, in 2010 the hatchery component of the run was estimated at 9,524 to the mouth of the Clackamas River which was similar to what was observed during the prior decade. Since then the number of hatchery fish has declined annually to the point where 811 returned in 2017, 211 in 2018, 235 in 2019, and 789 in 2020. In 2021 the hatchery population continued the trend with an estimated 668 hatchery origin spring Chinook returning to the Clackamas River.

While hatchery returns have steadily decreased since 2010, wild spring Chinook returns to the Clackamas River have shown an increase in abundance over the same period. For the five-year period from 2010–2014 the wild population averaged 1,719 fish annually. From 2015–2019 this average increased to 2,962 fish. In 2020, an estimated 4,244 wild spring Chinook returned to the Clackamas River and in 2021 3,065 returned for a two-year average of 3,655 fish. The increase in the wild population is most likely not a direct result of the decreased hatchery returns as wild fish primarily spawn above North Fork Dam where hatchery spring Chinook are excluded. Most likely the increase in the wild population is due to favorable ocean conditions and/or operational changes by PGE in the Clackamas River.

For the period from 1980–1998, passage over North Fork Dam included unknown numbers of hatchery fish. Since 1999, only unmarked spring Chinook have been passed over North Fork Dam while marked hatchery fish have been either recycled through fisheries or transferred to Clackamas Hatchery for use as broodstock. The first year in which all returning hatchery adults were mass-marked with an adipose fin clip was 2003.

2021 Return

For 2021, the estimated number of spring Chinook returning to the mouth of the Clackamas River was 3,733 fish (Table 3). This represents an 26% decrease from the 2020 return of 5,033 and 80%

of the preseason forecast of 4,640. The return estimate was comprised of 351 Age-3, 1,990 Age-4, 1,392 Age-5, and 0 Age-6 Chinook. Approximately 82% (3,065) of the spring Chinook returning to the mouth of the Clackamas River in 2021 were unmarked which is equivalent to the previous five-year average.

2021 Escapement

Portland General Electric provided escapement counts of spring Chinook to the North Fork Dam which totaled 3,228 fish in 2021. Included in this count were 3,048 unmarked fish that were passed upstream and 169 marked and 11 unmarked fish that were transported to Clackamas Hatchery. An additional 472 hatchery and 5 wild spring Chinook returned directly to the Clackamas Hatchery as swim-ins and 22 marked fish were transported from Eagle Creek for a total of 679 hatchery broodstock. No naturally-spawning fish downstream of the North Fork Dam were recorded in 2021 due to low water visibility.

2022 Forecast

The ODFW staff forecasts a return of 4,247 spring Chinook to the Clackamas River in 2022. These fish are included as a component of the total estimated return of Willamette Basin spring Chinook to the Columbia River mouth.

Sandy River Spring Chinook

Beginning in 1976, spring Chinook smolts from hatchery stocks in the Willamette River system were released into the Sandy River to supplement the depressed native spring Chinook run. These releases doubled in the mid-1980s and were mass-marked with an adipose-fin clip beginning in 1999. Subsequently, the Marmot Dam passage count increased from an average of 120 spring Chinook during 1954–1970, to 1,000 during the 1980s, 2,900 during the 1990s, and 3,600 during 2000–2007. Beginning with the 2000 brood (2002 release), releases of spring Chinook smolts from wild local broodstock were initiated at Sandy River Hatchery. This program ended after the 2010 release and since that time only hatchery-origin spring Chinook have been used for broodstock. Sandy River populations are in the Lower Columbia ESU which is ESA listed.

Prior to 2008, the minimum spring Chinook run entering the Sandy River was calculated by summing the Marmot Dam count, Sandy Hatchery return, and recreational catch downstream of Marmot Dam. Recreational catch in the Sandy River is estimated from angler catch cards, which often have a delay of up to three years before catch estimates are available. Because of this inherent delay, an average harvest rate based on the most recent three years available is used as a preliminary estimate of annual catch. Once final catch estimates derived from angler catch cards become available, the run reconstructions are updated.

In 2007 Marmot Dam was removed and with it the ability to count spring Chinook numbers in the Sandy River passing above the dam. ODFW has since developed a modified methodology to reconstruct abundance estimates beginning with the 2008 run year. Estimates are now made by summing natural-spawn estimates derived from redd count expansions, returns of hatchery fish to Sandy Hatchery, hatchery fish trapped lower in the system and transported to Sandy Hatchery, and estimates of angler harvest derived from catch record cards. Estimates of angler harvest continues

to be delayed necessitating the need to use the previous three-year average harvest rates for preliminary run size estimates, as described previously.

The 2021 adult spring Chinook return to the Sandy River was estimated at 5,654 adults, which is slightly more than the previous 5-year average of 5,489. The estimated return to the Columbia River mouth was 5,676 adults which is also slightly greater than the previous 5-year average of 5,523. A total of 148 Sandy River hatchery stock (11H) and 26 wild stock (11W) were spawned in 2021 meeting the goals outlined in the Hatchery and Genetic Management Plan for the Sandy Hatchery spring Chinook (2013).

The 2022 pre-season forecast is for 5,600 adult fish returning to the Columbia River mouth, based on 2019–2021 average returns. Both the 2021 return estimate and 2022 forecast are preliminary and are subject to change. Sandy River returns are shown in Table 1, and recreational catch estimates are shown in Table 28.

Washington Lower River Spring Chinook

Spring Chinook returning to the Washington tributaries of the lower Columbia River are destined for the Cowlitz, Kalama, and Lewis rivers. These populations are in the Lower Columbia ESU which is listed under the ESA. Compliance with ESA take authorization is determined by the ability to perpetuate these stocks individually over time. The numeric hatchery escapement goals referenced below are a metric of compliance identified in the Biological Opinion regarding fisheries associated with the 2018-27 *U.S. v. OR* Management Agreement (see Table 2-4 of the Biological Opinion). Washington lower river spring Chinook migrate earlier than upriver Columbia River stocks with the majority of the run passing through the lower Columbia River during March and April. Once in their natal tributaries, these spring Chinook will spawn during August and September. Virtually all of the production in the Washington portion of the lower Columbia River is of hatchery origin. Adult returns are shown in Table 1. Forecasted and actual returns are shown in Table 2. Catches from commercial fisheries in the mainstem Columbia River and Select Areas are shown in Tables 21 and 31, respectively; catch from mainstem recreational fisheries are in Table 27. Recreational tributary catch and harvest rates are shown in Table 28.

Cowlitz River Return and Forecast

The 2021 Cowlitz River spring Chinook return of 3,425 adults (13% wild) to the tributary mouth was well below the recent 10-year (2011–2020) average of 10,600 adult fish. The estimated return to the Columbia River mouth is 3,478 adult fish, which was much greater than the preseason forecast of 1,800 adults. The minimum hatchery escapement goal of 1,354 adults was met with 3,092 adults and 1,025 jacks returning to the hatchery. A total of 430 wild adults and 176 wild jacks were released into the upper basin. The natural spawn escapement estimate below the hatchery was 282 adults, which is less than the recent 10-year average of 500 fish.

The 2022 Cowlitz River preseason forecast is 4,100 adult spring Chinook to the Columbia River mouth (3,960 to the tributary mouth), which is 39% of the 2012–2021 average and 118% of the 2021 adult return.

Kalama River Return and Forecast

The 2021 Kalama River spring Chinook return of 1,681 adults (6% wild) to the tributary mouth is less than the recent 10-year (2011–2020) average return of 1,900 adult fish. The estimated return to the Columbia River mouth is 1,883 adult fish, which is less than the preseason forecast of 2,200 adults. The minimum hatchery escapement goal of 608 adults was met with a total of 1,206 adults and 88 jacks returning to the hatchery. A total of nine adults were estimated to have spawned naturally below the Kalama Falls Hatchery and 92 wild adults were passed upstream.

The 2022 Kalama River preseason forecast is 2,000 adult spring Chinook to the Columbia River mouth (1,960 to the tributary mouth), which is similar to the recent 10-year average and 106% of the 2021 adult return.

Lewis River Return and Forecast

The 2021 Lewis River spring Chinook return of 2,739 adults (10% wild) to the tributary mouth exceeded the recent 10-year (2011–2020) average of 1,600 adults. The estimated return to the Columbia River mouth is 2,840 adult fish, which is greater than the preseason forecast of 2,400 adults. The minimum hatchery escapement goal of 1,380 adults was met with a total of 2,078 adults and 443 jacks returning to the hatchery. A total of 888 adults, consisting of 267 natural-origin and 621 hatchery-origin fish, were trucked and released above Swift Reservoir. The natural spawn escapement below Merwin Dam, including Cedar Creek is estimated at 457 adults, compared to the recent 10-year average of 180 adult fish.

The 2022 Lewis River preseason forecast is 2,400 adult spring Chinook to the Columbia River mouth (2,290 to the tributary mouth), which is higher than the recent 10-year average and 85% of the 2021 adult return.

Select Area Spring Chinook

The spring Chinook program in the Youngs Bay terminal fishing area began in 1989 and was expanded in 1993 with support from the Bonneville Power Administration (BPA). Implementation of the BPA-funded Select Area Fisheries Evaluation (now Enhancement), or SAFE, project also allowed for the development of other Select Area fishing sites. Select Area spring Chinook are released from net pens located in Youngs Bay, Tongue Point, and Blind Slough in Oregon and Deep River in Washington. The Deep River spring Chinook program was discontinued in 2014 due to poor survival and limited funding but reinstated in 2018 with releases of sub-yearling spring Chinook. In Washington, Select Area spring Chinook originate from Cowlitz River and/or Lewis River stocks. Spring Chinook released at Oregon Select Area sites are produced from Willamette River stocks originating from eggs collected at Willamette basin hatcheries. Most Select Area spring Chinook are reared at Gnat Creek Hatchery and transferred to net-pens for release; however, a group has been overwintered and released directly from Gnat Creek Hatchery since 2013 to test potential survival benefits of this rearing strategy. Starting with the 2008 brood, additional smolts from Willamette basin hatcheries have been transferred directly to net-pens for acclimation and release. This additional hatchery production has been in response to reforms in hatchery and fishery management in the lower Columbia River.

Releases of Hatchery Fish

Releases of spring Chinook in all Select Area sites combined ranged between 1,057,608 and 3,736,384 smolts during 2007–2021 (brood years 2005–2019) averaging 1,848,124 smolts released per year (Table 29). Beginning in 2010, smolt liberations in the Select Areas increased by 35% from an average of 1,078,571 (brood years 2005 to 2007) to an average of 1,451,707 smolts (brood years 2008 to 2010) due to hatchery reforms and reprogrammed spring Chinook production. In 2013, with the onset of new Columbia River fishery management reform policies, smolt releases began increasing in progressive, multiyear tiers. From 2013–2017, the average smolt releases increased 20% to 1,747,792 (brood years 2011 to 2015). Since 2017, modifications to these policies resulted in additional smolt increases that averaged 2,848,015 smolts for brood years 2016 to 2019, which is a 63% increase over the previous period. In 2021, the total release was 3,490,584 smolts which was the largest spring Chinook release in the history of the project; an additional 245,800 sub-yearlings (also 2019 brood year) were released from Deep River in late 2020. Since 2017, the long-term annual hatchery production goal for this program is 3,700,000 spring Chinook smolts, which represents an additional 6% increase over 2021 levels.

2021 Returns

Annual returns of adult Select Area-origin spring Chinook are indexed by the harvest of these fish in Select Area commercial and recreational fisheries. The estimated return in 2021 was 6,216 fish (5,754 commercial and 462 recreational). This was approximately 74% of the recent 10-year (2011–2020) average of 8,346 Chinook (Table 1).

2022 Forecast

The 2022 preseason forecast for Select Area-origin spring Chinook is 8,800 adult fish returning to Select Area commercial fisheries. This return is expected to consist primarily of Age-4 adults from the 2018 brood (3.07 million) and Age-5 adults from the 2017 brood (2.45 million) releases (Table 29). Approximately 6,600 fish are predicted to return to Youngs Bay, 1,200 fish to Blind Slough/Knappa Slough, and 1,000 fish to Tongue Point/South Channel. Deep River is expected to have minimal commercial harvest for the second consecutive year in 2022 (25 fish) after smolt releases were reinstated at the site in 2018 (2017 brood). The expected total Select Area commercial landings of 9,800 fish, which includes harvest of non-local stocks and SAB fall Chinook, is 9% higher than the recent 10-year average of 8,950 Chinook.

Upriver Spring Chinook

Upriver spring Chinook begin entering the Columbia River in late February and early March and typically reach peak abundance at Bonneville Dam by mid-May. Prior to 2005, all Chinook passing Bonneville Dam from March through May were counted as upriver spring Chinook for the purpose of managing fisheries. Starting in 2005, the accounting period was expanded in order to incorporate later-migrating Snake River-origin summer Chinook since these fish are in the listed Snake River spring/summer Chinook ESU. Currently, the abundance used for management of upriver spring Chinook fisheries during the spring management period is calculated as the sum of the passage of adults at Bonneville Dam plus the number of upriver-origin adult fish killed in lower river fisheries (kept catch plus release mortalities) from January 1 through June 15. Abundance

data (pre-2005) for upriver spring and summer Chinook contained in this report have been adjusted to reflect the current accounting period. Table 2 remains unmodified to allow comparison of past annual forecasts with actual returns.

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

Upriver spring Chinook returns have ranged widely in recent decades. Upriver runs were considered poor in the 1980s, averaging 84,511 fish per year (range 52,357–128,314), and declined further during the 1990s when annual returns averaged 68,998 fish (range 12,792–124,321). The 1995 run marked an all-time low of 12,792 fish. The average annual return during the 2000s improved substantially to 209,985 adults (range 86,247–439,885). The 2001 run marked a high (since counting began in 1938) of 439,885 adult upriver spring Chinook. Returns during the 2010s remained improved relative to the last two decades of the 20th century, averaging 188,618 fish (range 73,101–315,346). See Tables 1 and 5 for the time series of abundances.

Run timing of upriver spring Chinook at Bonneville Dam was fairly consistent through the end of the 1990s. During the 1980s and 1990s, the average 50% passage date was April 27 (ranging from April 20–May 6 during this 20-year period). A trend of later-timed passage appears to have begun in 2005. During the 2000s, the average 50% passage date was May 3 (range April 17–May 12), nearly one week later than observed over the prior two decades. The average 50% passage date at Bonneville Dam during the past decade (2010–2019) is May 9, indicating the late-timing trend has continued. Three recent years had the latest 50% passage dates observed (2017: May 21, 2018 and 2020: May 16).

Upper Columbia River spring Chinook spawn in the Wenatchee, Entiat, and Methow rivers (plus a more recent reintroduction to the Okanogan River) located between Rock Island Dam and Chief Joseph Dams (RM 453–545). Chief Joseph Dam (completed in 1961) now blocks the upriver migration of these fish, which was previously blocked by Grand Coulee Dam (RM 597). On average, the upper Columbia River spring Chinook return has represented 15% of the aggregate upriver spring Chinook run since 1980; the recent 10-year average is similar at 14%.. Returns of upper Columbia spring Chinook to the Columbia River mouth in the 1980s averaged 20,378 adults (37% wild). Returns declined severely during the 1990s, averaging 9,532 adults (20% wild). The annual returns were improved during the 2000s and 2010s, averaging 21,677 and 23,487 adults, respectively. The proportion of the return comprised of natural-origin fish was lower during the 2000s averaging 10% (2,175 wild fish) and remained similar during the 2010s (2,598 wild fish, 11% of total return). Data are provided in Table 6.

The Chief Joseph Hatchery spring Chinook program has two components: a segregated harvest program in the Columbia River that was initiated with Leavenworth broodstock and a reintroduction program in the Okanogan that receives eggs from the Winthrop National Fish Hatchery. Both programs began with brood year 2013. Almost all spring Chinook released from the Chief Joseph Hatchery for the segregated program have been mass marked (adipose-fin clipped), and roughly 1/3 of smolts released have been implanted with CWT each year, but that has varied. Approximately 5,000 smolts from the segregated program have been Passive Integrated Transponder (PIT)-tagged each year. All re-introduction spring Chinook were implanted with CWTs and approximately 5,000 smolts in each release cohort received PIT tags (starting with BY 2014 reintroduction program fish are adipose intact).

On average, the Snake River spring/summer Chinook return has represented 50% of the aggregate upriver spring Chinook run since 1980 compared to the recent 10-year average of 58%. Returns of Snake River spring/summer Chinook to the Columbia River mouth in the 1980s averaged 39,936 adults (53% wild). Returns declined during the 1990s averaging 30,010 adults (46% wild). Returns improved markedly during the 2000s and 2010s, averaging 110,728 adults (27% wild) and 105,718 adults (23% wild), respectively. Data are provided in Table 7.

2021 Return

The 2021 upriver spring Chinook return to the Columbia River totaled 91,756 adults (Tables 1 and 5) and consisted of 76,888 Age-4 fish, 14,720 Age-5 fish, and 148 Age-6 fish. The return included 52,274 (9,480 wild) adult Snake River spring/summer Chinook and 17,365 (3,978 wild) adult upper Columbia spring Chinook. The remainder of the run was destined for tributaries in the mid-Columbia. The 2021 upriver spring Chinook return was 122% of the preseason forecast of 75,200 fish and 56% the recent 10-year average (2011–2020) of 165,213 adults. The 2021 return ranked 27th out of all returns since 1980.

The 2021 upriver spring Chinook passage at Bonneville Dam totaled 87,233 adult fish and was 50% complete on May 12; total adult passage was the fourth lowest observed since the poor returns in the 1990s. Passage was two days later than the recent 10-year average 50% passage date of May 10. The peak count occurred on April 29 (4,782 fish). The Chinook jack count at Bonneville Dam totaled 15,592 fish, which is about 30% higher than the recent 5-year average of 12,100 and nearly double the 2020 passage.

The Snake River spring/summer return was 55% of the recent 10-year average return (94,283 fish) and ranked 22nd out of returns since 1980. The Snake River wild component was 41% of the recent 10-year average (22,921 fish) and represented 18% of the total 2021 Snake River run. The upper Columbia spring Chinook return was 82% of the recent 10-year average return (21,050 fish) and ranked 18th out of returns since 1980. The upper Columbia wild component was 159% of the recent 10-year average (2,496 fish) and represented 23% of the aggregate 2021 upper Columbia run. See Tables 5, 6, and 7.

The Idaho Department of Fish and Game (IDFG) independently develops abundance estimates of Snake River-origin spring Chinook at Bonneville Dam annually. IDFG estimates tend to differ from the estimates developed by TAC reported here. Currently, TAC is engaged in a review of IDFG's alternate methodology.

2022 Forecast

The 2022 preseason forecast for upriver spring Chinook is 122,900 adults to the Columbia River mouth (Table 2). This forecast includes 21,700 upper Columbia spring Chinook (2,800 wild) and 73,400 Snake River fish (13,200 wild), with the remainder of the run comprised of spring Chinook returning to mid-Columbia tributaries. The upper Columbia return is expected to represent 18% of the aggregate upriver spring Chinook return and the Snake River component is expected to represent 60% of the aggregate return. The forecasted stock proportions for both components are slightly higher than recent 10-year averages (58% Snake River origin, 15% upper Columbia origin). The overall return is expected to be comprised of 110,800 Age-4 fish, 11,600 Age-5 fish, and 500 Age-6 fish. If accurate, this forecast of 122,900 adult fish would be 81% of the average return observed over the past decade (2012–2021).

The forecast for adult upper Columbia spring Chinook of 21,700 fish is 102% of the recent 10-year average; the wild forecast is 105% of the 10-year average wild return. The wild component is forecasted to represent 13% of the upper Columbia spring run, which is the same as the recent 10-year average.

The forecast for Snake River spring/summer Chinook of 73,400 fish is 84% of the recent 10-year average and the wild forecast of 13,200 is 63% of the recent 10-year average. The wild component is forecasted to represent 18% of the total Snake River run, which is lower than the recent 10-year average (23%).

Tributaries Upstream of Bonneville Dam

The tributary returns and forecasts discussed below are included in the aggregate 2021 return and 2022 forecast for upriver spring Chinook.

Hood River Return

The Hood River enters the Columbia River 169 miles upstream from its mouth and originates from the north and eastern flanks of Mount Hood. Hood River populations are in the Lower Columbia ESU which is ESA listed. The historical spring Chinook salmon population in the Hood subbasin is considered extirpated, and Deschutes River stock (an out-of-ESU stock) is being used for a hatchery reintroduction program. Powerdale Dam, on the Hood River, was removed in 2010.

No estimate for the 2021 return of spring Chinook to the Hood River is available due to the lack of a rigorous monitoring program. Preseason forecasts are not made for this population.

Wind River Return and Forecast

The Wind River enters the Columbia River 155 miles upstream from its mouth. Wind River populations are in the Lower Columbia ESU which is ESA listed; however, spring Chinook originating from the Carson National Fish Hatchery and spawning in the Wind River are excluded from the ESU. Spring Chinook were introduced into the Wind River with production beginning in the late 1950s at the Carson National Fish Hatchery. Since the 1980s, Carson Hatchery has produced spring Chinook exclusively. Hatchery returns of adult spring Chinook to the mouth of the Wind River during the past ten years (2012–2021) averaged 4,100 fish (range 1,400–7,400).

The 2021 return of spring Chinook to the Wind River was 3,227 adults, compared to the preseason forecast of 1,200 adults. The 2022 preseason forecast to the tributary mouth is 4,200 adult fish, which is 130% of 2021 return and 172% of the recent 5-year average return.

Little White Salmon River (Drano Lake) Return and Forecast

Prior to the construction of Bonneville Dam in 1938, a limited amount of natural production occurred in the Little White Salmon River downstream of the falls located approximately two miles upstream from the historic mouth of the river. That section of the river was inundated by the construction of Bonneville Dam, forming what is commonly referred to as Drano Lake. Hatchery spring Chinook return to the Little White Salmon National Fish Hatchery, which was built in 1898 and is one of the oldest on the Columbia River system. The program is currently self-supporting, as broodstock are guided into the hatchery by a barrier dam. The Little White Salmon River populations are in the Lower Columbia ESU which is ESA listed.

The 2021 return of spring Chinook to the mouth of the Little White Salmon River was 3,299 adults. The return was less than the preseason forecast of 3,900 adults, and less than the recent 10-year average of 8,600 adult fish. The 2022 preseason forecast to the tributary mouth is 3,800 adult fish, which is 115% of the 2021 return and 72% of the recent 5-year average return.

Klickitat River Return and Forecast

The Klickitat River spring Chinook return consists of hatchery-origin fish from the Klickitat Hatchery and a smaller, depressed wild population that spawns upstream of the hatchery. Klickitat River populations are in the mid-Columbia ESU which is not ESA listed. Prior to 1920, there were large spring Chinook runs in the Klickitat River and a significant tribal fishery occurred at Lyle Falls, due to difficult passage at the falls. By 1951, the annual spring Chinook run varied from 1,000 to 5,000 adults. In 1952, the Klickitat Hatchery and two fishways at Lyle Falls were constructed using Mitchell Act funds. Indigenous Klickitat spring Chinook were trapped at the upper fishway each year from 1952 through at least 1959. Since then, collection of broodstock has relied upon fish returns (primarily of hatchery origin) to the on-site hatchery trap. Plans call for hatchery upgrades and collection of natural-origin fish for broodstock in the near future. Since 1977, estimates of adult spring Chinook returning to the Klickitat River mouth have ranged from 400 to 5,250 fish, and averaged about 1,900 fish annually, with 85-90% (recent years' average) of the run being hatchery fish.

The 2021 return of spring Chinook to the Klickitat River was 1,821 adults, compared to the forecast of 1,500. The 2022 forecast to the tributary mouth is 1,800 adult fish, which is similar to the 2021 return and the recent 10-year average return.

Yakima River Return and Forecast

The Yakima River Basin spring Chinook return is comprised of three unique spring Chinook populations: upper Yakima River, Naches River, and American River. The Yakima River populations are in the mid-Columbia ESU, which is not ESA listed. Historical Yakima spring Chinook returns (all stocks) ranged from approximately 50,000 to 200,000 fish. An integrated hatchery supplementation program (Cle Elum Supplementation and Research Facility (CESRF)) in the upper Yakima was initiated in 1997, with the first Age-4 adults returning from this program

in 2001. The program uses only natural-origin fish for broodstock, hatchery-origin returns are allowed to spawn naturally. The Naches River and American River populations are predominantly wild and few, if any, hatchery-origin fish are known to stray to Naches sub-basin spawning areas.

In 2021 the forecast was for a return of 3,200 adult (Age-4 and Age-5) spring Chinook to the mouth of the Yakima River. The actual return in 2021 is estimated to be 2,882 adult spring Chinook (91% of forecast). The forecast for 2022 is 4,700 adult spring Chinook. The 2022 forecast is expected to be comprised of about 1,840 wild/natural and 2,840 hatchery-origin adult spring Chinook returning to the Yakima Basin.

Upper Columbia River Summer Chinook

Upper Columbia River summer Chinook are destined for production areas and hatcheries upstream of Priest Rapids Dam (PRD). Historically, these fish spawned in the mainstem Columbia, Wenatchee, Okanogan, and Similkameen rivers. Access to over 500 miles of the upper mainstem Columbia River was blocked by the construction of Grand Coulee Dam in 1941. The building of Chief Joseph Dam further reduced available mainstem habitat. Since completion of the Columbia River hydropower system, summer Chinook redds are found in the Columbia, Wenatchee, Okanogan, Methow, Similkameen, Chelan, and Entiat rivers. The upper Columbia summer Chinook run size remained at low levels throughout the 1980s and 1990s, with average returns of 19,243 and 15,090 fish, respectively. The average run size during the 2000s was 59,805 adults, which was approximately three times greater than the average run size of the 1980s and four times greater than the average run size of the 1990s. The average run in the 2010s was 71,995 adults which was 120% of the previous decade (Table 8). Supplementation programs and improved natural habitat have played a significant role in the increased abundance trends observed since 1999. Since 2002, the majority of the hatchery production has been mass-marked with an adipose-fin clip. Natural-spawning populations also contribute significantly to the run and the stock is managed as a composite population.

The Chief Joseph Hatchery summer Chinook program was initiated with the 2013 brood. In May 2014, 265,656 sub-yearling smolts were released from the hatchery, with an additional 186,050 sub-yearling smolts released from the Omak acclimation site. In April 2015, releases included 416,289 yearling smolts from the hatchery and an additional 290,665 yearlings from the Omak acclimation site. In April of 2016, 401,215 yearling smolts were released from the hatchery and an additional 488,647 integrated yearlings from the Similkameen and Omak acclimation sites. Yearling summer Chinook released in April of 2017 included 232,000 from the hatchery and 360,000 from the Similkameen and Omak acclimation sites.

The Columbia River summer Chinook run consists only of the upper Columbia component (Snake River summer Chinook are included in the upriver spring run). For the purpose of managing fisheries during the summer management period, the Columbia River return abundance is calculated as the sum of the adult Bonneville Dam count and the number of adult Chinook mortalities resulting from lower river fisheries during June 16 through July 31. Upper Columbia summer Chinook are not ESA-listed, and the population is currently considered healthy. See Table 8 for abundance, harvest, and escapement data.

2021 Return

The 2021 upper Columbia summer Chinook return was the 15th largest since 1980, totaling 56,800 adults, compared to the preseason forecast of 78,800 adults. The adult return was comprised of an estimated 29,912 Age-4, 26,710 Age-5, and 178 Age-6 fish. The 2021 return was 80% of the recent 10-year average (2011–2020) of 71,310 adults. The 2021 jack return of 9,686 fish at Bonneville Dam was less than the recent 10-year average (12,778). The 2021 adult return was 83% of the average of returns observed since 2001, and more than three times the average return during the years 1980–2000 (17,425 adults).

2022 Forecast

The 2022 preseason forecast for upper Columbia summer Chinook is 57,500 adults to the Columbia River mouth. The overall return is expected to include 34,200 Age-4 fish, 22,900 Age-5 fish, and 400 Age-6 fish. If accurate, this projection would represent the 15th highest return since 1980 and be 83% of the average return observed over the past decade.

Wild Winter Steelhead

Winter steelhead enter the Columbia River from November through April and spawn from March through June. Juvenile wild winter steelhead usually rear in freshwater for one to three years before out migrating to the ocean as smolts during March through June. Most lower Columbia River winter steelhead spend two summers in the ocean before returning as adults to spawn in natal streams. The range of winter steelhead includes all tributaries of the Columbia River upstream to Fifteen Mile Creek in Oregon and the Klickitat River in Washington. All wild winter steelhead are ESA-listed, except those within the Southwest Washington Distinct Population Segment (DPS). The Southwest Washington DPS includes populations in river basins of, and tributaries to, Grays Harbor, Willapa Bay, and the Columbia River downstream of the Cowlitz River in Washington and downstream of the Willamette River in Oregon. All steelhead handled downstream of Bonneville Dam during November through April, and in Bonneville Pool from November through March, are managed as winter steelhead. Steelhead passing Bonneville Dam between November 1 and March 31 are counted as winter steelhead. Unclipped steelhead passing Bonneville during this time period are assumed to be wild fish. Columbia River wild winter steelhead returns during the past 10 years (2010/11–2019/20) averaged 15,191 fish and ranged between 9,440 and 22,379 fish (Table 9). Passage of wild winter steelhead at Willamette Falls during the same 10-year period has averaged 4,108 fish, ranging from 822 to 7,628 fish.

2020–2021 Run Year Return and 2021–2022 Run Year Forecast

The 2020/21 wild winter steelhead return to the Columbia River mouth totaled 13,906 fish. The return was 97% of the preseason forecast of 14,300 fish. Passage at Willamette Falls totaled 2,003 unclipped fish (60% of the recent 5-year average) and represented 13% of the total Columbia River return. The 2021/22 forecast is for 13,400 wild winter steelhead returning to the Columbia River mouth.

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 lower-river component of the run tends to be earlier timed than the upriver stocks, with abundance peaking during May and June. Skamania-stock hatchery summer steelhead are widely planted in lower Columbia tributaries, including the Willamette Basin. Skamania-stock hatchery fish are also released annually in some tributaries upstream of Bonneville Dam (primarily the Klickitat River in recent years). Wild lower-river summer steelhead are present in the Kalama, Lewis, Washougal, and Wind rivers in Washington and in the Hood River in Oregon. The lower Columbia River steelhead DPS was listed as threatened by the NMFS on May 24, 1999. All steelhead handled in fisheries downstream of Bonneville Dam during May and June are managed as lower-river Skamania stock. See Table 14 for minimum abundance estimates of lower-river summer steelhead.

NMFS categorizes the upriver wild summer steelhead run into three DPSs: 1) the middle Columbia DPS, which includes steelhead destined for Columbia River tributaries upstream of the Wind and Hood rivers to, and including, the Yakima River (listed as threatened in May 1999), 2) the upper Columbia DPS, which includes steelhead destined for Columbia River tributaries upstream of the Yakima River (listed as endangered in May 1999, reviewed and downgraded as threatened in 2009), and 3) the Snake River DPS, which includes steelhead returning to the Snake River basin (listed as threatened in October 1997). Currently, there is no reliable method available to segregate the steelhead run at Bonneville Dam into individual DPSs.

Upriver summer steelhead pass Bonneville Dam from April 1 through October 31 each year (Figure 1). Summer steelhead passing Bonneville Dam between April 1 and June 30 are managed as upper Skamania stock steelhead, which are primarily destined for tributaries within Bonneville Pool. Summer steelhead passing Bonneville Dam between July 1 and October 31 are categorized as either A-Index or B-Index. A-Index steelhead are defined as any steelhead measuring less than 78cm fork length. A-Index steelhead are destined for tributaries throughout the Columbia and Snake basins and typically spend one or two years in the ocean. B-Index steelhead are defined as any steelhead measuring at least 78cm fork length. Most B-Index steelhead return to the Clearwater and Salmon rivers in Idaho, are typically later-timed than A-Index steelhead, and typically spend two or three years in the ocean. B-Index steelhead return to all tributaries throughout the basin. See Table 12 for Bonneville Dam passage estimates by group.

Tables 10, 11a, and 11b provide estimates of lower river and upriver summer steelhead harvest and incidental release mortalities, as well as associated impacts to ESA-listed wild fish during non-treaty winter/spring and summer fisheries.

Summer steelhead passage (returns) over Bonneville Dam is shown in Table 12, and passage over Lower Granite Dam is shown in Table 13. Stock distribution and hatchery/wild determination are based on (and dependent on) biological sampling at each of the hydro-electric facilities mentioned.

2021 Return

The total return to Bonneville Dam (April–October passage) of upriver summer steelhead in 2021 was 69,669 fish, compared to the preseason forecast of 101,400 fish (69% of forecast). The 2021 total return is the lowest on record. Unclipped steelhead counts at Bonneville Dam during April through October, which include unclipped hatchery fish, totaled 24,664 fish (35% of total passage).

The 2021 Bonneville Dam passage of upriver Skamania-stock steelhead totaled 1,917 fish including 1,119 (58%) unclipped fish. Passage timing over Bonneville Dam was later than average, with 50% passage observed on June 21 compared to the recent 10-year average of June 16. The Skamania return was only 25% of the recent 10-year average return (7,755 fish) and was the lowest observed since at least 1984.

The majority of summer steelhead passage at Bonneville Dam occurs during July through October (the A-Index and B-Index components). During these months in 2021, a total of 67,752 steelhead passed Bonneville Dam, compared to the recent 10-year average of 192,019 fish and the preseason forecasted passage of 96,800 fish. Passage was 50% complete on August 29, compared to the recent 10-year average 50% date of August 15.

Steelhead passage at Lower Granite Dam (LGR) for the 2021–22 run year is counted from July 1, 2021 to June 30, 2022 (and corresponds to A-Index and B-Index fish passing Bonneville Dam from July 1 to October 31, 2021). About 95% of the total run passes LGR between July 1 and December 31. The adult fish ladder at LGR is usually dewatered in January and February.

The preliminary estimate of steelhead passage at LGR for the 2021–22 run year (counts are only available through December 31, 2021) is 40,753 fish which is 40% of the recent 10-year average. This includes an estimated 33,378 total A-Index (7,565 wild) and 7,375 total B-Index (1,200 wild) fish (Table 13).

2022 Forecast

The 2022 preseason forecast for the summer steelhead return to Bonneville Dam was not available at the time this report was finalized.

Sockeye

Sockeye salmon have been adversely impacted by hydroelectric development in the Columbia Basin, and their abundance has declined substantially from historic levels. Most of the historic production of sockeye occurred in nursery lakes located in the uppermost reaches of the Columbia and Snake River basins. Upstream passage was blocked by the construction of several key dams including: Grand Coulee in the upper Columbia system, Swan Falls (completed 1901), Sunbeam (completed 1913, removed in 1934), Black Canyon (completed 1914), Wallowa Dam (completed in 1929), and Brownlee (completed 1958) in the Snake River system. Landlocked sockeye salmon, commonly called kokanee, are still produced in many of the areas that formerly contained anadromous runs.

Until recently, the Columbia River sockeye run consisted only of the Okanogan, Wenatchee, and Snake River stocks. Sockeye have recently been re-introduced in the Yakima River and passage

has been re-established at Round Butte Dam on the Deschutes River. The Okanogan and Wenatchee stock abundance is typically cyclic, with occasional strong return years followed by years of low returns. The upper Columbia River sockeye run (Okanogan and Wenatchee) consists of four age groups. Fish returning to Osoyoos Lake in the Okanogan Basin are typically Age-3 and Age-4 fish. Those returning to Lake Wenatchee in the Wenatchee Basin are typically Age-4 and Age-5 fish. The Snake River sockeye run, primarily returning to Redfish Lake within Idaho's Stanley Basin, is extremely depleted. The majority of returning adults are progeny of the captive broodstock program. However, adults trapped at the Redfish Lake Creek weir and released into Redfish Lake also contribute to the returns. The Snake River stock was federally-listed as endangered in November 1991. The upper Columbia stocks are considered healthy populations and are not ESA-listed. Sockeye in the Yakima and Deschutes Rivers are also not ESA-listed.

Sockeye salmon migrate through the lower Columbia River during June and July, with normal peak passage at Bonneville Dam around July 1 (Figure 1). The Wenatchee stock generally migrates earlier than the Okanogan stock although the run timing of both stocks overlap. Sockeye counts at Ice Harbor Dam (on the Snake River) and Priest Rapids Dam (on the upper Columbia River) both extend from early June through mid-July, which suggests that the run timing of the Snake River component is similar to the upper Columbia sockeye. The escapement goal of 65,000 sockeye salmon at Priest Rapids Dam requires that 75,000 sockeye migrate past Bonneville Dam. The Wenatchee River, which enters the Columbia River upstream of Rock Island Dam (RM 454), has a current escapement goal of around 23,000 adult sockeye. During the 1990s, the number of sockeye entering the Columbia River destined for the Snake River basin averaged 11 fish per year (range 1–35). During the 2000s, Snake River sockeye returns averaged 306 fish (range 19–1,414), which was mainly driven by the increased returns in 2008 and 2009. This increase continued into the 2010s, when returns averaged 1,124 (range 297–2,523). See Table 15 for more detail.

2021 Return

The 2021 return of sockeye to the Columbia River of 152,309 adults was similar to the preseason forecast of 155,600 adults, but is only 49% of the recent 10-year average return. The 2021 return included at least 41,219 Wenatchee, 105,493 Okanogan, and 953 Snake River stock returning to the Columbia River. At Prosser Dam on the Yakima River, 134 sockeye were counted. On the Deschutes River, sockeye passage at Round Butte Dam totaled 36 fish. The Wenatchee return was 151% of forecast; the escapement objective of 23,000 fish to the Wenatchee River was met, with 30,826 sockeye reported at Tumwater Dam. The Okanogan return was 83% of forecast. Sockeye counts at Lower Granite Dam totaled 645 fish. Standard methods developed by TAC were used to determine the relative proportion of Snake River sockeye in the overall run.

2022 Forecast

The 2022 preseason forecast for the Columbia River sockeye run is for a return of 198,700 adults to the Columbia River, including 19,200 Wenatchee stock, 175,700 Okanogan stock, and 200 Snake River stock. The forecast is 64% of the 2012–2021 average total return of 308,728 fish. The Wenatchee component is forecasted to be less than the escapement objective and only 34% of the 10-year average return. The return of Okanogan-origin fish is expected to be approximately 70% of the recent 10-year average. A return of 200 fish to the Snake River would be 21% of recent 10-year average return. Nominal returns to the Yakima and Deschutes rivers are also expected.

American Shad

American Shad are an introduced species brought to the West Coast from Pennsylvania in the late 19th century. The American Shad (hereafter shad) is an anadromous fish, spending three to four years at sea before returning to spawn. Since the extensive development of mainstem hydroelectric projects, shad runs have increased markedly in abundance and have extended their range into the upper Columbia River and into Hells Canyon of the Snake River. Beginning in the late 1970s, runs have met or exceeded one million fish annually; through the 2000s the ten-year average run size increased by around a million fish each successive decade with a peak of over six million fish in 2005. From 2010–2019, runs ranged from just over a million in 2011 to a new peak of over seven million in 2019. Run timing extends from mid-May through early August at Bonneville Dam, with peak daily counts occurring in June (Figure 1). Since the timing of the run overlaps with upriver Chinook, sockeye, and steelhead runs, harvest opportunities for shad are regulated to minimize impacts to ESA-listed salmonids. Within the last ten years, work has been conducted to explore the feasibility of using alternative gear types to increase opportunities to harvest the abundant shad runs while minimizing impacts to salmonids. Shad were harvested with seines in 2011, 2012 (primarily purse seine), 2014 (beach seine), and 2016 (purse seine) under experimental gear permits issued by ODFW. In 2013, one experimental gear permit for a purse seine was issued, but no fishing occurred due to a lack of market demand. In 2019, a limited number of shad were captured in an experimental pound net located in Cathlamet Channel. It is expected that harvest opportunity using these alternative gear types would be allowed in future fisheries if demand exists and catch rates warrant their use.

2021 Return

The 2021 minimum shad run size of 5.8 million fish was the second consecutive year just under 6.0 million after a peak record return of 7.7 million in 2019 (Table 16). The shad run size includes escapement of 5.6 million fish upstream of Bonneville Dam but does not account for unknown numbers of shad spawning downstream of Bonneville Dam and Willamette Falls. The non-treaty (lower Columbia and lower Willamette) recreational combined catch was 234,900 fish with an additional 2,000 fish harvested in the mainstem commercial fishery. The combined harvest of 236,900 was above the recent 5-year average of 199,900 fish and represented 4.1% of the total return.

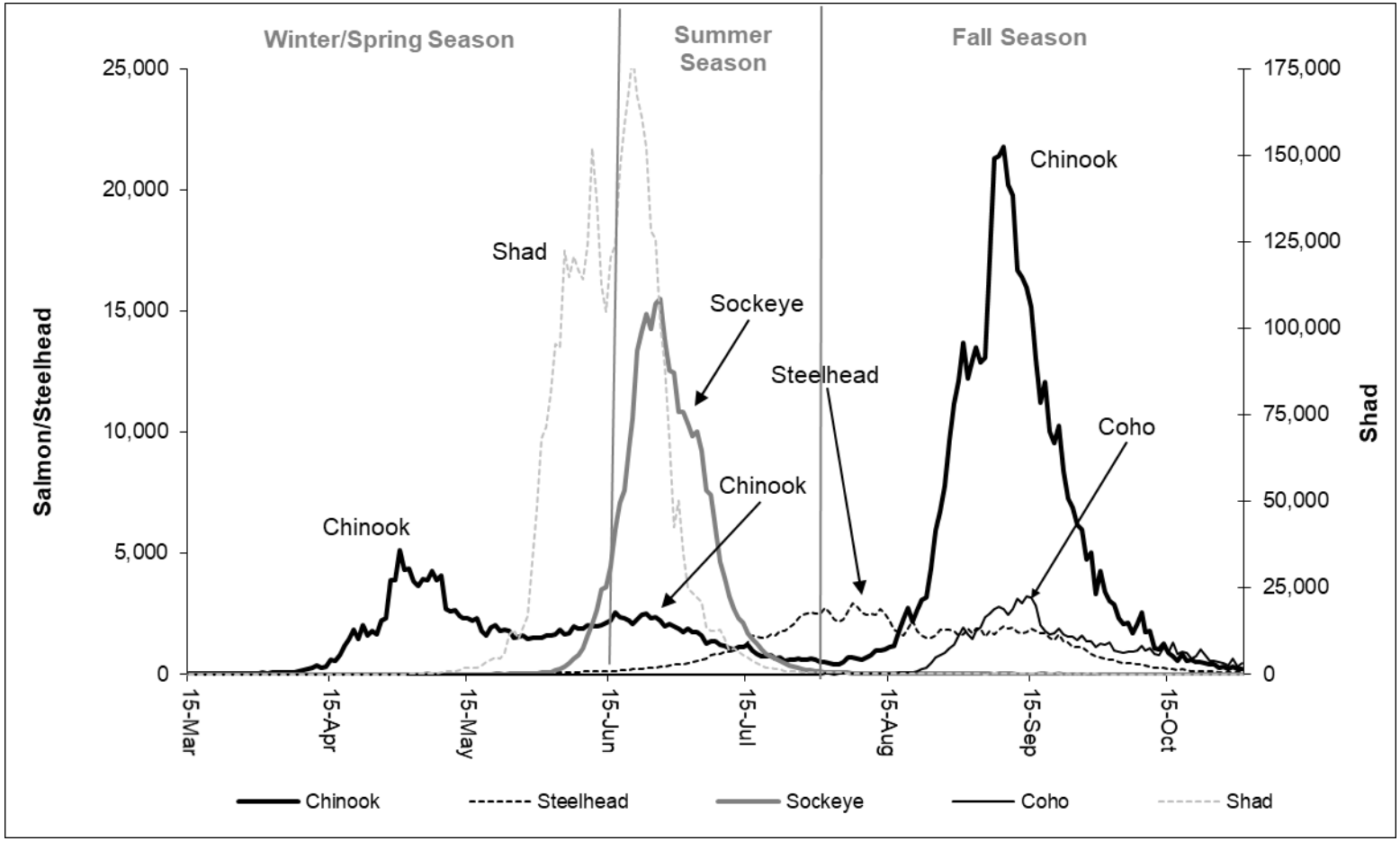

Figure 1. Average daily counts of salmon, steelhead, and American Shad at Bonneville Dam, 2012–2021.

MANAGEMENT GUIDELINES

Endangered Species Act

The majority of Columbia Basin salmon and steelhead stocks are listed under the ESA as shown in the table below. The *U.S. v Oregon* TAC has prepared Biological Assessments (BAs) for combined fisheries based on relevant *U.S. v Oregon* management plans and agreements since 1992.

Federally-listed Species Found in Columbia River Fishery Management Areas

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

[1] *Status downgraded to threatened per U.S. District Court order in June 2009.*

The current BA concerns Columbia River treaty Indian and non-treaty fisheries, as described in the 2018–2027 *U.S. v Oregon* Management Agreement (2018–2027 MA). This BA was submitted in June 2017 and NMFS subsequently issued a Biological Opinion (BO) in February 2018. The current BO expires after December 31, 2027, concurrent with the 2018–2027 MA.

Columbia River Salmonid Management Guidelines

The parties to *U.S. v Oregon* operate under the 2018–2027 MA through December 31, 2027. This agreement provides specific fishery management criteria for upriver spring, summer, and fall Chinook, Coho, sockeye, and steelhead. Excerpts from the *U.S. v Oregon* MA and other agreements applicable to fisheries considered in this report are highlighted below.

Upriver Spring Chinook

The 2018–2027 MA provides for a minimum annual mainstem treaty entitlement to the Columbia River treaty tribes of 10,000 spring and summer Chinook that may be used for ceremonial and subsistence (C&S) purposes. This is framed as when run sizes and allowed harvest rates do not allow the treaty mainstem fishery to harvest at least 10,000 spring and summer Chinook, the states will provide excess hatchery fish to meet this objective. Tributary harvest of spring and summer Chinook is not included in this entitlement.

Non-treaty and treaty winter and spring season fisheries are managed in accordance with the spring management period Chinook harvest rate schedule provided in Table A1 of the 2018–2027 MA. This harvest rate schedule incorporates a sliding scale, with increasing or decreasing allowable impact rates dependent on the total upriver spring Chinook run size. This harvest rate schedule and the preseason forecast for upriver spring Chinook are used to plan fisheries based on the available ESA impacts allocated to treaty and non-treaty fisheries. Beginning in 2010, modifications to Table A1 were implemented, which required non-treaty fisheries to meet the catch balance provisions in the MA for upriver spring Chinook. Under these provisions, non-treaty fisheries are managed to remain within ESA impacts and to not exceed the total allowable catch available for treaty fisheries. In addition, prior to the first in-season run size update from TAC, non-treaty fisheries will be managed for the allowed treaty catch guideline based on a run size that is 70% of forecast (i.e., 30% run-size buffer). The following table is the current version of Table A1 of the MA and reflects the catch balancing provisions implemented in 2010.

2018–2027 Harvest Rate Schedule for Chinook in Spring Management Period							
Total Upriver Spring and Snake River Summer Chinook Run Size[6]	Snake River Natural Spring/Summer Chinook Run Size[1]	Treaty Zone 6 Total Harvest Rate[2,5]	Treaty Catch Guideline	Non-Treaty Natural Harvest Rate[3]	Non-Treaty Mortality Guideline	Total Natural Harvest Rate[4]	Non-Treaty Natural Limited Harvest Rate[4]
<27,000	<2,700	5.00%		<0.5%		<5.5%	0.50%
27,000	2,700	5.00%	1,350	0.50%	1,350	5.50%	0.50%
33,000	3,300	5.00%	1,650	1.00%	1,650	6.00%	0.50%
44,000	4,400	6.00%	2,640	1.00%	2,640	7.00%	0.50%
55,000	5,500	7.00%	3,850	1.50%	3,850	8.50%	1.00%
82,000	8,200	7.40%	6,068	1.60%	6,068	9.00%	1.50%
109,000	10,900	8.30%	9,047	1.70%	9,047	10.00%	
141,000	14,100	9.10%	12,831	1.90%	12,831	11.00%	
217,000	21,700	10.00%	21,700	2.00%	21,700	12.00%	
271,000	27,100	10.80%	29,268	2.20%	29,268	13.00%	
326,000	32,600	11.70%	38,142	2.30%	38,142	14.00%	
380,000	38,000	12.50%	47,500	2.50%	47,500	15.00%	
434,000	43,400	13.40%	58,156	2.60%	58,156	16.00%	
488,000	48,800	14.30%	69,784	2.70%	69,784	17.00%	

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

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

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

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

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

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

Upper Columbia River Summer Chinook

Mainstem Columbia River summer Chinook fisheries occurring during the summer management period (June 16 through July 31) are managed in accordance with the harvest rate schedule provided in Table A2 of the 2018–2027 MA. Table A2 follows the general framework described in the table below but provides a more detailed description of incremental harvest rates and escapement past fisheries. The parties agree to manage upper Columbia River summer Chinook based on an interim management goal of 29,000 hatchery- and natural-origin adults, as measured at the Columbia River mouth. The management goal is based on an interim combined spawning escapement goal of 20,000 hatchery and natural adults upstream of Priest Rapids Dam. Current escapement goals may be reviewed by the parties to *U.S. v. Oregon* during the course of the new agreement. The following table outlines the current framework for upper Columbia summer Chinook harvest rates.

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

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

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

Based on this framework, the sharing formula allows for greater numbers of fish to escape fisheries when runs are greater than 50,000 fish. Non-treaty PFMC-area ocean fisheries and all in-river fisheries are included in the treaty/non-treaty sharing of upper Columbia summer Chinook.

Sockeye

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

Treaty Indian Sockeye Harvest Rate Schedule, 2018-2027	
Upriver Sockeye Run Size	Harvest Rate
<50,000	5%
50,000 - 75,000	7%
>75,000	7%, with further discussion

If the upriver sockeye run is projected to exceed 75,000 adults over Bonneville Dam any party may propose harvest rates exceeding the aforementioned harvest rates. If harvest-rate modifications are proposed, parties shall prepare a revised BA of proposed Columbia River fishery impacts on ESA-listed sockeye and shall submit the BA to NMFS for consultation under Section 7 of the ESA.

Winter Steelhead

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

Steelhead encountered in Bonneville Pool treaty fisheries from November through March are classified as winter steelhead. There are no specific annual impact limits for wild winter steelhead prescribed for treaty fisheries. However, ESA impacts are expected to remain within an average range of 0.2–1.0%.

Summer Steelhead

Non-treaty fisheries have a 2% ESA-impact limit on wild lower Columbia River summer steelhead (lower Skamania stock), which are handled in non-treaty mainstem fisheries downstream of Bonneville Dam during the months of May and June.

From April 1 through June 30, steelhead harvested in the Bonneville Pool are classified as upriver Skamania stock summer steelhead for the purpose of fisheries management. Non-treaty fisheries are limited to a 2% impact rate on wild fish. There are no specific annual impact limits for wild steelhead caught in treaty fisheries during this period, but catches are expected to remain within recent-year ranges.

Steelhead handled in winter/spring and summer fisheries (January–June) occurring between The Dalles Dam and the Highway 395 Bridge are classified for the purpose of fisheries management as A- and B-Index summer steelhead from the prior run year. Steelhead handled in July fisheries from the Columbia River mouth upstream to the Highway 395 Bridge are classified as A- and B-Index summer steelhead from the current run year. Non-treaty winter/spring and summer mainstem fishery impacts to wild fish are grouped by run year and are subject to a 2% limit each on wild A- and B-Index fish.

Steelhead harvested from November 1 through June 30 in mainstem treaty fisheries upstream of The Dalles Dam are classified as A- and B-Index summer steelhead. Harvest in November and December counts against the overall fall season impact limits. In the winter and spring, because

catches are generally very low, there is no specific annual impact limit for treaty fisheries; however, catches of wild steelhead are expected to remain within recent-year ranges.

Commission Guidance Regarding Non-Treaty Fisheries

In 2008, a Columbia River Fish Working Group (CRFWG) consisting of six members of the Oregon and Washington fish and wildlife commissions, agency staff, and advisors from the recreational, commercial, and conservation communities was formed to develop a near-term strategy for managing Columbia River spring Chinook fisheries. A consensus recommendation emerged from this process which, in part, identified objectives and priorities, strategies to manage uncertainty, and a sharing schedule for allocation of upriver spring Chinook impacts for the commercial and recreational sectors. Both commissions relied on these recommendations to set policies regarding management of Columbia River spring Chinook fisheries for the next several years.

In August 2012, then-Oregon Governor John Kitzhaber asked the OFWC to initiate a public rulemaking process to consider a new fisheries management and reform framework for Columbia River recreational and non-tribal commercial fisheries. Consequently, the fish and wildlife commissions of Oregon and Washington established a Columbia River Fishery Management Workgroup in September 2012 and tasked it with developing a set of recommendations for managing these fisheries in 2013 and beyond. This task was much broader in scope and scale than the 2008 process. Governor Kitzhaber further asked that the Workgroup formulate a plan to: 1) prioritize recreational fisheries in the mainstem Columbia and commercial fisheries in off-channel areas, 2) phase out the use of commercial gill nets in the mainstem Columbia, while retaining their use in off-channel areas, 3) improve off-channel fisheries by increasing hatchery production in those areas, as well as expanding fishery areas and/or seasons, 4) continue development and use of alternative fishing gears for mainstem commercial fisheries, and 5) utilize "Adaptive Management" if goals and objectives are not being met. In November 2012, the Workgroup reached consensus on, and subsequently forwarded to the Oregon and Washington commissions, recommendations for management strategies for Columbia River recreational and non-tribal commercial fisheries for 2013 and beyond. The management strategies, collectively known as the "Harvest Reform Policy", were approved by the Oregon and Washington Fish and Wildlife Commissions in late 2012 and early 2013, respectively.

During 2013-2016, the Commissions were updated periodically on performance of the fisheries (angler trips, harvest, economic values, etc.) during the "Transition Period". After this timeframe, both Commissions utilized "Adaptive Management" to modify their rules/policies, which resulted in partial non-concurrence in policy guidance for fall fisheries beginning in 2017.

From November 2018 through January 2019, WDFW and ODFW staff each completed comprehensive reviews and reported on effects of the Harvest Reform Policy (Policy) during the transition period. Based on these reviews and non-concurrence issues, the Commissions agreed in November 2018 to create a Columbia River Fishery Policy Review Committee (PRC) to evaluate and recommend potential Policy modifications, with an initial goal of achieving concurrency between the states for 2019 fishery management. The PRC, which consisted of commissioners from each state, met multiple times in early 2019 to develop concurrent Policy recommendations for 2019. The PRC proposal for 2019 fisheries was adopted by WFWC regulation in March 2019

and by the OFWC via temporary rule in June 2019. The PRC continued to meet through October 2019 to evaluate information relative to the effects of the Policy with a goal of developing Policy recommendations for 2020 and beyond. However, due to the departure of OFWC PRC members, the OFWC suspended participation in the PRC in late October 2019. Because of continued non-concurrence, fishery guidance for 2020 and 2021 was established through Director-Director negotiations. The WFWC continued the long-term planning process by creating the Columbia River Salmon Fishery Policy Workgroup (CRW) in early 2020, which consisted of three WFWC members (previously on the PRC). The CRW developed a new WFWC Policy C-3630, which were adopted by the WFWC in September 2020. Due to continued Policy and regulatory non-concurrence between the states, joint-state Commission discussion was re-initiated beginning November 2020 and has continued into 2022. Until concurrency is achieved by the Commissions, fishery guidance is expected to continue through Director-Director negotiations.

Non-Treaty Impact Allocations of Upriver Spring Chinook

The Oregon and Washington Fish and Wildlife commissions (Commissions) provide staff with policy guidance for shaping fisheries preseason and managing fisheries in-season. In 2013 the Commissions adopted a suite of policy guidelines for non-treaty spring Chinook fisheries which included allocation guidelines for assigning available ESA impacts for upriver spring Chinook among the various fisheries. In order to comply with catch-balancing provisions of the 2018–2027 MA, Washington and Oregon translate the ESA-based guidance received from the Commissions into shares of available upriver-stock harvest (kept catch plus release mortalities) available to each non-treaty fishery. The schedule below reflects the current Oregon policy and previous Washington policy. Director negotiation in 2020 resulted in a 75% recreational/25% commercial sharing due to non-concurrent allocation policies. In September 2020, the WFWC approved a suite of abundance-based recreational/commercial allocation schedules that includes an 80% recreational/20% commercial allocation for runs below 82,000, 70%/30% allocation for runs 82,001-217,000, and 65%/35% for runs greater than 217,000.

Allocation Schedule for Upriver Spring Chinook ESA Impacts based on Commission Policy		
	Allocation	**Pre-update buffers**
2013 [1]	65%/35% recreational/commercial 75% of recreational share to area downstream of Bonneville Dam	Commission Buffer = 20% of recreational fishery impact and 40% of commercial fishery impact *U.S. v OR* run size buffer = 70% of pre-season forecast
2014-2016	70%/30% recreational/commercial 75% of recreational share to area downstream of Bonneville Dam	Commission Buffer = 20% of recreational fishery impact and 40% of commercial fishery impact *U.S. v OR* run size buffer = 70% of pre-season forecast
2017-beyond	80%/20% recreational/commercial 75% of recreational share to area downstream of Bonneville Dam	*U.S. v OR* run size buffer = 70% of pre-season forecast Run size buffer not applied to Select Area commercial impacts

[1]Implementation of the new policy was delayed which caused the states to maintain the 2012 policy sharing guidelines for the 2013 season. Based on the 2012 guidelines, ESA impacts were shared 60% sport and 35% commercial, with 5% unallocated. The pre-update buffers remained as described.

Upper Columbia River Summer Chinook Harvest Sharing Guidelines

The harvest allocation for non-treaty fisheries is determined through a three-tier process that utilizes policy guidelines set forth in the 2018–2027 MA, the agreement between Confederated Tribes of the Colville Reservation (CCT) and WDFW (CCT/WDFW Agreement), and by current Commission policies. The harvest rate schedule under the 2018–2027 MA determines the sharing formula of harvestable fish between treaty and non-treaty fisheries (shown in previous section). When calculating the harvestable shares, harvest in non-treaty ocean fisheries south of Canada is considered part of the non-treaty share.

The CCT/WDFW Agreement provides a harvest-sharing matrix also based on run size of upper Columbia summer Chinook. Once the share for non-treaty fisheries is established through the MA matrix, the CCT/WDFW Agreement matrix allocates harvestable Chinook to non-treaty (including Colville and Wanapum tribal fisheries) upstream and downstream of Priest Rapids Dam.

Non-Treaty Harvest Allocations and framework for Upper Columbia Summer Chinook				
River mouth run size[1]	Harvest guide Above PRD[2]	Harvest regime below PRD	Description of expected fisheries above PRD	Proportion > PRD to Colville Tribes
0–29,000	> 90%	No directed harvest	C&S for Colville and Wanapum, potential selective recreational	90%
29,001– 50,000	90%	Limited recreational	C&S for Colville and Wanapum, limited recreational	70%
50,001– 60,000	90% -70%[3]	Recreational and/or commercial	C&S for Wanapum and Colville, recreational	50%
60,001– 75,000	70 - 65%	Recreational and/or commercial	C&S for Wanapum and Colville, recreational	50%
75,001– 100,000	65% - 60%	Recreational and/or commercial	C&S for Wanapum and Colville, recreational	55%
100,001+	60%	Recreational and/or commercial	C&S for Wanapum and Colville, recreational	>55%[4]

[1]Increases in spawning escapement) will require a corresponding increase in river mouth run size.

[2]PRD = Priest Rapids Dam. Changes in percent of harvest does not diminish existing fisheries in total fish available for harvest, rather it provides for additional harvest opportunities in other areas, consistent with the increase in run size.

[3]Range is reflective of harvest holding steady or increasing slightly above PRD as harvest rates increase below PRD. Total number harvest available for harvest is > than previous break point in run size at mouth.

[4]Actual proportion to be negotiated by the Parties prior to fishing.

The Commissions provide staff with policy guidance in the sharing of harvestable fish available for non-treaty fisheries downstream of Priest Rapids Dam. For several years (through 2012), the Commissions determined that these fish should be shared equally (50/50) between commercial and recreational fisheries. Beginning in 2013, the Commissions adopted a new policy regarding the sharing of harvestable fish available for non-treaty fisheries downstream of Priest Rapids Dam.

The schedule below reflects the current Oregon policy and previous Washington policy. In September 2020, the WFWC approved a suite of abundance-based recreational/commercial allocations below Priest Rapids Dam that include an 80% recreational/20% commercial allocation for runs below 50,000, 70%/30% allocation for runs 50,001-100,000, and 60%/40% allocation for runs greater than 100,000. Director negotiation in 2021 resulted in an 80% recreational/20% commercial allocation.

Allocation Schedule for Upper Columbia Summer Chinook based on Commission Policy					
	Recreational		Commercial		
	Share	Area	Share	Area	Gear
2013 [1]	60%	Mainstem, downstream of Priest Rapids Dam	40%	Mainstem, downstream of Bonneville Dam; Select Areas	Gillnet
2014-2016	70%	Mainstem, downstream of Priest Rapids Dam	30%	Mainstem, downstream of Bonneville Dam; Select Areas	Gillnet
2017-beyond	80%	Mainstem, downstream of Priest Rapids Dam	20%	Mainstem, downstream of Bonneville Dam; Select Areas	Alternative gear in mainstem

[1] Implementation of the new policy was delayed which caused the States to agree to manage the 2013 fisheries based on a 55/45 sport/commercial split.

Non-Treaty Impact Allocations of Sockeye

The following schedule reflects the current Commission policies for non-treaty sockeye fisheries. Prior to 2013, impacts were not directly assigned, but were allocated to meet fisheries objectives. In addition to specifying allocation shares, the new policies prohibit sockeye-directed commercial fisheries. The schedule below reflects the current Oregon policy and previous Washington policy. In September 2020, the WFWC approved a 70% recreational/30% commercial allocation. Director delegation in 2021 did not address this non-concurrence issue and resulted in a 70% recreational/20% commercial/10% unused allocation.

Allocation Schedule for Snake River Sockeye ESA Impacts based on Commission Policy				
	Recreational		Commercial [1]	
	Share	Area	Share	Area
2013-2016	70%	Mainstem, downstream of Snake River	30%	Mainstem, downstream of Snake River; Select Areas
2017-beyond	≈80%	Mainstem, downstream of Snake River	≈20%	Mainstem, downstream of Snake River; Select Areas

[1]For incidental sockeye harvest in Chinook-directed fisheries. No commercial sockeye-directed fisheries allowed.

Willamette Spring Chinook Management

Fishery Management and Evaluation Plan for Willamette Spring Chinook

Following the ESA-listing of wild Willamette Basin spring Chinook in 1999, the state of Oregon completed a FMEP to comply with Section 4(d) of the ESA. The FMEP set forth maximum freshwater impact limits for wild Willamette River spring Chinook of 20% for 2001 and 15% for 2002 and beyond. These limits apply to impacts associated with recreational fisheries occurring in the Willamette River Basin and with recreational and commercial fisheries occurring in the

mainstem Columbia River and Select Areas. In addition to the impact limits, the FMEP requires that all wild Willamette River spring Chinook landed in mainstem Columbia River and Willamette River fisheries be released. In accordance with the FMEP, recreational and commercial fisheries are managed to ensure that cumulative freshwater mortality does not exceed 15% of the combined wild spring Chinook run destined for the Willamette River.

Willamette River Basin Fish Management Plan

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

Hatchery Spring Chinook Escapement Goals at Willamette Falls and the Clackamas River

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

These escapement levels are designed to provide for full mark-selective recreational fisheries in the Willamette River and its tributaries upstream of Willamette Falls and meet hatchery broodstock goals. The increase in escapement goals as the hatchery run size increases allows fisheries upstream of Willamette Falls to share in the benefits available to lower Willamette River and mainstem Columbia River fisheries created at higher abundances of hatchery fish.

The recreational and commercial allocations of hatchery-produced Willamette spring Chinook at various hatchery fish run sizes are shown in the table below. Recreational fisheries include the lower Columbia River downstream of Bonneville Dam, the lower Willamette River downstream of Willamette Falls, and the lower Clackamas River downstream of North Fork Dam. Commercial fisheries include the mainstem Columbia River downstream of Beacon Rock and Select Area fisheries. The allocation plan provides recreational fisheries in the mainstem Willamette and Clackamas Rivers at hatchery run sizes greater than 23,000 fish and an incrementally larger commercial share (up to 30%) as the run of hatchery fish increases. Limitations on upriver spring Chinook generally restrict access to the commercial share of the Willamette hatchery surplus in the mainstem Columbia River. At low run sizes (<40,000 hatchery fish), the commercial fishery

is restricted to ≤1% of the predicted return to allow for minimal incidental harvest of Willamette hatchery fish during other commercial fisheries.

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

REVIEW OF MAINSTEM, SELECT AREA, AND TRIBUTARY FISHERIES

Non-Treaty Fisheries

Past Mainstem Commercial Salmon Seasons

Winter-season commercial salmon fisheries have occurred since 1878. Beginning in 1957, all non-treaty commercial fisheries have been restricted to Zones 1–5 (Columbia River mouth upstream to Beacon Rock) and treaty commercial fisheries to Zone 6 (Bonneville Dam to McNary Dam; Figure 2). To reduce catch of upriver spring Chinook, no commercial salmon fishing was allowed upstream of Kelley Point at the Willamette River mouth during winter salmon seasons from 1975–2007. A minimum gillnet mesh size restriction of 7¼-inches was enacted in 1970 to reduce steelhead handle. Subsequent to the prohibition of sales of steelhead in 1975, the minimum mesh size was increased to 8-inches to further reduce steelhead handle. This mesh size remained in effect until the introduction of small mesh tangle nets and live-capture techniques to the fishery in 2001. No winter gillnet salmon seasons occurred in the lower river during 1995 and 1997–1999 but small numbers of spring Chinook were landed in conjunction with winter target sturgeon seasons during those years. Winter and spring season fishing dates, mesh size restrictions, and landings are included in Table 17.

The adoption of the Willamette River spring Chinook FMEP in 2001 required the release of unmarked spring Chinook in commercial and recreational freshwater fisheries. The first spring season mark-selective commercial fishery for Chinook occurred in 2001 using tangle nets. This live-capture fishery consisted of a permit fishery with participation limited to 20 vessels; all fishing activities were fully monitored by ODFW/WDFW observers. The fishery consisted of one weekly 8-hour fishing period during the 4-week period from April 23 through May 18.

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

In December 2003, the *U.S. v. OR* TAC reviewed preliminary results of post-release mortality studies conducted from 2001–2003 and concluded, for 8-inch-mesh gillnets, the best available information supported the use of an estimated post-release mortality rate of 40% for Chinook and 30% for steelhead. Upon considering similarities in the 4¼-inch tangle net capture profiles of steelhead and Chinook, the TAC concluded the most appropriate post-release mortality rate

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

Since 2004, winter/spring salmon fisheries have been conducted according to an evolving suite of guiding principles and fishery management objectives adopted by the WFWC and OFWC. These principles and objectives provide the Joint Staff with guidance when shaping and managing fisheries. From 2004–2016, a preseason fishing plan was developed annually in cooperation with the Columbia River Commercial Advisory Group giving the commercial industry a plan for marketing and providing a basis for making in-season management decisions. This plan typically outlined a weekly schedule of test fishing to determine the relative abundances of fin-marked and unmarked spring Chinook and steelhead. After test fishing results were known, the decisions of whether or not to fish and what gear to use could be made. Fishing periods were scheduled to maximize retention of hatchery spring Chinook and minimize handle of steelhead and unmarked Chinook. This process continued until either the upriver Chinook impact allocation, the hatchery Willamette harvest allocation, or the wild winter steelhead impact limit were reached; however, the upriver spring Chinook impact allocation was typically the most constraining factor.

Beginning in 2017, mainstem winter/spring season salmon fisheries have not been prosecuted due to the Harvest Reform policies approved by the Oregon and Washington Fish and Wildlife Commissions.

2021 Winter/Spring Mainstem Commercial Salmon Season

No spring mainstem commercial fishery occurred in 2021 due to existing Commission guidance which limits the commercial upriver spring Chinook impact allocation to 20% of the non-treaty total, prioritizes use of these impacts in Select Area commercial fisheries, and is inconsistent regarding the prosecution of mainstem commercial spring Chinook fisheries.

Past Lower Columbia River Spring Chinook Recreational Fisheries

Under permanent regulations, the mainstem Columbia River from Buoy 10 to the I-5 Bridge (RM 106) is open for spring Chinook retention during January 1 through March 31, and the area from the I-5 Bridge upstream to the Oregon/Washington border above McNary Dam closes effective January 1 each year (since 1993). The purpose of these regulations is to target early-migrating Willamette spring Chinook and reduce the catch of upriver spring Chinook. During 1995–1999, recreational fisheries for spring Chinook on the lower Columbia River were all but eliminated to protect a weak return of upriver spring Chinook in 1995 and low Willamette spring Chinook runs during 1996–1999. In 2000, biologists predicted the largest upriver run since 1977 (134,000 preseason forecast) and an improved Willamette River run size of 59,900; and the OFWC allocated 1,200 Willamette spring Chinook to the mainstem Columbia River recreational fishery. Problems

with the issuance of a BO from NMFS, however, resulted in an early (March 16) closure of the 2000 recreational fishery and a catch of only 322 adult spring Chinook.

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

Mark-selective recreational fisheries for spring Chinook have occurred annually since 2001. In 2002, mark-selective (adipose-fin clipped only) regulations for spring Chinook were permanently adopted for the lower Columbia River, although Oregon modified the definition of hatchery fish to include fish with any clipped fin and a healed scar effective in 2017. In 2004, the states adopted a regulation prohibiting the removal of unmarked fish from the water to provide additional protection for released fish. To date, there has been no research conducted to evaluate the mortality of salmon and steelhead released in the mainstem Columbia River recreational fishery. In the absence of Columbia River-specific post-release mortality studies, TAC conducted extensive literature reviews and concluded that a post-release mortality rate of 10% should be applied to mainstem recreational fisheries for salmon and steelhead during the spring management timeframe.

The daily bag limit for the recreational spring Chinook fishery downstream of Bonneville Dam was two adult Chinook or steelhead in combination during 2000–2007, except for 2005 when a one-fish bag limit was adopted for the area between Rooster Rock and Bonneville Dam. Beginning in 2008, the daily bag limit was changed to one adult spring Chinook effective during March through June 15, although two fish were allowed during the latter portion of the 2015 and 2018 seasons, when it was clear the recreational fishery could not access its allowable upriver catch guideline. In-season management has been necessary in most years to maintain the recreational catch within ESA guidelines, non-treaty harvest-sharing allocations, and/or catch-balancing agreements with the Columbia River treaty tribes. During all years, the states have provided opportunity for anglers upstream of Bonneville Dam. Regulations for 2002–2021 Columbia River recreational spring Chinook fisheries are listed in Table 22 and catch and effort totals are shown in Tables 24 and 26. Information for recreational fisheries above Bonneville Dam is shown in Table 22 and/or Table 25.

2021 Lower Columbia River Spring Chinook Recreational Fishery

In 2021 the spring Chinook run forecast was 143,200 adults to the mouth of the Columbia, comprised of an upriver component of 75,200 fish and a lower river component of 68,000 fish. The lower river forecast included an average expected return of 50,000 Willamette spring Chinook (including 38,300 hatchery-origin fish), and poor returns of 1,800 fish to the Cowlitz, 2,200 to the

Kalama, and 2,400 to the Lewis rivers in Washington. According to the Willamette FMEP, a total of 15,260 Willamette hatchery spring Chinook were available to recreational fisheries in the lower Willamette and lower Columbia; however, there were only about 100 surplus Cowlitz River hatchery spring Chinook available for harvest in 2021. The 2018–2027 MA provided a 1.5% impact to ESA-listed upriver spring Chinook to non-treaty fisheries in 2021, based on the upriver spring Chinook run size forecast.

The OFWC and WFWC provided guidance for spring Chinook fisheries in 2021 (see Non-Treaty Impact Allocations of Upriver Spring Chinook). Due to non-concurrent guidance from the two commissions regarding allocations, the agency directors negotiated a compromise for spring fisheries in 2021. This guidance, combined with run-size buffer provisions from the 2018–2027 MA, provided 2,234 upriver spring Chinook (kept plus release mortalities) to the recreational fishery below Bonneville Dam prior to a run-size update with a corresponding impact rate expectation of 0.49% to ESA-listed upriver spring Chinook.

The states adopted regulations for the 2021 spring Chinook fishery at the February 23 Compact/Joint State hearing. Permanent regulations for the Columbia River from Buoy 10 to the I-5 Bridge began January 1 and remained in effect through February 28. At the hearing, the states adopted a March 1–April 4 season for the lower Columbia River between Buoy 10 and Beacon Rock, plus the Oregon and Washington banks between Beacon Rock and Bonneville Dam. Due to concern about the low Cowlitz River run size forecast, the states adopted a boat angling closure around the mouth of the Cowlitz River to provide additional conservation for that stock. The two-fish daily bag limit was modified to include only one adult hatchery spring Chinook effective March 1, and the retention of American Shad and hatchery steelhead was allowed for the duration of the spring Chinook season.

Snowpack was near normal across the Columbia River basin at the beginning of 2021, ranging from 74% of average in southern Idaho to 122% of normal in central Washington. Although precipitation was above normal, high freezing levels kept snowpack from accumulating, and most lower and middle Columbia River tributaries were near flood stage during mid-January. Snowpack increased during a mid-February cold snap, which brought snow to the Willamette Valley floor followed by subsequent melting and increased flows in the lower Columbia tributaries. A few winter steelhead and spring Chinook were caught in the lower Columbia near Longview during the February 20-28. Through the end of February, salmonid anglers made 2,698 trips and caught six hatchery spring Chinook (kept) and 19 winter steelhead (12 kept and seven released).

By early March, most lower Columbia River tributaries were dropping and clearing, and flows at Bonneville Dam were 137 kcfs and 39°F with 6-foot visibility. The first spring Chinook of the month was sampled on March 12 at Longview; however, spring Chinook catches remained low despite good water conditions. Catch rates improved by March 21, especially around Cathlamet and I-5, and anglers landed about 1,000 spring Chinook during March 22-28 and another 600 during March 29-31. The total catch during March 1-31 was 1,737 adult spring Chinook (1,534 kept and 203 released) and 197 winter steelhead (63 kept and 134 released) from 25,933 angler trips. Based on VSI sampling, upriver river stock spring Chinook comprised 63% of the retained catch during March.

During April, angler effort increased and catch rates improved in the Gorge and around Troutdale, and anglers caught 1,629 adult Chinook during April 1-4 when the fishery closed downstream of Bonneville Dam. Through April 4, anglers landed a total of 3,272 adult spring Chinook (2,943 kept and 329 released) and 244 winter steelhead (98 kept and 146 released). Based on VSI sampling, upriver spring Chinook comprised 69% of the retained catch, and the recreational fishery below Bonneville had utilized about 92% of its pre-update guideline, which did not leave enough of a balance to set another day of fishing prior to the run update. Through April 4, a total of 174 adult spring Chinook had passed Bonneville Dam.

Chinook passage improved at Bonneville Dam during late April thorough mid-May, and TAC updated the upriver run size to 87,000 adult spring Chinook on May 17. At the updated run size, there was a balance of 2,650 upriver spring Chinook for the recreational fishery below Bonneville Dam. The states held a hearing on May 18 and adopted 18 fishing days during May 21-23 and June 1-15 from Tongue Point upstream to Bonneville Dam. Spring Chinook returns to the Kalama and Lewis rivers were tracking ahead of expectations; however, returns to the Cowlitz Hatchery were tracking below expectations and did not support removing the boat angling closure around the mouth of the Cowlitz. Due to poor returns of upriver Skamania stock summer steelhead at Bonneville Dam, the states also reduced daily steelhead bag limit in the recreational fishery to one fish effective May 21-June 15. The states expected to use about 84% of the lower river recreational fishery's remaining upriver Chinook catch guideline in the adopted fishery.

Water conditions on May 21 were high, clear, and cool with flows at Bonneville Dam averaging 220 kcfs, 58°F, and 7-foot visibility. Effort was moderate on all three days during May 21-23 with 459 boats and 385 bank anglers tallied on the Saturday flight. Catch rates were highest for boat anglers near Prescott Beach and Cathlamet and for Washington bank anglers in the Gorge; however, catches remained slightly below expectations overall. The total catch from May 21-23 was 649 adult spring Chinook (472 kept and 177 released) from 5,500 angler trips. The states held another hearing on Tuesday May 25 and adopted one additional day of spring Chinook fishing for Saturday May 29. While the recreational fishery had utilized just over half of its total upriver impact guideline, there were 15 additional fishing days previously adopted (June 1-15), so no additional opportunity was considered at the May 25 hearing. The catch from May 29 was 310 adult spring Chinook (180 kept and 130 released) from 2,600 angler trips. On June 1, TAC met and updated the upriver run size to 91,800 at the mouth of the Columbia River.

Catch rates during June 1-15 were the highest of the season; however, the mark rate for Chinook decreased to 69%. Boat anglers did the best from Cathlamet upstream to Prescott and in the Gorge. Bank anglers did well at Kalama, Prescott, and Jones beaches. The states held a Joint State Hearing on June 10 and increased the daily bag limit for spring Chinook to two adult hatchery fish effective June 12-15 to improve access to the remaining LCR sport allocation. The final catch for June 1-15 was 2,580 adult spring Chinook (1,790 kept and 790 released), 456 Chinook jacks (341 kept and 115 released), 209 summer steelhead (143 kept and 66 released), and 67 sockeye (released) from 14,282 angler trips. Based on VSI sampling, upriver spring Chinook comprised 47% of the retained catch during June.

The final catch in the 2021 recreational fishery below Bonneville Dam through June 15, including catch in the summer steelhead fishery, was 6,813 adult spring Chinook (5,385 kept and 1,428 released), 744 spring Chinook jacks (547 kept and 197 released), 518 steelhead (294 kept and 224

released) and 67 sockeye (released) from 67,219 angler trips. The spring Chinook catch was the highest since 2018. The total upriver spring Chinook catch (kept catch plus release mortality) in the recreational fishery below Bonneville Dam was 4,088 adult Chinook, or 84% of the catch balance guideline allowed in the MA; and the final impact to upriver spring Chinook was 0.57% compared to the allowable impact rate of 0.90%.

2021 Spring Chinook Recreational Fisheries upstream of Bonneville Dam

Director-Director negotiations in 2021 resulted in 30% of the recreational ESA-impact allocation being provided to fisheries upstream of Bonneville Dam. This area includes the Columbia River upstream of Bonneville Dam to the Oregon and Washington border (located approximately 17 miles upstream of McNary Dam) and fisheries in Washington waters of the Snake River. The director negotiation slightly modified the sub-allocations relative to recent years with ~42% allocated to the mainstem Columbia fishery and ~58% for the lower Snake River fishery. For 2021, the pre-update ESA impact allowance totaled 0.210% impact.

Bonneville Dam upstream to the Oregon-Washington border

Since 2011, the Columbia River Zone 6 recreational fishery has included the area from McNary Dam upstream to the Oregon/Washington border, and the Oregon and Washington banks between Bonneville Dam and Tower Island. Prior to 2017, catch estimates were based on limited creel survey efforts in-season and were updated post-season with catch record card data when available. Beginning in 2017, estimates of catch and effort are provided by robust creel programs implemented by ODFW (area between Bonneville Dam and McNary Dam) and WDFW (area upstream of McNary Dam).

The fishery was open under mark-selective regulations from March 16–May 5, May 22-23, May 29-30, June 5-6, and June 12-15. The daily bag limit for adult Chinook was one hatchery fish for the majority of the season but the bag limit was increased to two adult hatchery Chinook for June 12-15. Washington's permanent regulations allowing only hand-casted lines to be used on the Washington shore downstream of Tower Island when the area is open for hatchery spring Chinook, including the provision that no floating devices would be allowed to set lines for salmon or steelhead were in place.

Season total catch estimates for adult Chinook include 761 kept and 348 released from approximately 5,300 angler trips (Table 25). ESA impacts associated with this fishery totaled 0.121%, or 76% of the 0.160% post-season impact guideline for this fishery. Kept plus release mortalities totaled 796 fish or 92% of allowed.

Snake River Recreational Fisheries (Washington waters)

Since 2001, springtime recreational fisheries have occurred in Washington waters of the Snake River for hatchery Chinook. As with all fisheries, seasons are dependent on the run size, allowable ESA limits, allocations, and current policy. A creel program is used to track catch and effort.

In 2021, prior to a run size update, 0.123% ESA impacts were set aside for this fishery, which translated to 288 Chinook allowed (kept plus release mortalities). The fishery was opened in one section of the Snake River in Washington waters. The fishery was open two days per week with

an adult daily limit of one hatchery Chinook. No closure dates were set, but the fishery is typically expected to remain open for four to six weeks, with the closure date dependent on catch rates and associated impacts (but may be open through the end of June). The area downstream of Little Goose Dam opened to hatchery Chinook retention on May 4. On May 12, WDFW closed fishing at Little Goose dam as harvest levels for the preseason forecast were met. On May 21, WDFW reopened the Snake River fishery for two days (May 25 and 28) based on TAC's in-season run upgrade. After this two-day fishery, impacts were still available for the Snake River and on June 2 another rule allowing two additional days (June 4 and 6) was adopted. Season-total catch estimates of adult Chinook are 443 kept and 123 released (Table 25). ESA impacts associated with this fishery totaled 0.127%, or 57% of the 0.224% post-season impact guideline for this fishery. Kept and release mortalities totaled 455 fish (60% of allowed).

Lower Columbia River Tributary Spring Chinook Fisheries

Tributary spring Chinook recreational fisheries downstream of Bonneville Dam have been mark-selective since 2001.

Willamette and Sandy rivers

In 2021, the lower Willamette River (downstream of Willamette Falls, including Multnomah Channel and the Clackamas River downstream of the Highway 99 Bridge) opened for retention of spring Chinook seven days per week effective January 1 with a two fish daily bag limit under permanent mark-selective (adipose fin-clip) regulations. No in-season modifications were made in 2021. Based on mark-recapture studies conducted in the Willamette River during 1999-2001, the post-release mortality rate for Chinook in the Willamette River and tributaries is estimated to be 12.2%. The 2021 estimate of the lower Willamette River recreational harvest was 6,473 jack and adult spring Chinook (kept and release mortalities) which was slightly more than the previous 5-year average of 6,076. The estimate of the total run entering the Willamette in 2021 was 41,784 which was below the previous 5-year average of 42,496 (Table 3). Willamette River anglers harvested 15.5% of the total return which is slightly higher than the recent 5-year average of 14.5%.

The 2021 upper Willamette River (upstream of Willamette Falls) spring Chinook recreational fishery opened on January 1, seven days per week, with a two fish daily bag limit under permanent mark-selective regulations. No in-season modifications were made to this fishery. The 2021 estimate of angler harvest derived from catch record cards is not yet available because of normal delays in receiving and processing angler catch records. However, angler harvest can be estimated using the average proportion of the Willamette Falls count caught in the recreational fishery upstream of the falls (mainstem Willamette River and tributaries combined) for the years that catch records are available. Using the five most recent years catch records available (2016 – 2020) an estimate of 12.0% of the Willamette Falls spring Chinook count was harvested above the falls for a total angler harvest estimate of 3,589 fish in 2021 (Table 4).

The recreational fishery for spring Chinook on the Sandy River is not sampled for catch or effort during the season; therefore, catch is estimated from angler-returned catch records. Final catch estimates for 2021 are not available currently due to normal delays in receiving and processing

this information. Based on average catch rates from 2018-2020, the 2021 total catch in the Sandy is estimated to be 594 adult spring Chinook (Table 28).

Cowlitz, Kalama, and Lewis rivers

Under permanent regulations the Cowlitz, Kalama, and Lewis rivers were open January 1–March 4 with a two adult daily limit with the exception of the Lewis River at one adult. The Cowlitz River was closed to Chinook retention March 5–June 25 and re-opened June 26–July 31 with a two adult daily limit. The Kalama River remained open from March 5–June 4 with a reduced daily limit of one adult but for June 5–July 31 the Kalama River returned to a two adult daily limit. The Lewis River remained open with a one adult daily bag limit until April 30 and was closed to Chinook retention from May 1–July 31.

Preliminary hatchery adult spring Chinook recreational catch estimates for Washington lower Columbia River tributaries are based upon creel sampling and escapement data until catch record card data are available.

An estimated 711 hatchery adult spring Chinook were harvested in Washington lower Columbia River tributaries in 2021 including 49 fish from the Cowlitz, 455 from the Kalama, and 207 from the Lewis (Table 28). The combined hatchery adult spring Chinook harvest rate in these Washington tributaries was 8.7%, compared to the recent 10-year average of 28.9%.

Wanapum Tribal Spring Chinook Fishery

Wanapum tribal fisheries occur on the mainstem Columbia River in McNary Pool between Priest Rapids Dam and Vernita Bridge; harvest may also be permitted in the area immediately upstream of PRD. Salmon are used for ceremonial and subsistence purposes only. Permits are issued annually by WDFW which regulate the times for, and manner of, taking the salmon. A total of 11 adult spring Chinook were originally permitted to the Wanapum Tribe which was increased to 20 fish following the run size update. The Wanapum tribe harvested 11 total (including nine unclipped) spring Chinook in 2021. This harvest represents a 0.063% ESA impact to upper Columbia River spring Chinook compared to the 0.224% allocated.

Past Summer Mainstem Commercial Salmon Seasons

Historical summer commercial seasons in the mainstem Columbia River harvested summer Chinook, sockeye, steelhead, and American Shad. Prior to 2005, no commercial summer Chinook season had occurred downstream of Bonneville Dam since a two-day season in 1964 (in 2004, two 12-hour fishing periods occurred downstream of Beacon Rock targeting sockeye but also allowed the retention of Chinook). The 2005 season consisted of six 10-hour fishing periods between June 23 and July 26 in Zones 1–5 with an 8-inch minimum mesh size requirement. The 2006 season consisted of thirteen 10–12 hour fishing periods between June 26 and July 31, with the same area and gear requirements used in 2005, including a White Sturgeon landing limit. From 2007 through 2016, the season structure averaged three fishing periods (range one to five) in Zones 1–5 with an 8-inch minimum mesh restriction (Table 18). Weekly White Sturgeon landing limits were in place for Chinook-directed fisheries when sturgeon were available for harvest. Sockeye sales were allowed in years where escapement goals are expected to be met and ESA impacts were available. Current Commission policy does not allow for sockeye-directed commercial fisheries.

2021 Summer Mainstem Commercial Salmon Season

No summer season mainstem commercial fishery occurred in 2021 due to allocation guidance limiting the commercial share to 20% of the in-river harvestable surplus available for fisheries downstream of PRD and a requirement for non-gillnet gears, which have not been identified (Table 19).

Past Columbia River Summer Steelhead and Summer Chinook Recreational Fisheries

Under permanent regulations, the mainstem Columbia River is open to the retention of hatchery steelhead beginning May 16 from the Tongue Point/Rocky Point line upstream to the I-5 Bridge and June 16 from the I-5 Bridge upstream to the Oregon/Washington border above McNary Dam. The steelhead fishery is closed under permanent regulations during April 1–May 15 between Buoy 10 and the I-5 Bridge and April 1–June 15 upstream of I-5, when spring Chinook abundance is highest. When spring Chinook fisheries are open during these timeframes, the retention of adipose-fin clipped steelhead is allowed in conjunction with those opportunities. Conversely, when too few upriver spring Chinook impacts remain to allow incidental hooking mortality of Chinook during the target steelhead fishery, the steelhead fishery may be delayed (as late as June 16), as was the case in 2005, 2008, 2009, and 2017.

The recreational summer steelhead fishery has been mark-selective since the mid-1980s. During the mid-1980s through 2015, the only closures of the summer steelhead fishery coincided with the need to protect upriver spring Chinook. Since 2016, conservation needs for upriver summer steelhead have increased as runs of both hatchery and wild summer steelhead have declined, and the states have decreased the daily bag limit and/or closed steelhead retention during a portion of the recreational fishery annually. In addition, the states closed the recreational summer steelhead fishery from late June to mid-July 2020 when the fishery exceeded the non-treaty guideline for sockeye salmon. Recreational fisheries during May and June primarily catch lower river (Skamania stock) summer steelhead returning to numerous tributaries in the lower Columbia, while fisheries during July–October primarily catch upriver steelhead stocks destined for tributaries above Bonneville Dam.

The retention of sockeye is prohibited in all Columbia River recreational fisheries under permanent regulations. The states may allow sockeye retention in the recreational fishery when the run size exceeds 75,000 fish at Bonneville Dam if non-treaty impacts remain less than 1% of the run.

The Columbia River recreational fishery was closed to retention of adult summer Chinook under permanent regulations during June 1–July 31 every year during 1974–2001. In 2002, the states opened a recreational summer Chinook fishery between Tongue Point and Bonneville Dam during June 28–July 31 for the first time since 1973. The high mark rate for summer Chinook allowed the states to adopt mark-selective fishery regulations to provide an opportunity to harvest abundant hatchery Chinook while limiting the impact to ESA-listed Snake River spring/summer Chinook to less than 1%. The states also opened the area from Bonneville Dam upstream to the Oregon/Washington border to the retention of adipose-fin clipped summer Chinook during July 1-31, 2002. Table 23 shows season dates and regulations for recreational fisheries for summer Chinook below Bonneville Dam during 2002-2021.

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

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

Non-mark-selective summer Chinook fisheries also occurred during 2006–2009. The 2006 fishery was open during June 16–July 31 and produced a catch of 4,924 adult Chinook, which was the highest on record at that time (since at least 1969). Summer Chinook run sizes during 2007–2009 were not large enough to allow full, non-mark-selective recreational fisheries, and seasons were shortened to an average of twelve days with catches of 2,200 adult Chinook kept from 24,700 angler trips during those years.

In an effort to expand the recreational fishing opportunity for summer Chinook, the states adopted mark-selective regulations for fin-clipped, hatchery fish in recreational fisheries during 2010–2018 and extended the open area from Tongue Point downstream to the Astoria-Megler Bridge. Also beginning in 2010, the states assigned a 15% post-release mortality rate for adult summer Chinook released in recreational fisheries. During those years, summer Chinook fisheries lasted an average of 32 days, with average annual catches of 3,100 adult summer Chinook kept from 44,500 angler trips. In the 2015 fishery, the states allowed retention of unclipped Chinook during July 3-31 in effort to allow the sport fishery to access a larger portion of its allocation since the run was much larger than initially forecast. The catch of 5,928 adult summer Chinook in the 2015 fishery stands as the highest catch total in the recreational fishery since at least 1969.

In 2019 the states closed retention of both summer Chinook adults and jacks in mainstem recreational fisheries for the first time since 2001 and 1999, respectively. Based on the preseason summer Chinook forecast of 36,300 fish, the expected harvest in non-treaty ocean fisheries, and Washington's internal policies and agreement with the Colville Tribe, there was insufficient allocation to allow any direct harvest in Columbia River non-treaty fisheries downstream of Priest Rapids Dam. A portion of the summer Chinook allocation above PRD was reallocated to

downstream fisheries to cover catch-and-release mortalities of summer Chinook handled in summer steelhead fisheries during June and July.

Similar to 2019, the 2020 summer Chinook run size forecast of 38,300 was not large enough for a directed retention fishery for summer Chinook downstream of Priest Rapid Dam. The states adopted a mark-selective fishery for hatchery summer Chinook during July 4-31, 2020 after the run was upgraded from the preseason forecast of 38,300 to 65,000 fish in season. During June 16 through July 31, 2020, salmonid anglers made 37,099 trips and caught 2,695 adult Chinook (1,191 kept and 1,504 released), 4,580 summer steelhead (1,996 kept and 2,584 released) and 2,442 sockeye (2,069 kept and 373 released).

2021 Lower Columbia River Summer Steelhead and Summer Chinook Recreational Fisheries

Based on the summer Chinook forecast of 78,800 adults and the expected harvest of summer Chinook in non-treaty ocean fisheries, the states adopted a summer Chinook fishery for the lower Columbia River between the Astoria-Megler Bridge and Bonneville Dam during June 16 through July 5, 2021. The states allowed sockeye retention during June 16–July 31 based on the forecast of 155,600 fish with a daily bag limit of one sockeye.

The 2021 upriver summer steelhead run size outlook was similar to the poor returns of 2017–2020. The states adopted a one-fish bag limit for summer steelhead effective June 16–July 31 and closed steelhead retention during August through October. The summer steelhead fishery had opened under permanent rules on May 16 between Tongue Point and I-5; the area upstream of the I-5 Bridge opened early in conjunction with spring Chinook fisheries during May 21-23, May 29, and June 1-15. The states reduced the bag limit to one hatchery steelhead effective May 21 because of record low counts of upriver Skamania stock summer steelhead at Bonneville Dam. Summer steelhead catch rates were poor during May 16–June 15, when anglers caught 274 summer steelhead (196 kept and 78 released), 3,541 adult spring Chinook (2,442 kept and 1,099 released) and 67 sockeye (released) from 23,300 angler trips.

Summer Chinook catches were good from the outset of the fishery on June 16; however, catch rates for summer steelhead remained poor. During June 16-30 anglers made 18,537 trips and caught 2,529 adult summer Chinook (1,797 kept and 732 released), 541 summer steelhead (384 kept and 157 released) and 426 sockeye (385 kept and 41 released).

During July 1-5, salmonid anglers made 4,969 trips and caught 469 adult summer Chinook (337 kept and 132 released), 141 summer steelhead (86 kept and 58 released) and 65 sockeye (55 kept and 10 released). Summer Chinook season closed effective July 6 as planned preseason and did not reopen because the summer Chinook run was less than forecast and the recreational fishery went slightly over its guideline at the revised run size. Steelhead catch rates improved after the summer Chinook fishery closed; however, angler effort was low. During July 6-31, summer steelhead anglers made 5,300 trips and caught 1,316 summer steelhead (578 kept and 738 released), 134 adult summer Chinook (released) and 115 sockeye (94 kept and 21 released).

The total catch June 16–July 31 was 3,132 adult summer Chinook (2,134 kept and 998 released), 486 summer Chinook jacks (317 kept and 169 released), 1,998 summer steelhead (1,048 kept and 950 released) and 606 sockeye (534 kept and 72 released) from 28,868 angler trips (Table 26).

The summer Chinook catch was the highest since 2017 and the 12th highest since retention fisheries reopened in 2002, and the sockeye catch was the 8th highest on record. The total summer steelhead catch was 1,244 during May 16-July 31, which was the third lowest on record behind 1975 and 1976 when the fishery was closed entirely.

2021 Summer Season Fisheries upstream of Bonneville Dam

Bonneville Dam upstream to Chief Joseph Dam Recreational Summer Chinook Fishery

Since 2002, a summer Chinook fishery has occurred upstream of Bonneville Dam, extending to Priest Rapids Dam beginning in 2006. Recreational fisheries also occur upstream of PRD, but are not reported on in detail here. Prior to 2017, in-season catch estimates were based on a limited creel efforts and updated post-season with catch record card data when available. Beginning in 2017, estimates of catch and effort are provided by robust creel programs implemented by ODFW (area between Bonneville Dam and McNary Dam) and WDFW (area upstream of McNary Dam). The current post-release mortality rate used for Chinook is 15% for recreational fisheries downstream of PRD. The 2021 observed mark rate at Bonneville Dam for the summer management period was 69% for adult summer Chinook.

Summer season recreational Chinook fisheries were open June 16 through July 31. The daily bag limit was two adult salmonids, of which no more than one may be a sockeye and no more than one may be a steelhead. All wild Chinook and wild steelhead were required to be released. Catch estimates for this fishery total 94 adult summer Chinook kept and 51 released, no steelhead kept and 18 released, and 1,790 sockeye kept and 20 released from about 8,500 angler trips.

The recreational summer fishery upstream of PRD was mark selective for Chinook; catch estimates (including tributaries) includes 4,933Chinook kept with 2,084 released from about 29,900 angler trips; additionally, 12,827 sockeye were kept (1,672 released).

Non-Treaty Tribal Summer Fisheries

Wanapum tribal fisheries occur on the mainstem Columbia River in McNary Pool between Priest Rapids Dam and Vernita Bridge; harvest may also be permitted in the area immediately upstream of PRD. Salmon are harvested for ceremonial and subsistence use only. Based on the Wanapum Fishing Framework, a harvest matrix is used to determine the allowable catch by Wanapum tribal members. Permits are issued annually by WDFW that regulate the open seasons with time, area, and gear restrictions. A total of 250 summer Chinook and 500 sockeye were permitted to the Wanapum Tribe. The 2021 catch include 62 adult summer Chinook, as well as 236 sockeye (all unclipped).

Colville tribal summer fisheries typically occur on the mainstem Columbia River upstream of Wells Dam. In recent years, Colville tribal fisheries have utilized hook & line, tangle net, and purse seine gear. Based on the preseason forecast and the sharing principles under the Upper Columbia Harvest Agreement, 55% of the harvestable fish available to fisheries upstream of PRD were allocated to the Colville tribes, which amounted to 5,894 adult summer Chinook (including release mortalities). Given the in-season Chinook run size update, the Colville share of the upstream of PRD allocation was reduced to 50% and their allocation changed to 3,754 adult

Chinook due to the abundance decrease. The 2021 Colville tribal harvest estimates include 1,583 adult summer Chinook and 1,601 sockeye.

Past Select Area Winter, Spring, and Summer Commercial Seasons

In 1992, spring Chinook Select Area commercial fisheries began in Youngs Bay. Initially, Youngs Bay fisheries were restricted to the spring season, with periods from late April through early June totaling less than 15 days annually. Landings during the first five years of this fishery ranged from 155–851 spring Chinook. As smolt releases increased, winter and summer seasons were added to harvest more returning hatchery adults. Winter seasons during late February through early March were initiated in 1998 to harvest early returning spring Chinook. Starting in 2006, the Youngs Bay winter season was extended from mid-March into early April by managing the fishery in-season when total impacts to upriver spring Chinook remained below expectations. Initially, additional fishing periods were either confined to upstream areas of Youngs Bay or limited to short periods (≤4 hours; proximate to low tide) to reduce harvest of non-local fish. In recent years, both strategies have been used simultaneously to avoid extended closures which typically occur in late March and early April. Beginning in 1999, summer seasons from mid-June through July were adopted to provide opportunity to harvest late-returning spring Chinook and early returning SAB fall Chinook. During 2000–2020, harvest of Chinook in Youngs Bay winter, spring and summer fisheries ranged from 969– 20,751 fish and averaged 6,430 fish. See Table 30 for Chinook harvest during winter, spring, and summer seasons for all Select Area sites since 1993.

Winter season periods were initiated in Blind Slough in 2000 and in Knappa Slough in 2013 with 5-year average landings of 140 Chinook (2016-2020). Spring commercial fisheries in Blind Slough began in 1998 and were expanded to include Knappa Slough in 1999 as returns increased. Minimizing impacts to upriver-origin spring Chinook, crowding, interactions with recreational boaters, and maintaining concurrence with season structure in other Select Area sites were considered when adopting fishing periods. Annual spring season landings have ranged from 300–3,200 Chinook since 2000. A one-year trial summer season was adopted in Blind and Knappa sloughs in 1999 but resulted in a harvest of only three spring Chinook. In 2015 and 2016, due to higher-than-expected harvest in late spring, fisheries in Blind/Knappa Slough were extended into the summer timeframe (mid-June–July) and a summer season has been adopted each year since 2016. Harvest in Blind/Knappa Slough during late spring/summer fisheries from 2016 to 2020 has averaged 542 fish.

Winter fishing periods in Tongue Point/South Channel were initiated on a trial basis in 2000 and 2001 but catch was not substantial enough to warrant continuation. Winter fisheries were adopted again in 2013 with up to 18 winter-season periods occurring in Tongue Point and up to 24 periods in South Channel annually with an average harvest of 99 fish (2013–2020). Spring-season commercial fisheries in Tongue Point were initiated in 1998 and continued through 2003; the fishery was expanded to include the South Channel in 1999 to reduce congestion during peak fishing periods. Higher than expected abundance of upriver spring Chinook in the Tongue Point/South Channel site during the 2003 spring fishery caused an early closure at the site and no commercial fisheries were conducted there from 2004–2007. In 2008, ODFW initiated a test fishery, established a more restrictive lower boundary, and delayed spring-season opening dates to help reestablish the spring fishery. In addition to the fishery modifications, a mandatory check-in station and call-in programs were established to provide more complete stock composition

information to aid in-season management. An evaluation of 2008–2013 test fishery data supported the feasibility of reinstating the commercial fishery at Tongue Point/South Channel in 2014. Since then, the site has averaged 826 fish during the spring fishery (2014–2020).

In Deep River, winter seasons were adopted annually from 2006 to 2017 and spring fisheries were conducted from 2003 to 2017. In 2014, releases of spring Chinook into Deep River were discontinued due to poor survival and restricted funding. The final returning adults (Age-6) from that last Deep River spring Chinook smolt release in 2013 were due to return in 2017. The 2003 to 2017 average harvest was 103 Chinook. Starting in 2018, sub-yearling spring Chinook were released in Deep River to reinitiate the fishery. In 2021, winter and spring fisheries were conducted in Deep River, for 18 and 23 periods, respectively. This was the first time that fisheries were conducted at this site since 2017.

Most fish harvested in Select Area commercial fisheries are from Select Area production. From 2000–2020, an average of 85.9% of the adult Chinook harvested in winter-summer seasons have been Select Area-origin with another 10.2% from other lower river stocks (Table 31).

2021 Youngs Bay Winter/Spring/Summer Seasons

The 2021 Youngs Bay commercial fishing periods were scheduled primarily during daylight hours to align with public input received from the commercial fishing industry over the past several years. The 2021 winter season commenced with seven 12- to 24-hour periods from February 18 through the first week of March. Because ESA impacts were accumulating slower than expected, three more 12-hour periods were added the second week of March. The preseason calendar scheduled four 4-hour periods the latter half of March. The remainder of winter season had only two 4-hour periods in the upper bay originally planned through the 8th of April but, again due to low ESA impacts, the two periods were expanded to the whole bay and three additional four-hour periods were added before the end of winter season. Typically, catch rates increase during late March along with ESA impacts, which are closely monitored through the end of winter season. The last four 4-hour periods were restricted to the upper bay (above the Alternate Highway 101 Bridge) to reduce impacts to upriver Chinook and provide consistent fishing opportunity. For 21 winter fishing periods a total of 467 Chinook were landed. This was similar to the 2011-2020 average of 470 Chinook. Mesh size regulation was 7-inch minimum during all winter season periods in Youngs Bay, with a maximum net length of 250 fathoms and maximum weights/anchors/leadline of two pounds per fathom of net. The net length and weight restrictions are consistent throughout the Youngs Bay area and seasons except that additional weight is allowed upstream of the mouth of the Walluski River.

Spring season was planned to start with four 4-hour periods in late April, followed by four 4-hour periods through the first week of May, one of which was added in-season. These shorter periods were set to stabilize fisheries opportunity in a timeframe that typically has high upriver impacts. Beginning May 10, five 4-day periods were set for the last three weeks of May and the first two weeks of June. There were 13 fishing periods during the spring season (28 days), which resulted in 2,717 Chinook landed. This was nearly twice the average spring season catch in Youngs Bay in 2020 (1,419 Chinook) yet was only 61% of the 2011–2020 average of 4,459 Chinook. Throughout the spring and summer seasons, mesh size was restricted to a maximum of 9¾-inches in Youngs Bay.

The 2021 summer season in Youngs Bay was open for six periods (18 days) between June 16 and July 29. Fishing periods began the first Wednesday of the season for two days, followed by two weeks of 4-day periods, and four weeks of 2-day periods. The Youngs Bay summer fishery landed 1,395 Chinook, which was slightly less than the prior year (1,463 Chinook) and 80% of the 2011–2020 average of 1,752.

The winter, spring and summer fisheries in Youngs Bay landed 4,579 Chinook, which was 90% of the 1993–2020 average of 5,083 (Tables 20 and 30). Stock composition of the landings was estimated using VSI from 2,067 Chinook (45% of the Chinook landings) examined for fin marks and the 214 CWTs collected during sampling. The stock composition of the 2021 combined winter/spring/summer Youngs Bay landings was estimated at 88.6% spring Chinook originating from Select Area sites and 0.0% SAB fall Chinook, 5.9% upriver spring and summer Chinook (caught before June 15), 0.2% upper Columbia summer Chinook (after June 15), 4.4% Willamette River spring Chinook, and 1.0% spring Chinook from the Cowlitz, Kalama, Lewis, and Sandy Rivers (CKLS). Based on scale readings and CWT-based correction, the estimated age composition of the Chinook landings was 2.5% Age-3, 76.0% Age-4, 21.3% Age-5, and 0.1% Age-6.

2021 Blind Slough/Knappa Slough Winter/Spring Seasons

Commercial fishing winter season in Blind Slough/Knappa Slough began February 18 with fifteen 12-hour periods through March 25 set pre-season before adding five more 12-hour periods in April, through the end of winter season. The total landings for the Blind and Knappa slough winter fishery was 131 Chinook landed in 21 periods. This was almost equal to the 10-year (2011–2020) average winter-season Chinook harvest of 132 for these sites. Mesh-size regulation was 7-inch minimum during the winter season in Blind Slough, with a maximum net length of 100 fathoms and no restrictions on additional weights/anchors on the leadline. The net length requirement is consistent throughout the Blind and Knappa Slough areas and seasons.

Spring season in the Blind Slough/Knappa Slough site began on April 19 with four 12-hour periods through April and 19 more 12-hour periods through the end of spring season ending June 15. As in previous years, the lower deadline in Knappa Slough was extended further downstream to the western end of Minaker Island in early May when encounters of upriver fish had subsided. In 23 fishing periods, there were 882 Chinook landed during spring in Blind/Knappa Slough, which was 74% of the 10-year (2011–2020) average harvest of 1,188. Throughout the spring and summer seasons, mesh size was restricted to a maximum of 9¾-inches.

Summer fishing periods in Blind and Knappa Slough commenced June 17 with five 12-hour periods per week set preseason through July 2. Four additional 12-hour periods from July 5-16 were added in-season. Summer fishing periods have been set annually since 2015, with highly variable landings (31 to 1,161 Chinook). In nine days of fishing during the 2021 summer season, 518 Chinook were landed which was ten fish above the 2015–2020 average of 508 Chinook.

Winter, spring, and summer season landings from Blind/Knappa Slough totaled 1,531 Chinook. This was 94% of the 10-year average of 1,625 fish (Tables 20 and 30). Stock composition of the landings was estimated using VSI from 915 Chinook (60% of the Chinook landings) examined for fin marks and CWTs and the 118 CWTs collected. The estimated stock composition of the

landings was 97.1% Select Area spring Chinook and 0.0% SAB fall Chinook, 1.4% upriver spring Chinook stock, 1.4% Willamette River spring Chinook, and 0.0% CKLS-origin fish. Based on scale readings and CWT correction, the estimated age composition of the spring Chinook landings was 1.6% Age-3, 82.7% Age-4, 15.6% Age-5, and 0.1% Age-6.

2021 Tongue Point/South Channel Winter/Spring Seasons

During 2021, winter season at Tongue Point/South Channel winter season consisted of ten 12-hour periods from February 18 through March 12; the first two Wednesdays of March were new in 2021 and concurrent with periods in Blind and Knappa Sloughs. Like Blind/Knappa Slough, management of fisheries in the Tongue Point and South Channel sites have recently been decoupled late during winter season as a technique to allow commercial fishers to continue harvesting salmon while minimizing encounters of ESA-listed upriver Chinook. Beginning March 15, non-concurrent 12- and 4-hour periods were set for South Channel and Tongue Point respectively. This was followed by two 12-hour periods and one 4-hour period in South Channel in that week, all of which were set pre-season. This was followed by two overnight 12-hour period in South Channel only on March 22 and 25 and seven four-hour periods. The additional four-hour periods from March 25 through April 15 two were set pre-season in South Channel only and five were added for Tongue Point in-season. The mesh-size regulation in Tongue Point/South Channel is 7-inch minimum during the winter season. Maximum net length is restricted to 250-fathoms in Tongue Point and 100-fathoms in South Channel; additional weights on the leadline are allowed in South Channel only. The winter season landings for Tongue Point totaled 69 fish, which was 70% of the average of 99 from 2013–2020.

Spring season began with two 4-hour fishing periods in Tongue Point and South Channel on April 20 and 23, both were set in-season. This was followed by the two 4-hour periods the last week in April in Tongue Point/South Channel adopted preseason. Three 12-hour fishing periods were set for four full weeks in May and first two weeks in June with one final 12-hour period ending June 15 for a total of 23 periods. Mesh size was restricted to a maximum of 9¾-inches. During the 2021 Tongue Point/South Channel spring fishery, 252 spring Chinook were landed. This was 35% of the 10-year (2011–2020) average of 724 Chinook.

Five summer-season periods were adopted for Tongue Point and South Channel from June 17 to June 2 and were set to be concurrent with Blind/Knappa Slough fisheries; four additional 12-hour periods July 5 through 16 were adopted in-season. The total harvest for the summer Tongue Point/South Channel fishery was 74 Chinook. This was the sixth summer season set in Tongue Point/South Channel; summer-season landings have ranged from 5 to 1,483 Chinook. Landings in 2021 were only 16% of the 2016–2020 average (469 Chinook).

The 2021 winter-, spring- and summer-season fisheries in Tongue Point/South Channel harvested a total of 395 spring Chinook, which is 38% of the 2011–2020 average of 1,038 (Tables 20 and 30). Stock composition of the landings was estimated using VSI from 175 Chinook (44% of the Chinook landings) examined for fin marks and CWTs and the 26 CWTs collected. The estimated stock composition of the landings was 86.6% spring Chinook and 0% SAB fall Chinook, 4.8% upriver spring Chinook, 8.6% Willamette River spring Chinook, and 0.0% CKLS-origin fish. Based on scale readings and CWT correction, the estimated age composition of the spring Chinook landings was 0.5% Age-3, 71.1% Age-4, 28.4% Age-5, and 0.0% age-6.

2021 Deep River Winter/Spring Seasons

Winter fishing periods were set for the 2021 season in Deep River. This was the first time that fishing seasons were set for this site since 2017, as sub-yearling spring Chinook released in 2018 were expected to return. The winter season consisted of nineteen 12-hour fishing periods on Monday, Wednesday, and Thursday nights from February 18 through March 19, then on Monday and Thursday nights from March 22 through April 9. The last two periods were added in-season.

The spring season consisted of twenty-three nightly 12-hour fishing periods which began on April 19 with only two overnight periods for the first two weeks of April. From May 3 through the end of spring season on June 15, fishing in Deep River occurred on Monday, Wednesday, and Thursday nights.

The fishing area during all periods was restricted to the area from navigation marker #16 upstream to the Highway 4 Bridge. Gear regulations included a 100-fathom maximum net length, a 7-inch minimum mesh size for the winter season, and a 9¾-inch maximum mesh size for the spring season. The use of additional weights or anchors was allowed. As has been the case since the inception of the Deep River spring fishery in 2003, fishers were required to submit all landed catch for biological sampling before being transported out of the fishing area. A WDFW sampling station was set up in the area for this purpose.

The total of 42 Chinook landed during the combined winter and spring seasons was one-third of the 2003–2017 average of 103, ranging from 21 fish in 2017 to 415 fish in 2010. There were only six Chinook landed during the winter season and 36 during the spring season. Winter landings were 12% of the 2006-2017 average of 49 fish and spring landings were 44% of the 2003–2017 average of 64 fish.

Estimated stock composition for the 2021 winter/spring fishery in Deep River was 23.5% Select Area origin spring Chinook, 5.9% upriver spring Chinook, 17.6% Willamette River spring Chinook and 52.9% CKLS-origin fish. Stock composition of the landings was estimated using VSI from 30 Chinook (71% of the Chinook landings) examined for fin marks and CWTs and the four CWTs collected. Based on scale readings and CWT validation, the estimated age composition of the catch in Deep River was 2.9% Age-3, 61.8% Age-4, 35.3% Age-5, and 0.0% Age-6.

Select Area Recreational Fisheries

Recreational fisheries in the Select Areas began in 1998 and have continued since. Under permanent regulations, the Youngs Bay and Blind Slough/Knappa Slough Select Areas are open for recreational angling for Chinook, coho, and steelhead. Retention is limited to hatchery fish (defined in permanent regulations) for coho and steelhead year-round and for Chinook during January 1 through July 31. The Tongue Point/South Channel Select Area is managed concurrently with recreational seasons in the mainstem Columbia River.

Recreational harvest of Chinook in the winter, spring, and summer seasons is shown in Table 30. Recreational harvest is estimated from catch record cards which are turned in voluntarily by anglers. Reported catch is expanded by a reporting rate to come up with an estimate of total recreational harvest. Catch record card data are not available for at least one year, so preliminary

estimates are made for the current year by correlating trends in recreational estimates, Select Area commercial landings, and spring Chinook run sizes. The 2021 recreational harvest estimate for spring Chinook in all Select Area sites was 462 adult fish, which was 55% of the recent 10-year (2011–2020) average of 847 fish (Table 30).

2021 Commercial American Shad Season

The lower Columbia River was open to commercial shad fishing in Area 2S (upstream of navigation aid #50 near Gary Island) from 3:00 p.m. to 10:00 p.m. daily, Monday through Friday, from May 10 through June 20 (except on the observed Memorial Day holiday). Since 1996, permanent regulations for the Area 2S shad fishery have included the following gear specifications designed to minimize the handle of salmonids: mesh size restriction of 5⅜ to 6¼-inches, ten-pound mesh breaking strength, and net not to exceed 40 meshes in depth or 150 fathoms in length. The shallower and shorter nets were proven to substantially reduce the handle of salmonids compared to gear used in shad fisheries prior to 1996. Only shad may be kept and sold, and all salmon, steelhead, walleye, and sturgeon are required to be released immediately.

The 2021 fishery produced landings of 2,033 shad, which is the 8th lowest harvest since at least 1980. The recent trend of low harvest is likely due to a relatively low market value for shad, the fishery being restricted to Area 2S only, and low catches in recent years (Table 16).

2021 Non-Treaty Impacts to ESA-Listed Stocks

The management intent for 2021 spring Chinook fisheries was to facilitate conservation of wild Columbia River salmon and steelhead runs, remain within the ESA impact rates and catch limits of upriver stocks allowed in the *U.S. v. Oregon* Management Agreement (MA), and reach the objectives outlined in Commission/Director guidance.

The 2021 preseason forecast for upriver spring Chinook was 75,200 adult fish to the Columbia River. The forecasted Snake River natural-origin spring/summer Chinook return was greater than 10% of the total upriver return and the forecasted return of natural-origin upper Columbia spring Chinook was greater than 1,000 fish, therefore the stipulations identified in Footnotes 1 and 4 of Table A1 in the MA were not in effect. Accordingly, the allowable harvest rate was based on the abundance of the aggregate upriver run. Non-treaty fisheries were limited to an ESA impact of 1.5% and a catch balance limit of 5,264 upriver fish (kept plus release mortalities). After applying a 30% run size buffer (as mandated by the MA), non-treaty fisheries were planned based on a total of 3,158 upriver spring Chinook harvest mortalities and an ESA impact limit of 1.0% available prior to a run-size update. Commission/Director guidance regarding impact allocation and application of run size buffer effects were applied to produce the allowable take by each fishery prior to a run-size update.

The 2021 preseason (buffered) catch allocation and ESA guidelines for upriver spring Chinook (kept plus release mortalities) used for managing fisheries prior to a run-size update are provided in the following table:

2021 Non-Treaty Fisheries - Comparison of PRE-Season Allowed and Buffered ESA-impacts and Catch (kept plus release mortalities) of Adult Upriver Spring Chinook.						
	PRE-Season					
	(75.20K run size, 1.5% ESA impact limit)					
	(Buffered - 52.64K run size, 1.0% impact limit)					
Fishery	ESA Impact	pre-update buffered	% of Allowed	Catch Balance	pre-update buffered	% of Allowed
Mainstem	0.000%	0.000%	--	0	0	--
Select Areas	0.300%	0.300%	100%	226	226	100%
Commercial total (20% of allowed ESA)	**0.300%**	**0.300%**	**100%**	**226**	**226**	**100%**
Downstream of Bonneville Dam (LCR)	0.840%	0.490%	58%	3,838	2,234	58%
Bonneville Dam to OR/WA border	0.150%	0.088%	58%	685	399	58%
Upper Col/Snake	0.210%	0.123%	58%	515	300	58%
Recreational total (80% of allowed ESA)	**1.200%**	**0.700%**	58%	**5,038**	**2,933**	**58%**
Non-Treaty Total	**1.50%**	**1.00%**	**67%**	**5,264**	**3,158**	**60%**

As the season progressed, TAC provided regular in-season run updates and fisheries continued to be managed conservatively while providing opportunity to harvest hatchery Chinook. The post-season details are provided in the following table:

2021 Non-Treaty Fisheries - Comparison of Post-Season Allowed and Actual ESA-impacts and Catch (kept plus release mortalities) of Adult Upriver Spring Chinook.						
	POST Season					
	(91.756K run size, 1.6% ESA impact limit)					
Fishery	ESA Impact	Actual	% of Allowed	Catch Balance	Actual	% of Allowed
Mainstem	0.000%	0.000%	--	0	0	--
Select Areas	0.320%	0.337%	105%	294	309	105%
Commercial total (20% of allowed ESA)	**0.320%**	**0.337%**	**105%**	**294**	**309**	**105%**
Downstream of Bonneville Dam (LCR)	0.896%	0.567%	63%	4,847	4,088	84%
Bonneville Dam to OR/WA border	0.160%	0.121%	76%	866	796	92%
Upper Col/Snake	0.224%	0.127%	57%	783	466	59%
Recreational total (80% of allowed ESA)	**1.280%**	**0.814%**	64%	**6,496**	**5,350**	**82%**
Non-Treaty Total	**1.600%**	**1.151%**	**72%**	**6,790**	**5,659**	**83%**

Post-season, the actual non-treaty ESA impact rate was 1.15% for the Snake River ESU and 1.09% for the upper Columbia ESU, compared to the 1.60% allowed. Non-treaty fisheries used 72% of the impacts allowed under the ESA. Since non-treaty fisheries are managed to remain within both the allowable ESA limit and the catch-balance guidelines outlined in the MA, fisheries are halted once either of the two constraints are met. Similar to past years, 2021 recreational fisheries were within their ESA allocation; typically, these fisheries are constrained by catch balance. For commercial fisheries, since all impacts were allocated to the Select Area fisheries in 2021, ESA-impact and catch-balance limitations were equally constraining. Under the catch balance provisions outlined in the MA, non-treaty fisheries used 83% (5,659) of the 6,790 upriver spring Chinook mortalities available. Impacts to wild Willamette River spring Chinook were 0.38% and 0.18% for lower Columbia commercial and recreational fisheries, respectively.

Impacts to wild steelhead are accrued from incidental release mortalities during non-treaty mainstem fisheries. As has been the case for the past several years, impacts to wild winter steelhead were minimal in 2021, estimated at 0.27%, which was well within the 2.0% ESA impact rate limit (Table 9). Impact rates on Skamania Run unclipped summer steelhead were also very low in 2021 non-treaty fisheries: 0.76% and 0.00% for lower river and upriver Skamania stocks, respectively (Table 10). Winter, spring, and summer season non-treaty fisheries impact A- and B-Index summer steelhead in July from the Columbia River mouth to the Highway 395 Bridge and in January through June of the subsequent year from The Dalles Dam to the Highway 395 Bridge. Summer steelhead run reconstruction was not complete at the time this report was finalized, therefore stock-specific impact rates are not available for 2021 fisheries. Impact rates for prior years are provided in Tables 11a and 11b.

Non-treaty fisheries upstream to the Highway 395 Bridge near Pasco, Washington harvested 0.36% of the sockeye return, compared to the allowable harvest rate of 1.00%.

Summer Chinook populations from the upper Columbia River are not listed under the ESA; however, harvest impacts are detailed in this section out of convenience since they are managed under the *U.S. v. Oregon* Management Agreement. The preseason harvest allocation for non-treaty fisheries was 24,076 adult summer Chinook (mortalities), which included 7,394 expected in ocean fisheries and 16,682 allocated for in-river harvest. Post-season, using the actual Columbia River return of 56,800 adult summer Chinook to the Columbia River mouth and a placeholder estimate of ocean harvest, the non-treaty allocation decreased significantly to 15,048 fish. At time of publication, the actual harvest in ocean fisheries was not available; adjusting the preseason expectation proportional to the change in forecasted:actual Columbia River mouth abundance provides a placeholder value to be used until the final estimate is made. The non-treaty harvest for Columbia River fisheries is estimated to be 9,284 fish.

2021 Upper Columbia Summer Chinook Allocations
(All data preliminary and includes kept + release mortalities)

	Pre		**Post**	
Runsize	78,810		56,800	
Harvest allocated	Allowed		Actual	Actual/
Fishery	Pre	Post	Take	Allowed
PFMC Ocean Fisheries	7,394	5,329	*5,329*	100%
Below Priest Rapids Dam (PRD)	*35.8%*	*23.6%*	*25.8%*	
Commercial below BON	1,193	459	7	2%
Recreational Below Bonneville	4,057	1,560	2,284	146%
Recreational BON to PRD	716	275	102	37%
Below PRD Total	5,966	2,294	2,393	104%
Above Priest Rapids Dam (PRD)	*64.2%*	*76.4%*	*74.2%*	
Wanapum Tribal	315	95	62	65%
Colville Tribal	5,894	3,713	1,583	43%
Recreational above PRD	4,507	3,618	5,246	145%
Above PRD Total	10,717	7,426	6,891	93%
Non-Treaty Total	**24,076**	**15,048**	**14,612**	**97%**

Treaty Fisheries

The winter/spring management period extends from January 1 through June 15. The summer management period extends from June 16 through July 31. Abundance based harvest rates for Chinook and sockeye are determined by the *U.S. v. Oregon* Management Agreement. The 2018–2027 Management Agreement was in place for 2021.

In the winter/spring management period there are the following fishery sectors:

1. A sturgeon setline fishery that occurs in January.
2. A platform and hook and line fishery in all of the Zone 6 management area that occurs January 1–June 15 for subsistence and possibly for commercial purposes.
3. A winter gillnet fishery that is primarily a sturgeon target fishery. This fishery normally occurs in all three pools of Zone 6 at various times between February 1 and March 21 depending on sturgeon harvest guidelines. Depending on catches, the winter gillnet period may extend past March 21.
4. A ceremonial permit fishery occurs beginning in late March or early April. This fishery targets a set number of Chinook for ceremonial and subsistence purposes based on specific permits issued by the treaty tribes.

Additionally, the following fisheries occur in some years:

5. A bank fishery using hook and line gear in the area immediately downstream of Bonneville Dam. This fishery could be for ceremonial, subsistence, or commercial purposes.
6. A commercial gillnet fishery may be authorized depending on the number of spring Chinook available for harvest.

Treaty harvest of spring Chinook occurs in C&S fisheries, and in years of higher abundance, such as in 2000–2004 and 2008–2016, commercial fisheries have been authorized by the tribes. Steelhead and a few spring Chinook are sometimes incidentally harvested in the winter season sturgeon gillnet fishery. Sockeye are occasionally harvested in late spring management period fisheries. Summer management period fisheries harvest Chinook, sockeye, and steelhead for both subsistence and commercial purposes. In some years, ceremonial and subsistence permit gillnet fishing can occur in the summer management period.

Sockeye catch accounting is relatively straightforward. Any sockeye caught in any treaty mainstem fisheries count towards the overall harvest rate limit for sockeye. Chinook catch accounting is also relatively simple. Any adult Chinook caught between January 1 and June 15 in any treaty mainstem fishery counts towards the harvest rate limit for the spring management period. Adult Chinook caught between June 16 and July 31 in any treaty mainstem fishery count towards the harvest rate limit in the summer management period.

Steelhead catch accounting is more complex. While fisheries from January 1–July 31 are the focus of this document, steelhead caught in the Bonneville Pool between November 1 and March 31 or downstream of Bonneville Dam between November 1 and April 30 are counted as winter steelhead. There is no specific annual harvest rate limit in treaty fisheries for winter steelhead, but there are incidental take expectations for natural-origin winter steelhead in the Biological Opinion for 2018–2027 fisheries.

Steelhead harvested in fisheries in the Bonneville Pool from April 1–June 30 or downstream of Bonneville Dam from May 1–June 30 are counted as upriver Skamania stock steelhead. There are no specific annual treaty harvest rate limits for this group, but there are incidental take expectations in the Biological Opinion.

Upriver A-Index and upriver B-Index steelhead are managed on a length basis with fish less than 78 cm fork length classified as A-Index and fish with a 78 cm fork length greater than being B-Index. They are also managed based on a run year from July 1–October 31 at Bonneville Dam. Portions of this run have an extended upriver run timing in upriver areas that can continue into the following spring. Steelhead harvested in any mainstem fisheries upstream of The Dalles Dam between January 1 and June 30 are counted with harvest impacts on the July 1–October 31 run from the previous calendar year. There are not specific annual harvest rate limits for treaty fisheries associated with A-Index or B-Index harvest in this period, but there are natural origin harvest rate expectations in the Biological Opinion.

Treaty fisheries are managed individually by the four Columbia River treaty tribes through either a permit system or a general-regulation system. The tribes have defined regulations concerning lawful gear, fishing area, and other miscellaneous regulations concerning the tribal C&S and commercial fisheries. Tribal staff monitor the fisheries and provide in-season accounting of catch and impacts. The tribes implement commercial spring or summer fisheries depending on the Chinook and sockeye run sizes and bring any commercial plan to a Compact hearing for consideration in order to approve purchase of harvested fish by state-licensed buyers. Since 2004, the tribes have had directed commercial gillnet fisheries in the summer season targeting upper Columbia River summer Chinook. The tribes typically also use some portion of their allowed sockeye harvest rate for commercial purposes. The tribes monitor and provide accounting for C&S and any commercial fisheries that occur.

2021 Treaty Winter Season Fisheries

The 2021 winter sturgeon setline fishery was open in Zone 6 from January 1 to January 31. The harvest totaled 36 sturgeon from Bonneville Pool, 130 from The Dalles Pool, and 18 from John Day Pool. No salmonids were caught on setline gear.

The winter commercial gillnet fishery open dates were John Day Pool – February 1-6, February 12-17, and February 24-26, The Dalles Pool – February 1–6, and Bonneville Pool – February 20–March 5. No mesh restrictions were in place and sales of platform and hook-and-line caught fish were allowed during open gillnet periods. Landings totaled 1,699 White Sturgeon (1,246 in Bonneville Pool, 365 in The Dalles Pool, and 88 in John Day Pool), zero winter steelhead, zero A- and B-Index steelhead, zero walleye, and zero Chinook from the winter gillnet fishery. The winter season steelhead catch has generally been low in recent years, due to most fishers targeting sturgeon. Winter catch is shown by pool in the table below and is also presented in Tables 32 and 35.

2021 Treaty Winter Commercial Landings from Setline, Gillnet, Platform and Hook & Line							
	White Sturgeon						
Pool	Guideline	Total	*January Setline*	*Gillnet*	Chinook	Steelhead	Walleye
Bonneville	500	1,282	*36*	1,246	0	0	0
The Dalles	560	495	*130*	365	0	0	0
John Day	210	106	*18*	88	0	0	0
Total		**1,883**	**184**	**1,699**	**0**	**0**	**0**

2021 Treaty Mainstem Spring and Summer Chinook and Sockeye Fisheries

The tribal intent for 2021 spring and summer season fisheries was to remain within impact rates allowed by the 2008–2027 MA based on the actual river mouth run sizes for Chinook and sockeye.

The four tribes issued permits for gillnet C&S fisheries targeting spring Chinook from early April through early June. The platform and hook-and-line fishery retained spring Chinook and steelhead for subsistence purposes throughout the spring season. The tribes did not authorize commercial sales of platform-caught fish in the spring management period. Limited permit platform fisheries downstream of Bonneville Dam occurred during the spring in 2021. Tribal representatives accompanying non-treaty commercial test fishing operations in the lower Columbia River downstream of Bonneville Dam kept 15 Chinook which were distributed to the tribes for C&S purposes. Catch from the permit gillnet fisheries (C&S gillnet) is estimated at 2,050 spring Chinook. Catch estimates for the Zone 6 platform and hook-and-line fisheries totals 2,320 spring Chinook upstream of Bonneville. Eighteen Chinook were caught in permit hook and line fisheries downstream of Bonneville Dam and 20 Chinook were caught in platform and hook-and-line fisheries downstream of Bonneville Dam.

Total harvest of upriver spring Chinook was 4,423 fish out of 6,790 allowed which is a 4.8% total harvest rate compared to an 7.4% management limit (Table 33). The impact on the ESA-listed wild Snake River spring/summer Chinook and ESA listed upper Columbia spring Chinook was 4.7%. The difference between the total harvest rate and the wild harvest rate results from the differential harvest of marked and unmarked Chinook in mark-selective fisheries between the Columbia River mouth and Bonneville Dam.

During the summer management period, the Zone 6 platform and hook-and-line fishery was open from June 16–July 31. The commercial season consisted of six weekly periods (3.5 days/week) beginning on June 16, June 21, June 28, July 5, July 12, and July 19. Platform and hook-and-line fishing also occurred downstream of Bonneville. Summer Chinook landings totaled 11,834 (20.8% of the river mouth return (Table 34). The allowed harvest is based on the river mouth run size plus the estimate of non-treaty harvest in PFMC area fisheries and will be finalized when 2021 post-season ocean fishery modeling is complete.

There were 9,528 sockeye caught in Zone 6 platform/hook-and-line and commercial gillnet fisheries as well as fisheries downstream of Bonneville. The catch was 6.3% of the river mouth

return, compared to the allowed harvest rate of 7%. TAC estimated that 60 of the sockeye caught were Snake River sockeye based on standard run reconstruction methods (Table 15).

Steelhead harvest during winter and spring fisheries was estimated at zero winter steelhead in Zone 6 winter season commercial gillnet fisheries and 40 winter steelhead harvested in winter season platform/hook-and-line fisheries from November 1–March 31 (Table 32 and Table 35). A total of 159 upriver Skamania stock summer steelhead were harvested in spring season fisheries in the Bonneville Pool from April 1–June 15. 30 steelhead were harvested in this period in The Dalles and John Day pools (Table 36). The summer season steelhead harvest was estimated at 915 fish (Table 37). The summer season harvest is a mixture of steelhead passing Bonneville Dam during the upriver Skamania counting period and the A-/B-Index counting period, which begins July 1.

2021 Treaty Tributary Fisheries

Tributary spring Chinook fisheries were conducted by the treaty tribes in the Wind, Little White Salmon (Drano Lake), Hood, Klickitat, Deschutes, John Day, Umatilla, and Yakima rivers, as well as in Icicle Creek (Wenatchee River) and various Snake Basin tributaries. Total tributary harvest in tributaries outside of the Snake Basin not available at the time of publication.

2021 Ceremonial and Subsistence Safety Net

The 2018–2027 MA, as well as the expired CRFMP, identify a minimum C&S annual "safety net" to the Columbia River treaty tribes defined as the opportunity to harvest 10,000 spring and summer Chinook or be provided with hatchery fish of equivalent quality. After spring and summer fisheries are accounted for, the balance of the "safety net" is to be provided to the tribes by the states of Oregon and Washington. The 2021 upriver spring and summer Chinook returns were sufficient to allow the harvest in treaty fisheries to exceed the "safety net" level.

2021 Ceremonial and Subsistence "Safety Net" Summary	
Fishery	**# Adult Chinook**
C&S permit gillnet spring fishery	2,050
Winter commercial gillnet fishery	0
Zone 6 Platform/hook and line winter/spring fishery	2,320
Zone 5 Permit Platform/hook and line/ fishery *(includes fish donated from NI test fishery)*	53
Spring commercial gillnet fishery	0
Spring Chinook Subtotal	**4,423**
Summer Chinook Subtotal	**11,834**
Total spring and summer adult Chinook	***16,257***

2021 American Shad Fisheries

American Shad were caught in the Zone 6 platform fishery and in the summer season commercial gillnet fisheries. These were either sold to commercial buyers, directly to the public, or retained for subsistence but precise estimates are not tracked.

2021 Treaty Mainstem ESA Impacts on Upriver Spring Chinook

Stock	Allowed Harvest Rate	Actual Harvest Rate
Total Upriver Harvest	7.4%	4.8%
Natural-Origin Snake River Spring/Summer Chinook	7.4%	4.7%
Natural-Origin Upper Columbia Spring Chinook	7.4%	4.7%

Note: ESA impact rates may be up to 0.8% higher than allowed total harvest rate due to effects of mark-selective fisheries in the lower Columbia River.

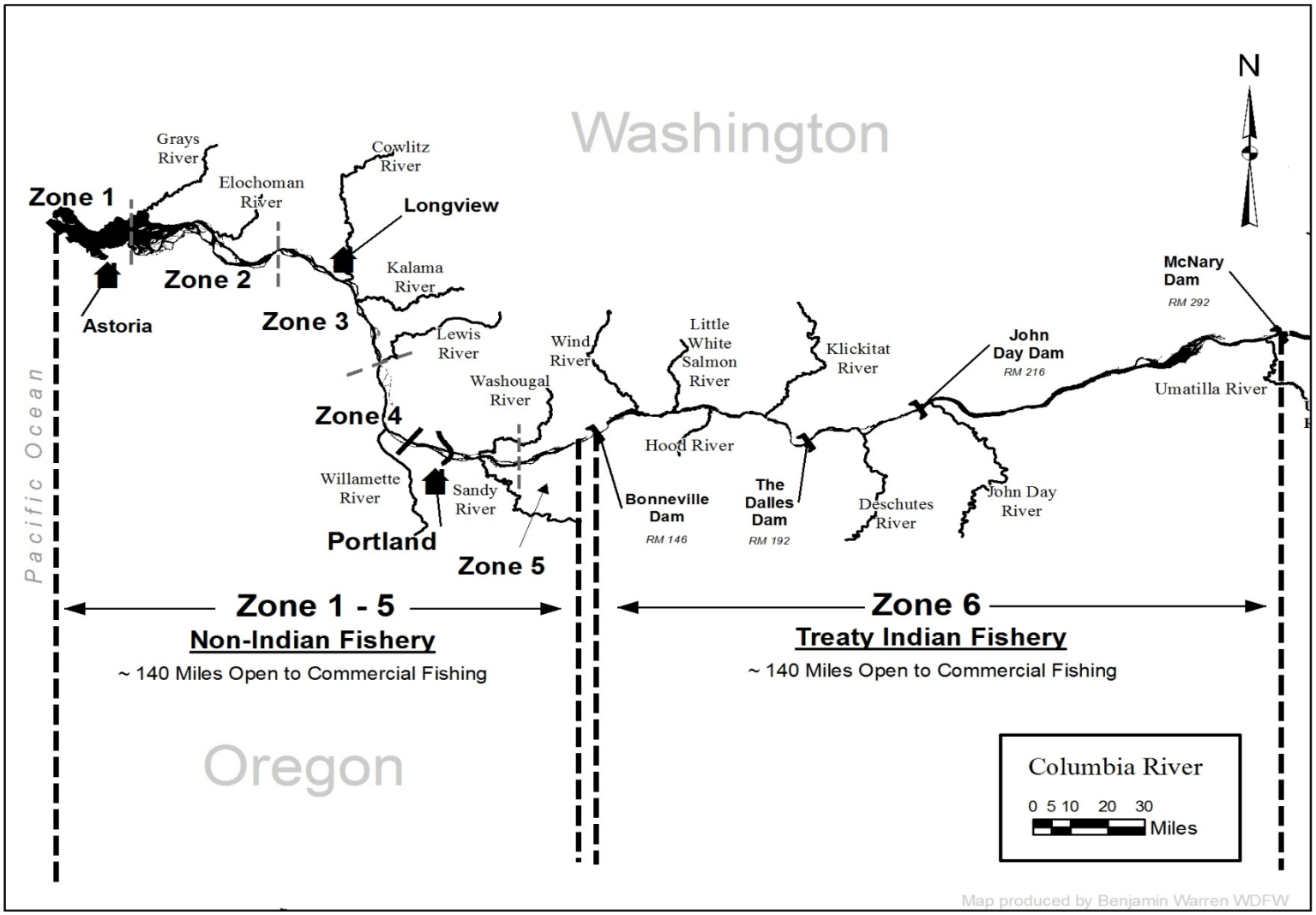

Figure 2. Map of the Columbia River downstream of McNary Dam showing areas open to commercial fishing.

2022 WINTER, SPRING, AND SUMMER SEASON EXPECTATIONS

2022 Management Guidelines

All fisheries conducted in 2022 will be managed in accordance with the 2018–2027 MA, Willamette FMEP, UCMA, and Commission guidance as applicable.

According to the harvest rate schedule in the 2018–2027 MA and the 2022 upriver spring Chinook preseason forecast (122,900 adult fish), winter/spring season fisheries will be managed not to exceed a total ESA impact limit of 10.0% (1.7% for non-treaty fisheries and 8.3% for treaty fisheries) of the upriver spring Chinook run. In addition, non-treaty fisheries will be managed to meet the catch balance provisions in the 2018–2027 MA for upriver spring Chinook. Under these provisions, non-treaty fisheries will be managed to remain within ESA impact limits and catch balance guidelines. Early-season non-treaty fisheries will operate with a 30% run-size buffer in place, which will limit spring Chinook catch and allowable impact rates prior to a run size update. Fisheries harvesting Willamette spring Chinook will be managed to ensure hatchery escapement targets and wild fish impact limitations outlined in the Willamette River FMEP are achieved. Impacts to wild winter steelhead will be limited to 2% of the wild run size.

Mainstem summer Chinook fisheries will be planned based on an initial forecasted run size of 57,500 adult upper Columbia summer Chinook to the Columbia River mouth and the expected ocean harvest in non-treaty PFMC-area fisheries. Actual harvestable allocations will not be known until the ocean fishery season-modeling process is complete in early April; an update to the expected return to the Columbia River mouth will also be available at that time.

Based on the preseason forecast, sockeye harvest will be limited but retention may be allowed in some non-treaty fisheries and will be allowed in treaty fisheries. Impacts of up to 1% will be available for non-treaty fisheries and 7% for treaty Indian fisheries.

Impacts to ESA-listed upriver summer steelhead in Columbia River non-treaty recreational and commercial fisheries from Buoy 10 upstream to the Highway 395 Bridge near Pasco, Washington occur as release mortalities. Take limitations for these fisheries during January through July are 2% for both the wild A-Index and wild B-Index returns.

Recognizing the complexities of managing mixed stock fisheries, the States and Treaty Tribes will continue to be cautious and conservative by shaping and adopting seasons that maintain impacts to ESA-listed and depressed runs within applicable guidelines while maximizing opportunities to harvest abundant hatchery fish. The ongoing COVID-19 pandemic is expected to impart additional, yet manageable, complexity to fisheries management again in 2022.

2022 Non-Treaty Fisheries

Mainstem Spring Chinook Commercial Fishery

- Current OFWC and WFWC guidance regarding spring season mainstem commercial fisheries is not fully concurrent. Regardless, the majority of the commercial spring Chinook allocation is expected to be accrued in Select Area commercial fisheries.

Lower Columbia River Spring Chinook Recreational Fishery

(Joint State consideration at the February 23, 2022 hearing)

- Current OFWC and WFWC guidance regarding spring season mainstem recreational fisheries is not fully concurrent.
- Retention of hatchery spring Chinook is allowed downstream of the I-5 Bridge from January through March under permanent regulations, although temporary regulations are adopted annually and become effective March 1.
- The 2022 season structure is expected to be more typical than what occurred in 2019–2021 since escapement goals for Washington LCR tributaries are expected to be met. Staff will meet with the Columbia River Recreational Advisory Group (CRRAG) in early February to solicit input for developing a 2022 fishing plan.
- Chinook stock-specific average wild impact rate expectations for 2022 are presented below and are based on recent-year averages:
  - Upriver spring Chinook (January–June 15): 0.48% (2017–21 average)
  - Willamette spring Chinook (January–June 15): 0.26% (2017–19 average)

Bonneville Dam to OR/WA State Line Spring Chinook Recreational Fishery

(Joint State consideration at the February 23, 2022 hearing)

- Current OFWC and WFWC guidance regarding spring season mainstem recreational fisheries is not fully concurrent.
- Chinook retention during January 1 through June 15 is closed under permanent regulations.
- Retention of hatchery spring Chinook is typically allowed beginning March 15 annually.
- The 2022 season structure is expected to be generally similar to recent years. Staff will meet with the CRRAG in early February to solicit input for developing a fishing plan.
- Chinook stock-specific average wild impact rate expectations for 2022 are presented below and are based on recent-year averages:
  - Upriver spring Chinook (January–June 15): 0.08% (2016 and 2018-21 average)

Lower Snake River (WA state waters) Spring Chinook Recreational Fishery

(Washington State action in March-April 2022)

- Current OFWC and WFWC guidance regarding spring season Snake River recreational fisheries is not fully concurrent.
- Chinook retention during January 1 through June 15 is closed under permanent regulations.
- Retention of hatchery spring Chinook is typically allowed in mid- to late-April annually under temporary regulations on a days per week approach.
- The 2022 season structure will be developed with input from affected stakeholders based on the available impact allocations.

- Chinook stock-specific average wild impact rate expectations for 2022 are presented below and are based on recent-year averages:
  - Snake River spring Chinook (January–June 15): 0.11% (2015–21 average)

Wanapum Tribal Spring Chinook Fishery
(Washington State action in late April – early May 2022)

- The 2022 season structure is expected to be similar to recent years.
- Chinook stock-specific average wild impact rate expectations for 2022 are presented below and are based on recent-year averages:
  - Upper Columbia River spring Chinook (January–June 15): 0.12% (2015–21 average)

Columbia River Steelhead Recreational Fishery

- From the mouth upstream to the Bonneville Dam, winter steelhead retention (hatchery fish only) is typically open November 1 through March 31 under permanent regulations. Catch and effort is typically minimal through February. For 2022, the states have extended the steelhead angling and retention closure through March 31 for mainstem fisheries upstream of The Dalles Dam.
  - Annual temporary regulations extending the lower river spring Chinook retention season generally allow for hatchery steelhead retention, continuing the fishery into April. Recreational effort is considerably higher during this timeframe but steelhead catch is incidental to spring Chinook effort. Steelhead handled in April downstream of Bonneville Dam are also considered winter stock.
  - Steelhead retention reopens May 16 downstream of the I-5 Bridge (and June 16 from I-5 to Bonneville) each year under permanent regulations, unless allowed impacts to upriver spring Chinook have been exhausted, in which case hatchery steelhead retention may remain closed through June 15. If spring Chinook impacts are available, temporary regulations may be adopted that allow for Chinook retention concurrent with hatchery steelhead. From May through October, steelhead handled downstream of Bonneville Dam are considered summer stock.
- From Bonneville Dam upstream to the Highway 395 Bridge, steelhead retention is prohibited from April 1 through June 15, unless spring Chinook retention is open under temporary rule, in which case hatchery steelhead retention is also allowed.
- Steelhead stock-specific wild impact rate expectations for 2021–2022 are presented below and are based on recent-year averages:
  - Wild winter steelhead (below Bonneville; November–April): 0.19% (2017–21 average)
  - Wild winter steelhead (Bonneville Pool; November–April): 0.01% (2017–21 average)
  - Skamania summer steelhead (below Bonneville; May–June): 0.68% (2017–21 average)
  - Skamania summer steelhead (Bonneville Pool; April–June): 0.01% (2017–21 average)
  - A-Index steelhead (The Dalles Dam to Highway 395 Bridge; January–June): 0.02% (2015–20 average)
  - B-Index steelhead (The Dalles Dam to Highway 395 Bridge; January–June): 0.02% (2015–20 average)
  - A-Index steelhead (CR mouth to Highway 395 Bridge; July): 0.53% (2015–20 average)
  - B-Index steelhead (CR mouth to Highway 395 Bridge; July): 0.15% (2015–20 average)

Mainstem Summer Chinook Commercial Fishery

- Current OFWC and WFWC guidance regarding summer season mainstem commercial fisheries is not concurrent.

Columbia River Summer Chinook Recreational Fisheries

- Current OFWC and WFWC guidance regarding summer season mainstem recreational fisheries is not concurrent.
- Since 2002, summer Chinook fisheries have been established under temporary rules in the area from Tongue Point/Rocky Point or the Astoria-Megler Bridge upstream to Priest Rapids Dam; season structure is based on the available allocation and public input. Under permanent rules revised in 2019, retention of adult Chinook is allowed in recreational fisheries during June 16–30 from the Tongue Point/Rocky Point line upstream to the Oregon-Washington border above McNary Dam.
- Any summer Chinook recreational fisheries will likely be mark-selective in most Columbia River fisheries.
- Retention of sockeye may be allowed.
- Season and fishery regulations will be developed during the North of Falcon process during March and April 2022.
- The expected impact rate for sockeye in 2022 is presented below and is based on recent year averages:
  - Sockeye: 0.28% (2014–17 average)

Select Area Commercial Fisheries
(Compact and Oregon State consideration at the February 15, 2022 hearing)

- Winter, spring, and summer seasons will be considered for all Oregon Select Area sites.
- Fisheries targeting spring Chinook during the winter and spring timeframe in Deep River were discontinued in 2018 since local releases were terminated in 2014 and adult returns ended in 2017. Releases of sub-yearling spring Chinook were reinitiated in Deep River in 2018 with adult returns of age-4 and age-5 fish expected in 2022.
- Fisheries are structured and managed for stability while minimizing interception of non-target stocks.
- The 2021 season structure will likely be similar to recent years and consider input from the January 12, 2022 public meeting concerning Select Area commercial spring Chinook fisheries.
- Impacts to ESA-listed salmonids are applied to the commercial share of non-treaty impacts.
- Stock-specific average wild impact rates for combined Select Area commercial fisheries occurring during recent winter, spring, and summer seasons are presented below and represent expectations for 2022 fisheries:
  - Upriver spring Chinook: ≤0.34% (2022 preseason allowance)
  - Willamette spring Chinook: 1.27% (2017–21 average)
  - Sockeye: 0.01% (2017–20 average)
  - Wild winter steelhead (February–April): 0.07% (2014–18 average)
  - Skamania summer steelhead (May–June): 0.07% (2014–18 average)
  - A-Index and B-Index steelhead (July): 0.01% (2014–18 average)

Mainstem Commercial American Shad Fishery (Area 2S)

- Open hours of 3 PM–10 PM on all weekdays from May 10 through June 20 (except the observed Memorial Day holiday).
- Stock-specific average wild impact rates for recent Area 2S commercial shad fisheries are presented below and represent expectations for 2022 fisheries:
  - Upriver spring Chinook: 0.00% (2017–21 average)
  - Sockeye: 0.00% (2017–21 average)
  - Skamania summer steelhead: 0.00% (2017–21 average)

2022 Treaty Indian Fisheries

Treaty Winter Commercial Fisheries

- The winter sturgeon setline fishery in Zone 6 occurs by permanent regulation from January 1 through January 31.
- The winter gillnet fishery occurs in Zone 6, typically during various parts of the period from February 1 to March 21. In some years, the fisheries last a few days past March 21. The management approach to the winter gillnet fishery will be determined in early 2022. The fishery will be managed for pool-specific sturgeon harvest guidelines. The fishery will close early in any pool if guidelines are met. The 2022 winter season fisheries are expected to have effort similar to 2021, and to accrue similar low impacts to salmon and steelhead.

Treaty Spring Season Fisheries

- The treaty tribes have not yet determined the structure of the 2022 spring Chinook fisheries.
- Based on the 2018–2027 *U.S. v. Oregon* MA, the tribes will be allowed a 8.3% harvest rate on upriver spring Chinook if the run returns at the pre-season forecast level. The tribes will manage fisheries in-season and make adjustments as necessary based on the harvest rate schedule and the actual river mouth run size. Steelhead harvest and stock composition is expected to be comparable to historic levels. Because steelhead harvest is low in spring season fisheries, no active management for steelhead is anticipated to be needed.

Treaty Summer Season Fisheries

- The treaty tribes have not yet determined the structure of the 2022 summer Chinook and sockeye fisheries.
- Harvest will be managed in accordance with the MA and the actual river mouth run size adjusted for expected summer Chinook harvest in PFMC area ocean fisheries.
- The treaty fisheries will manage sockeye fisheries according to the harvest rate schedule in the MA. The expected harvest rate based on the pre-season forecast is 7%.
- Steelhead harvest is expected be comparable to historic levels. Because steelhead harvest is generally low, no active management of fisheries for steelhead is expected to be needed.

Treaty Shad Fisheries

- Implementation of a shad trap fishery at The Dalles Dam east ladder exit is unlikely and will depend on identifying a market as well as agreements with the USACE.

- Platform shad fisheries are expected, primarily in the Cascade Locks area. These shad are kept for subsistence or sold direct to the public or to commercial buyers.
- The tribes may experiment with new gear types and locations for shad fishing.

Treaty Indian Tributary Fisheries

- Treaty Indian tributary fisheries occur in several tributaries between January 1 and July 31.
- While not directly managed under the terms of the MA, treaty tributary fisheries outside the Snake Basin are managed under the terms of the associated Biological Opinion.
- Expected tributary fisheries include fisheries in the Wind River, Little White Salmon/Drano Lake, Klickitat River, Hood River, Deschutes River, John Day River, Umatilla River, Walla Walla River, Yakima River, and Icicle Creek in the Wenatchee system.
- These fisheries target spring Chinook during this time frame but may also harvest small numbers of steelhead. Season structures vary but usually are dependent on Chinook run sizes. Because steelhead harvest is low, there normally is no need for active management specifically for steelhead.

Table 1. Minimum adult spring Chinook run entering the Columbia River, 1990–2021.[1]

Year	Select Areas[2]	Cowlitz River	Kalama River	Lewis River	Sandy River	Willamette River[3]	Upriver Run[4]	Total
1980-84 Avg.	--	*22,737*	*4,165*	*3,834*	*2,057*	*62,935*	*63,521*	*159,248*
1985-89 Avg.	--	*11,176*	*1,552*	*10,312*	*2,005*	*90,803*	*105,501*	*221,348*
1990	--	7,555	1,987	9,299	3,527	127,900	105,715	255,983
1991	--	8,945	2,613	8,334	3,652	105,530	64,479	193,553
1992	211	10,353	2,430	6,025	8,551	72,197	95,691	195,458
1993	629	9,458	2,874	8,195	6,369	62,778	119,963	210,266
1994	126	3,149	1,265	3,068	3,498	48,804	24,095	84,005
1990-94 Avg.	*322*	*7,892*	*2,234*	*6,984*	*5,119*	*83,442*	*81,989*	*187,853*
1995	169	2,102	697	3,726	2,529	40,854	12,792	62,869
1996	689	1,787	627	1,730	3,801	33,358	55,551	97,543
1997	1,583	1,877	505	2,196	4,410	34,540	124,321	169,432
1998	2,034	1,055	407	1,611	3,577	43,497	44,308	96,489
1999	1,337	2,069	977	1,753	3,585	52,584	43,067	105,372
1995-99 Avg.	*1,162*	*1,778*	*643*	*2,203*	*3,580*	*40,967*	*56,008*	*106,341*
2000	5,585	2,199	1,418	2,515	3,641	55,740	186,715	257,813
2001	8,089	1,609	1,796	3,777	5,329	78,502	439,885	538,987
2002	8,661	5,129	2,912	3,514	5,905	120,161	335,306	481,588
2003	6,827	15,954	4,556	5,040	5,472	123,355	242,605	403,809
2004	10,162	16,530	4,286	7,475	12,680	143,240	221,675	416,048
2000-04 Avg.	*7,865*	*8,284*	*2,994*	*4,464*	*6,605*	*104,200*	*285,237*	*419,649*
2005	2,366	9,398	3,367	3,512	7,665	59,471	106,910	192,689
2006	6,998	7,001	5,458	7,301	4,382	59,311	132,583	223,034
2007	6,356	3,961	8,030	7,596	2,841	39,963	86,247	154,994
2008	3,289	2,978	1,623	2,215	5,848	26,615	178,627	221,195
2009	2,830	6,054	404	1,493	2,347	35,432	169,296	217,856
2005-09 Avg.	*4,368*	*5,878*	*3,776*	*4,423*	*4,617*	*44,158*	*134,732*	*201,953*
2010	22,955	8,615	977	2,347	7,343	107,675	315,346	465,258
2011	8,850	5,379	776	1,310	4,702	76,549	221,158	318,724
2012	8,984	12,213	889	1,895	4,568	63,037	203,090	294,675
2013	5,383	8,132	1,014	1,570	3,723	44,880	123,136	187,838
2014	2,479	8,294	1,013	1,396	3,106	49,765	242,635	308,688
2010-14 Avg.	*9,730*	*8,527*	*934*	*1,704*	*4,688*	*68,381*	*221,073*	*315,037*
2015	13,562	26,504	3,237	1,108	3,474	84,532	288,994	421,411
2016	9,920	24,554	4,462	597	3,964	47,225	187,816	278,538
2017	16,991	14,618	3,505	2,338	7,607	50,774	115,821	211,654
2018	10,569	4,500	1,966	3,441	4,838	37,441	115,081	177,836
2019	2,720	1,563	997	1,047	3,424	27,292	73,101	110,144
2015-19 Avg.	*10,752*	*14,348*	*2,833*	*1,706*	*4,661*	*49,453*	*156,163*	*239,917*
2020	4,003	908	1,215	1,874	7,782	45,965	81,300	143,047
2021	6,216	3,478	1,883	2,840	5,676	41,308	91,756	153,157

[1] *Tributary run sizes prior to 2018 are to the tributary mouth only and include hatchery returns or dam counts, recreational catch estimates, and estimates of natural spawning populations. Willamette return is to the Columbia River mouth.*

[2] *Minimum run size for Select Area spring Chinook is based on harvest of returning Select Area-origin adults in Select Area commercial and recreational fisheries. Estimates of escapement are not available.*

[3] *Includes Clackamas River return.*

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

Table 2. Forecasted and actual abundance of spring Chinook entering the Columbia River, 1985–2021 and 2022 forecasts.

	Willamette River (All Age Classes)			Sandy River (Adults)			Cowlitz, Kalama, & Lewis Rivers Combined (Adults)[1]			Upriver (Adults)[2]		
Year	Preseason Forecast	Actual Return	% of Forecast	Preseason Forecast	Actual Return	% of Forecast	Preseason Forecast	Actual Return	% of Forecast	Preseason Forecast	Actual Return	% of Forecast
1985	70.0	68.1	97	—	1.4	—	—	14.4	—	52.6	84.7	161
1986	65.0	73.6	113	—	1.3	—	—	16.7	—	115.0	120.6	105
1987	78.0	93.6	120	—	2.4	—	—	37.0	—	79.7	99.8	125
1988	97.0	118.1	122	—	2.9	—	32.0	24.9	78	53.4	97.0	182
1989	102.0	114.9	113	—	2.0	—	16.1	22.3	139	92.7	82.6	89
1990	128.0	130.6	102	—	3.5	—	18.6	18.8	101	120.8	99.1	82
1991	110.0	109.9	100	—	3.7	—	19.7	19.9	101	61.9	59.2	96
1992	106.0	75.0	71	—	8.6	—	26.6	18.8	71	71.4	89.8	126
1993	70.0	65.9	94	—	6.4	—	21.3	20.5	96	76.2	111.0	146
1994	75.0	49.6	66	—	3.5	—	12.3	7.5	61	49.0	20.8	42
1995	49.0	42.6	87	—	2.5	—	4.6	6.5	142	12.0	9.8	82
1996	41.0	34.8	85	—	3.8	—	4.4	4.1	94	37.2	51.5	138
1997	30.0	35.3	118	—	4.4	—	4.5	4.6	102	67.8	114.0	168
1998	33.7	45.1	134	—	3.6	—	2.9	3.1	106	36.2	38.3	106
1999	46.5	54.2	117	4.3	3.6	83	3.9	4.8	123	24.6	38.7	157
2000	59.9	57.5	96	3.8	3.6	96	6.0	6.1	102	134.0	178.6	133
2001	61.0	80.4	132	4.0	5.3	133	4.8	7.2	150	364.6	416.5	114
2002	73.8	121.7	165	4.3	5.9	137	6.7	11.6	172	333.7	295.1	88
2003	109.8	126.6	115	4.8	5.5	114	11.6	25.6	220	145.4	208.9	144
2004	109.4	144.4	132	5.2	12.7	244	27.3	28.3	104	360.7	193.4	54
2005	116.9	61.0	52	7.4	7.7	104	24.8	16.3	66	254.1	106.9	42
2006	46.5	59.7	128	8.2	4.4	53	15.2	19.8	130	88.4	132.6	150
2007	52.0	40.5	78	7.9	2.8	36	15.9	19.6	123	78.5	86.2	110
2008	34.1	27.4	80	6.8	5.8	86	12.4	6.8	55	269.3	178.6	66
2009	37.6	39.4	105	5.2	2.3	45	7.2	8.0	110	298.9	169.3	57
2010	62.7	110.5	176	3.7	7.3	198	19.4	11.9	62	470.0	315.3	67
2011	104.1	80.3	77	5.5	4.7	85	10.6	7.5	70	198.4	221.2	111
2012	83.4	65.1	78	4.8	4.6	95	12.1	15.0	124	314.2	203.1	65
2013	59.8	47.3	79	6.1	3.7	61	7.8	10.7	137	141.4	123.1	87
2014	58.7	51.8	88	5.5	3.1	56	13.8	10.7	78	227.0	242.6	107
2015	55.4	87.1	157	5.5	3.5	63	14.2	30.8	217	232.5	289.0	124
2016	70.1	49.8	71	—	4.0	—	31.1	29.6	95	188.8	187.8	99
2017	40.2	53.7	133	3.6	7.6	211	20.9	20.5	98	160.4	115.8	72
2018	56.0	39.7	71	5.4	4.8	90	10.3	9.9	96	166.7	115.1	69
2019	42.5	29.3	69	5.5	3.4	62	4.3	3.6	84	99.3	73.1	74
2020	43.4	47.3	109	5.2	7.8	150	3.8	4.0	104	81.7	81.3	100
2021	52.4	43.1	82	5.3	5.7	107	6.4	8.2	128	75.2	91.8	122
2022	52.9			5.6			8.5			122.9		

[1] *Forecasts and return estimates are for return to the tributary mouth for years prior to 2018.*

[2] *Includes Snake River summer Chinook since 2005 and reflects current spring management period of Jan 1–Jun 15. Data prior to 2005 have not been adjusted. Adjustments may result in data being inconsistent with data found elsewhere in this document.*

Table 3. Components (in thousands) of the minimum Willamette River spring Chinook run and percentage caught in lower Willamette recreational fishery, 1971–2021. Includes jacks.

Year	Minimum Run Entering Columbia River	Mainstem Columbia River		Run Entering Willamette River	Lower Willamette River Recreational Catch[3]		Willamette Falls Count	Run Entering Clackamas River
		Comm.[1]	Sport[2]		Number[4]	% of Run		
1971-1974 Average	73.1	10.5	2.5	60.2	18.3	30.5	39.3	2.2
1975-1979 Average	56.6	5.4	1.6	49.5	15.1	30.5	31.1	3.3
1980-1984 Average	64.8	4.4	1.7	58.6	13.9	23.7	35.5	9.1
1985-1989 Average	93.7	9.8	2.2	81.7	19.6	24.1	53.6	8.1
1990-1994 Average	86.2	6.5	3.5	76.2	20.0	26.2	44.8	10.6
1995-1999 Average	42.1	0.2	0.0	41.9	6.2	14.7	28.5	6.6
2000	57.5	1.1	0.2	56.1	9.0	16.1	39.1	7.7
2001	80.4	3.5	3.8	73.0	7.7	10.5	54.0	10.8
2002	121.7	7.4	5.2	109.1	10.8	9.9	83.1	14.4
2003	126.6	1.8	7.2	117.6	13.5	11.5	87.7	15.4
2004	144.4	7.2	5.9	131.3	12.0	9.1	96.7	21.9
2000-2004 Average	106.1	4.2	4.5	97.4	10.6	10.9	72.1	14.0
2005	61.0	2.3	2.8	55.8	5.8	10.4	36.6	12.7
2006	59.7	2.7	2.0	55.0	7.2	13.2	37.0	10.4
2007	40.5	1.3	1.6	37.6	5.7	15.1	23.1	8.6
2008	27.4	0.1	0.2	27.1	4.6	17.0	14.7	7.6
2009	39.4	0.3	1.4	37.7	4.5	12.0	28.5	4.3
2005-2009 Average	45.6	1.3	1.6	42.6	5.6	13.1	28.0	8.7
2010	110.5	3.3	5.4	101.8	22.7	22.3	67.1	11.0
2011	80.3	2.3	2.1	75.9	22.8	30.1	45.1	6.8
2012	65.1	2.3	3.2	59.6	15.8	26.6	37.2	5.8
2013	47.3	1.8	1.7	43.8	7.4	16.8	29.6	6.2
2014	51.8	1.3	2.3	48.2	8.1	16.8	31.7	5.6
2010-2014 Average	71.0	2.2	2.9	65.9	15.4	23.3	42.1	7.1
2015	87.1	2.6	1.5	81.0	13.6	16.7	53.1	8.4
2016	49.8	0.9	1.4	47.4	6.0	12.6	32.5	5.8
2017	53.7	1.3	1.3	51.1	7.4	14.5	36.6	4.5
2018	39.7	0.5	1.3	37.9	6.2	16.4	26.5	2.7
2019	29.6	0.3	0.2	29.1	4.7	16.1	20.6	2.7
2015-2019 Average	51.9	1.1	1.1	49.3	7.6	15.4	33.9	4.8
2020	47.5	0.3	0.1	47.0	6.1	12.9	35.0	5.0
2021	43.1	0.3	1.1	41.8	6.5	15.5	30.0	3.7

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

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

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

[4] Includes estimated hook and release mortalities in the Lower Willamette selective recreational fishery since 2000.

Table 4. Willamette Falls spring Chinook escapement, upper Willamette recreational catch, number returning to hatcheries, and tribal use, 1980–2021. Includes jacks.

		Upper Willamette Recreational Catch		Upper Willamette Hatchery Return				
Year	Willamette Falls Count	Number	% of Will. Falls Count	Number	% of Will. Falls Count	Clackamas Hatchery Return[1]	Received by Columbia River Tribes[2]	
1980	26,973	1,954	7	10,340	38	1,024	0	
1981	30,057	2,241	7	10,246	34	1,065	0	
1982	46,195	3,687	8	15,998	35	573	0	
1983	30,589	1,877	6	11,888	39	1,923	0	
1984	43,452	3,123	7	16,616	38	2,521	0	
1985	34,533	2,510	7	11,614	34	944	0	
1986	39,155	2,708	7	14,653	37	776	0	
1987	54,832	6,442	12	19,514	36	1,005	0	
1988	70,451	8,536	12	29,396	42	1,253	3,700	
1989	69,180	9,375	14	31,574	46	865	2,520	
1990	71,273	10,856	15	36,904	52	1,847	1,425	
1991	52,516	8,323	16	25,044	48	2,776	2,992	
1992	42,004	7,424	18	19,589	47	4,535	2,206	
1993	31,966	8,161	26	18,173	57	4,635	1,386	
1994	26,102	4,273	16	11,321	43	3,675	3,193	[3]
1995	20,592	3,380	16	10,379	50	3,112	1,504	[4]
1996	21,605	5,041	23	11,501	53	3,044	4,386	[5]
1997	26,885	4,022	15	15,928	59	2,670	539	
1998	34,461	6,125	18	18,288	53	4,530	7,590	
1999	40,410	6,367	16	20,636	51	4,562	7,689	
2000	39,073	5,119	13	16,548	42	4,296	0	
2001	53,973	5,538	10	21,247	39	6,155	0	
2002	83,136	12,262	15	31,358	38	6,219	0	
2003	87,749	10,786	12	28,315	32	5,336	0	
2004	95,970	13,026	14	36,947	38	11,231	0	
2005	36,633	4,386	12	15,821	43	6,792	0	
2006	37,041	5,523	15	17,036	46	7,359	0	
2007	23,098	2,130	9	10,248	44	6,106	0	
2008	14,672	279	2	8,392	57	5,223	0	
2009	28,514	3,110	11	14,936	52	2,853	0	
2010	67,059	9,697	14	27,820	41	8,239	0	
2011	45,147	4,915	11	23,335	52	3,908	0	
2012	37,213	5,041	14	21,539	58	2,954	0	
2013	29,561	2,309	8	18,762	63	2,888	0	
2014	31,669	3,416	11	17,638	56	4,136	0	
2015	53,088	6,223	12	26,360	50	5,354	0	
2016	32,478	4,178	13	12,794	39	1,696	0	
2017	36,628	5,157	14	20,036	55	529	0	
2018	26,542	2,352	9	12,880	49	152	0	
2019	20,617	2,433	12	# 8,386	41	208	0	
2020	35,012	4,187	12	16,026	46	329	0	
2021	30,025	3,589	12	12,793	43	657	0	

[1] *Includes fish transferred from North Fork trap.*

[2] *Given toward the treaty tribes' minimum ceremonial and subsistence entitlement per the Columbia River Fish Management Plan or U.S. v. OR Management Agreement.*

[3] *Columbia River treaty tribes also harvested 759 Chinook and 396 marked summer steelhead at Willamette Falls.*

[4] *Columbia River treaty tribes also harvested 29 Chinook June 12–17 and 112 summer steelhead at*

[5] *Columbia River treaty tribes also harvested 12 Chinook at Willamette Falls.*

Table 5. Estimated numbers of adult upriver spring Chinook entering the Columbia River 1980–2021.

Return Year	Upriver Run[3]	Harvest impact downstream of Bonneville Dam (Zones 1–5)					Bonneville Dam Count	Harvest impact from Bonneville Dam upstream to McNary Dam (Zone 6)					Escapement past Zone 6 fisheries	
		Non-Treaty Harvest[1]						Treaty Harvest[2]						
		Comm.	Sport	Misc.[4]	Treaty	Grand Total		Non-Treaty Sport	Winter Gillnet	Comm. Gillnet	C&S & Platform	Zone 6 Total	Total[5]	%Run
80–84	*63,521*	*1,027*	*320*	*105*		*1,452*	*62,069*	*0*	*1,008*	*0*	*2,306*	*3,313*	*58,756*	*93%*
85–89	*105,501*	*2,416*	*805*	*113*		*3,334*	*102,166*	*0*	*208*	*0*	*5,991*	*6,199*	*95,968*	*91%*
90–94	*81,989*	*862*	*1,332*	*95*		*2,289*	*79,700*	*0*	*13*	*0*	*4,991*	*5,004*	*74,696*	*91%*
1995	12,792	1	9	1		11	12,781	0	13	0	620	633	12,148	95%
1996	55,551	34	10	12		56	55,495	0	0	0	2,911	2,911	52,584	95%
1997	124,321	34	16	19		69	124,252	0	14	0	8,309	8,323	115,929	93%
1998	44,308	27	14	0		41	44,267	0	1	0	2,224	2,225	42,042	95%
1999	43,067	28	16	0		44	43,023	0	1	0	1,983	1,984	41,039	95%
2000	186,715	245	124	6		375	186,340	0	31	1,348	9,973	11,352	174,988	94%
2001	439,885	2,054	22,719	484		25,257	414,628	168	160	43,630	10,985	54,943	359,686	82%
2002	335,306	10,070	16,268	81		26,419	308,887	1,716	48	24,209	9,208	35,181	273,706	82%
2003	242,605	3,161	9,611	332		13,104	229,501	1,860	857	8,348	9,090	20,155	209,346	86%
2004	221,675	6,223	17,146	9		23,379	198,296	1,596	2	8,368	9,114	19,080	179,216	81%
2005	106,910	2,267	7,224	22		9,513	97,397	464	1	0	6,163	6,628	90,769	85%
2006	132,583	2,222	4,187	17		6,425	126,158	1,362	0	0	8,401	9,763	116,395	88%
2007	86,247	1,483	3,927	7		5,418	80,829	1,445	3	0	5,624	7,072	73,757	86%
2008	178,627	6,134	19,612	158	830	26,734	151,893	2,068	0	12,314	8,247	22,629	129,265	72%
2009	169,296	4,310	15,246	233	2,018	21,807	147,489	644	0	0	11,083	11,727	135,762	80%
2010	315,346	8,933	23,535	349	5,139	37,956	277,390	3,692	0	25,008	12,807	41,507	235,883	75%
2011	221,158	3,706	9,506	224	2,291	15,727	205,431	2,564	7	0	13,235	15,806	189,626	86%
2012	203,090	4,596	10,422	225	1,399	16,642	186,448	1,282	2	818	15,482	17,584	168,865	83%
2013	123,136	1,756	5,343	96	3,007	10,202	112,934	1,093	0	0	6,275	7,368	105,566	86%
2014	242,635	3,623	13,572	475	19	17,689	224,946	4,208	0	13,807	10,877	28,892	196,054	81%
2015	288,993	6,528	15,689	288	929	23,435	265,558	1,647	7	20,320	9,925	31,899	233,660	81%
2016	187,816	3,285	10,167	223	1,527	15,202	172,614	1,480	0	1,993	13,546	17,019	155,596	83%
2017	115,821	463	7,198	620	16	8,297	107,524	18	0	0	8,093	8,111	99,413	86%
2018	115,081	311	5,868	381	476	7,036	108,045	611	0	0	10,416	11,027	97,018	84%
2019	73,105	203	1,478	101	88	1,870	71,235	282	0	0	4,614	4,896	66,339	91%
2020	81,301	83	1,381	3	119	1,587	79,714	535	0	0	4,327	4,862	74,853	92%
2021	91,756	309	4,088	73	33	4,503	87,233	780	0	0	4,032	4,812	82,421	90%

[1] *Includes kept catch plus release mortalities.*

[2] *Ceremonial and subsistence includes catch by gillnet, dipnet, and hook-and-line since 1982.*

[3] *Run sizes adjusted to reflect the counting period from January 1- June 15. Run includes upriver spring Chinook and Snake River summer Chinook.*

[4] *Includes mortalities from mainstem test fishing and research activities occuring downstream of Bonneville Dam.*

[5] *Bonneville count minus Zone 6 harvest.*

Table 6. Estimated numbers of adult upper Columbia wild spring Chinook entering the Columbia River 1980–2021.

	Return to Columbia River		Non-Treaty Wild Harvest[1]		Treaty Wild Harvest[2]		Total Wild Harvest		Wild Passage Loss[3]		Wild Escapement[4]	
Year	Total	Wild	No.	% of Run	No.	% of Run	No.	% of Run	No.	% of Run	No.	% of Run
1980	16,954	7,419	12	0.2	239	3.2	251	3.4	4,284	57.7	2,884	38.9
1981	14,157	5,734	78	1.4	289	5.0	367	6.4	2,285	39.9	3,082	53.7
1982	15,840	6,578	114	1.7	452	6.9	566	8.6	2,869	43.6	3,143	47.8
1983	16,108	7,340	352	4.8	295	4.0	647	8.8	2,364	32.2	4,328	59.0
1984	16,816	6,663	229	3.4	442	6.6	671	10.1	1,424	21.4	4,568	68.6
1985	28,994	10,467	378	3.6	356	3.4	734	7.0	653	6.2	9,081	86.8
1986	29,531	8,396	171	2.0	486	5.8	657	7.8	1,900	22.6	5,839	69.5
1987	25,544	8,774	135	1.5	530	6.0	665	7.6	1,775	20.2	6,335	72.2
1988	21,092	7,544	481	6.4	499	6.6	980	13.0	889	11.8	5,675	75.2
1989	18,747	7,401	175	2.4	553	7.5	728	9.8	2,587	35.0	4,086	55.2
1990	12,045	4,340	218	5.0	284	6.5	502	11.6	1,098	25.3	2,739	63.1
1991	8,696	2,478	97	3.9	149	6.0	246	9.9	679	27.4	1,553	62.7
1992	20,739	4,262	69	1.6	257	6.0	326	7.6	776	18.2	3,161	74.2
1993	26,056	4,054	33	0.8	247	6.1	280	6.9	676	16.7	3,098	76.4
1994	3,458	1,056	41	3.9	51	4.8	92	8.7	352	33.3	612	58.0
1995	1,657	226	0	0.0	11	4.9	11	4.9	107	47.3	108	47.8
1996	3,501	576	1	0.2	30	5.2	31	5.4	235	40.8	310	53.8
1997	9,685	1,033	1	0.1	69	6.7	70	6.8	333	32.2	630	61.0
1998	4,539	536	0	0.0	27	5.0	27	5.0	153	28.5	356	66.4
1999	4,944	435	0	0.0	20	4.6	20	4.6	123	28.3	291	66.9
2000	22,354	1,449	3	0.2	88	6.1	91	6.3	395	27.3	963	66.5
2001	51,951	6,236	88	1.4	815	13.1	903	14.5	566	9.1	4,766	76.4
2002	37,258	2,936	57	1.9	313	10.7	370	12.6	673	22.9	1,893	64.5
2003	23,650	2,307	36	1.6	181	7.8	217	9.4	443	19.2	1,647	71.4
2004	15,339	2,429	52	2.1	210	8.6	262	10.8	438	18.0	1,729	71.2
2005	16,646	1,911	31	1.6	119	6.2	150	7.8	393	20.6	1,367	71.5
2006	15,132	1,602	24	1.5	105	6.6	129	8.1	452	28.2	1,021	63.7
2007	6,371	550	8	1.5	38	6.9	46	8.4	23	4.2	481	87.5
2008	15,425	1,235	27	2.2	169	13.7	196	15.9	39	3.2	1,000	81.0
2009	12,648	1,386	25	1.8	119	8.6	144	10.4			1,384	99.9
2010	37,305	2,928	59	2.0	434	14.8	493	16.8	105	3.6	2,330	79.6
2011	16,069	2,236	31	1.4	164	7.3	195	8.7	219	9.8	1,821	81.4
2012	26,338	3,548	44	1.2	329	9.3	373	10.5	497	14.0	2,678	75.5
2013	18,420	2,134	29	1.4	167	7.8	196	9.2	392	18.4	1,546	72.4
2014	33,121	3,655	62	1.7	395	10.8	457	12.5	632	17.3	2,565	70.2
2015	37,789	3,876	76	2.0	445	11.5	521	13.4	99	2.6	3,256	84.0
2016	25,423	3,387	57	1.7	325	9.6	382	11.3	520	15.4	2,484	73.3
2017	12,843	1,646	23	1.4	123	7.5	146	8.9	465	28.3	1,036	62.9
2018	12,904	1,395	13	0.9	139	10.0	152	10.9	389	27.9	853	61.1
2019	14,654	1,173	8	0.7	77	6.6	85	7.2	384	32.7	704	60.0
2020	12,935	1,911	10	0.5	106	5.5	116	6.1	673	35.2	1,122	58.7
2021	17,365	3,978	47	1.2	185	4.7	232	5.8	921	23.2	2,824	71.0

[1] *Includes incidental release mortalities in mainstem recreational and commercial fisheries. Includes Wanapum tribal harvest.*

[2] *Since 1982 C&S catch includes gillnet, dip net, and hook and line. Includes harvest downstream of Bonneville Dam from C&S fishery.*

[3] *Bonneville Dam through McNary Dam; calculated by Zone 6 escapement minus Rock Island Dam passage.*

[4] *Estimated Rock Island Dam passage.*

Table 7. Estimated numbers of adult Snake River wild spring/summer Chinook entering the Columbia River 1980–2021.

	Return to Columbia River		Non-Treaty Wild Catch[1]		Treaty Wild Catch[2]		Total Wild Catch		Wild Passage Loss[3]		Wild Escapement[4]	
Year	Total	Wild	No.	% of Run	No.	% of Run	No.	% of Run	No.	% of Run	No.	% of Run
1980	27,339	20,979	35	0.2	675	3.2	709	3.4	13,615	64.9	6,646	31.7
1981	35,175	24,784	336	1.4	1,249	5.0	1,585	6.4	11,013	44.4	12,173	49.1
1982	39,954	27,633	479	1.7	1,899	6.9	2,378	8.6	13,429	48.6	11,819	42.8
1983	28,216	21,023	1,008	4.8	846	4.0	1,854	8.8	8,744	41.6	10,424	49.6
1984	20,995	14,136	486	3.4	938	6.6	1,424	10.1	4,442	31.4	8,266	58.5
1985	40,761	14,889	537	3.6	506	3.4	1,043	7.0	2,570	17.3	11,273	75.7
1986	64,732	20,154	411	2.0	1,167	5.8	1,578	7.8	6,582	32.7	11,989	59.5
1987	52,470	15,927	245	1.5	962	6.0	1,207	7.6	4,001	25.1	10,716	67.3
1988	54,112	17,380	1,109	6.4	1,149	6.6	2,258	13.0	3,546	20.4	11,573	66.6
1989	35,602	14,759	349	2.4	1,103	7.5	1,452	9.8	6,471	43.8	6,833	46.3
1990	41,415	17,628	884	5.0	1,155	6.6	2,040	11.6	5,731	32.5	9,850	55.9
1991	23,752	13,154	518	3.9	791	6.0	1,308	9.9	5,829	44.3	6,013	45.7
1992	39,710	20,653	334	1.6	1,243	6.0	1,577	7.6	6,012	29.1	13,056	63.2
1993	41,241	17,425	143	0.8	1,060	6.1	1,203	6.9	4,028	23.1	12,189	69.9
1994	7,786	3,757	147	3.9	181	4.8	328	8.7	1,476	39.3	1,954	52.0
1995	5,291	3,414	3	0.1	169	4.9	172	5.0	2,056	60.2	1,186	34.7
1996	17,162	9,223	9	0.1	483	5.2	493	5.3	4,956	53.7	3,775	40.9
1997	82,950	8,706	5	0.1	583	6.7	588	6.8	3,409	39.2	4,710	54.1
1998	26,975	13,840	13	0.1	695	5.0	708	5.1	5,776	41.7	7,356	53.1
1999	13,817	5,857	6	0.1	270	4.6	276	4.7	2,726	46.5	2,856	48.8
2000	64,765	14,047	28	0.2	854	6.1	882	6.3	4,909	34.9	8,255	58.8
2001	262,145	63,610	877	1.4	8,318	13.1	9,195	14.5	9,293	14.6	45,273	71.2
2002	173,330	52,921	962	1.8	5,638	10.7	6,600	12.5	15,865	30.0	30,213	57.1
2003	138,757	51,031	815	1.6	4,006	7.9	4,821	9.4	13,479	26.4	32,324	63.3
2004	126,417	33,235	721	2.2	2,873	8.6	3,595	10.8	8,053	24.2	21,367	64.3
2005	51,528	15,704	267	1.7	978	6.2	1,245	7.9	4,263	27.1	10,131	64.5
2006	53,306	16,846	259	1.5	1,107	6.6	1,366	8.1	5,843	34.7	9,485	56.3
2007	45,590	10,507	146	1.4	723	6.9	869	8.3	2,388	22.7	7,088	67.5
2008	101,064	24,060	524	2.2	3,286	13.7	3,809	15.8	2,368	9.8	17,574	73.0
2009	90,377	20,513	339	1.7	1,758	8.6	2,098	10.2	3,374	16.4	14,947	72.9
2010	166,413	34,904	659	1.9	5,170	14.8	5,829	16.7	2,011	5.8	26,622	76.3
2011	124,001	30,764	452	1.5	2,261	7.3	2,713	8.8	3,166	10.3	24,526	79.7
2012	114,116	35,278	482	1.4	3,273	9.3	3,755	10.6	5,642	16.0	25,634	72.7
2013	68,918	22,474	313	1.4	1,756	7.8	2,069	9.2	5,631	25.1	14,576	64.9
2014	137,815	45,992	782	1.7	4,973	10.8	5,756	12.5	7,306	15.9	32,065	69.7
2015	164,104	30,196	583	1.9	3,464	11.5	4,046	13.4	3,393	11.2	22,577	74.8
2016	111,072	23,727	403	1.7	2,279	9.6	2,682	11.3	4,682	19.7	16,161	68.1
2017	59,750	7,201	80	1.1	539	7.5	620	8.6	2,154	29.9	4,425	61.4
2018	67,903	11,390	137	1.2	1,137	10.0	1,275	11.2	3,430	30.1	6,632	58.2
2019	43,083	7,481	49	0.7	493	6.6	542	7.2	2,732	36.5	4,183	55.9
2020	52,070	14,706	72	0.5	816	5.5	887	6.0	5,112	34.8	8,618	58.6
2021	52,274	9,480	118	1.2	442	4.7	560	5.9	2,352	24.8	6,509	68.7

[1] *Includes incidental mortalities in mainstem recreational and commercial fisheries and lower Snake River (WA waters) recreational fisheries.*

[2] *Since 1982 C&S catch includes gill net, dip net and hook-and-line. Includes harvest downstream of Bonneville Dam from C&S fishery.*

[3] *Bonneville Dam to Lower Granite Dam; calculated by Zone 6 escapement - (Snake River recreational + Tucannon River escapement + Lower Granite Dam escapement).*

[4] *Lower Granite Dam passage plus Tucannon River escapement.*

Table 8. Estimated numbers of adult upper Columbia summer Chinook entering the Columbia River, 1980–2021.

Year	Upriver Run[1]	Zones 1–5: Harvest downstream of Bonneville Dam (BON)				BON Dam Count	Zone 6 Harvest BON–McNary (MCN)		Zone 6 Escapement[4]	MCN to Priest Rapids Dam (PRD)	Wanapum Tribal	PRD to Grand Coulee Dam	Colville Tribal
		Non-Treaty (NT)					NT	Treaty					
		Sport	Comm.	Misc[2]	Treaty		Sport	Catch[3]		Sport	(< PRD)	Sport	(>PRD)
80–84	*17,505*	*0*	*0*	*51*	*0*	*17,453*	*0*	*919*	*16,535*	*0*	*0*	*0*	*0*
85–89	*20,982*	*9*	*0*	*75*	*0*	*20,900*	*0*	*1,170*	*19,730*	*0*	*0*	*0*	*0*
90–94	*14,252*	*13*	*0*	*33*	*0*	*14,206*	*0*	*165*	*14,041*	*0*	*0*	*0*	*0*
1995	12,455	14	0	0	0	12,441	0	417	12,024	0	0	0	0
1996	12,080	34	0	15	0	12,031	0	374	11,657	0	0	0	0
1997	17,709	16	0	6	0	17,687	0	270	17,417	0	0	0	0
1998	15,536	27	0	1	0	15,508	0	335	15,173	0	0	0	0
1999	21,867	51	0	1	0	21,815	0	395	21,420	0	0	0	0
2000	22,595	17	0	0	0	22,578	0	209	22,369	0	39	1,092	442
2001	52,960	64	0	1	0	52,895	0	692	52,203	0	82	4,380	2,346
2002	89,524	1,447	0	8	0	88,069	113	2,093	85,863	36	197	4,535	2,720
2003	83,058	1,945	0	36	0	81,077	415	4,297	76,365	40	223	5,187	2,178
2004	65,623	1,246	219	3	0	64,155	260	8,394	55,501	36	157	5,849	1,874
2005	60,272	1,621	2,787	0	0	55,864	423	7,642	47,799	2	338	2,192	894
2006	77,573	4,926	4,819	9	0	67,819	276	16,319	51,224	19	216	3,864	1,340
2007	37,035	2,214	1,122	0	0	33,699	136	5,375	28,188	12	294	3,900	1,070
2008	55,532	2,140	1,370	59	0	51,963	942	9,029	41,992	55	188	2,597	1,861
2009	53,881	2,341	2,524	22	0	48,994	175	11,650	37,169	90	185	2,458	1,190
2010	72,346	2,738	4,720	20	230	64,638	435	15,569	48,634	451	48	2,481	3,524
2011	80,574	5,576	5,004	0	0	69,994	303	20,645	49,046	86	55	5,546	1,208
2012	58,300	3,281	1,692	23	0	53,304	231	7,824	45,249	65	23	3,980	3,400
2013	67,603	2,058	1,954	33	50	63,508	176	13,347	49,985	148	240	2,899	3,452
2014	78,254	2,385	2,743	45	210	72,871	308	19,179	53,384	146	150	2,875	3,574
2015	126,882	6,152	3,938	105	30	116,657	609	37,733	78,315	177	284	4,823	10,410
2016	91,048	3,706	2,990	60	100	84,192	361	20,415	63,416	205	218	4,214	3,541
2017	68,204	3,853	0	47	160	64,144	136	16,168	47,840	126	158	4,325	1,578
2018	42,120	1,140	0	24	50	40,906	12	9,448	31,446	122	68	3,385	1,268
2019	34,619	74	0	23	50	34,472	6	5,587	28,879	0	27	6,025	1,404
2020	65,494	1,417	0	13	0	64,064	6	8,410	55,648	135	36	5,894	1,728
2021	56,800	2,234	0	0	20	54,489	22	11,225	43,242	77	62	5,261	1,583

[1] Includes only upper Columbia summer Chinook and reflects current summer management period of Jun 16–Jul 31. All data has been adjusted. Adjustments may result in data being inconsistent with data found elsewhere in this document. Non–treaty catch includes incidental release mortalities.

[2] Includes incidental non-retention mortality in commercial test, research, American Shad, and sockeye fisheries, and harvest in Select Area fisheries.

[3] Includes commercial and C&S catches.

[4] Bonneville counts minus Zone 6 harvest.

Table 9. Winter steelhead harvest and incidental release mortalities in mainstem Columbia River non-treaty fisheries, run years 2000/01–2020/21.[1]

Run Year	Natural-Origin Columbia River Return	Commercial	Recreational Downstream of Bonneville Dam[2]		Recreational in Bonneville Pool[3]		Total		Natural-Origin Winter Steelhead Impact Rate	
		Unclipped Release Mortalities[4]	Clipped Hatchery Kept	Unclipped Release Mortalities	Clipped Hatchery Kept	Unclipped Release Mortalities	Clipped Hatchery Kept	Unclipped Release Mortalities	Actual[5]	Allowed
2000–01	21,825	100	1,772	56	82	3	1,854	158	0.7%	2.0%
2001–02	33,711	3,095	2,073	82	278	3	2,351	3,180	9.4%	2.0%
2002–03	23,452	217	1,312	64	186	2	1,498	283	1.2%	2.0%
2003–04	29,566	238	1,620	70	72	1	1,692	309	1.0%	2.0%
2004–05	14,660	65	548	32	65	1	613	98	0.7%	2.0%
2005–06	16,709	15	639	37	51	1	690	53	0.3%	2.0%
2006–07	15,072	75	817	36	26	1	843	112	0.7%	2.0%
2007–08	13,943	9	562	20	115	7	677	36	0.3%	2.0%
2008–09	11,575	4	664	22	47	2	711	28	0.2%	2.0%
2009–10	20,035	89	1,274	44	106	5	1,380	138	0.7%	2.0%
2010–11	16,740	23	1,236	81	147	10	1,383	114	0.7%	2.0%
2011–12	17,332	70	1,771	59	48	2	1,819	132	0.8%	2.0%
2012–13	15,655	27	432	22	63	3	495	52	0.3%	2.0%
2013–14	14,928	58	460	39	51	3	511	100	0.7%	2.0%
2014–15	20,117	52	704	77	98	9	802	138	0.7%	2.0%
2015–16	22,379	48	898	68	42	3	940	119	0.5%	2.0%
2016–17	9,448	0	234	19	8	0	242	19	0.2%	2.0%
2017–18	11,323	9	177	20	15	1	192	29	0.3%	2.0%
2018–19	9,440	6	96	11	10	1	106	18	0.2%	2.0%
2019–20	14,545	10	261	36	20	2	281	48	0.3%	2.0%
2020–21	13,654	8	251	28	11	1	262	37	0.3%	2.0%

[1] *2018-19, 2019-20, and 2020-21 data are preliminary; all data are subject to change.*

[2] *Estimates for fisheries occurring from November–April. Kept catch based on catch record card data or creel when available.*

[3] *Winter steelhead upper range extends into Bonneville Pool. Estimates for fisheries occurring from November–April. Kept catch based on catch record card data.*

[4] *Incidental release mortality estimates based on observation data. Includes estimates for Select Area commercial fisheries beginning with the 2017-18 run year.*

[5] *Harvest rate based on Columbia River natural-origin winter steelhead return.*

Table 10. Skamania Run summer steelhead harvest in mainstem Columbia River non-treaty fisheries, 1999–2021.[1]

	Downstream of Bonneville Dam (May–June)						Bonneville Pool (April–June)		Impact Rates			
	Commercial		Recreational		Total Mortalities		Recreational[2]		Clipped Hatchery		Unclipped	
Year	Clipped Release Mortalities	Unclipped Release Mortalities	Clipped Hatchery Kept	Unclipped Release Mortalities	Clipped	Unclipped	Clipped Hatchery Kept	Unclipped Release Mortalities	Lower River Skamania	Upriver Skamania	Lower River Skamania[3]	Upriver Skamania
1999	0	0	1,282	20	1,282	20	9	0	4.9%	0.2%	0.49%	0.02%
2000	0	0	1,619	38	1,619	38	47	2	3.9%	0.4%	0.39%	0.04%
2001	0	0	1,966	61	1,966	61	52	2	2.7%	0.3%	0.27%	0.03%
2002	0	0	4,404	61	4,404	61	56	4	3.8%	0.4%	0.38%	0.04%
2003	0	0	2,691	59	2,691	59	16	0	3.5%	0.1%	0.35%	0.01%
2004	4	1	2,954	51	2,958	52	27	1	2.6%	0.2%	0.26%	0.02%
2005	40	10	2,055	45	2,095	55	23	1	3.7%	0.3%	0.37%	0.03%
2006	57	4	3,021	24	3,078	28	21	1	3.9%	0.3%	0.39%	0.03%
2007	20	3	2,695	34	2,715	37	32	1	6.4%	0.4%	0.64%	0.04%
2008	25	7	2,035	53	2,060	60	53	2	3.2%	0.5%	0.32%	0.05%
2009	54	18	1,381	47	1,435	65	46	2	2.5%	0.4%	0.25%	0.04%
2010	112	32	4,220	108	4,332	140	33	2	5.2%	0.2%	0.52%	0.02%
2011	135	43	4,371	100	4,506	142	13	1	7.2%	0.2%	0.72%	0.02%
2012	40	11	4,049	99	4,089	110	47	2	5.9%	0.6%	0.59%	0.06%
2013	53	19	2,391	47	2,444	65	28	1	6.6%	0.7%	0.66%	0.07%
2014	34	31	3,816	109	3,850	140	37	2	4.8%	0.4%	0.48%	0.04%
2015	72	97	1,708	64	1,780	161	10	1	2.7%	0.2%	0.27%	0.02%
2016	65	43	3,332	65	3,397	108	39	3	3.9%	0.5%	0.39%	0.05%
2017	0	0	401	9	401	9	1	0	2.4%	0.0%	0.24%	0.00%
2018	0	0	2,387	64	2,387	64	0	0	7.4%	0.0%	0.84%	0.00%
2019	0	0	1,424	39	1,424	39	4	0	7.9%	0.3%	0.88%	0.00%
2020	0	0	1,505	38	1,505	38	0	1	6.5%	0.0%	0.69%	0.03%
2021	0	0	580	24	580	24	0	0	7.1%	0.0%	0.76%	0.00%

[1] *Steelhead handled downstream of Bonneville Dam during May and June are considered lower river Skamania stock. Steelhead handled in Bonneville Pool during April through June are considered upriver Skamania stock.*

[2] *Kept data based on catch record cards. Estimates of unclipped fish based on clip rate at observed at Bonneville Dam.*

[3] *Abundance estimates for unclipped lower river Skamania stock summer steelhead are not available. To estimate the impact rate on unclipped fish, it is assumed the harvest rate of clipped hatchery-origin fish equals the handle rate of unclipped fish and a release mortality rate of 10% is applied. Includes estimates for Select Area commercial fisheries beginning with the 2018 run year.*

Table 11a. A-Index summer summer steelhead harvest in mainstem Columbia River non-treaty fisheries during winter, spring, and summer seasons, 1999–2021.[1]

	Below Bonneville Dam (July)					Bonneville Dam – Hwy 395 (July)			The Dalles Dam – Hwy 395 (January – June of year+1)						
	Commercial[2]		Recreational			Recreational[3]			Recreational[4]			Mortalities		Harvest/Impact Rates	
	Hatchery-Origin Release Mortalities (clipped and	Natural-Origin Release	Hatchery-Origin		Natural-Origin	Hatchery-Origin		Natural-Origin	Hatchery-Origin		Natural-Origin	Hatchery-Origin	Natural-Origin	Hatchery-Origin	Natural-Origin
Year	unclipped)	Mortalities	Kept	Rel. Mort.	Rel. Mort.	Kept	Rel. Mort.	Rel. Mort.	Kept	Rel. Mort.	Rel. Mort.				
1999	0	0	1,729	--	129	244	--	17	605	--	29	2,579	175	2.2%	0.3%
2000	0	0	3,112	--	242	873	--	62	698	--	29	4,682	334	3.1%	0.5%
2001	0	0	4,339	--	416	2,200	--	128	2,592	--	94	9,130	638	2.4%	0.5%
2002	0	0	3,785	--	230	608	--	41	1,859	--	69	6,252	339	2.7%	0.4%
2003	0	0	2,695	--	169	806	--	63	1,523	--	43	5,024	274	2.1%	0.4%
2004	2	1	3,267	--	183	741	--	65	714	--	23	4,724	272	2.5%	0.5%
2005	21	13	2,700	--	167	762	--	49	1,053	--	32	4,536	262	2.4%	0.4%
2006	47	34	2,749	--	137	581	--	42	1,275	--	45	4,651	257	2.6%	0.4%
2007	7	4	3,190	--	190	1,015	--	64	1,237	--	53	5,449	311	3.0%	0.4%
2008	11	6	4,370	52	331	1,239	12	75	572	5	23	6,260	436	3.6%	0.7%
2009	0	0	8,186	85	675	1,267	11	87	1,755	11	58	11,314	820	2.7%	0.6%
2010	0	0	7,974	68	623	1,703	16	145	807	7	48	10,575	816	5.5%	0.8%
2011	0	0	8,549	104	621	628	9	54	1,084	12	49	10,386	724	4.5%	0.8%
2012	0	0	10,295	145	851	451	5	32	894	11	41	11,800	923	8.7%	1.7%
2013	3	4	4,202	70	499	311	6	40	354	4	24	4,950	566	3.7%	0.7%
2014	21	19	5,221	64	511	708	9	74	592	5	38	6,620	642	4.0%	0.7%
2015	27	29	3,575	12	248	437	2	49	631	3	32	4,688	359	2.9%	0.5%
2016	20	10	2,979	19	136	352	3	18	223	2	7	3,597	171	3.6%	0.6%
2017	0	0	1,038	2	93	138	0	16	23	0	1	1,202	110	1.5%	0.4%
2018	4	3	2,218	8	143	7	0	1	114	1	5	2,352	152	4.9%	0.7%
2019	1	1	1,394	5	177	44	0	6	84	1	8	1,528	192	4.3%	0.6%
2020	5	4	1,525	55	177	56	0	6	96	1	6	1,738	193	3.7%	0.7%
2021[5]	--	--	--	--	--	--	--	--				--	--	--	--

[1] Steelhead handled in fisheries during the month of July are considered A-Index or B-Index upriver summer steelhead from the current run year. Steelhead handled in fisheries between The Dalles Dam and the Highway 395 Bridge during the months of January through June are considered A-Index or B-Index upriver summer steelhead from the prior run year. Stock composition and clip rates of handled steelhead are based on sampling data collected at Bonneville Dam if not available from fisheries sampling programs. All natural-origin steelhead are expressed as handle/release mortalities. Estimates of release mortality for unclipped hatchery-origin steelhead are not available prior to 2008. 2019 and 2020 data are preliminary; all data are subject to change.

[2] Includes estimates for Select Area commercial fisheries beginning with the 2018 run year.

[3] Includes mortalities in "dip-in" areas. Kept data based on catch record cards.

[4] Kept data based on catch record cards.

[5] At time of publication, the 2021 upriver summer steelhead run reconstruction was not available therefore the stock composition of July catches cannot be made.

Table 11b. B-Index summer steelhead harvest in mainstem Columbia River non-treaty fisheries during winter, spring, and summer seasons, 1999–2021.[1]

	Below Bonneville Dam (July)					Bonneville Dam – Hwy 395 (July)			The Dalles Dam – Hwy 395 (January – June of year+1)						
	Commercial[2]		Recreational			Recreational[3]			Recreational[4]			Mortalities		Harvest/Impact Rates	
	Hatchery-Origin Release Mortalities (clipped and	Natural-Origin Release	Hatchery-Origin		Natural-Origin	Hatchery-Origin		Natural-Origin	Hatchery-Origin		Natural-Origin	Hatchery-Origin	Natural-Origin	Hatchery-Origin	Natural-Origin
Year	unclipped)	Mortalities	Kept	Rel. Mort.	Rel. Mort.	Kept	Rel. Mort.	Rel. Mort.	Kept	Rel. Mort.	Rel. Mort.				
1999	0	0	33	--	3	5	--	0	93	--	2	130	5	0.7%	0.1%
2000	0	0	53	--	4	15	--	0	148	--	4	217	8	0.7%	0.1%
2001	0	0	73	--	9	37	--	0	510	--	8	621	17	0.8%	0.1%
2002	0	0	150	--	15	24	--	0	769	--	25	943	41	1.0%	0.1%
2003	0	0	0	--	2	0	--	0	197	--	4	197	6	0.6%	0.1%
2004	0	0	41	--	0	9	--	0	106	--	3	156	3	0.6%	0.0%
2005	0	0	0	--	0	0	--	0	215	--	5	215	5	0.5%	0.1%
2006	1	2	58	--	6	12	--	0	462	--	6	533	14	0.8%	0.2%
2007	0	0	19	--	6	6	--	0	286	--	6	311	12	0.7%	0.1%
2008	0	0	107	0	2	30	0	0	267	2	5	407	7	0.5%	0.0%
2009	0	0	35	0	12	5	0	2	136	1	5	178	19	0.5%	0.2%
2010	0	0	96	0	17	21	0	4	272	1	9	390	30	0.6%	0.2%
2011	0	0	0	0	10	0	0	1	128	2	2	130	13	0.5%	0.3%
2012	0	0	10	5	14	0	0	1	136	4	4	156	19	0.7%	0.4%
2013	0	0	17	0	2	1	0	0	25	1	0	43	2	0.4%	0.2%
2014	0	0	33	0	4	5	0	1	120	3	2	161	7	0.4%	0.1%
2015	0	0	0	0	2	0	0	0	40	1	1	41	4	0.3%	0.1%
2016	0	0	0	1	4	0	0	1	82	1	1	84	6	0.2%	0.2%
2017	0	0	0	0	1	0	0	0	2	0	0	2	1	0.0%	0.1%
2018	0	0	52	0	2	0	0	0	48	1	1	101	2	0.5%	0.1%
2019	0	0	0	2	3	0	0	0	11	0	0	13	4	0.2%	0.4%
2020	0	0	6	0	8	0	0	0	52	1	1	59	10	0.2%	0.2%
2021[5]	--	--	--	--	--	--	--	--				--	--	--	--

[1] Steelhead handled in fisheries during the month of July are considered A-Index or B-Index upriver summer steelhead from the current run year. Steelhead handled in fisheries between The Dalles Dam and the Highway 395 Bridge during the months of January through June are considered A-Index or B-Index upriver summer steelhead from the prior run year. Stock composition and clip rates of handled steelhead are based on sampling data collected at Bonneville Dam if not available from fisheries sampling programs. All natural-origin steelhead are expressed as handle/release mortalities. Estimates of release mortality for unclipped hatchery-origin steelhead are not available prior to 2008. 2019 and 2020 data are preliminary; all data are subject to change.

[2] Includes estimates for Select Area commercial fisheries beginning with the 2018 run year.

[3] Includes mortalities in "dip-in" areas. Kept data based on catch record cards.

[4] Kept data based on catch record cards.

[5] At time of publication, the 2021 upriver summer steelhead run reconstruction was not available therefore the stock composition of July catches cannot be made.

Table 12. Upriver summer steelhead passage at Bonneville Dam (April–October), 1984–2021.

	Skamania Index		A-Index		B-Index		Total Passage		
Year	Wild	Total	Wild	Total	Wild	Total	Wild	Hatchery	Total
1984	2,490	20,780	52,447	195,751	13,768	98,011	68,705	245,837	314,542
1985	3,690	19,990	51,922	281,504	12,986	40,870	68,598	273,766	342,364
1986	5,520	24,830	56,570	287,508	9,984	64,016	72,074	304,280	376,354
1987	7,380	17,790	106,690	238,283	13,990	44,959	128,060	172,972	301,032
1988	4,180	22,360	64,331	173,151	17,742	81,643	86,253	190,901	277,154
1989	3,770	15,730	57,513	193,079	12,367	77,604	73,650	212,763	286,413
1990	3,690	18,710	27,102	115,628	8,811	47,174	39,603	141,909	181,512
1991	1,220	10,880	60,264	234,048	6,207	28,265	67,691	205,502	273,193
1992	2,940	14,910	44,294	241,524	12,715	57,438	59,949	253,923	313,872
1993	1,250	14,360	28,650	136,701	4,378	36,169	34,278	152,952	187,230
1994	1,380	12,330	21,212	120,971	5,152	27,463	27,744	133,020	160,764
1995	1,150	8,220	25,997	180,037	1,847	13,221	28,994	172,484	201,478
1996	1,310	10,830	25,721	174,464	3,912	18,693	30,943	173,044	203,987
1997	930	11,890	30,852	208,209	3,913	36,663	35,695	221,067	256,762
1998	1,610	9,440	34,836	134,687	3,415	40,241	39,861	144,507	184,368
1999	1,310	7,160	56,626	176,466	3,740	22,137	61,676	144,087	205,763
2000	5,728	16,619	63,628	216,723	8,368	40,909	77,724	196,527	274,251
2001	7,952	28,725	137,230	515,079	12,047	86,426	157,229	473,001	630,230
2002	9,671	24,991	87,276	323,124	32,333	129,882	129,280	348,717	477,997
2003	1,801	14,154	67,049	305,795	6,417	37,228	75,267	281,910	357,177
2004	3,289	20,148	60,421	250,615	9,202	37,398	72,912	235,249	308,161
2005	2,123	11,221	58,917	251,631	9,619	48,968	70,659	241,161	311,820
2006	2,181	9,882	63,735	245,168	8,466	74,128	74,382	254,796	329,178
2007	1,727	9,475	77,268	258,848	9,015	51,073	88,010	231,386	319,396
2008	4,489	15,832	81,648	245,823	18,529	93,429	104,666	250,418	355,084
2009	3,528	13,884	154,045	543,195	13,727	44,540	171,300	430,319	601,619
2010	10,357	29,270	120,531	304,002	22,364	77,146	153,252	257,166	410,418
2011	2,814	9,750	101,263	318,125	7,771	36,996	111,848	253,023	364,871
2012	3,023	10,958	55,464	192,134	6,813	27,723	65,300	165,515	230,815
2013	1,661	5,738	90,496	214,074	2,907	11,511	95,064	136,259	231,323
2014	4,783	13,526	109,279	260,130	13,341	47,057	127,403	193,310	320,713
2015	3,664	8,131	84,896	234,382	5,842	18,848	94,402	166,959	261,361
2016	4,822	12,238	29,146	128,890	3,469	42,916	37,437	146,607	184,044
2017	1,236	3,491	27,909	106,776	751	6,574	29,896	86,945	116,841
2018	2,595	6,483	21,725	69,338	2,382	24,662	26,702	73,781	100,483
2019	1,522	3,134	30,300	66,174	899	6,292	32,721	42,879	75,600
2020	2,054	4,101	28,132	75,392	5,278	32,199	35,464	76,228	111,692
2021 [1]	1,119	1,917	--	--	--	--	--	--	69,669

[1] *Value for Skamania Index wild fish is preliminary. At time of publication, TAC had not yet completed the reconstruction of the A-Index/B-Index component of the upriver summer steelhead return.*

Table 13. Summer steelhead passage at Lower Granite Dam, 1984–2021.

	A-Index		B-Index		Total		
Run Year[1]	Wild	Total	Wild	Total	Hatchery[2]	Wild	Total
1984–85					79,900	24,500	104,400
1985–86					89,600	26,700	116,300
1986–87	16,613	87,513	5,463	42,432	107,869	22,076	129,945
1987–88	20,164	52,582	5,347	18,820	45,891	25,511	71,402
1988–89	15,700	60,443	4,614	26,620	66,749	20,314	87,063
1989–90	16,937	83,440	8,042	47,908	106,369	24,979	131,348
1990–91	4,806	30,383	4,483	26,498	47,592	9,289	56,881
1991–92	14,135	84,020	3,182	15,065	81,768	17,317	99,085
1992–93	13,617	97,037	5,777	31,343	108,986	19,394	128,380
1993–94	7,332	41,989	1,790	17,685	50,552	9,122	59,674
1994–95	5,873	37,829	2,231	9,409	39,134	8,104	47,238
1995–96	6,721	69,494	1,334	9,651	71,090	8,055	79,145
1996–97	5,980	73,055	1,645	13,856	79,286	7,625	86,911
1997–98	7,424	74,443	1,325	12,203	77,897	8,749	86,646
1998–99	7,074	50,906	2,301	19,756	61,287	9,375	70,662
1999–00	10,184	64,303	914	9,748	62,953	11,098	74,051
2000–01	17,689	97,288	2,886	20,014	96,727	20,575	117,302
2001–02	37,545	234,615	3,174	33,851	227,747	40,719	268,466
2002–03	28,308	150,577	13,623	71,599	180,245	41,931	222,176
2003–04	21,892	140,066	7,254	32,444	143,364	29,146	172,510
2004–05	18,297	121,688	4,774	29,958	128,575	23,071	151,646
2005–06	14,586	125,133	3,544	33,032	140,035	18,130	158,165
2006–07	7,877	108,321	1,633	40,845	139,656	9,510	149,166
2007–08	11,242	128,259	2,924	26,883	140,976	14,166	155,142
2008–09	18,216	125,500	5,659	53,370	154,995	23,875	178,870
2009–10	38,210	299,598	4,529	23,784	280,643	42,739	323,382
2010–11	34,549	163,020	9,584	45,276	164,163	44,133	208,296
2011–12	35,240	156,208	4,198	24,112	140,882	39,438	180,320
2012–13	19,806	88,184	3,337	21,002	86,043	23,143	109,186
2013–14	23,470	99,130	1,885	9,024	82,799	25,355	108,154
2014–15	38,861	133,957	6,928	31,634	119,802	45,789	165,591
2015–16	30,806	123,147	3,130	13,003	102,214	33,936	136,150
2016–17	12,575	68,956	3,001	32,870	86,250	15,576	101,826
2017–18	10,454	69,450	263	4,647	63,380	10,717	74,097
2018–19	7,055	35,253	1,229	16,565	43,534	8,284	51,818
2019–20	9,234	30,945	400	3,465	24,776	9,634	34,410
2020–21	12,213	39,989	3,265	21,326	45,837	15,478	61,315
2021–22[3]	7,565	33,378	1,200	7,375	31,988	8,765	40,753

[1] *Run year is July 1 through June 30 of following year.*

[2] *Hatchery-origin includes fish with clipped and unclipped adipose fins.*

[3] *Values are preliminary; passage is through December 31, 2021 and subcomponent determination is based on visual sampling at Lower Granite Dam. Final estimates based on the full passage period and genetic analysis will be available in December 2022.*

Table 14. Minimum numbers (in thousands) of lower river hatchery-origin summer steelhead entering the Columbia River, 1980–2021.

Year	Lower Col. Recreational Kept Catch (May–June)[1]	Recreational Kept Catch[2]		Tributary Dam Counts[3]	Hatchery Returns[4]		Minimum Run
		OR	WA		OR	WA	
1980–84 avg	1.5	3.5	15.6	23.0	0.2	4.8	48.4
1985	1.8	3.9	15.9	32.3	0.2	3.0	57.1
1986	3.0	4.4	26.9	53.3		2.3	89.9
1987	1.6	4.2	17.4	33.6		1.6	58.4
1988	2.7	7.0	14.2	50.7		3.3	77.9
1989	1.7	3.5	12.6	13.4		3.8	35.0
1990	2.2	5.1	17.2	31.8		5.6	61.9
1991	1.2	3.0	15.0	10.4		2.2	31.8
1992	1.2	3.0	17.6	23.1		3.1	48.0
1993	1.8	3.2	20.0	17.3		4.7	47.0
1994	1.2	2.1	23.0	15.4		5.6	47.3
1995	1.4	1.5	13.0	15.1	0.1	7.8	38.9
1996	1.2	1.0	15.1	7.8	0.2	9.9	35.2
1997	1.9	1.4	6.0	17.5	0.1	3.7	30.6
1998	1.2	1.4	5.0	15.3		5.4	28.3
1999	1.3	1.5	6.3	12.4		4.6	26.1
2000	1.6	1.7	14.8	13.1	0.4	9.6	41.2
2001	2.0	3.1	19.8	28.4	1.9	16.4	71.6
2002	4.4	6.0	34.9	35.2	2.8	33.8	117.1
2003	2.7	2.7	26.9	17.5	4.5	23.0	77.2
2004	3.0	5.6	44.5	36.4	2.4	23.1	114.9
2005	2.1	2.0	15.2	14.6	4.1	18.8	56.8
2006	3.0	4.3	29.4	17.0	1.3	24.8	79.8
2007	2.7	3.5	12.4	13.1	1.2	9.2	42.1
2008	2.0	5.1	22.5	13.9	0.9	20.6	65.1
2009	1.4	4.3	18.0	14.2	0.7	19.1	57.7
2010	4.2	3.6	23.5	24.0	1.0	26.3	82.6
2011	4.4	2.7	17.5	20.5	0.6	17.1	62.7
2012	4.0	4.8	17.2	24.1	1.2	18.5	69.8
2013	2.4	3.1	9.6	13.6	1.6	7.0	37.3
2014	3.8	4.0	25.1	22.0	1.5	24.0	80.5
2015	1.7	2.3	36.3	4.3	0.6	21.3	66.6
2016	3.3	6.0	28.8	24.2	1.2	24.6	88.2
2017	0.4	1.5	7.0	2.6	0.4	5.0	16.9
2018	2.4	2.6	9.3	10.3	0.6	7.1	32.2
2019	1.4	1.1	6.0	5.2	0.2	4.0	17.9
2020	1.5	1.2	10.1	3.1	0.6	6.5	23.0
2021	0.6	0.6	2.1	1.8	0.6	2.6	8.2

[1] *Catch in lower Columbia recreational fisheries during May and June is assigned to lower river stock.*

[2] *From Oregon and Washington catch record card estimates. 2019-2021 data are preliminary.*

[3] *Willamette Falls (Willamette R.), North Fork Dam (Clackamas R.), and Marmot Dam (Sandy R; through 2007 only).*

[4] *Washington: Skamania, Lewis River, and Cowlitz hatcheries and, beginning in 1998, Kalama River hatcheries. Oregon: Sandy (1999 onward) and Clackamas (1984-1987 and 1995 onward) hatcheries.*

Table 15. Estimated number of sockeye entering the Columbia River, mainstem harvest, and escapement, 1980–2021.

					Snake River Sockeye					
									Dam Counts	
Year	Columbia River Mouth[1]	Non-treaty Catch[2]	Bonneville Dam Count	Treaty Catch[3]	At Col. R. Mouth	Non-treaty Catch[2]	Treaty Catch[3]	Lower Granite Escapement[4]	Tumwater[5]	Wells[6]
1980	58,886	4	58,882	636	107	0	1	96		26,573
1981	56,037	0	56,037	1,507	236	0	6	218		28,234
1982	50,319	100	50,219	775	257	1	4	211		19,005
1983	100,610	83	100,527	3,349	241	0	8	216		27,925
1984	161,890	9,345	152,545	24,616	149	9	23	105		81,054
1985	200,758	32,213	166,340	49,969	59	10	15	35		52,989
1986	59,963	1,840	58,123	6,672	24	1	3	20		34,788
1987	145,546	28,553	116,993	39,560	55	11	15	29		40,120
1988	99,780	17,632	79,714	30,990	45	8	14	23		33,978
1989	47,478	36	41,884	2,138	4	0	0	4		15,976
1990	49,754	173	49,581	2,716	1	0	0	1		7,609
1991	76,484	3	76,481	3,271	10	0	0	9		27,490
1992	85,000	8	84,992	2,185	35	0	0	15		41,951
1993	88,025	64	80,178	5,020	18	0	1	17		27,849
1994	12,873	1	12,678	472	5	0	0	5		1,666
1995	9,913	1	8,774	445	5	0	0	5		4,892
1996	30,942	25	30,232	1,414	3	0	0	3		17,701
1997	49,979	12	47,008	2,046	16	0	1	17		24,621
1998	13,220	2	13,218	425	4	0	0	3		4,664
1999	19,094	1	17,877	704	15	0	1	18	1,172	12,388
2000	93,764	366	93,398	2,910	365	2	13	337	20,979	59,944
2001	117,879	1,691	114,934	7,300	41	1	3	45	32,633	74,486
2002	50,557	24	49,610	2,564	64	0	4	73	27,821	10,586
2003	39,291	0	39,291	1,090	40	0	1	37	5,074	28,977
2004	130,231	682	123,291	4,317	118	1	4	113	33,167	78,053
2005	77,399	4	72,971	2,766	19	0	1	18	14,218	55,559
2006	37,067	1	37,066	1,596	51	0	2	17	9,657	22,075
2007	26,604	0	24,376	1,414	58	0	3	55	2,607	22,273
2008	214,465	974	213,607	9,017	890	4	41	909	28,340	165,334
2009	179,732	1,188	177,823	9,731	1,414	10	81	1,406	16,034	134,937
2010	392,193	468	386,525	26,125	1,861	3	172	2,406	35,821	291,764
2011	187,365	1,873	185,796	12,853	1,561	18	123	1,502	18,634	111,508
2012	521,159	5,491	515,673	45,352	512	6	46	470	43,411	326,107
2013	186,191	718	185,505	8,046	1,011	4	49	757	29,229	129,993
2014	651,146	1,738	614,179	30,702	2,523	8	139	2,786	99,888	490,804
2015	512,455	1,547	510,706	30,095	1,749	5	102	440	51,533	187,055
2016	356,606	1,197	342,498	16,683	946	3	44	816	73,748	216,036
2017	88,263	429	87,693	4,480	444	2	22	228	23,854	42,299
2018	210,915	112	193,816	7,724	297	0	11	213	13,962	153,637
2019	63,222	41	63,046	1,118	335	0	6	81	8,878	49,862
2020	345,018	3,357	341,739	15,258	750	7	32	640	43,391	226,107
2021	152,309	550	151,765	9,528	953	3	60	645	30,826	76,255

[1] *Upriver run is the larger of Bonneville passage + Zones 1 – 5 harvest or Priest Rapids passage + Snake River passage + Zone 1 – 6 harvest.*

[2] *Non-treaty harvest may include kept fish and incidental release mortalities in Zones 1 – 6, upstream to Highway 395.*

[3] *Treaty harvest includes sockeye kept in Zones 1–6, which includes harvest downstream of Bonneville Dam.*

[4] *Prior to 1992, Lower Granite Dam sockeye counts may include kokanee. Since 1992 video counts or length measurements are used to identify true sockeye.*

[5] *Tumwater Dam count is an index of Wenatchee escapement.*

[6] *Wells Dam count is an index of Okanogan escapement.*

Table 16. Columbia River American Shad harvest and passage (in thousands), 1980–2021.

Year	Commercial Catch			Recreational Kept Catch		Columbia River Dam Count [3]	Treaty Harvest	Minimum Run Size
	Area 2S	Washougal Reef [1]	Other [2]	Columbia River	Willamette River			
1980	21.9	—	1.3	24.3	15.5	1,160.8	0.2	1,223.8
1981	15.5	—	6.3	28.7	20.4	1,089.0	0.0	1,159.9
1982	72.5	—	2.5	33.9	21.7	1,002.8	1.5	1,133.4
1983	84.9	—	0.1	28.7	36.9	1,932.0	0.3	2,082.6
1984	14.4	—	3.7	22.3	19.9	1,275.8 *	3.1	1,336.1
1985	33.7	—	1.7	13.7	16.4	1,389.5	0.0	1,455.0
1986	80.5	7.6	0.1	18.9	5.9	1,361.9	0.7	1,474.9
1987	103.2	4.1	1.4	14.3	5.1	1,289.7	12.3	1,417.8
1988	97.4	8.9	2.1	27.5	11.5	2,008.6	19.2	2,156.0
1989	36.2	15.4	0.0	64.4	18.3	2,971.0	0.1	3,105.3
1990	161.8	6.0	0.0	113.8	23.1	3,706.9	0.2	4,011.6
1991	38.8	4.9	0.0	100.6	27.9	2,191.1	<0.1	2,363.3
1992	130.2	11.1	0.0	88.3	16.3	2,824.3	0.3	3,070.2
1993	139.2	5.3	0.2	111.4	20.8	2,394.4	1.0	2,671.3
1994	46.9	10.8	0.0	103.8	33.2	1,801.5	15.3	1,996.2
1995	54.4 [4]	6.7	0.0	101.4	37.4	1,959.6	49.6	2,109.1
1996	60.1	1.0	0.0	129.8	66.4	2,648.6	282.8	2,905.9
1997	20.3	4.6	0.0	98.9	53.0	2,571.3	10.2	2,748.1
1998	24.4	0.0	0.1	83.4	47.9	2,149.1	24.1	2,304.9
1999	39.7	0.0	0.0	79.3	42.8	1,718.7	13.8	1,880.5
2000	30.4	0.0	0.1	58.0	64.4	1,556.6	0.1	1,709.5
2001	17.0	—	9.2	98.6	58.7	2,724.9	5.6	2,908.4
2002	37.1	—	0.0	148.2	26.8	3,218.1	14.5	3,430.2
2003	79.2	—	0.0	115.9	46.5	4,558.6 *	105.8	4,800.2
2004	48.4	—	0.0	123.0	36.5	5,472.4	30.0 [5]	5,680.3
2005	48.8	0.0	0.0	164.9	42.8	6,067.0	30.0 [5]	6,323.5
2006	21.1	—	0.0	169.4	31.8	4,611.6	NA	4,833.9
2007	14.1	—	0.0	118.2	32.4	3,592.0	NA	3,756.7
2008	12.5	—	0.0	104.4	7.4	2,144.8 *	NA	2,269.1
2009	1.4	—	0.0	81.1	2.7	1,641.4	NA	1,726.6
2010	2.5	—	0.0	62.4	12.8	1,241.8	NA	1,319.5
2011	8.9	0.0	7.8	71.3	13.0	948.1	NA	1,049.1
2012	0.8	—	28.4	129.7	15.9	2,432.4	NA	2,607.2
2013	0.7	—	5.3	194.9	12.5	3,751.4	NA	3,964.8
2014	4.8	—	1.2	103.8	12.5	2,603.3	NA	2,725.6
2015	0.6	—	0.5	47.3	18.2	1,815.0	NA	1,881.6
2016	0.3	—	2.8	88.0	25.4	1,770.3	NA	1,886.8
2017	2.0	—	0.0	169.8	29.4	3,135.4	NA	3,336.6
2018	2.1	—	0.0	250.0	30.5	6,059.9	NA	6,342.5
2019	2.3	—	0.0	186.3	41.9	7,459.1	NA	7,689.6
2020	0.0	—	0.0	138.2	30.4	5,796.2	NA	5,964.9
2021	2.0	—	0.0	204.7	30.2	5,589.8	NA	5,826.7

[1] *Washougal Reef landings are included in Area 2S landings until 1986. No seasons have been set in recent history, except for 2005 and 2011 which resulted in no fish landed.*

[2] *Includes any landings from experimental gear permits, research, spring Chinook seasons, sockeye seasons, Select Area fisheries, and John Day River American Shad fisheries.*

[3] *For years 1980-2010, the count shown is the greater passage of American Shad at either Bonneville or The Dalles dams. Due to large numbers of American Shad passing through the Bonneville locks in most years, The Dalles count was usually higher; however, Bonneville counts were higher in 1984, 2003, and 2008 and are noted with an asterisk. Counting of American Shad at The Dalles Dam was discontinued in 2011; counts beginning in 2011 are from Bonneville Dam.*

[4] *Limited Area 2S experimental fishery with three boats.*

[5] *Precise treaty harvest estimates not available.*

Table 17. Season dates, gear restrictions, and commercial landings during non-treaty winter (January–March) and spring (April–June 15) mainstem seasons, 1975–2021.

Year	Season	Fishing Days	Mesh Size[2]	Commercial Landings[1] Chinook	Commercial Landings[1] White Sturgeon[3]
1975-1979 Avg		8	8" min.	7,900	2,100
Range	Feb 26–Mar 11	5–11		4,700–13,500	1,000–2,700
1980–1984 Avg		8	8" min.	6,000	2,300
Range	Feb 16–Mar 11	1–12		400–9,600	900–3,700
1985–1989 Avg		12		13,200	1,500
Range	Jan 25–Mar 11	8–17	8" min.–9" min.	400–18,300	500–1,700
1990–1994 Avg		13		7,900	1,300
Range	Jan 25–Mar 11	6–20	8" min.–9" min.	1,500–18,300	700–3,000
1995–1999 Avg		7		<100	1,600
Range	Jan 11–Feb 26	0–13	8" min.–9" min.	0–100	600–2,700
2000–2004 Avg		16	4¼"–5½" max	7,306	2,287
Range	Jan 07–Mar 30	7–26	8" min.–9" min.	496–14,384	1,517–3,059
2005	Jan 18–Feb 25	7	9" min.	94	473
	Mar 01–Mar 16	5	9" min.	1,489	58
	Mar 29–Apr 01	2	4¼" max.	3,606	12
2006	Jan 10–Feb 22	10	9" min.	39	288
	Feb 23–Mar 15	5	8" min.	994	88
	May 16–Jun 02	6	8" min.	3,356	1,563
2007	Jan 09–Feb 23	9	9" min.	186	1,424
	Mar 06	1	8" min.	434	19
	Mar 20–Mar 23	2	4¼" max.	2,255	15
	Jun 14–Jun 15	1	8" min.	30	13
2008	Jan 08–Feb 29	11	9" min.	14	869
	Apr 01–Apr 15	3	4¼" max.	5,658	17
2009	Jan 06–Feb 13	8	9" min.	18	1,697
	Mar 29–Apr 14	3	4¼" max.	4,150	21
2005–2009 Avg		15		4,465	1,311
2010	Jan 19–Feb 17	5	9" min.	75	518
	Mar 30–Apr 07	2	4¼" max.	8,966	28
2011	Jan 18–Feb 09	4	9" min.	88	50
	Mar 29–Apr 06	2	4¼" max.	2,021	7
	May 12–May 19	2	8" min.	2,430	118
2012	Jan 30–Feb 07	3	9" min.	7	40
	Apr 03–Apr 10	2	4¼" max.	6,111	14
2013	Jan 01 – Feb 07	3	9" min.	0	15
	Apr 09–May 15	2	4¼" max.	1,537	30
	May 22–May 30	2	8" min.	648	244
2014	Apr 01–May 07	2	4¼" max.	2,915	—
	May 20–Jun 05	3	8" min.	1,085	—
2010–2014 Avg		6		3,940	213
2015	Mar 31–May 13	5	4¼" max.	5,106	—
	May 27–Jun 11	3	8" min.	2,125	—
2016	Mar 29–May 12	3	4¼" max.	2,394	—
	May 24–Jun 08	3	8" min.	1,219	—
2017	No Season	0	No Season	0	0
2018	No Season	0	No Season	0	0
2019	No Season	0	No Season	0	0
2015–2019 Avg		3		2,169	—
2020	No Season	0	No Season	0	0
2021	No Season	0	No Season	0	0

[1] *Sale of steelhead prohibited since 1975. Catches ranged from 2,100 to 8,500 steelhead during 1970 – 74.*

[2] *Since 1997, maximum mesh size of 9¾" unless specified otherwise.*

[3] *All non-treaty commercial fisheries downstream of Bonneville Dam were closed to the retention of white sturgeon during 2014–16 based on Oregon Fish and Wildlife Commission and Washington Fish and Wildlife Commission action/policy.*

Table 18. Season dates, gear restrictions, and commercial landings during non-treaty mainstem summer Chinook seasons (June-July), 1965–2021.

				Commercial Landings		
Year	Season	Fishing Days	Mesh Size[1]	Chinook	Sockeye	White Sturgeon[2]
1965–2004	No Season	0	—	—	—	—
2005	June 23–July 26	6	8” min.	2,787	—	1,369
2006	June 26–July 31	13	8” min.	4,819	—	544
2007	June 25–July 3	2	8” min.	1,122	—	414
2008	June 24–July 8	3	8” min.	1,368	83	523
2009	June 18–July 1	3	8” min.	2,371	219	624
2010	June 17–23	2	8” min.	4,720	—	289
2011	June 16–23	2	8” min.	5,010	82	504
2012	June 17–18	1	8” min.	1,692	447	281
2013	June 16–July 16	2	8” min.	1,868	140	328
2014	June 16–July 29	5	8” min.	2,743	276	—
2015	June 17–July 22	3	8” min.	3,944	332	—
2016	June 16–July 12	2	8” min.	2,990	356	—
2017	No Season	0	—	—	—	—
2018	No Season	0	—	—	—	—
2019	No Season	0	—	—	—	—
2020	No Season	0	—	—	—	—
2021	No Season	0	—	—	—	—

[1] *Maximum mesh size of 9¾-inch unless specified otherwise.*

[2] *All non-treaty commercial fisheries downstream of Bonneville Dam were closed to the retention of white sturgeon during 2014–16 based on Oregon Fish and Wildlife Commission and Washington Fish and Wildlife Commission action/policy.*

Table 19. Fishing periods, gear, and associated salmon and White Sturgeon landings during mainstem Columbia River commercial salmon seasons, 2021.

Season	Fishing Period	Week	Hours	Zones	Mesh Size	WSTG Limit [1]	Del.	Chinook	Coho	Sockeye	Pink	Chum	White Sturgeon
								ChS Adults	*ChS Jacks*				
Spring	No season.	--	--	--	--	--	—	—	—	—	—	Prohibited	—
	Spring Season Totals (and average number of deliveries):						**0**	**0**	**0**	**0**	**0**		**0**
								Chinook	Coho				
Summer	No season.	--	--	--	--	--	—	—	—	—	—	Prohibited	—
	Summer Season Totals (and average number of deliveries):						**0**	**0**	**0**	**0**	**0**		**0**
August	Aug 9, 9 PM - Aug 10, 6 AM	*33*	9	4–5	9"–9 3/4"	4	20	129	0	0	0	Prohibited	21
	Aug 11, 9 PM - Aug 12, 6 AM	*33*	9	4–5	9"–9 3/4"	4	13	204	2	0	0	Prohibited	6
	Aug 16, 9 PM - Aug 17, 6 AM	*34*	9	4–5	9"–9 3/4"	4	36	240	0	0	0	Prohibited	37
	Aug 18, 9 PM - Aug 19, 6 AM	*34*	9	4–5	9"–9 3/4"	4	32	463	12	0	0	Prohibited	23
	Aug 23, 9 PM - Aug 24, 6 AM	*35*	9	4–5	9"–9 3/4"	4	75	4,952	469	0	0	Prohibited	50
	Aug 25, 9 PM - Aug 26, 6 AM	*35*	9	4–5	9"–9 3/4"	4	80	5,770	686	0	0	Prohibited	38
	Aug 30, 9 PM - Aug 31, 6 AM	*36*	9	4–5	9"–9 3/4"	4	81	5,492	920	0	0	Prohibited	65
	Sep 1, 9 PM - Sep 2, 6 AM	*36*	9	4–5	9"–9 3/4"	4	79	3,978	679	0	0	Prohibited	57
	August Season Totals (and average number of deliveries):						**52**	**21,228**	**2,768**	**0**	**0**		**297**
Late-Fall	Sep 19, 8 PM - Sep 20, 6 AM	*39*	10	4–5	8"–9 3/4"	6	54	1,965	801	0	1	Prohibited	41
	Sep 22, 8 PM - Sep 23, 6 AM	*39*	10	4–5	8"–9 3/4"	6	36	998	358	0	0	Prohibited	17
	Sep 26, 8 PM - Sep 27, 6 AM	*40*	10	4–5	8"–9 3/4"	6	19	662	206	0	0	Prohibited	13
	Sep 27, 4 AM - 10 PM	*40*	18	1–3	3-3/4" max tangle-net	6	42	211	2,123	0	0	Prohibited	2
	Sep 29, 4 AM - 10 PM	*40*	18	1–3	3-3/4" max tangle-net	6	24	109	846	0	0	Prohibited	2
	Sep 29, 8 PM - Sep 30, 6 AM	*40*	10	4–5	8"–9 3/4"	6	17	460	188	0	0	Prohibited	6
	Oct 1, 4 AM - 6 PM	*40*	14	1–3	3-3/4" max tangle-net	6	23	67	1,260	0	0	Prohibited	1
	Oct 3, 7 PM - Oct 4, 7 AM	*41*	12	4–5	8"–9 3/4"	6	12	407	152	0	0	Prohibited	8
	Oct 4, 4 AM - 10 PM	*41*	18	1–3	3-3/4" max tangle-net	6	26	68	1,035	0	0	Prohibited	1
	Oct 6, 4 AM - 10 PM	*41*	18	1–3	3-3/4" max tangle-net	6	26	46	576	0	0	Prohibited	0
	Oct 6, 7 PM - Oct 7, 7 AM	*41*	12	4–5	8"–9 3/4"	6	6	328	37	0	0	Prohibited	2
	Oct 8, 4 AM - 6 PM	*41*	14	1–3	3-3/4" max tangle-net	6	19	28	591	0	0	Prohibited	0
	Oct 10, 7 PM - Oct 11, 7 AM	*42*	12	4–5	8"–9 3/4"	6	5	298	23	0	0	Prohibited	1
	Oct 11, 4 AM - 10 PM	*42*	18	1–3	3-3/4" max tangle-net	6	28	31	577	0	0	Prohibited	1
	Oct 13, 4 AM - 10 PM	*42*	18	1–3	3-3/4" max tangle-net	6	27	32	472	0	0	Prohibited	1
	Oct 13, 7 PM - Oct 14, 7 AM	*42*	12	4–5	8"–9 3/4"	6	5	231	19	0	0	Prohibited	0
	Oct 15, 4 AM - 6 PM	*42*	14	1–3	3-3/4" max tangle-net	6	13	8	315	0	0	Prohibited	0
	Oct 18, 4 AM - 10 PM	*43*	18	1–3	3-3/4" max tangle-net	6	12	5	196	0	0	Prohibited	0
	Oct 19, 4 AM - 10 PM	*43*	18	1–3	3-3/4" max tangle-net	6	7	1	47	0	0	Prohibited	0
	Oct 20, 4 AM - 10 PM	*43*	18	1–3	3-3/4" max tangle-net	6	11	1	105	0	0	Prohibited	0
	Oct 21, 4 AM - 10 PM	*43*	18	1–3	3-3/4" max tangle-net	6	0	0	0	0	0	Prohibited	0
	Oct 22, 4 AM - 6 PM	*43*	14	1–3	3-3/4" max tangle-net	6	3	0	44	0	0	Prohibited	0
	Oct 25, 4 AM - 10 PM	*44*	18	1–3	3-3/4" max tangle-net	6	8	4	138	0	0	Prohibited	0
	Oct 26, 4 AM - 10 PM	*44*	18	1–3	3-3/4" max tangle-net	6	8	2	104	0	0	Prohibited	0
	Oct 27, 4 AM - 10 PM	*44*	18	1–3	3-3/4" max tangle-net	6	4	1	53	0	0	Prohibited	0
	Oct 28, 4 AM - 10 PM	*44*	18	1–3	3-3/4" max tangle-net	6	8	0	66	0	0	Prohibited	2
	Oct 29, 4 AM - 6 PM	*44*	14	1–3	3-3/4" max tangle-net	6	3	0	9	0	0	Prohibited	0
	Late-Fall Season Totals (and average number of deliveries):						**17**	**5,963**	**10,341**	**0**	**1**		**98**
							Ave.Del.	**Chinook**	**Coho**	**Sockeye**	**Pink**	Chum	White Sturgeon
						FALL TOTALS:	**24**	**27,191**	**13,109**	**0**	**1**	Prohibited	**395**
								Chinook	**Coho**	**Sockeye**	**Pink**	Chum	White Sturgeon
						2021 Grand Totals:		**27,191**	**13,109**	**0**	**1**	Prohibited	**395**

[1] A white sturgeon possession and sales limit applied during mainstem fishing periods that occurred during August 9 through October 29.

Table 20. Lower Columbia River commercial landings, 2021.

Winter/Spring/Summer

(Final – OR/WA Fish Tickets – January 3, 2022)

Season	CHINOOK		Z 1–5 Spring Chinook		SOCKEYE		SHAD		WHITE STURGEON [1]	
Mainstem	**Numbers**	Pounds	***Adults***	*Jacks*	**Numbers**	Pounds	**Numbers**	Pounds	**Numbers**	Pounds
Winter Sturgeon *(no season during 2021)*	—	--	—	--	—	--	—	--	—	--
Spring *(no season during 2021)*	—	--	—	--	—	--	—	--	—	--
Summer *(no season during 2021)*	—	--	—	--	—	--	—	--	—	--
Shad (Area 2S)	—	--	—	--	—	--	**2,033**	5,075	—	--
Mainstem Totals	**0**	0	—	--	**0**	0	**2,033**	5,075	**0**	0
Select Areas										
Youngs Bay Winter	**467**	5,296			**0**	0	**0**	0	**91**	2,618
Youngs Bay Spring	**2,717**	30,820			**0**	0	**0**	0	**133**	4,032
Youngs Bay Summer	**1,395**	16,382			**2**	4	**0**	0	**20**	601
Tongue Point Winter	**69**	831			**0**	0	**0**	0	**25**	751
Tongue Point Spring	**252**	2,936			**0**	0	**0**	0	**85**	2,563
Tongue Point Summer	**74**	807			**0**	0	**0**	0	**42**	1,449
Blind & Knappa Sloughs Winter	**131**	1,534			**0**	0	**0**	0	**5**	147
Blind & Knappa Sloughs Spring	**882**	9,326			**0**	0	**0**	0	**8**	213
Blind & Knappa Sloughs Summer	**518**	5,909			**0**	0	**0**	0	**1**	25
Deep River Winter	**6**	95			**0**	0	**0**	0	**11**	345
Deep River Spring	**36**	404			**0**	0	**0**	0	**7**	195
Select Area Totals	**6,547**	74,340			**2**	4	**0**	0	**428**	12,939

Lower Columbia River Commercial GRAND TOTALS Winter/Spring/Summer 2021	**Chinook**		**Sockeye**		**Shad**		**White Sturgeon [1]**	
	6,547	74,340	**2**	4	**2,033**	5,075	**428**	12,939

Fall

Season	CHINOOK		COHO		PINK		CHUM		WHITE STURGEON [1]	
Mainstem	**Numbers**	Pounds	**Numbers**	Pounds	**Numbers**	Pounds	**Numbers**	Pounds	**Numbers**	Pounds
August *(Early-Fall)* (Zone 4–5; 9 - 9 3/4 inch gillnet)	**21,228**	323,849	**2,768**	17,228	**0**	0	*No Retention*		**297**	9,035
August (Early-Fall) Subtotals	**21,228**	323,849	**2,768**	17,228	**0**	0			**297**	9,035
Late-Fall (Zone 4 - 5; 8 - 9 3/4 inch gillnet)	**5,349**	71,959	**1,784**	14,743	**1**	6	*No Retention*		**88**	2,536
Late-Fall (Zone 1 - 3; 3 3/4 inch tangle-net)	**614**	6,133	**8,557**	55,360	**0**	0	*No Retention*		**10**	323
Late-Fall Subtotals	**5,963**	78,092	**10,341**	70,103	**1**	6			**98**	2,859
Fall Mainstem Totals	**27,191**	401,941	**13,109**	87,331	**1**	6			**395**	11,894
Select Areas										
Youngs Bay	**2,012**	21,201	**42,651**	328,178	**6**	26	*No Retention*		**61**	1,896
Tongue Point	**1,468**	16,925	**31,056**	238,253	**1**	4	*No Retention*		**221**	6,994
Blind Slough & Knappa Slough	**820**	10,081	**17,509**	130,142	**2**	10	*No Retention*		**33**	984
Deep River	**174**	1,691	**7,841**	63,097	**0**	0	*No Retention*		**56**	1,653
Fall Select Area Totals	**4,474**	49,898	**99,057**	759,670	**9**	40			**371**	11,527

Lower Columbia River Commercial GRAND TOTALS Fall 2021	**Chinook**		**Coho**		**Pink**		**Chum**	**White Sturgeon [1]**	
	31,665	451,839	**112,166**	847,001	**10**	46	No Retention	**766**	23,421

FINAL GRAND TOTALS 2021 for Lower Columbia R. Commercial Fisheries	**CHINOOK**		**COHO**		**PINK**		**CHUM**		**WHITE STURGEON [1]**	
	Numbers	Pounds	**Numbers**	Pounds	**Numbers**	Pounds	**Numbers**	Pounds	**Numbers**	Pounds
	38,212	526,179	**112,166**	847,001	**10**	46	*No Retention*		**1,194**	36,360
	SOCKEYE		**SHAD**		**SMELT** (Mainstem)				**GREEN STURGEON**	
	Numbers	Pounds	**Numbers**	Pounds	Pounds				**Numbers**	Pounds
	2	4	**2,033**	5,075	10,997				*No Retention*	

[1] The sale of white sturgeon was allowed in mainstem commercial fisheries below Bonneville Dam during August 9 through October 29. White sturgeon were also allowed to be sold during Select Area commercial fisheries from February 18 through November 25.

Table 21. Stock composition of hatchery spring Chinook (in thousands) landed during non-treaty mainstem commercial fisheries, 1990–2021.

Year	Spring Season Kept Catch by Stock				
	Willamette River	C,K,L,S[1]	Upriver	Select Area[2]	Total
1990	15.5	0.7	2.1	—	18.3
1991	11.2	0.5	0.9	—	12.6
1992	3.9	1.0	0.2	—	5.1
1993	0.8	0.4	0.2	—	1.4
1994	1.0	0.4	0.4	—	1.8
1995	—	—	—	—	—
1996	0.1	<0.1	<0.1	—	0.2
1997	0.1	0.0	<0.1	—	<0.2
1998	<0.1	0.0	0.0	—	<0.1
1999	<0.1	<0.1	<0.1	—	0.1
2000	0.4	<0.1	0.1	<0.1	0.5
2001	2.8	0.2	1.6	0.8	5.4
2002	5.4	0.5	8.3	0.3	14.5
2003	0.8	0.1	2.1	<0.1	3.1
2004	5.7	1.3	5.3	0.9	13.2
2005	2.1	1.1	2.0	0.0	5.2
2006	2.1	1.0	1.2	<0.1	4.4
2007	0.9	0.6	1.3	0.1	2.9
2008	<0.1	<0.1	5.7	0.0	5.7
2009	<0.1	<0.1	4.1	0.0	4.2
2010	1.5	0.2	7.3	0.0	9.0
2011	1.1	0.2	3.1	0.1	4.5
2012	1.6	0.1	4.1	0.3	6.1
2013[3]	0.5	<0.1	1.3	0.1	1.9
2014[3]	0.6	0.2	2.7	0.0	3.5
2015[3]	1.3	0.4	4.7	0.1	6.5
2016[3]	0.4	0.3	2.4	0.2	3.3
2017	—	—	—	—	—
2018	—	—	—	—	—
2019	—	—	—	—	—
2020	—	—	—	—	—
2021	—	—	—	—	—

[1] *C=Cowlitz River, K=Kalama River, L=Lewis River, and S=Sandy River. May infrequently include coastal stocks.*

[2] *Select Area stocks included in Willamette R. stock category prior to 2000.*

[3] *Adults only.*

Table 22. Columbia River recreational spring Chinook fishing regulations, 2002–2021.

Year	Buoy 10 to Tongue Point	Tongue Point to I-5 Bridge	I-5 Bridge to Bonneville Dam	Bonneville Dam to McNary Dam+
2002	Open January 1–April 28 and May 5–15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open January 1–April 28 and May 5–15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open March 16–April 28 and May 5–15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open March 16–May 15 from The Dalles Dam upstream to McNary Dam and April 3–May 15 from Tower Is. powerlines to The Dalles Dam. Two adipose fin-clipped adult spring Chinook daily bag limit.
2003	Open January 1–April 5 and April 9–12, 16–19, 23–26, 30–May 3, May 7–10, and May 14–15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open January 1–April 5 and April 9–12, 16–19, 23–26, 30–May 3, May 7–10, and May 14–15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open February 15–April 5. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open February 15–May 3, May 7–10, and May 14–15 from Tower Is. powerlines upstream to McNary Dam plus the Oregon Bank from Bonneville to Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.
2004	Open January 1–April 30. Two adipose fin-clipped adult spring Chinook daily bag limit. Unlawful to remove unclipped fish from the water (added as permanent regulation).	Open January 1–April 30. Two adipose fin-clipped adult spring Chinook daily bag limit. Unlawful to remove unclipped fish from the water (added as permanent regulation).	Open March 16–April 21. Two adipose fin-clipped adult spring Chinook daily bag limit. Unlawful to remove unclipped fish from the water (added as permanent regulation).	Open March 16–May 6 from Tower Is. powerlines upstream to McNary Dam plus the Oregon Bank from Bonneville Dam to Tower Is. Two adipose fin-clipped adult spring Chinook daily limit. Unlawful to remove unclipped fish from the water (added as permanent regulation).
2005	Open January 1–April 20. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open January 1–April 20 and June 4–15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open March 16–April 20 and June 4–15. Open Sunday, Monday and Tuesday only with a one–fish daily salmonid limit during March 16–April 20 between Rooster Rock and Bonneville Dam. Otherwise, two adipose fin-clipped adult spring Chinook daily bag limit.	Open March 16–April 20 from Tower Is. powerlines upstream to McNary Dam and June 4-15 from Tower Island powerlines to the Oregon/Washington border above McNary plus the Oregon Bank between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.
2006	Open January 1–April 13. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open January 1–April 13 and May 17–June 15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open May 17–June 15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open March 16–April 30 and May 13–June 15 from Tower Is. powerlines upstream to McNary Dam plus the Oregon bank between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.
2007	Open January 1–April 15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open January 1–April 15 and May 16–June 15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open June 6–15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open March 16–May 3 and June 6–15 from Tower Is. powerlines upstream to McNary Dam plus the Oregon bank between Bonneville Dam and Tower Is. Two adipose fin clipped adult spring Chinook daily bag limit.
2008	Open January 1– February 24 under permanent rules, then March 24–April 4 with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open January 1– February 24 under permanent rules, then March 24–April 4 upstream to Hayden Island powerlines with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 16–April 20 from Hayden Island powerlines upstream to Bonneville Dam (except closed Tuesdays March 25, April 1, 8, and 15). One adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 16–May 10 from Tower Is. powerlines upstream to McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.

Table 22. Columbia River recreational spring Chinook fishing regulations, 2002–2021 continued.

Year	Buoy 10 to Tongue Point	Tongue Point to I-5 Bridge	I-5 Bridge to Bonneville Dam	Bonneville Dam to McNary Dam+
2009	Open January 1–February 28 under permanent rules. Open March 1–15, 19–21, 26–28, April 2–4, 9–11, and 16–18 with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open January 1–February 28 under permanent rules. Open March 1–15, 19–21, 26–28, April 2–4, 9–11, and 16–18 upstream to the Hayden Island powerlines with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 1–22, 25–28, April 1–4, 8–11, 15–18, and 22 from Hayden Island powerlines upstream to Bonneville Dam with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 16–April 30 from Tower Is. powerlines upstream to McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.
2010	Open January 1–February 28 under permanent rules. Open March 1–April 18 (except closed Tuesdays March 9, 16, 23, and 30) with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open January 1–February 28 under permanent rules. Open March 1–April 18 (except closed Tuesdays March 9, 16, 23, and 30) with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open from I-5 to I–205 plus the Oregon and Washington banks between I–205 and Bonneville Dam during March 1–14, 18–20, 25–27, and April 1–3 (except closed Tuesday March 9) with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 16–May 9 from Tower Is. powerlines upstream to McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.
2011	Open January 1–February 28 under permanent rules. Open March 1–April 4 and April 8–19 with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open January 1–February 28 under permanent rules. Open March 1–April 4, April 8–19, and May 15–June 15 with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 1–April 4 and April 8–19 from the I-5 Bridge to Rooster Rock plus the Oregon and Washington banks between I-5 and Bonneville Dam. Open May 15–26 from the I-5 Bridge to Beacon Rock plus the Oregon and Washington banks between Beacon Rock and Bonneville Dam. Open May 27–June 15 from the I-5 Bridge to Bonneville Dam. One adipose fin-clipped adult spring Chinook in the daily bag limit throughout the entire season.	Open March 16–May 1, May 7–10, and May 28–June 15 from Tower Is. powerlines upstream to the Oregon/Washington border above McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Is. powerlines. Two adipose fin-clipped adult spring Chinook daily bag limit.
2012	Open January 1–February 29 under permanent rules. Open March 1–April 22 (except closed Tuesdays March 20, 27, and April 3, 10, and 17) and May 26–27 with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open January 1–February 29 under permanent rules. Open March 1–April 22 (except closed Tuesdays March 20, 27, and April 3, 10, and 17) and May 26–27 with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 1–April 22 (except closed Tuesdays March 20, 27, and April 3, 10, and 17) and May 26–27 from I-5 upstream to Beacon Rock plus the Oregon and Washington banks between Beacon Rock and Bonneville Dam with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 16–May 6 and May 19–20 from Tower Is. powerlines upstream to the Oregon/Washington border above McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Is. powerlines. Two adipose fin-clipped adult spring Chinook daily bag limit.
2013	Open January 1–February 28 under permanent rules. Open March 1–April 12 (except closed Tuesdays March 26, April 2 and 9) with one adipose fin-clipped adult spring Chinook allowed in the daily bag limit.	Open January 1–February 28 under permanent rules. Open March 1–April 12 (except closed Tuesdays March 26, April 2 and 9) and May 25–June 15 with one adipose fin-clipped adult spring Chinook allowed in the daily bag limit.	Open March 1–April 12 (except closed Tuesdays March 26, April 2 and 9) and May 25–June 7 from I-5 upstream to Beacon Rock plus the Oregon and Washington banks between Beacon Rock and Bonneville Dam. Open June 8–15 from I-5 to Bonneville Dam. One adipose fin-clipped adult spring Chinook in the daily bag limit for the entire season.	Open March 16–May 5 from Tower Is. powerlines upstream to the Oregon/Washington border above McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Is. powerlines with two adipose fin-clipped adult spring Chinook in the daily bag limit, and June 8–15 with one adipose fin-clipped adult spring Chinook in the daily bag limit.

Table 22. Columbia River recreational spring Chinook fishing regulations, 2002–2021 continued.

Year	Buoy 10 to Tongue Point	Tongue Point to I-5 Bridge	I-5 Bridge to Bonneville Dam	Bonneville Dam to McNary Dam+
2014	Open January 1–February 28 under permanent rules. Open March 1–April 14 and April 19 (except closed Tuesdays March 25, April 1 and 8) with one adipose fin-clipped adult spring Chinook allowed in the daily bag limit.	Open January 1–February 28 under permanent rules. Open March 1–April 14, April 19, May 9–10 and May 15–June 15 (except closed Tuesdays March 25, April 1 and 8) with one adipose fin-clipped adult spring Chinook allowed in the daily bag limit.	Open March 1–April 14 (except closed Tuesdays March 25, April 1 and 8) from I-5 upstream to Beacon Rock plus the Oregon and Washington banks between Beacon Rock and Bonneville Dam); April 19 and May 9–10 from I-5 upstream to Rooster Rock plus the Oregon and Washington banks between Rooster Rock and Bonneville Dam; and May 15–June 15 from I-5 to Bonneville Dam with one adipose fin-clipped adult spring Chinook allowed in the daily bag limit.	Open March 16–May 9 and May 31–June 15 from Tower Is. powerlines upstream to the Oregon/Washington border above McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Is. powerlines with one adipose fin-clipped adult spring Chinook in the daily bag limit.
2015	Open January 1–February 28 under permanent rules. Open March 1–April 11 and April 16 (except closed Tuesdays March 24, 31 and April 7) with one adipose fin-clipped adult spring Chinook allowed in the daily bag limit.	Open January 1–February 28 under permanent rules. Open March 1–April 11 and April 16 (except closed Tuesdays March 24, 31 and April 7), May 2, 3, 9 and May 16–June 15. One adipose fin-clipped adult spring Chinook allowed in the daily bag limit January 1–June 2. Two adult spring Chinook bag limit June 3–15.	Open March 1–April 11 (except closed Tuesdays March 24, 31 and April 7), April 16, May 2, 3, 9 and May 16–29 from I-5 upstream to Beacon Rock plus the Oregon and Washington banks between Beacon Rock and Bonneville Dam. Open May 30–June 15 from I-5 upstream to Bonneville Dam. One adipose fin-clipped adult spring Chinook allowed in the daily bag limit January 1–June 2. Two adult spring Chinook bag limit June 3–15.	Open March 16–May 10 and May 28–June 15 from Tower Is. powerlines upstream to the Oregon/Washington border above McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Is. Powerlines. One adipose fin-clipped adult spring Chinook in the daily bag limit March 16–June 2. Two adult spring Chinook bag limit June 3–15.
2016	Open January 1–February 29 under permanent rules. Open March 1–April 8 (except closed Tuesdays March 29 and April 5) with one adipose fin-clipped adult spring Chinook allowed in the daily bag limit.	Open January 1–February 29 under permanent rules. Open March 1–April 8 (except closed Tuesdays March 29 and April 5), May 13–15, May 20–22, May 27–30 and June 3–15 with one adipose fin-clipped adult spring Chinook allowed in the daily bag limit. No angling near the mouth of the Lewis River May 13-15.	Open March 1–April 8 (except closed Tuesdays March 29 and April 5), May 13–15, May 20–22, May 27–30 and June 3–9 from I-5 upstream to Beacon Rock plus the Oregon and Washington banks between Beacon Rock and Bonneville Dam. Open June 10–15 from I-5 upstream to Bonneville Dam. One adipose fin-clipped adult spring Chinook allowed in the daily bag limit.	Open March 16–May 8 and May 13–15 from Tower Island powerlines upstream to the Oregon/Washington border above McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Island with one adipose fin-clipped adult Chinook allowed in the daily bag limit. In Washington, hand-casted lines only when angling from shore.
2017	Open February 1-28 under permanent rules. Open March 1-April 10, April 13-17, and April 20-23 with one hatchery adult spring Chinook in the daily bag limit.	Open February 1-28 under permanent rules. Open March 1-April 10, April 13-17, and April 20-23 with one hatchery adult spring Chinook in the daily bag limit. Angling closed near the mouth of the Lewis River March 1-April 23.	Open March 1-April 10, April 13-17, and April 20-23 from I-5 upstream to Beacon Rock plus the Oregon and Washington Bank between Beacon Rock and Bonneville Dam with one hatchery adult spring Chinook in the daily bag limit.	Open March 16-May 5 from Tower Island powerlines upstream to the Oregon/ Washington border above McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Island powerlines with one hatchery adult Chinook in the daily bag limit. In Washington, hand-casted lines only when angling from shore.

Table 22. Columbia River recreational spring Chinook fishing regulations, 2002–2021 continued.

Year	Buoy 10 to Tongue Point	Tongue Point to I-5 Bridge	I-5 Bridge to Bonneville Dam	Bonneville Dam to McNary Dam+
2018	Open February 1-28 under permanent rules. Open March 1-April 7 and April 14 with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open February 1-28 under permanent rules. Open March 1-April 7, April 14, and May 25-June 15. One hatchery adult spring Chinook in the daily bag limit March 1-June 6. Two fish daily bag limit June 7-15.	Open March 1-April 7, April 14, and May 25-June 6 from I-5 upstream to Beacon Rock plus the Oregon and Washington banks between Beacon Rock and Bonneville Dam with one hatchery adult spring Chinook in the daily bag limit. Open June 7-15 from I-5 to Bonneville Dam with a two fish daily bag limit.	Open March 16-May 7 and May 25-June 15 from Tower Island powerlines upstream to the Oregon/Washington border above McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Island powerlines. One hatchery adult Chinook in the daily bag limit March 16-May 7 and May 25-June 6, two fish bag limit June 7-15. In Washington, hand casted lines only when angling from shore between Bonneville and Tower Island.
2019	Open February 1-28 under permanent rules.	Open February 1-28 under permanent rules. Open March 1-April 10, April 13-14, April 20-21 and April 27-28 from the Warrior Rock line (defined as a line through Warrior Rock light through red buoy #4 to a dolphin on the lower end of Bachelor Island) upstream to the I-5 Bridge. One hatchery adult spring Chinook in the daily bag limit.	Open March 1-April 10, April 13-14, April 20-21 and April 27-28 from I-5 upstream to Beacon Rock plus the Oregon and Washington banks between Beacon Rock and Bonneville Dam with one hatchery adult spring Chinook in the daily bag limit.	Open April 1-May 5 and May 11-12 from Tower Island powerlines upstream to the Oregon/Washington border above McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Island powerlines. One hatchery adult Chinook in the daily bag limit. In Washington, hand casted lines only when angling from shore between Bonneville and Tower Island.
2020	Open February 1-29 under permanent rules.	Open February 1-29 under permanent rules. Open March 1-26 and May 5, 7, 9, 13, 15-17 and 20 from the Warrior Rock line (defined as a line through Warrior Rock light through red buoy #4 to a dolphin on the lower end of Bachelor Island) upstream to the I-5 Bridge. One hatchery adult spring Chinook in the daily bag limit.	Open March 1-26 and May 5, 7, 9, 13, 15-17 and 20 from I-5 upstream to Beacon Rock plus the Oregon and Washington banks between Beacon Rock and Bonneville Dam with one hatchery adult spring Chinook in the daily bag limit.	Open May 5, 7, 9, 13, 15-17 and 20 from Tower Island powerlines upstream to the Oregon/Washington border above McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Island powerlines. One hatchery adult Chinook in the daily bag limit. In Washington, hand casted lines only when angling from shore between Bonneville and Tower Island.
2021	Open February 1-28 under permanent rules. Open March 1-April 4 with one hatchery adult Chinook in the daily bag limit.	Open February 1-28 under permanent rules. Open March 1-April 4, May 21-23, May 29 and June 1-15 with a boat angling closure around the mouth of the Cowlitz River. One hatchery adult spring Chinook in the daily bag limit March 1-June 11. Two hatchery Chinook allowed June 12-15.	Open March 1-April 4 from I-5 upstream to Beacon Rock plus the Oregon and Washington banks between Beacon Rock and Bonneville Dam. Open May 21-23, May 29 and June 1-15 from I-5 to Bonneville. One hatchery adult spring Chinook in the daily bag limit March 1-June 11. Two hatchery Chinook allowed June 12-15.	Open March 16-May 5, May 22-23, May 29-30, June 5-6 and June 12-15 from Tower Island powerlines upstream to the Oregon/Washington border above McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Island powerlines. One hatchery adult Chinook in the daily bag limit March 16-June 6. Two hatchery Chinook allowed June 12-15. In Washington, hand casted lines only when angling from shore between Bonneville and Tower Island.

Table 23. Recreational seasons for adult summer Chinook downstream of Bonneville Dam 2002–2021[1].

Year	Area	Season Dates	Daily Bag Limit	Additional Regulations
2002	Tongue Pt.-Bonn.	June 28-July 31	2 Chinook	Retained Chinook must be fin-clipped
2003	Tongue Pt.-Bonn.	June 16-July 31	2 Chinook	Retained Chinook must be fin-clipped
2004	Tongue Pt.-Bonn.	June 16-July 31	2 Chinook	Retained Chinook must be fin-clipped
2005	Tongue Pt.-Bonn.	June 16-July 31	2 Chinook	Retained Chinook must be fin-clipped June 16-30, any Chinook allowed July 1-31
2006	Tongue Pt.-Bonn.	June 16-July 31	2 Chinook	None
2007	Tongue Pt.-Bonn.	June 16-30	2 Chinook	None
2008	Tongue Pt.-Bonn.	June 21-28	2 Chinook	None
2009	Tongue Pt.-Bonn.	June 22-July 5	2 Chinook	None
2010	Astoria Br. -Bonn.	June 16-July 31	2 Chinook	Retained Chinook must be fin-clipped
2011	Astoria Br.-Bonn.	June 16-July 17	2 Chinook	Retained Chinook must be fin-clipped
2012	Astoria Br.-Bonn.	June 16-July 1	2 Chinook	Retained Chinook must be fin-clipped
2013	Astoria Br.-Bonn.	June 16-30	2 Chinook	Retained Chinook must be fin-clipped
2014	Astoria Br.-Bonn.	June 16-30, July 3-6, July 11-31	2 Chinook	Retained Chinook must be fin-clipped
2015	Astoria Br.-Bonn.	June 16-July 31	2 Chinook June 16-July 2, 1 Chinook July 3-31	Retained Chinook must be fin-clipped June 16-July 2, any Chinook allowed July 3-31
2016	Astoria Br.-Bonn.	June 16-July 31	2 Chinook	Retained Chinook must be fin-clipped
2017	Astoria Br.-Bonn.	June 16-June 30, July 7-31	2 Chinook	Retained Chinook must be fin-clipped
2018	Astoria Br.-Bonn.	June 22-30	2 Chinook	Retained Chinook must be fin-clipped
2019	Closed	--	--	Closed for Chinook adults and jacks
2020	Tongue Pt.-Bonn.	July 4-31	2 Chinook	Retained Chinook must be fin-clipped
2021	Astoria Br.-Bonn.	June 16-July 5	2 Chinook	Retained Chinook must be fin-clipped

[1] *Prior to 2002, recreational fisheries for adult summer Chinook in the mainstem Columbia River had been closed since 1973.*

Table 24. Salmonid angler trips and adult Chinook catch by month in the lower Columbia River, 2004–2021.

Year	Month	Angler Trips	Adult Chinook Kept	Adult Chinook Released
2004	Feb	9,467	48	31
	Mar	44,576	2,614	727
	Apr	102,058	21,078	6,482
	May	5,891	0	180
	Jun 1–15	2,046	0	59
	Jun 16–30	17,929	619	844
	Jul	21,875	500	422
	Total	203,842	24,859	8,745
2005	Feb	7,551	39	0
	Mar	36,865	1,899	542
	Apr	65,705	8,653	2,389
	May	4,082	0	143
	Jun 1–15	10,492	724	486
	Jun 16–30	12,824	669	485
	Jul	25,681	902	15
	Total	163,200	12,886	4,060
2006	Feb	2,471	19	0
	Mar	27,418	1,810	413
	Apr	33,750	3,595	712
	May	12,225	634	345
	Jun 1–15	10,971	927	991
	Jun 16–30	19,088	3,360	5
	Jul	24,714	1,564	11
	Total	130,637	11,909	2,477
2007	Feb	4,405	24	0
	Mar	27,949	1,110	311
	Apr	34,890	4,507	924
	May	10,989	505	234
	Jun 1–15	4,777	330	179
	Jun 16–30	23,732	2,214	0
	Jul	16,036	0	219
	Total	122,778	8,690	1,867
2008	Feb	4,150	3	1
	Mar	35,453	4,107	668
	Apr	63,369	15,930	2,463
	May	0	0	0
	Jun 1–15	0	0	0
	Jun 16–30	30,505	2,051	463
	Jul	20,783	0	427
	Total	154,260	22,091	4,022
2009	Feb	4,539	34	1
	Mar	55,061	3,906	933
	Apr	82,693	12,983	2,304
	May	0	0	10
	Jun 1–15	4,109	0	148
	Jun 16–30	23,569	1,749	381
	Jul	39,644	507	469
	Total	209,615	19,179	4,246
2010	Feb	7,614	128	40
	Mar	65,160	6,646	989
	Apr	99,001	22,473	3,407
	May	6,196	0	311
	Jun 1–15	7,005	0	608
	Jun 16–30	26,932	1,866	845
	Jul	43,729	673	483
	Total	255,637	31,786	6,683
2011	Feb	5,598	280	47
	Mar	59,971	3,349	1,099
	Apr	48,962	4,026	928
	May	21,237	1,687	385
	Jun 1–15	19,127	2,352	695
	Jun 16–30	30,858	3,787	1,731
	Jul	44,960	1,373	1,040
	Total	230,713	16,854	5,925
2012	Feb	8,188	37	23
	Mar	39,600	1,560	309
	Apr	57,357	11,105	1,810
	May	15,024	630	739
	Jun 1–15	7,750	0	595
	Jun 16–30	31,298	2,698	1,521
	Jul	49,435	199	1,037
	Total	208,652	16,229	6,034
2013	Feb	4,856	46	11
	Mar	40,955	1,462	431
	Apr	28,895	3,634	845
	May	13,751	461	458
	Jun 1–15	21,198	1,347	921
	Jun 16–30	26,473	1,820	1,172
	Jul	25,564	12	336
	Total	161,692	8,782	4,174
2014	Feb	3,292	0	0
	Mar	25,275	910	246
	Apr	60,429	10,652	2,525
	May	33,799	2,727	1,978
	Jun 1–15	22,847	1,439	2,027
	Jun 16–30	23,645	1,669	2,074
	Jul	30,016	311	629
	Total	199,303	17,708	9,479
2015	Feb	5,133	24	6
	Mar	40,963	2,594	423
	Apr	50,470	10,800	1,691
	May	38,991	4,853	1,875
	Jun 1–15	15,616	1,315	1,057
	Jun 16–30	18,726	1,673	1,028
	Jul	31,829	4,255	463
	Total	201,728	25,514	6,543
2016	Feb	6,399	151	19
	Mar	45,166	3,950	658
	Apr	33,964	5,916	990
	May	25,886	1,428	1,049
	Jun 1–15	15,411	1,221	1,060
	Jun 16–30	25,157	1,920	2,080
	Jul	32,910	1,160	2,090
	Total	184,893	15,746	7,946
2017	Feb	1,892	0	0
	Mar	10,120	53	6
	Apr	51,291	8,994	937
	May	0	0	0
	Jun 1–15	0	0	0
	Jun 16–30	23,438	2,864	1,521
	Jul	18,157	652	727
	Total	104,898	12,563	3,191
2018	Feb	3,293	18	0
	Mar	38,633	1,871	278
	Apr	26,486	4,119	581
	May	9,041	468	355
	Jun 1–15	12,429	1,033	316
	Jun 16–30	12,917	1,021	408
	Jul	14,558	6	342
	Total	117,357	8,536	2,280
2019	Feb	2,374	4	1
	Mar	10,626	317	76
	Apr	19,691	1,356	240
	May	3,500	0	61
	Jun 1–15	3,218	0	102
	Jun 16–30	5,271	0	281
	Jul	14,485	0	211
	Total	59,165	1,677	972
2020	Feb	4,112	4	0
	Mar	4,386	85	36
	Apr	0	0	0
	May	20,930	1,373	707
	Jun 1–15	6,822	0	475
	Jun 16–30	7,173	0	509
	Jul	29,926	1,191	995
	Total	73,349	2,653	2,722
2021	Feb	2,698	6	0
	Mar	25,933	1,534	203
	Apr	15,303	1,403	126
	May	9,003	652	309
	Jun 1–15	14,282	1,790	790
	Jun 16–30	18,537	1,797	732
	Jul	10,331	337	266
	Total	96,087	7,519	2,426

Table 25. Recreational fisheries upstream of Bonneville Dam, 2002–2021.

Zone 6 Spring Chinook Recreational Fishery

Year	Kept	Released	Season	General Area
2002	1,609	1,073	Mar 16–May 15	The Dalles Dam–McNary Dam
2003	1,744	1,163	Feb 15–May 16 (4d/wk in May)	Bonneville Dam (BON)–McNary
2004	1,539	569	Mar 16–May 6	BON–McNary
2005	438	263	Mar 16–Apr 21, June 4–15	BON–McNary, BON–Hwy 395
2006	1,290	716	Mar 16–Apr 30, May 12–Jun 15	BON–McNary, BON–Hwy 395
2007	1,401	439	Mar 16–May 3, June 6–15	BON–McNary
2008	2,014	535	Mar 16–May 10	BON–McNary
2009	647	129	Mar 16–April 30	BON–McNary
2010	3,646	741	Mar 16–May 10	BON–McNary
2011	2,508	773	Mar 16–May 1, May 7–10, May 28–Jun 15	BON–Oregon/Washington border
2012	1,310	467	Mar 16–May 6, May 19–20	BON–Oregon/Washington border
2013	1,078	420	Mar 16–May 5, Jun 8–15	BON–Oregon/Washington border
2014	4,199	1,352	Mar 16–May 9, May 31–Jun 15	BON–Oregon/Washington border
2015	1,705	500	Mar 16–May 10, May 28–Jun 15	BON–Oregon/Washington border
2016	1,446	335	Mar 16–May 8, May 13–15	BON–Oregon/Washington border
2017	15	27	Mar 16–May 5	BON–Oregon/Washington border
2018	613	100	Mar 16–May 7, May 25–June 15	BON–Oregon/Washington border
2019	279	83	Apr 1–May 5, May 11–12	BON–Oregon/Washington border
2020	529	162	May 5, 7, 9, 13, 15–17, 20	BON–Oregon/Washington border
2021	761	348	Mar 16 - May 5, 22, 23, 29, 30; Jun 5-6, 12-15	BON–Oregon/Washington border

Snake River Spring Chinook Recreational Fishery

Year	Kept	Released	Season	General Area
2002	866	351	Apr 25–Jun 2 (4d/wk)	Little Goose Dam (LGO)/Clarkston
2003	513	405	Apr 26–Jun 15	LGO
2004	1,224	337	April 16–May 7	LGO
2005	77	83	June 11–30	LGO
2006	192	100	May 17– Jun 30	LGO
2007	284	67	May 9–Jun 30	LGO
2008	515	128	Apr 22/Apr 24–May 11	Ice Harbor Dam (IHD)/LGO
2009	498	100	April 24–May 17	LGO
2010	1,663	199	April 20/24–May 21	IHD/ LGO/Lower Granite Dam (LRG)/Clarkston
2011	1,913	357	April 20/25–May 13/15, May 28–Jun 2	IHD/ LGO/Clarkston
2012	2,338	448	April 20/25–May 18/20/22	IHD/ LGO/LRG/Clarkston
2013	353	125	Apr 26/28–May 11/13/27, ~Jun 14–28 (days/wk)	IHD/ LGO/Clarkston
2014	1,454	553	Apr 24/27–May 14/25/27, ~Jun 4–28 (days/wk)	IHD/ LGO/LRG/Clarkston
2015	1,900	383	Apr 19/23–May 5/9/12, Jun 4–30 (days/wk)	IHD/ LGO/LRG/Clarkston
2016	1,328	343	Apr 29/May 1, May 25/30 closure, Reopen June 12–13 (days/wk)	IHD/ LGO/LRG/Clarkston
2017	65	8	Apr 28–May 1, May 5–8, May 12–15	IHD/ LGO/Clarkston
2018	742	308	Apr 20–June 11	IHD/ LGO/Clarkston
2019	326	49	May 11-27	LGO/Clarkston
2020	326	59	May 5-22	LGO/Clarkston
2021	443	123	May 4, 7, 11, 25, 28; Jun 4, 6	LGO

Zone 6 Summer Chinook Recreational Fishery (includes MCN–PRD)

Year	Kept	Released	Season	General Area
2002	129	194	July 9–July 31	BON–Hwy 395
2003	396	594	June 16–July 31	BON–Hwy 395
2004	257	386	June 16–July 31	BON–Hwy 395
2005	377	480	June 16–July 31	BON–Hwy 395
2006	295	0	June 16–July 31	BON–Priest Rapids Dam (PRD)
2007	148	0	June 16–July 3	BON–PRD
2008	997	0	June 16–July 1	BON–PRD
2009	265	0	July 1–31	BON–PRD
2010	811	497	June 16–July 31	BON–PRD
2011	343	304	June 16–July 31	BON–PRD
2012	268	186	June 16–July 31	BON–PRD
2013	281	289	June 16–July 31	BON–PRD
2014	361	615	June 16–July 31	BON–PRD
2015	741	297	June 16–July 31	BON–PRD
2016	470	636	June 16–July 31	BON–PRD
2017	248	94	June 16–July 31 (BON-McN), June 16–August 15 (McN-PRD)	BON–PRD
2018	120	92	June 16–July 6 (BON-McN), June 16–July 16 (McN-PRD)	BON–PRD
2019	0	38	No target fishery	BON–PRD
2020	140	246	July 4–31	BON–PRD
2021	94	51	June 16–July 31	BON–PRD

Table 26. Recreational fisheries downstream of Bonneville Dam, 2000–2021.[1,2]

Lower Columbia River Recreational Fishery—Spring Chinook[3]			
Year	Anglers	Kept	Released
2000	16,039	322	92
2001	177,642	25,711	15,517
2002	180,127	20,936	14,221
2003	166,640	16,892	9,267
2004	161,992	23,740	7,420
2005	124,695	11,315	3,560
2006	86,835	6,985	2,461
2007	83,010	6,476	1,648
2008	102,972	20,040	3,132
2009	146,402	16,923	3,396
2010	184,976	29,247	5,355
2011	154,895	11,694	3,154
2012	127,919	13,332	3,476
2013	109,655	6,950	2,666
2014	145,642	15,728	6,776
2015	151,173	19,586	5,052
2016	126,826	12,666	3,776
2017	63,303	9,047	943
2018	89,882	7,509	1,530
2019	39,409	1,677	480
2020	36,250	1,462	1,218
2021	67,219	5,385	1,428
Lower Columbia River Recreational Fishery—Summer Chinook[4]			
Year	Anglers	Kept	Released
2000	28,038	0	341
2001	32,312	0	889
2002	54,839	1,352	1,840
2003	46,943	1,854	1,777
2004	41,850	1,119	1,325
2005	38,505	1,571	500
2006	43,802	4,924	16
2007	39,768	2,214	219
2008	51,288	2,051	890
2009	63,213	2,256	850
2010	70,661	2,539	1,328
2011	75,818	5,160	2,771
2012	80,733	2,897	2,558
2013	52,037	1,832	1,508
2014	53,661	1,980	2,703
2015	50,555	5,928	1,491
2016	58,067	3,080	4,170
2017	41,595	3,516	2,248
2018	27,475	1,027	750
2019	19,756	0	492
2020	37,099	1,191	1,504
2021	28,868	2,134	998

[1] *Adult fish only.*

[2] *Includes steelhead-target angler trips during non-retention periods for Chinook.*

[3] *February through May 31 during 2000 – 2004 and February – June 15 since 2005.*

[4] *June 1 through July 31 during 2000 – 2004 and June 16 – July 31 since 2005.*

Table 27. Stock composition of kept adult hatchery spring Chinook (in thousands) during the mainstem lower Columbia recreational fisheries, 1990–2021.

Year	Spring Season Kept Catch by Stock				
	Willamette River	C,K,L,S[1]	Upriver	Select Area[2]	Total
1990	8.8	0.3	3.1	—	12.2
1991	3.5	0.6	1.5	—	5.6
1992	3.1	1.0	1.2	—	5.3
1993	0.9	0.5	0.4	—	1.8
1994	1.3	0.4	0.4	—	2.1
1995	0.0	0.0	0.0	—	0.0
1996	0.0	0.0	0.0	—	0.0
1997	0.0	0.0	0.0	—	0.0
1998	<0.1	<0.1	0.0	—	0.1
1999	0.0	0.0	0.0	—	0.0
2000	0.2	<0.1	0.1	—	0.3
2001	3.6	0.6	21.6	—	25.7
2002	5.0	0.5	14.9	—	20.5
2003	7.0	1.1	8.8	—	16.9
2004	5.5	1.6	16.6	—	23.7
2005	2.8	1.6	6.9	—	11.3
2006	2.0	1.0	4.0	—	7.0
2007	1.6	1.0	3.8	0.1	6.5
2008	0.2	0.5	19.3	0.0	20.0
2009	1.4	0.6	15.0	<0.1	16.9
2010	4.9	1.1	23.2	0.0	29.2
2011	2.1	0.4	9.2	<0.1	11.7
2012	3.0	0.1	10.2	<0.1	13.3
2013	1.7	0.1	5.1	0.1	7.0
2014	2.2	0.4	12.9	0.2	15.7
2015	3.4	0.8	15.2	0.1	19.6
2016	1.4	1.2	9.8	0.2	12.7
2017	1.2	0.5	7.1	0.2	9.0
2018	1.2	0.3	5.7	0.2	7.5
2019	0.2	<0.1	1.4	0.0	1.7
2020	0.1	0.1	1.3	0.0	1.5
2021	1.1	0.3	4.0	<0.1	5.4

[1] *C=Cowlitz River, K=Kalama River, L=Lewis River, and S=Sandy River. May include occasional coastal stocks.*

[2] *Select Area stocks not estimated prior to 2007.*

Table 28. Adult spring Chinook recreational catch and harvest rates for the Cowlitz, Kalama, Lewis, and Sandy rivers, 1980–2021.

	Cowlitz River		Kalama River		Lewis River		Sandy River		Total	
Year[1]	Kept Catch	Harvest Rate	Kept Catch	Harvest Rate	Kept Catch	Harvest Rate	Kept Catch	Harvest Rate	Kept Catch	Harvest Rate
1980-84 Avg.	7,094	32%	1,292	32%	2,554	65%	1,269	62%	12,215	32%
1985-89 Avg.	2,888	26%	568	43%	6,262	64%	815	43%	10,549	42%
1990	2,636	35%	887	45%	7,143	77%	2,058	58%	12,724	57%
1991	3,417	38%	1,404	54%	6,201	74%	1,950	53%	12,972	55%
1992	2,134	21%	749	31%	4,385	73%	2,223	26%	9,491	35%
1993	2,897	31%	1,472	51%	6,102	74%	2,416	38%	12,887	48%
1994	1,076	34%	229	18%	1,942	63%	1,322	38%	4,569	42%
Avg.	2,432	32%	948	40%	5,155	72%	1,994	43%	10,529	47%
1995	33	2%	3	0%	2,437	65%	1,134	45%	3,607	40%
1996	29	2%	190	30%	351	20%	1,290	34%	1,860	23%
1997	144	8%	5	1%	781	36%	1,186	27%	2,116	24%
1998	0	0%	0	0%	228	14%	998	28%	1,226	18%
1999	491	24%	8	1%	692	39%	1,481	41%	2,672	32%
Avg.	139	7%	41	7%	898	35%	1,218	35%	2,296	27%
2000	538	24%	397	28%	1,260	50%	1,268	35%	3,463	35%
2001	54	3%	407	23%	2,020	53%	1,580	30%	4,061	32%
2002	1,575	31%	539	19%	1,372	39%	1,588	27%	5,074	29%
2003	2,996	19%	833	18%	1,916	38%	1,595	29%	7,340	24%
2004	1,945	12%	921	21%	3,035	41%	4,452	35%	10,353	25%
Avg.	1,422	18%	619	22%	1,921	44%	2,097	31%	6,058	29%
2005	1,346	14%	1,044	31%	1,569	45%	1,845	24%	5,804	24%
2006	876	13%	1,385	25%	2,788	38%	925	21%	5,974	25%
2007	733	19%	2,070	26%	3,588	47%	393	14%	6,784	30%
2008	599	20%	251	15%	825	37%	724	12%	2,399	19%
2009	1,900	31%	117	29%	416	28%	292	12%	2,725	26%
Avg.	1,091	19%	973	25%	1,837	39%	836	17%	4,737	25%
2010	2,184	25%	417	43%	520	22%	788	11%	3,909	20%
2011	2,629	49%	222	29%	253	19%	1,352	29%	4,456	37%
2012	5,534	45%	521	59%	381	20%	1,159	25%	7,595	39%
2013	3,352	41%	0	0%	103	7%	506	14%	3,961	27%
2014	2,801	34%	0	0%	14	1%	380	12%	3,195	23%
Avg.	3,300	39%	232	26%	254	14%	837	18%	4,623	29%
2015	8,410	32%	1,088	34%	104	9%	160	5%	9,762	28%
2016	9,386	38%	1,588	36%	124	21%	227	6%	11,325	34%
2017	5,615	38%	1,625	46%	244	10%	461	6%	7,945	28%
2018	851	19%	1,000	51%	549	16%	408	8%	2,808	19%
2019	10	1%	280	28%	10	1%	383	11%	683	10%
Avg.	4,854	26%	1,116	39%	206	12%	328	7%	6,505	24%
2020[2]	0	0%	303	25%	18	1%	906	12%	1,227	10%
2021[2]	49	1%	455	24%	207	7%	594	10%	1,305	9%

[1] *1995–2001, 2008, 2019, and 2020 harvest rates reflect fishery restrictions due to extremely low returns.*

[2] *Data are preliminary.*

Table 29. Smolt releases at Select Area fisheries sites, brood years 2005–2019.

Brood Year	Species[1]	Release Site: Youngs Bay: South Fork Klaskanine Hatchery	Youngs Bay: Klaskanine Hatchery	Youngs Bay: Youngs Bay Net Pens	Blind Slough: Big Creek Hatchery	Blind Slough: Blind Slough Net Pens	Blind Slough: Gnat Creek Hatchery	Tongue Point: Tongue Point Net Pens	Deep River: Deep River Net Pens[2]	Deep River: Grays River Hatchery	**Total**
2005	CHS	—	—	417,662	—	272,226	—	104,149	263,600	—	1,057,637
	SAB	628,888	—	476,497	—	—	—	—	—	—	1,105,385
	CHF	—	—	—	5,850,219	—	—	—	—	—	5,850,219
	CO	—	—	1,157,746	529,697	304,558	—	174,547	449,200	157,500	2,773,248
2006	CHS	—	—	543,803	—	312,962	—	79,343	121,500	—	1,057,608
	SAB	708,412	—	564,641	—	—	—	—	—	—	1,273,053
	CHF	—	—	—	4,467,016	—	—	—	—	—	4,467,016
	CO	278,944	232,455	768,960	559,717	310,133	—	597,754	368,000	132,188	3,248,151
2007	CHS	—	—	457,161	—	280,437	—	103,060	279,811	—	1,120,469
	SAB	674,181	—	574,020	—	—	—	—	—	—	1,248,201
	CHF	—	—	—	4,286,153	—	—	—	—	—	4,286,153
	CO	370,796	609,400	1,014,141	540,169	300,036	—	477,830	706,150	158,000	4,176,522
2008	CHS	—	—	804,665	—	265,832	—	101,700	363,000	—	1,535,197
	SAB	714,118	—	702,659	—	—	—	—	—	—	1,416,777
	CHF	—	—	—	5,666,218	—	—	—	700,000	—	6,366,218
	CO	347,494	561,968	783,092	516,206	417,506	—	483,412	747,000	153,000	4,009,678
2009	CHS	—	—	702,609	—	253,503	—	100,557	234,000	—	1,290,669
	SAB	685,056	—	229,105	—	—	—	—	—	—	914,161
	CHF	—	2,093,575	—	3,948,579	—	—	—	700,000	—	6,742,154
	CO	368,980	392,314	796,443	538,402	388,505	—	479,365	692,000	155,000	3,811,009
2010	CHS	—	—	612,330	—	258,923	—	253,002	405,000	—	1,529,255
	SAB	672,829	—	684,030	—	—	—	—	—	—	1,356,859
	CHF	—	1,932,616	—	3,255,120	—	—	—	862,000	—	6,049,736
	CO	390,610	489,060	757,474	532,082	372,265	—	491,330	800,000	163,000	3,995,821
2011	CHS	—	—	601,862	—	326,490	99,190	481,617	320,000	—	1,829,159
	SAB	704,594	—	653,452	—	—	—	—	—	—	1,358,046
	CHF	—	1,954,732	—	3,614,747	—	—	—	893,000	—	6,462,479
	CO	386,668	607,824	769,971	571,616	586,277	—	849,381	600,000	165,000	4,536,737
2012	CHS	—	—	631,337	—	370,858	150,834	493,595	—	—	1,646,624
	SAB	680,806	481,663	687,801	—	—	—	—	—	—	1,850,270
	CHF	—	1,986,471	—	2,956,068	—	—	—	2,620,000	—	7,562,539
	CO	336,856	732,994	774,533	537,811	623,649	—	928,589	725,000	155,000	4,814,432
2013	CHS	—	—	560,520	—	437,583	142,959	465,420	—	—	1,606,482
	SAB	697,554	822,825	706,974	—	—	—	—	—	—	2,227,353
	CHF	—	1,644,974	—	2,837,901	—	—	—	930,000	—	5,412,875
	CO	260,289	903,119	684,309	537,661	569,921	—	935,023	654,000	165,000	4,709,322
2014	CHS	—	275,973	627,857	—	128,700	380,848	437,585	—	—	1,850,963
	SAB	672,387	525,600	472,678	—	—	—	—	—	—	1,670,665
	CHF	—	4,118,792	—	3,120,715	—	—	—	975,000	—	8,214,507
	CO	209,923	1,552,458	766,193	568,328	574,243	—	842,341	920,000	156,000	5,589,486
2015	CHS	—	—	910,343	—	116,114	379,653	399,621	—	—	1,805,731
	SAB	160,487	461,441	—	—	—	—	—	—	—	621,928
	CHF	—	2,802,981	—	3,090,605	—	—	—	875,000	—	6,768,586
	CO	209,745	1,487,362	550,062	536,144	349,156	—	747,057	855,000	53,000	4,787,526
2016	CHS	—	—	1,159,890	—	129,830	385,563	459,832	—	—	2,135,115
	SAB	—	599,463	—	—	—	—	—	—	—	599,463
	CHF	—	—	—	2,312,352	—	—	—	910,000	—	3,222,352
	CO	487,415	1,688,946	761,511	567,394	509,235	—	922,456	723,000	43,550	5,703,507
2017	CHS	—	117,495	968,404		130,489	646,836	419,608	170,000	—	2,452,832
	SAB	—	300,460	—	—	—	—	—	—	—	300,460
	CHF	—	1,686,452	—	2,250,280	—	—	—	—	—	3,936,732
	CO	384,452	1,317,407	631,898	733,835	426,637	—	424,659	700,000	—	4,618,888
2018	CHS	—	235,655	1,264,888	—	310,114	585,258	409,815	262,000	—	3,067,730
	SAB	—	391,347	—	—	—	—	—	—	—	391,347
	CHF	—	2,447,240	—	1,848,665	—	—	—	—	—	4,295,905
	CO	333,094	1,407,597	717,121	747,950	350,934	—	620,979	706,000	—	4,883,675
2019[3]	CHS	—	493,518	1,331,398	247,266	411,810	630,665	375,927	245,800	—	3,736,384
	SAB	—	196,215	—	—	—	—	—	—	—	196,215
	CHF	—	558,797	—	1,946,024	—	—	—	—	—	2,504,821
	CO	436,803	1,425,603	745,478	751,019	367,768	—	646,199	176,000	—	4,548,870

[1] *CHS=Spring Chinook, CHF=Fall Chinook (tule stock unless noted), SAB=Select Area Bright Fall Chinook, CO = Coho.*

[2] *The Deep River program began releasing spring Chinook as subyearlings beginning in brood year 2017 (2018 release year).*

[3] *Release numbers are prelimnary and subject to change.*

Table 30. Winter/spring/summer season commercial and recreational Chinook harvest in Select Area sites, 1993–2021.

	Commercial					Recreational[2]	
Year	Youngs Bay	Blind Slough	Tongue Point[1]	Deep River	*subtotal*	*subtotal*	Sum
1993	851	0	0	0	851	0	851
1994	155	0	0	0	155	0	155
1995	201	0	0	0	201	0	201
1996	789	0	0	0	789	0	789
1997	1,821	0	0	0	1,821	0	1,821
1998	2,167	60	31	0	2,258	55	2,313
1999	1,298	458	199	0	1,955	25	1,980
2000	4,731	818	947	0	6,496	255	6,751
2001	5,593	2,045	1,631	0	9,269	500	9,769
2002	6,643	2,053	3,003	0	11,699	552	12,251
2003	5,300	2,041	345	118	7,804	994	8,798
2004	6,916	3,531	0	115	10,562	1,081	11,643
2005	969	1,377	0	60	2,406	157	2,563
2006	5,798	1,419	0	28	7,245	336	7,581
2007	5,209	1,536	0	29	6,774	194	6,968
2008	3,195	1,004	259	28	4,486	232	4,718
2009	3,123	797	133	122	4,175	274	4,449
2010	20,751	2,999	727	415	24,892	1,999	26,891
2011	8,751	1,611	656	100	11,118	418	11,536
2012	8,588	961	503	44	10,096	646	10,742
2013	6,648	936	374	124	8,082	341	8,423
2014	4,034	467	72	65	4,638	315	4,953
2015	9,120	3,117	1,262	204	13,703	2,507	16,210
2016	6,694	2,617	1,106	79	10,496	1,315	11,811
2017	10,799	3,261	3,517	21	17,598	1,781	19,379
2018	6,933	2,164	1,884	0	10,981	682	11,663
2019	2,123	500	545	0	3,168	172	3,340
2020	3,113	615	459	0	4,187	289	4,476
2021[3]	4,579	1,531	395	42	6,547	462	7,009

[1] *No winter, spring, or summer seasons occurred in Tongue Point/South Channel from 2004–2007. Volunteer test fishing in mid-April 2008 resulted in a full-fleet experimental fishery beginning in late April and continuing through the remainder of the spring season.*

[2] *From 1998–2007, annual estimates of recreational harvest were made starting when effort was first observed in a particular site. Since 2008, the estimate is based on expanded catch record card data.*

[3] *Recreational harvest estimate is preliminary and will be updated when catch record card data are available.*

Table 31. Stock composition of Chinook landed in winter, spring, and summer Select Area commercial fisheries, 2000–2021.

Year	Stock					
	Select Area[1]	Willamette River	C,K,L,S[2]	Upriver Spring/Summer[3]	Summer Chinook[3]	Coastal Stocks
2000	84.9%	11.6%	2.7%	0.7%	0.0%	0.0%
2001	88.3%	5.9%	1.3%	3.8%	0.3%	0.5%
2002	73.9%	16.7%	4.0%	4.8%	0.5%	0.3%
2003	77.9%	13.3%	2.8%	4.6%	0.9%	0.6%
2004	90.1%	5.7%	1.9%	1.9%	0.4%	0.0%
2005	91.7%	5.8%	1.8%	0.6%	0.1%	0.0%
2006	93.2%	3.8%	1.4%	1.6%	0.1%	0.0%
2007	93.6%	4.7%	0.9%	0.7%	0.1%	0.0%
2008	89.6%	2.2%	1.7%	5.1%	1.4%	0.0%
2009	84.4%	7.1%	4.1%	3.7%	0.8%	0.0%
2010	86.6%	6.7%	0.6%	6.0%	0.1%	0.0%
2011	86.4%	9.3%	1.2%	2.7%	0.3%	0.0%
2012	88.7%	7.1%	0.8%	3.3%	0.0%	0.0%
2013	80.5%	15.2%	1.0%	3.2%	0.1%	0.0%
2014	77.4%	14.3%	1.6%	5.6%	1.0%	0.0%
2015	82.1%	9.1%	2.1%	5.9%	0.8%	0.0%
2016	85.8%	5.4%	5.0%	3.2%	0.6%	0.0%
2017	87.6%	7.4%	2.0%	2.7%	0.3%	0.0%
2018	90.6%	4.2%	2.2%	2.8%	0.2%	0.0%
2019	82.1%	10.4%	0.6%	6.5%	0.4%	0.0%
2020	89.5%	7.5%	0.7%	2.0%	0.3%	0.0%
2021	89.9%	4.1%	1.0%	4.9%	0.1%	0.0%
All-year Average	86.1%	8.1%	1.9%	3.5%	0.4%	0.1%

[1] *Select Area stock group includes Select Area spring Chinook and Select Area Bright fall Chinook.*

[2] *C=Cowlitz River, K=Kalama River, L=Lewis River, and S=Sandy River.*

[3] *From 2009 to present, summer Chinook caught before June 15th are included in the upriver stock grouping. Prior to 2009, all summer Chinook were counted in the summer Chinook stock grouping.*

Table 32. Winter season commercial landings in treaty fisheries, 1977–2021.

Year	Season[1]	Peak Net Count	Numbers of Fish Sold Commercially[2]			
			Chinook	Steelhead	Sturgeon	Walleye
1977–1981 Ave.	Feb 1–Apr 1[3]	170	1,400	3,700	110	—
Range		87–246	30–2,800	2,600–4,900	20–220	
1982–1986 Ave.	Feb 1–Mar 21[4,5]	107	50	4,700	670	—
Range		61–180	5–100	3,000–7,800	70–1,700	
1987–1991 Ave.	Feb 1–Mar 21[4,5]	183	100	6,700	2,100	500
Range		124–299	0–280[6]	2,100–10,800	1,300–3,100	130–1,030
1992	Feb 1–Mar 21 (48 days)	161 (Mar 9)	47	4,600	625[7]	350
1993	Feb 1–Mar 20 (47 days)	78 (Mar 18)	0	2,400	2,000	180
1994	Feb 1–Mar 19 (34 days)	120 (Mar 16)	10	2,100	1,500	190
1995	Feb 1–Mar 18 (33 days)	83 (Mar 16)	13	2,100	1,950	730
1996	Feb 1–Mar 16 (32 days)	—	0	90	480	230
1997	Feb 3–Mar 21 (35 days)	—	14	220	2,600	190
1998	Feb 2–Mar 14 (30 days)	—	1	150	2,800	120
1999	Feb 1–Mar 20 (40 days)	—	1	89	1,700	160
2000	Feb 1–Mar 21 (48 days)	—	31	2	2,251	307
2001	Feb 1–Mar 14 (41 days)	—	160	230	1,961	86
2002	Feb 1–Mar 21 (48 days)	—	45	78	1,529	76
2003	Feb 1– Mar 21 (48 days)	—	857	788	1,339	113
2004	Feb 2–Mar 10 (37 days)	—	2	70	1,748	48
2005	Feb 1–Mar 16 (44 days)	—	1	8	1,754	27
2006	Feb 1–Mar 21 (48 days)	—	1	139	815	186
2007	Feb 1–Mar 21 (49 days)	—	3	558	1,114	85
2008	Feb 1–Mar 21 (48 days)	—	0	334	1,588	20
2009	Feb 2–Mar 21	—	0	0	1,602	1
2010	Feb 1–Mar 3	—	0	12	2,889	2
2011	Feb 1–Mar 21	—	7	247	2,869	103
2012	Feb 1–Mar 21	—	2	100	4,153[8]	14
2013	Feb 1–Mar 21	—	0	0	2,974[9]	3
2014	Feb 1–Mar 21	—	0	98	2,115[10]	5
2015	Feb 2–Mar 21	—	6	171	1,355[11]	7
2016	Feb 1-Mar 21	—	0	20	1,098[12]	10
2017	Feb 1 -Mar 17	—	0	128	857[13]	14
2018	Feb 1–Mar 24	—	0	116	556[14]	0
2019	Feb 1–Mar 23	—	0	0	1,125[15]	0
2020	Feb 1–Mar 24	—	0	31	1,444[16]	0
2021	Feb 1–Mar 21	—	0	0	1,883[17]	0

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

[2] Treaty sales to licensed fish buyers and any direct to public sales. Includes Sturgeon in January Setline fishery and winter season gillnet fisheries. Includes chinook, steelhead and walleye only in winter gilnet fishery.

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

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

[5] Walleye sales not accounted for prior to 1989.

[6] Includes two late fall Chinook in 1991.

[7] Sturgeon sales prohibited beginning noon March 5.

[8] John Day Pool gillnet fishery through March 1, Bonneville Pool fishery through March 6, The Dalles Pool fishery through March 21.

[9] John Day Pool gillnet fishery through February 27, Bonneville Pool fishery through March 6, The Dalles Pool fishery through March 21.

[10] John Day Pool gillnet fishery through February 26, Bonneville Pool fishery through March 15, The Dalles Pool fishery through March 21(except closed between March 3-12).

[11] The Dalles and John Day Pool gillnet fishery February 2-24. Bonneville Pool fishery February 23-March 21.

[12] The Dalles and John Day Pool gillnet fishery February 1-March 12. Bonneville Pool fishery March 14-21.

[13] The Dalles and John Day Pool gillnet fishery February 1-March 4. Bonneville Pool fishery March 5-17.

[14] The John Day Pool gillnet fishery February 1- March 3 and from March 15-24. The Dalles Pool fishery open February 1- 16, from February 22 - March 3, and from March 15-19. The Bonneville Pool open from March 5-14.

[15] The John Day Pool gillnet fishery February 1- 27. The Dalles Pool fishery open February 1- 19. The Bonneville Pool open from March 1-23.

[16] The John Day Pool gillnet fishery February 1- 8,12-17,20-24. The Dalles Pool fishery open February 1- 8. The Bonneville Pool open from February 20-March 5.

17. The 2021 The Dalles Pool fishery was from February 1-6. The John Day Pool fishery was from Feb 1-6, 12-17, and 24-26. The Bonneville Pool fishery was from Feb 20-March 5.

Table 33. Mainstem spring season harvest in treaty fisheries, 2008–2021.[1]

Spring Season					
		Numbers of Fish Harvested in Mainstem Fisheries			
Year	Season	Chinook	Steelhead	Sockeye	Walleye
2008	March 21-June 15	21,391	404	0	0
2009	March 21-June 15	13,101	380	11	1
2010	March 21-June 15	42,954	335	0	35
2011	March 21-June 15	15,526	412	0	0
2012	March 21-June 15	17,699	400	396	7
2013	March 21-June 15	9,282	267	352	0
2014	March 21-June 15	24,703	392	451	16
2015	March 21-June 15	31,181	143	555	9
2016	March 21-June 15	17,066	218	165	4
2017	March 21-June 15	8,109	692	0	0
2018	March 21-June 15	10,892	677	0	0
2019	March 21-June 15	4,688	668	0	0
2020	March 21-June 15	4,378	66	305	0
2021	March 21-June 15	4,423	85	10	0

[1] *Includes ceremonial permit fisheries, platform and hook and line fisheries and any commercial gillnet fisheries.*

Table 34. Mainstem summer season harvest in treaty fisheries, 2008–2021.[1]

Summer Season					
		Numbers of Fish Harvested in Mainstem Fisheries			
Year	Season	Chinook	Steelhead	Sockeye	Walleye
2008	June 16-July 31	9,029	3,203	9,017	12
2009	June 16-July 31	11,650	3,535	9,720	8
2010	June 16-July 31	15,799	10,957	26,125	57
2011	June 16-July 31	20,645	3,994	12,849	55
2012	June 16-July 31	7,824	1,512	44,956	58
2013	June 16-July 31	13,397	5,373	7,688	28
2014	June 16-July 31	19,389	8,788	30,161	18
2015	June 16–July 31	37,763	2,866	29,232	62
2016	June 16-July 31	20,515	3,162	16,452	52
2017	June 16-July 31	16,328	665	4,480	26
2018	June 1-July 28	9,498	314	7,721	88
2019	June 16-July 31	5,637	193	1,118	21
2020	June 16-July 31	8,410	2,115	14,943	69
2021	June 16-July 31	11,834	1,026	9,518	41

[1] *Includes platform and hook and line fisheries, commercial gillnet fisheries and any permit gillnet fisheries.*

Table 35. Winter season harvest of winter and summer steelhead in treaty fisheries in Zone 6, 2001–2021.

	Winter Steelhead Bonneville Pool[1]			Summer Steelhead The Dalles & John Day pools[2]		
Run Year	Clipped	Unclipped	Total	Clipped	Unclipped	Total
2001-2	81	15	96	0	0	0
2002-3	510	66	576	173	47	220
2003-4	49	11	60	12	4	16
2004-5	8	2	10	0	0	0
2005-6	94	18	112	24	7	31
2006-7	215	85	300	195	75	270
2007-8	20	14	34	216	90	306
2008-9	2	2	4	0	0	0
2009-10	9	9	18	8	4	12
2010-11	24	18	42	173	76	249
2011-12	60	33	93	11	5	16
2012-13	3	3	6	0	0	0
2013-14	66	38	104	0	0	0
2014-15	95	90	185	0	0	0
2015-16	19	15	34	0	0	0
2016-17	66	36	102	0	0	0
2017-18	111	86	197	0	0	0
2018-19	2	2	4	0	0	0
2019-20	35	26	61	0	0	0
2020-21	20	20	40	0	0	0

[1] *Clipped and unclipped winter steelhead based on Bonneville Dam clip rate. Includes platform & hook and line from Nov. 1-Mar 31 and winter gillnet.*

[2] *Includes catch during winter gillnet fishery. Summer steelhead harvest is on fish passing Bonneville Dam in the previous calendar year.*

Table 36. April-June treaty steelhead harvest, 2008–2021.

Bonneville Pool[1]

Year	Total	Clipped	Unclipped
2008	98	70	28
2009	380	283	97
2010	323	199	124
2011	163	109	54
2012	384	263	121
2013	267	190	77
2014	392	253	139
2015	143	79	64
2016	218	132	86
2017	605	391	214
2018	668	146	115
2019	668	57	63
2020	66	26	40
2021	159	64	95

The Dalles and John Day Pools[2]

Year	Total	Clipped	Unclipped
2008	306	216	90
2009	0	0	0
2010	12	8	4
2011	249	173	76
2012	16	11	5
2013	0	0	0
2014	0	0	0
2015	0	0	0
2016	0	0	0
2017	87	82	5
2018	9	6	3
2019	0	0	0
2020	0	0	0
2021	30	12	18

[1] *Clipped and unclipped based on Bonneville Dam clip rate for Skamania stock. Includes spring Drano Lake harvest.*

[2] *Clipped and unclipped based on Bonneville Dam clip rate for A/B Index stock.*

Table 37. Summer season treaty steelhead harvest in Zone 6 and in bank fisheries downstream of Bonneville Dam, 1999–2021.[1]

Year	Clipped A-Index	Unclipped A-Index	Clipped B-Index	Unclipped B-Index	Total Clipped	Total Unclipped	Total
1999	—	—	—	—	—	—	2,952
2000	—	—	—	—	—	—	1,670
2001	—	—	—	—	—	—	8,220
2002	—	—	—	—	—	—	4,967
2003	—	—	—	—	—	—	4,455
2004	—	—	—	—	—	—	5,514
2005	—	—	—	—	—	—	3,552
2006	—	—	—	—	—	—	1,345
2007	—	—	—	—	—	—	1,039
2008	1,753	614	694	142	2,447	756	3,203
2009	2,193	527	605	210	2,798	737	3,535
2010	5,067	1,857	3,022	1,011	8,089	2,868	10,957
2011	1,848	658	943	545	2,791	1,203	3,994
2012	921	399	112	80	1,033	479	1,512
2013	2,975	2,256	87	55	3,062	2,311	5,373
2014	4,670	3,173	575	370	5,245	3,543	8,788
2015	1,431	1,107	257	71	1,688	1,178	2,866
2016	1,866	1,020	243	33	2,109	1,053	3,162
2017	445	182	36	2	481	184	665
2018	68	73	127	46	195	119	314
2019	87	87	19	0	106	87	193
2020	1,327	710	30	48	1,357	758	2,115
2021	593	322	0	0	593	322	915

[1] *Stock proportions from 2008 onward based on creel sampling data. B-Index steelhead are defined as steelhead of any origin that measure 78cm or greater in fork length. Beginning 2017, catch includes July only.*