



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

**2019 JOINT STAFF REPORT:
STOCK STATUS AND FISHERIES FOR
SPRING CHINOOK, SUMMER CHINOOK, SOCKEYE,
STEELHEAD, AND OTHER SPECIES**

Joint Columbia River Management Staff

Oregon Department of Fish & Wildlife

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CONTENTS

CONTENTS.....	I
LIST OF TABLES	IV
LIST OF FIGURES.....	V
INTRODUCTION	1
THE COMPACT/JOINT STATE PROCESS	1
SEASONS CONSIDERED.....	1
STOCKS CONSIDERED	1
SPRING CHINOOK	1
WILLAMETTE RIVER SPRING CHINOOK	2
2018 Return	3
2018 Escapement.....	3
2019 Forecast	3
CLACKAMAS RIVER SPRING CHINOOK	3
2018 Return	3
2018 Escapement.....	4
2019 Forecast	4
SANDY RIVER SPRING CHINOOK	4
WASHINGTON LOWER RIVER SPRING CHINOOK.....	5
Cowlitz River Return and Forecast	5
Kalama River Return and Forecast.....	5
Lewis River Return and Forecast	5
SELECT AREA SPRING CHINOOK	6
Releases of Hatchery Fish.....	6
2018 Returns.....	6
2019 Forecast	7
UPRIVER SPRING CHINOOK	7
2018 Return	8
2019 Forecast	9
WASHINGTON TRIBUTARIES UPSTREAM OF BONNEVILLE DAM	10
Wind River Return and Forecast	10
Little White Salmon River (Drano Lake) Return and Forecast.....	10
Klickitat River Return and Forecast.....	10
Yakima River Return and Forecast.....	11
UPPER COLUMBIA RIVER SUMMER CHINOOK	11
2018 Return	12
2019 Forecast	12
WILD WINTER STEELHEAD	12
2017–2018 Run Year Return and 2018–2019 Run Year Forecast	13
SUMMER STEELHEAD	13
2018 Return	14
2019 Forecast	14
SOCKEYE.....	15
2018 Return	15

2019 Forecast	16
AMERICAN SHAD.....	16
2018 Return	16
MANAGEMENT GUIDELINES	19
ENDANGERED SPECIES ACT	19
COLUMBIA RIVER SALMONID MANAGEMENT GUIDELINES	20
<i>Upriver Spring Chinook</i>	20
<i>Upper Columbia River Summer Chinook</i>	22
<i>Sockeye</i>	22
<i>Winter Steelhead</i>	23
<i>Summer Steelhead</i>	23
COMMISSION GUIDANCE REGARDING NON-TREATY FISHERIES	23
NON-TREATY IMPACT ALLOCATIONS OF UPRIVER SPRING CHINOOK	24
UPPER COLUMBIA RIVER SUMMER CHINOOK HARVEST SHARING GUIDELINES	24
NON-TREATY IMPACT ALLOCATIONS OF SOCKEYE	26
WILLAMETTE SPRING CHINOOK MANAGEMENT	26
<i>Fishery Management and Evaluation Plan for Willamette Spring Chinook</i>	26
<i>Willamette River Basin Fish Management Plan</i>	26
LOWER COLUMBIA RIVER WHITE STURGEON MANAGEMENT	28
REVIEW OF MAINSTEM, SELECT AREA, AND TRIBUTARY FISHERIES	29
NON-TREATY FISHERIES	29
<i>Past Mainstem Commercial Salmon Seasons</i>	29
<i>2018 Winter/Spring Mainstem Commercial Salmon Season</i>	30
<i>Past Lower Columbia River Spring Chinook Recreational Fisheries</i>	30
<i>2018 Lower Columbia River Spring Chinook Recreational Fishery</i>	31
<i>2018 Spring Chinook Recreational Fisheries upstream of Bonneville Dam</i>	33
<i>Lower Columbia River Tributary Spring Chinook Fisheries</i>	35
<i>Wanapum Tribal Spring Chinook Fishery</i>	36
<i>Past Summer Mainstem Commercial Salmon Seasons</i>	36
<i>2018 Summer Mainstem Commercial Salmon Season</i>	36
<i>Past Columbia River Summer Steelhead and Summer Chinook Recreational Fisheries</i>	36
<i>2018 Lower Columbia River Summer Steelhead and Summer Chinook Recreational Fisheries</i>	38
<i>2018 Summer Season Fisheries upstream of Bonneville Dam</i>	39
<i>Past Select Area Winter, Spring, and Summer Commercial Seasons</i>	40
<i>2018 Youngs Bay Winter/Spring/Summer Seasons</i>	41
<i>2018 Blind Slough/Knappa Slough Winter/Spring Seasons</i>	42
<i>2018 Tongue Point/South Channel Winter/Spring Seasons</i>	43
<i>2018 Deep River Winter/Spring Seasons</i>	44
<i>Select Area Recreational Fisheries</i>	44
<i>2018 Commercial American Shad Season</i>	44
<i>2018 Non-Treaty Impacts to ESA-Listed Stocks</i>	45
TREATY FISHERIES	47
<i>2018 Treaty Winter Season Fisheries</i>	49

2018 Treaty Mainstem Spring and Summer Chinook and Sockeye Fisheries	49
2018 Treaty Tributary Fisheries.....	51
2018 Ceremonial and Subsistence Safety Net	51
2018 American Shad Fisheries.....	51
2019 WINTER, SPRING, AND SUMMER SEASON EXPECTATIONS.....	54
2019 MANAGEMENT GUIDELINES	54
2019 NON-TREATY FISHERIES	55
Mainstem Spring Chinook Commercial Fishery	55
Lower Columbia River Spring Chinook Recreational Fishery.....	55
Bonneville Dam to OR/WA State Line Spring Chinook Recreational Fishery.....	55
Lower Snake River (WA state waters) Spring Chinook Recreational Fishery	55
Wanapum Tribal Spring Chinook Fishery.....	56
Columbia River Steelhead Recreational Fishery	56
Mainstem Summer Chinook Commercial Fishery.....	56
Columbia River Summer Chinook Recreational Fisheries.....	57
Select Area Commercial Fisheries	57
Mainstem Commercial American Shad Fishery (Area 2S).....	57
2019 TREATY INDIAN FISHERIES	58
Treaty Winter Commercial Fisheries	58
Treaty Spring Season Fisheries.....	58
Treaty Summer Season Fisheries.....	58
Treaty Shad Fisheries.....	58
Treaty Indian Tributary Fisheries	58

LIST OF TABLES

TABLE 1. MINIMUM ADULT SPRING CHINOOK RUN ENTERING THE COLUMBIA RIVER, 1990–2018.	60
TABLE 2. FORECASTED AND ACTUAL ABUNDANCE OF SPRING CHINOOK ENTERING THE COLUMBIA RIVER, 1985–2018 AND 2019 FORECASTS.	61
TABLE 3. COMPONENTS (IN THOUSANDS) OF THE MINIMUM WILLAMETTE RIVER SPRING CHINOOK RUN AND PERCENTAGE CAUGHT IN LOWER WILLAMETTE RECREATIONAL FISHERY, 1970–2018	62
TABLE 4. WILLAMETTE FALLS SPRING CHINOOK ESCAPEMENT, UPPER WILLAMETTE RECREATIONAL CATCH, NUMBER RETURNING TO HATCHERIES, AND TRIBAL USE, 1980–2018	63
TABLE 5. ESTIMATED NUMBERS OF ADULT UPRIVER SPRING CHINOOK ENTERING THE COLUMBIA RIVER 1980-2018	64
TABLE 6. ESTIMATED NUMBERS OF ADULT UPPER COLUMBIA WILD SPRING CHINOOK ENTERING THE COLUMBIA RIVER 1980-2018	65
TABLE 7. ESTIMATED NUMBERS OF ADULT SNAKE RIVER WILD SPRING/SUMMER CHINOOK ENTERING THE COLUMBIA RIVER 1980-2018	66
TABLE 8. ESTIMATED NUMBERS OF ADULT UPPER COLUMBIA SUMMER CHINOOK ENTERING THE COLUMBIA RIVER, 1980-2018	67
TABLE 9. WINTER STEELHEAD HARVEST AND INCIDENTAL RELEASE MORTALITIES IN MAINSTEM COLUMBIA RIVER NON-TREATY FISHERIES, RUN YEARS	68
TABLE 10. SKAMANIA RUN SUMMER STEELHEAD HARVEST IN MAINSTEM COLUMBIA RIVER NON-TREATY FISHERIES, 1999-2018	69
TABLE 11A. A-INDEX SUMMER SUMMER STEELHEAD HARVEST IN MAINSTEM COLUMBIA RIVER NON-TREATY FISHERIES DURING WINTER, SPRING, AND SUMMER SEASONS, 1999-2018	70
TABLE 11B. B-INDEX SUMMER STEELHEAD HARVEST IN MAINSTEM COLUMBIA RIVER NON-TREATY FISHERIES DURING WINTER, SPRING, AND SUMMER SEASONS, 1999-2018	71
TABLE 12. UPRIVER SUMMER STEELHEAD PASSAGE AT BONNEVILLE DAM (APRIL–OCTOBER), 1984–2018	72
TABLE 13. SUMMER STEELHEAD PASSAGE AT LOWER GRANITE DAM, 1984–2018.....	73
TABLE 14. MINIMUM NUMBERS (IN THOUSANDS) OF LOWER RIVER HATCHERY-ORIGIN SUMMER STEELHEAD ENTERING THE COLUMBIA RIVER, 1980–2018.....	74
TABLE 15. ESTIMATED NUMBER OF SOCKEYE ENTERING THE COLUMBIA RIVER, MAINSTEM HARVEST, AND ESCAPEMENT, 1980-2018	75
TABLE 16. COLUMBIA RIVER AMERICAN SHAD HARVEST AND PASSAGE (IN THOUSANDS), 1980–2018	76
TABLE 17. SEASON DATES, GEAR RESTRICTIONS, AND COMMERCIAL LANDINGS DURING NON-TREATY WINTER (JANUARY–MARCH) AND SPRING (APRIL–JUNE 15) MAINSTEM SEASONS, 1975–2018	77
TABLE 18. SEASON DATES, GEAR RESTRICTIONS, AND COMMERCIAL LANDINGS DURING NON-TREATY MAINSTEM SUMMER CHINOOK SEASONS (JUNE-JULY), 1965–2018	78
TABLE 19. FISHING PERIODS, GEAR, AND ASSOCIATED SALMON AND WHITE STURGEON LANDINGS DURING MAINSTEM COLUMBIA RIVER COMMERCIAL SALMON SEASONS, 2018	79
TABLE 20. LOWER COLUMBIA RIVER COMMERCIAL LANDINGS, 2018.....	80

TABLE 21. STOCK COMPOSITION OF HATCHERY SPRING CHINOOK (IN THOUSANDS) LANDED DURING NON-TREATY MAINSTEM COMMERCIAL FISHERIES, 1990–2018	81
TABLE 22. COLUMBIA RIVER RECREATIONAL SPRING CHINOOK FISHING REGULATIONS, 2002–2018	82
TABLE 23. RECREATIONAL SEASONS FOR ADULT SUMMER CHINOOK DOWNSTREAM OF BONNEVILLE DAM ¹	85
TABLE 24. SALMONID ANGLER TRIPS AND ADULT CHINOOK CATCH BY MONTH IN THE LOWER COLUMBIA RIVER, 2003–2018	86
TABLE 25. RECREATIONAL FISHERIES UPSTREAM OF BONNEVILLE DAM, 2002–2018.....	87
TABLE 26. RECREATIONAL FISHERIES DOWNSTREAM OF BONNEVILLE DAM, 2000–2018.....	88
TABLE 27. STOCK COMPOSITION OF KEPT ADULT HATCHERY SPRING CHINOOK (IN THOUSANDS) DURING THE MAINSTEM LOWER COLUMBIA RECREATIONAL FISHERIES, 1990–2018... ..	89
TABLE 28. ADULT SPRING CHINOOK RECREATIONAL CATCH AND HARVEST RATES FOR THE COWLITZ, KALAMA, LEWIS, AND SANDY RIVERS, 1980-2018	90
TABLE 29. SMOLT RELEASES AT SELECT AREA FISHERIES SITES, BROOD YEARS 2005–2016	91
TABLE 30. WINTER/SPRING/SUMMER SEASON COMMERCIAL AND RECREATIONAL CHINOOK HARVEST IN SELECT AREA SITES, 1993–2018.....	92
TABLE 31. STOCK COMPOSITION OF CHINOOK LANDED IN WINTER, SPRING, AND SUMMER SELECT AREA COMMERCIAL FISHERIES, 2000–2018.....	93
TABLE 32. WINTER SEASON COMMERCIAL LANDINGS IN TREATY FISHERIES, 1977–2018	94
TABLE 33. SPRING SEASON COMMERCIAL LANDINGS IN TREATY FISHERIES, 2009–2017.....	95
TABLE 34. SUMMER SEASON COMMERCIAL LANDINGS IN TREATY FISHERIES, 2009–2017.	95
TABLE 35. WINTER SEASON HARVEST OF WINTER AND SUMMER STEELHEAD IN TREATY FISHERIES IN ZONE 6, 2001–2018.....	96
TABLE 36. APRIL-JUNE TREATY STEELHEAD HARVEST, 2001–2018.....	96
TABLE 37. SUMMER SEASON TREATY STEELHEAD HARVEST IN ZONE 6 AND IN BANK FISHERIES DOWNSTREAM OF BONNEVILLE DAM, 1999–2017.....	97

LIST OF FIGURES

FIGURE 1. AVERAGE DAILY COUNTS OF SALMON, STEELHEAD, AND AMERICAN SHAD AT BONNEVILLE DAM, 2008–2018	18
FIGURE 2. MAP OF THE COLUMBIA RIVER DOWNSTREAM OF McNARY DAM SHOWING AREAS OPEN TO COMMERCIAL FISHING.....	53

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 2018. 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. Members of the *U.S. v Oregon* Technical Advisory Committee (TAC) have reviewed this report.

THE COMPACT/JOINT STATE PROCESS

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

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

SEASONS CONSIDERED

At the January 29 hearing, the Select Area commercial winter, spring, and summer fisheries were adopted; the mainstem Columbia River recreational spring Chinook fishery will be considered in a hearing scheduled for February 20. Other general permanent fishery rules may also be considered. Modifications to seasons adopted at this hearing and other recreational and commercial seasons will be considered at future hearings as additional information on fish runs and ongoing fisheries become available.

STOCKS CONSIDERED

Spring Chinook

Spring Chinook 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 male fish that have returned 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 early May. Most wild spring Chinook entering the Columbia River are listed under the federal ESA.

Willamette River Spring Chinook

The Willamette River spring Chinook run passes through the lower Columbia River from February through 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 past winter commercial seasons and during March in Columbia River 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 larger upriver runs and a lower proportion of Age-5 fish 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, 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 21% (range 15–28%) since 2008. Passage over Leaburg Dam on the McKenzie River and North Fork Dam on the Clackamas River, plus redd counts and dam counts in the North Santiam River, are currently used to index the status of wild spring Chinook populations in the Willamette River Basin. The National Marine Fisheries Service (NMFS) classified spring Chinook destined for the Willamette River upstream of Willamette Falls and the Clackamas River into a single ESU and listed the wild component as a threatened species under the ESA effective May 24, 1999.

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

Four large hatcheries upstream from Willamette Falls produce up to 5.0 million smolts annually, plus additional fingerlings to seed reservoir and stream areas. About 75% of this hatchery production is funded by USACE as mitigation for lost production areas. Downstream of Willamette Falls, hatchery releases in the Clackamas River total about 0.6 million smolts annually. Hatchery egg-take needs for the combined Willamette and Clackamas River programs have been met annually since 1980, with the exception of 1984 and 1994.

2018 Return

The Willamette River return of 39,660 spring Chinook entering the Columbia River in 2018 was down from the 2017 return of 53,653 fish and was 71% of the preseason forecast of 55,950 (Table 2). The return was made up of 2,219 Age-3, 26,760 Age-4, 16,605 Age-5, and 76 Age-6 Chinook. Approximately 26% (10,099) of the 2018 Willamette spring Chinook returning to the mouth of the Columbia River were non-fin-clipped fish. The estimated return to the Columbia River mouth includes fish destined for the Clackamas River.

2018 Escapement

Passage of spring Chinook over Willamette Falls in 2018 totaled 26,542 fish (Tables 3 and 4). From 1980 to 2017, the number of spring Chinook passing Willamette Falls has ranged from 14,672 to 95,970 with a recent 10-year average of 37,603 fish. Of the fish passing Willamette Falls in 2018, about 29,561 were hatchery fish, which exceeded the 22,000 hatchery fish escapement goal specified in the Willamette Fishery Management and Evaluation Plan (FMEP).

2019 Forecast

The ODFW staff forecasts a return of 42,490 Willamette River spring Chinook (adults and jacks) to the Columbia River mouth in 2019 which would be lower than the 10-year average (2009–2018) return of 62,470 fish and 7% greater than the 2018 actual return (Table 2). Age-specific returns for 2019 are expected to include 2,290 Age-3, 30,690 Age-4, 9,430 Age-5s and 80 Age-6 fish. The 2019 return is expected to include about 8,510 non-fin-clipped fish (20% of total return), based on the proportions of unmarked fish observed in 2013–2018 returns.

Clackamas River Spring Chinook

2018 Return

The run entering the Clackamas River has generally increased from an annual average of approximately 2,600 in the 1970s, 8,200 in the 1980s, and 8,500 in the 1990s, to 11,400 in the 2000s. In the 2010s the annual average fell to 6,800. (Table 3). The increase in returns beginning in the 1980s are due to production from Clackamas Hatchery at McIver Park, which came on-line in 1979, and programs developed to increase passage of wild fish over North Fork Dam yielding increased natural production. However, the returns have declined the last three years from a total return of 5,789 (including 2,179 hatchery fish) in 2016, 4,527 (including 805 hatchery fish) in 2017, and a total return of 2,657 (including 210 hatchery fish) in 2018.

2018 Escapement

The North Fork Dam count of 2,507 spring Chinook in 2018 included 2,430 unmarked fish that were passed upstream and 15 marked fish recycled downstream, and 62 marked fish that were transported directly to Clackamas Hatchery where the swim-in return was only 90 fish. An estimated 16 fish (marked and unmarked) remained downstream of North Fork Dam to spawn naturally. During 1980–1998, passage over North Fork Dam included unknown numbers of hatchery fish. Since 1999, only unmarked spring Chinook have been passed over North Fork Dam while marked hatchery fish have been recycled through fisheries to the fullest extent possible. The first year in which all returning hatchery adults except double-index tag (DIT) groups were mass-marked with an adipose fin clip was 2003. DIT groups from Clackamas Hatchery were discontinued following the 2003 brood year.

2019 Forecast

The ODFW staff forecasts a return of 2,800 spring Chinook to the Clackamas River in 2019. 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 count increased from an average of 120 fish 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. However, this program ended after the 2010 release and since 2011 only hatchery-origin spring Chinook have been used for broodstock. Wild spring Chinook in the Sandy River are part of the Lower Columbia ESU and are 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 to estimate annual catch. Once final catch estimates derived from angler catch cards become available, the run reconstructions are updated. As a result of the removal of Marmot Dam in late 2007, dam counts of spring Chinook on the Sandy River are no longer available.

Since annual Marmot Dam counts are no longer possible, ODFW has developed a modified methodology to reconstruct abundance estimates for 2008 and beyond. 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.

The 2018 adult spring Chinook return to the Sandy River is estimated at 4,659 adults, which is similar to the recent 10-year average. The estimated return to the Columbia River mouth was

4,733 adults. The 2019 pre-season forecast is for 5,500 adult fish returning to the Columbia River mouth, based on 2016–2018 average returns. Both the return estimate and 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 genetically similar runs are part of the Lower Columbia ESU and are listed under the ESA. 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 2018 Cowlitz River spring Chinook return of 3,974 adults (3% wild) to the tributary mouth was less than the recent 10-year (2008–2017) average of 11,736 adult fish. The estimate at the Columbia River mouth was 4,076 adult fish and was less than the preseason forecast of 5,150 adults. The minimum hatchery escapement goal of 1,550 adults was met with 2,633 adults and 167 jacks returning to the hatchery. A total of 822 hatchery and 115 wild adults were released into the upper basin. The natural spawn escapement estimate below the salmon hatchery was 490 adults, which is under the recent 10-year average of 500 fish. The 2019 Cowlitz River preseason forecast is 1,300 adult spring Chinook to the tributary mouth (1,340 to the Columbia River mouth), which is 11% of the 2009–2018 average and 33% of the 2018 adult return.

Kalama River Return and Forecast

The 2018 Kalama River spring Chinook return of 2,294 adults (2% wild) to the tributary mouth was higher than the recent 10-year average return of 1,791 adult fish. The estimate at the Columbia River mouth was 2,371 adult fish and was higher than the preseason forecast of 1,450 adults. The minimum hatchery escapement goal of 450 adults was met. A total of 1,241 adults and 96 jacks returned to the hatchery. A total of 53 adults were estimated to have spawned naturally below the Kalama Falls Hatchery and 45 wild adults were passed upstream. The 2019 Kalama River preseason forecast is 1,400 adult spring Chinook to the tributary mouth (1,440 to the Columbia River mouth), which is similar to the recent 10-year average, but lower than the 2018 adult return.

Lewis River Return and Forecast

The 2018 Lewis River spring Chinook return of 3,151 adults (1% wild) to the tributary mouth was higher than the recent 10-year average of 1,627 adults. The estimate at the Columbia River mouth was 3,454 adult fish, slightly lower than the preseason forecast of 3,700 adults. The minimum hatchery escapement goal of 1,445 fish was met. The natural spawn escapement below Merwin

Dam is estimated at 326 fish, compared to the recent 10-year average of 125 adult fish. The 2019 Lewis River preseason forecast is 1,500 adult spring Chinook to the tributary mouth (1,550 to the Columbia River mouth), which is slightly less than the recent 10-year average of 1,627 and 48% of the 2018 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 (discontinued in 2014 due to poor survival and limited funding) in Washington. Fish are also released from Gnat Creek Hatchery which is located upstream of Blind Slough. Spring Chinook released from the Oregon Select Area sites are produced from stocks in the Willamette River basin and the releases from the Washington Select Area sites were from Cowlitz and/or Lewis stocks. Smolts for the Oregon Select Areas originate from eggs taken from surplus broodstock 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 Areas combined ranged between 1,057,608 and 1,850,963 smolts during 2007–2018 (brood years 2005–2016), with an average release of 1,506,612 smolts (Table 29). As a result of lower Columbia River hatchery reforms and reprogramming of spring Chinook production, smolt releases into Oregon Select Area sites increased by 35% from an average of 1,078,571 (broods 2005 to 2007) to 1,451,707 (broods 2008 to 2010). Since 2011, average smolt releases increased another 20% to 1,748,085 (broods 2011 to 2016) as a result of Columbia River fisheries management reform. In 2018, the total release was 1,749,551 smolts (2016 brood). As outlined in the 2017 fisheries reform objectives, the long term hatchery production goal of this program is to release up to 3,450,000 smolts annually, which represents a 77% increase over current production goal.

2018 Returns

Select Area spring Chinook fisheries are designed to maximize harvest, minimize straying, and maximize economic return from the release of hatchery fish in the Select Areas. Returns of spring Chinook to Select Area fisheries is measured by harvest in Select Area commercial and recreational fisheries. Commercial landings of Chinook salmon in 2018 Select Area winter/spring/summer fisheries totaled 10,981 Chinook (10,942 spring Chinook, the remainder were summer Chinook and early-returning Select Area Bright (SAB) fall Chinook). This was the fifth highest total landings in the last 10 years and slightly above the recent 10-year (2008–2017)

average of 10,928 Chinook (Table 30). An estimated 918 spring Chinook were kept in recreational fisheries in Select Areas, bringing the combined (commercial and recreational) harvest to 11,899 fish in Select Areas in 2018.

2019 Forecast

The 2019 pre-season forecast for Select Area spring Chinook is 8,200 adult fish returning to Select Area commercial fisheries. This return will consist primarily of Age-4 adults from the release of 1.81 million smolts in 2017 (2015 brood) and Age-5 adults from 1.85 million smolts released in 2016 (2014 brood) (see Table 29). Approximately 5,800 fish are predicted to return to Youngs Bay, 1,200 fish to Blind Slough/Knappa Slough, 1,200 fish to Tongue Point/South Channel. No fish are expected to return to Deep River in 2018 and therefore no fisheries are planned. The estimated total Select Area commercial landings of 9,300, which includes harvest of non-local stocks and SAB fall Chinook, is expected to be lower than the recent 5- and 10-year averages of 11,500 and 11,600 respectively.

Upriver Spring Chinook

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

The upriver spring run is comprised of stocks from several ESUs and three geographically separate production areas: 1) the Columbia River system upstream of the Yakima River (upper Columbia), 2) the Snake River system, and 3) Columbia River tributaries between Bonneville Dam and the Yakima River, excluding the Snake River (mid-Columbia). Snake River summer Chinook are destined for areas upstream of Lower Granite Dam. Snake River wild spring/summer Chinook outside the Clearwater River and upper Columbia wild spring Chinook are federally-listed under the ESA. In each of the three geographic areas, production is now a mix of hatchery and wild/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 84,501 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 210,020 adults (range 86,247–440,336). The 2001 run marked a high (since counting began in 1938) of 440,336 adult upriver spring Chinook (Tables 1 and 5).

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). 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 trend of later-timed passage began in 2005. The average 50% passage date at Bonneville Dam over the past ten years (2009–2018) is May 9, indicating the late-timing trend has continued into the 2010s. The past two years (2017 and 2018) had the latest 50% passage dates observed, May 21 and May 16, respectively.

Upper Columbia River spring Chinook spawn and rear in the mainstem Columbia River and its tributaries (Wenatchee, Entiat, and Methow rivers) between Rock Island Dam and Chief Joseph Dams (RM 453–545). Chief Joseph Dam (completed in 1961) 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 but has dropped somewhat to 12% based on the recent 10-year average. Returns of upper Columbia spring Chinook to the Columbia River mouth in the 1980s averaged 20,373 adults (37% wild). Returns declined severely during the 1990s, averaging 9,530 adults (20% wild). During the 2000s, the annual returns improved, averaging 21,722 adults, including on average 2,208 wild fish (10% wild). Data are provided in Table 6.

The year 2013 marked the first brood year (BY) for the Chief Joseph Hatchery spring Chinook program. In April 2016, 526,126 yearling smolts were released from Chief Joseph Hatchery and an additional 203,311 yearling smolts were released as part of the Okanogan re-introduction program. Releases during April 2017 (2015 BY) included 744,000 spring Chinook yearling smolts from Chief Joseph Hatchery and an additional 200,000 yearling smolts for the Okanogan re-introduction program. Spring Chinook released from Chief Joseph Hatchery were 100% ad-clipped for both 2014 BY and 2015 BY releases. Of the fish released in 2016 and 2017, respectively, 200,000 received coded-wire tags (CWT) and 5,000 were PIT-tagged. All re-introduction 2014 BY and 2015 BY spring Chinook were implanted with CWTs and an additional 5,000 smolts in each release cohort received PIT tags. Adult fish from these broods will contribute to returns in 2019.

On average, the Snake River spring/summer Chinook return has represented 49% of the aggregate upriver spring Chinook run since 1980 compared to the recent 10-year average of 56%. Returns of Snake River spring/summer Chinook to the Columbia River mouth in the 1980s averaged 39,931 adults (53% wild). Returns declined during the 1990s averaging 29,995 adults (46% wild). During the 2000s, annual returns improved, averaging 111,021 adults (27% wild). Data are provided in Table 7.

2018 Return

The 2018 upriver spring Chinook return to the Columbia River totaled 115,081 adults (Tables 1 and 5) and consisted of 104,702 Age-4 fish, 10,111 Age-5 fish, and 268 Age-6 fish. The return included 67,596 (11,339 wild) adult Snake River spring/summer Chinook and 12,844 (1,977 wild)

adult upper Columbia spring Chinook. The remainder of the run was destined for tributaries in the mid-Columbia. The 2018 upriver spring Chinook return was 69% of the forecast of 166,700 fish and only 56% the recent 10-year average (2008–2017) of 204,592 adults. The 2018 return ranked 20th out of all returns since 1980.

The Snake River spring/summer return was 59% of the recent 10-year average return (113,794 fish) and ranked 15th out of returns since 1980. The Snake River wild component was 41% of the recent 10-year average (27,524 fish) and represented 17% of the 2018 Snake River run. The upper Columbia spring Chinook return was 55% of the recent 10-year average return (23,539 fish) and ranked 29th out of returns since 1980. The upper Columbia wild component was 52% of the recent 10-year average (3,822 fish) and represented 15% of the aggregate 2018 upper Columbia run. See Tables 5, 6, and 7.

The 2018 upriver spring Chinook passage at Bonneville Dam totaled 108,045 adult fish and was not 50% complete until May 16 (much delayed compared to the recent 10-year average 50% passage date of May 8). The peak count occurred on May 7 (7,287 fish). Chinook jack counts at Bonneville Dam totaled 7,563 fish, which was much lower than the recent 5-year average of 25,810.

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. To date, IDFG's alternate methodology has not been reviewed within TAC.

2019 Forecast

The 2019 pre-season forecast for upriver spring Chinook is 99,300 adults to the Columbia River mouth (Table 2). This forecast includes 11,200 upper Columbia spring Chinook (2,100 wild) and 48,100 Snake River fish (8,200 wild), with the remainder of the run (40,000) comprised of spring Chinook returning to mid-Columbia tributaries. The overall return is expected to include 84,300 Age-4 fish, 14,600 Age-5 fish, and 400 Age-6 fish. If accurate, this forecast of 99,300 adult fish would be the 25th highest return since 1980 and 50% of the average return observed over the past decade (2009–2018).

The forecast for adult upper Columbia spring Chinook of 11,200 fish is 48% of the recent 10-year average; the wild component represents 53% of the 10-year average return. The wild component is forecasted to represent 19% of the upper Columbia spring run, compared to the recent 10-year average of 17%.

The forecast for Snake River spring/summer Chinook of 48,100 fish is 44% of the recent 10-year average (110,447 fish) and the wild forecast of 8,200 is 31% of the recent 10-year average (26,252). The wild component is forecasted to represent 17% of the total Snake River run, which is less than the recent 10-year average percentage (23%). The upper Columbia return is expected to represent 11% of the aggregate upriver spring Chinook return and the Snake River component is expected to represent 48% of the aggregate return. These forecasted stock proportions contain a lower proportion of Snake River fish compared to the 5-year average (57% Snake River origin, 12% upper Columbia origin).

Washington Tributaries Upstream of Bonneville Dam

The Washington tributary returns and forecasts listed below are included in the aggregate 2018 return and 2019 forecast for upriver spring Chinook.

Wind River Return and Forecast

The Wind River enters the Columbia River 155 miles upstream from its mouth. Wind River is included in the Lower Columbia ESU but Wind River spring Chinook are excluded from the ESA listing. 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 most recent decade (2009–2018) averaged 6,300 fish (range 3,100–11,800).

The 2018 return of spring Chinook to the Wind River was 3,109 adults, compared to the preseason forecast of 5,300 adults. The 2019 pre-season forecast to the tributary mouth is 2,800 adult fish, which is similar to the 2018 actual return and about half of the recent 10-year average.

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 is included in the Lower Columbia ESU; however, Little White Salmon River spring Chinook are excluded from the ESA listing.

The 2018 return of spring Chinook to the mouth of the Little White Salmon River was 7,352 adults. The return was less than the preseason forecast of 10,200 adults, and less than the recent 10-year average of 11,500 adult fish. The 2019 pre-season forecast to the tributary mouth is 5,600 adult fish, which would be slightly less than the average return observed over the past ten years.

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. The Klickitat River is included in the mid-Columbia ESU but Klickitat River spring Chinook are not ESA-listed. Prior to 1920, there were large spring Chinook runs in the Klickitat River and a significant tribal fishery occurred at Lyle Falls, despite difficult passage at the falls. By 1951, the annual spring Chinook run varied from 1,000 to 5,000 adults. In 1952, the Klickitat Hatchery 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 500 to 5,250 fish, and averaged about 1,900 fish annually, with 60–80% of the run being hatchery fish.

The 2018 return of spring Chinook to the Klickitat River was 667 adults, compared to the forecast of 1,990 adults. The 2019 preseason forecast is for a return of 1,100 adults, which is approximately half of the recent ten-year average of 2,000.

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 is included in the mid-Columbia ESU, but Yakima River spring Chinook are 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 brood stock, 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 2018 the forecast was for a return of 6,340 adult (Age-4 and Age-5) spring Chinook to the mouth of the Yakima River. The actual return in 2018 is estimated to be 3,160 adult spring Chinook (50% of forecast). The forecast for 2019 is 2,970 adult spring Chinook which is at the lower end of the range of other forecast methods (2,300–10,860). The 2019 forecast is 1,250 wild/natural and 1,720 hatchery-origin adult (Age-4 and Age-5) spring Chinook returns 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. 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 (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 year 2013 marked the first brood-year for the Chief Joseph Hatchery summer Chinook program. 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). The Columbia River return is calculated as the sum of the Bonneville Dam count and the number of 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.

2018 Return

The 2018 upper Columbia summer Chinook return was the 17th largest since 1980, totaling 42,120 adults, compared to the preseason forecast of 67,300 adults. The adult return was comprised of 28,434 Age-4, 13,374 Age-5, and 311 Age-6 fish. The 2018 return was 56% of the recent 10-year average (2008–2017) of 75,262 adults. The 2018 jack return of 3,242 fish at Bonneville Dam was less than the recent 10-year average (15,018). The 2018 adult return was approximately 60% of the average of returns observed since 2001, but still more than double the average returns during the years 1980–2000 (17,400 adults).

2019 Forecast

The 2019 pre-season forecast for upper Columbia summer Chinook is 35,900 adults to the Columbia River mouth. The overall return is expected to include 11,700 Age-4 fish, 23,400 Age-5 fish, and 800 Age-6 fish. If accurate, this projection would represent the 19th highest return since 1980 and 49% of the average returns 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 outmigrating to the ocean as smolts during March through June. Most lower Columbia River winter steelhead spend two summers in the ocean before returning as adults to spawn in natal streams. The range of winter steelhead includes all tributaries of the Columbia River upstream to Fifteen Mile Creek 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 (2008–2017) averaged 16,215 fish and ranged between 9,448 and 22,379 fish (Table 9). Passage of wild winter steelhead at Willamette Falls during the same 10-year period has averaged 5,152 fish, ranging from 822 to 7,616 fish.

2017–2018 Run Year Return and 2018–2019 Run Year Forecast

The 2017–18 wild winter steelhead return to the Columbia River mouth totaled 11,323 fish. The return was 97% of the pre-season forecast of 11,700 fish and 69% of the recent 5-yr average of 16,505 fish. Returns were generally lower than average for Oregon and Washington tributaries. Passage at Willamette Falls totaled 1,829 fish (43% of the recent 5-year average) and represented 16% of the total Columbia River return. The 2018–19 pre-season forecast is for 14,400 wild winter steelhead returning to the Columbia River mouth.

Summer Steelhead

The Columbia River summer steelhead run includes populations from lower river and upriver tributaries. Summer steelhead enter freshwater year-round, with the majority of the run entering from June through October. The Columbia River return of summer steelhead is estimated as the sum of lower river tributary returns (lower river stocks), number of steelhead mortalities resulting from lower river mainstem fisheries during May–October (lower river and upriver stocks), and Bonneville Dam counts during April–October (upriver stocks).

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.

2018 Return

The total return to Bonneville Dam (April–October passage) of upriver summer steelhead in 2018 was 100,483 fish, compared to the pre-season forecast of 190,350 fish (53% of forecast). Upriver summer steelhead passage at Bonneville Dam in 2018 was the lowest observed since 1979 and only 33% of the recent 10-year average return of 307,709 fish. Unclipped steelhead counts at Bonneville Dam during April through October, which include unclipped hatchery fish, totaled 32,368 fish (32% of total passage). At time this report was being finalized, TAC had not completed the run reconstruction analysis of the 2018 upriver summer steelhead return; detailed information regarding the return of wild fish, and the A-Index and B-Index components of the run will be included in the Joint Staff Report for fall fisheries and fish stocks.

The 2018 Bonneville Dam passage of upriver Skamania stock steelhead totaled 6,483 fish including 2,854 (44%) wild fish. Passage timing over Bonneville Dam was typical, with about 31% of the fish passing prior to June 1. The Skamania return was only 53% of the recent 10-year average return (12,282 fish) and ranked 33 lowest in the 35 years since 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 2018, a total of 94,000 steelhead passed Bonneville Dam, compared to the recent 10-year average of 315,084 fish and the expected total passage of 182,400. Passage was 50% complete on August 22, compared to the 10-year average 50% date of August 14.

Steelhead passage at Lower Granite Dam (LRG) for the 2018–19 run year is counted from July 1, 2018 to June 30, 2019 (and corresponds to A-Index and B-Index fish passing Bonneville Dam from July 1 to October 31, 2018). About 95% of the total run passes LRG between July 1 and December 31. The adult fish ladder at LRG is usually dewatered in January and February. The preliminary estimate of steelhead passage at LRG for the 2018-19 run year is 48,920 fish which is 31% of the recent 10-year average (Table 13).

2019 Forecast

The 2019 pre-season 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, and by 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. On average, the Wenatchee return represented 45% of the Columbia River return during the 1980s and 49% during the 1990s. During the 2000s, the Wenatchee stock represented 28% of the Columbia return, largely due to increased returns of Okanogan stock beginning in 2008. During the 1990s, the number of sockeye entering the Columbia River destined for the Snake River basin averaged ten fish per year (range 1–19). During the 2000s, Snake River sockeye returns averaged 330 fish (range 19–1,497), which was mainly driven by the increased returns in 2008 and 2009 (Table 15).

2018 Return

The 2018 return of sockeye to the Columbia River of 210,915 adults was much higher than the preseason forecast of 99,000 adults, and 64% of the recent 10-year average return. The 2018 return included 20,974 Wenatchee stock, 189,644 Okanogan stock, and 297 Snake River stock returning

to the Columbia River. At Prosser Dam on the Yakima River, 455 sockeye were counted. On the Deschutes River, 50 sockeye reached Round Butte Dam and were passed upstream. The Wenatchee return was 82% of forecast; the escapement objective of 23,000 fish to the Wenatchee River was not met, with 13,962 sockeye reported at Tumwater Dam. The Okanogan return was 261% of forecast. The Snake River return of was 49% of forecast and 20% of the recent 10-year average. Sockeye counts at Lower Granite Dam totaled only 213 fish. Standard methods developed by TAC were used to determine the relative proportion of Snake River sockeye in the overall run; independent estimates by IDFG and CRITFC were not made for the 2018 return.

2019 Forecast

The 2019 pre-season forecast for the Columbia River sockeye run is for a return of 94,400 adults to the Columbia River, including 18,300 Wenatchee stock, 74,500 Okanogan stock, and 200 Snake River stock. The forecast is 29% of the 2009–2018 average total return of 328,602 fish. The Wenatchee component is forecasted to be less than the escapement objective and the 10-year average return of 54,949 fish. The return of Okanogan-origin fish is expected to be approximately 27% of the recent 10-yr average (272,263 fish). A return of 200 fish to the Snake River would be 14% of the 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 is an anadromous fish, spending three to four years at sea before returning to spawn. Since the extensive development of mainstem hydroelectric projects, American Shad runs have increased markedly in abundance and have extended their range into the upper Columbia River and into Hells Canyon of the Snake River. Since the late 1970s, runs have met or exceeded one million fish per year, with a peak of over six million in 2005. American Shad run timing extends from mid-May through early August at Bonneville Dam, with peak daily counts occurring in June (Figure 1). Since the timing of the run overlaps with upriver Chinook, sockeye, and steelhead runs, harvest opportunities for American Shad are regulated to minimize impacts to ESA-listed salmonids. Recently, work has been conducted to explore the feasibility of using alternative gear types to increase opportunities to harvest the abundant American Shad runs while minimizing impacts to salmonids. American 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. It is expected that harvest opportunity using these alternative gear types would be allowed in future fisheries if demand exists.

2018 Return

The 2018 minimum American Shad run size was 6.3 million, with a minimum escapement of 6.1 million fish upstream of Bonneville Dam; the minimum run size estimate does not include unknown numbers of American Shad spawning downstream of Bonneville Dam and Willamette Falls. The 2018 run in the Columbia River was the largest run on record, eclipsed the previous record run in 2005 by 19,000 fish and more than double the recent 5-year average of 2.8 million (Table 16). The non-treaty (lower Columbia and lower Willamette) recreational and commercial

combined catch of 282,600 American Shad (4% of the total run) was the highest harvest since 1990 when 305,100 shad were caught in the combined fisheries.

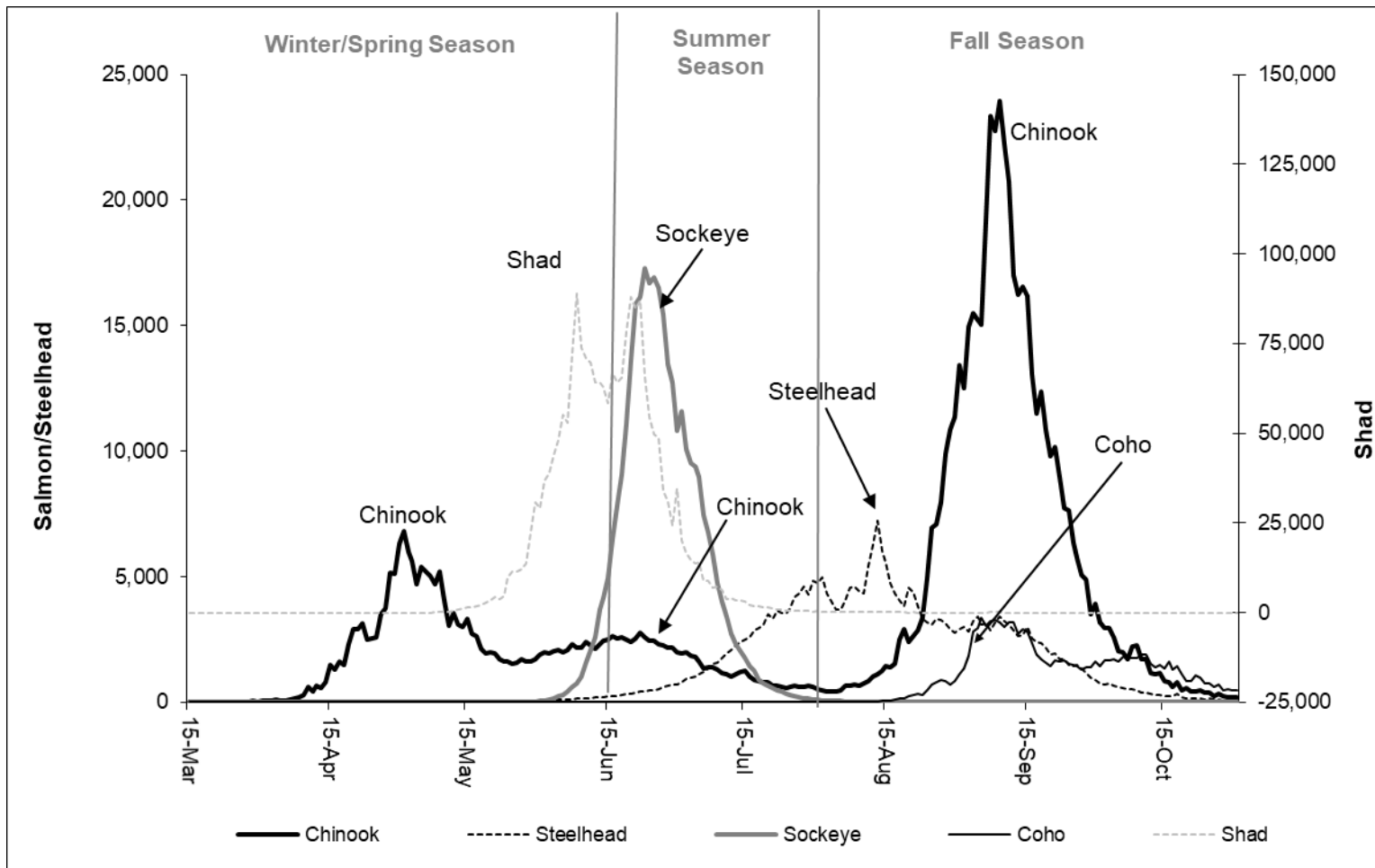


Figure 1. Average daily counts of salmon, steelhead, and American Shad at Bonneville Dam, 2008–2018.

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.

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

¹Status 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 constraints 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 ceremonial and subsistence (C&S) purposes. This is framed as if 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 harvest rate schedule provided in Table A1 of the 2018–2027 MA. This harvest rate schedule was the first to incorporate 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 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 run size update from TAC, non-treaty fisheries will 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 revised version of Table A1 of the MA, reflecting the new 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%	

¹If 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.

²Treaty 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.

³Non-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.

⁴If 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.

⁵The 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.

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

Upper Columbia River Summer Chinook

Mainstem Columbia River summer Chinook fisheries occurring from June 16 through July 31 are managed in accordance with the harvest rate schedule provided in Table A2 of the 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

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

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

Based on this framework, the sharing formula allows for greater numbers of fish to escape when runs are greater than 50,000 fish. 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 during the winter/spring season 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 seasons. Tributary recreational fisheries are conducted under separate permits issued by NMFS and the associated steelhead impacts are considered separately from mainstem fisheries. When lower Columbia and upper Willamette steelhead were listed under the federal ESA, a 2% annual impact rate was established for all combined non-treaty mainstem fisheries in the BAs and BOs for mainstem fisheries.

For treaty fisheries, there are no specific annual impact limits for wild winter steelhead prescribed. However, ESA impacts are expected to remain with an average range of 0.2–1.0%.

Summer Steelhead

During the winter/spring and summer fisheries (November–June), there is a 2% ESA limit on wild upriver summer steelhead handled in non-treaty mainstem fisheries downstream of the Highway 395 Bridge. There is also a 2% impact limit on 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.

Commission Guidance Regarding Non-Treaty Fisheries

In 2008, after the *U.S. v OR* parties signed the 2008-2017 Management Agreement, a Columbia River Fish Working Group (CRFWG) was formed consisting of six members of the Oregon and Washington fish and wildlife commissions, agency staff, and advisors from the recreational, commercial, and conservation communities 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, 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, and 4) continue development and use of alternative fishing gears for mainstem commercial fisheries. In November 2012, the Workgroup unanimously endorsed, 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. At the time this report was published, the commissions were continuing work to review progress to date and develop a path forward with regards to the policy.

Non-Treaty Impact Allocations of Upriver Spring Chinook

The Oregon and Washington Fish and Wildlife commissions (Commissions) provide staff with policy guidance when shaping fisheries preseason and managing fisheries in-season. Current policy guidelines for non-treaty spring Chinook fisheries were adopted by the Commissions in 2013, and include (as in previous years) 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 following schedule reflects the current policy.

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 <i>U.S. v OR</i> 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 <i>U.S. v OR</i> run size buffer = 70% of pre-season forecast
2017-beyond	80%/20% recreational/commercial 75% of recreational share to area downstream of Bonneville Dam	<i>U.S. v OR</i> run size buffer = 70% of pre-season forecast Run size buffer not applied to Select Area commercial impacts

¹Implementation 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 strength 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 and 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

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

²PRD = 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.

³Range 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.

⁴Actual 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 (see following table).

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

¹Implementation 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 policy prohibits sockeye-directed commercial fisheries.

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

¹For 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 Fishery Management and Evaluation Plan (FMEP) to comply with Section 4(d) of the ESA. The FMEP set forth maximum freshwater impact limits for wild Willamette River spring Chinook of 20% for 2001 and 15% for 2002 and beyond. These limits apply to impacts associated with recreational fisheries occurring in the Willamette River Basin and with recreational and commercial fisheries occurring in the mainstem Columbia River 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 $\leq 1\%$ of the predicted return to allow for minimal incidental harvest of Willamette hatchery fish during other commercial fisheries.

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

Lower Columbia River White Sturgeon Management

For detailed information, see the *2019 Joint Staff Report Concerning Stock Status and Fisheries for Sturgeon and Smelt* dated January 18, 2019. The report can be accessed from the ODFW website at <http://www.dfw.state.or.us/fish/OSCRP/CRM/reports> and at the WDFW website at <http://wdfw.wa.gov/fishing/crc/>.

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; however, 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 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 release mortality 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 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 seasons 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 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.

2018 Winter/Spring Mainstem Commercial Salmon Season

No spring mainstem commercial fishery occurred in 2018 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 pre-season projection) 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 Biological Opinion (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 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 fishery within ESA guidelines. The states also provided a limited fishery for the mainstem Columbia River from The Dalles Dam upstream to McNary Dam during May 6–8, 2001.

Mark-selective recreational fisheries for spring Chinook have occurred annually since 2001. These fisheries were generally characterized by high effort and catch rates, as well as excellent compliance among anglers with the mark-selective fishing regulations. In 2002, mark-selective (adipose-fin clipped only) regulations for spring Chinook were permanently adopted for the lower Columbia River, although Oregon modified the definition of hatchery fish to include any clipped fin with 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 season, when it was clear the recreational fishery would not utilize its allowable upriver impact. 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 2002–2018 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.

2018 Lower Columbia River Spring Chinook Recreational Fishery

In 2018 the spring Chinook run forecast was 248,520 adults to the mouth of the Columbia, comprised of an upriver component of 166,700 fish and a lower river component of 81,820 fish. The lower river component included 53,820 Willamette spring Chinook (with 44,760 Willamette hatchery spring Chinook), and an improved return of 3,700 fish to the Lewis River in Washington, which had been below its hatchery escapement goal in 2016 and 2017. According to the Willamette FMEP, a total of 16,540 Willamette hatchery spring Chinook were available to recreational fisheries in the lower Willamette and lower Columbia. The 2008–2017 MA, which

was extended through February 2018, provided a 1.7% impact to ESA-listed upriver spring Chinook in all non-treaty fisheries in 2018, based on the upriver spring Chinook run size forecast.

The OFWC and WFWC provided guidance for spring Chinook fisheries in 2018 (see Non-Treaty Impact Allocations of Upriver Spring Chinook). This guidance, combined with run size buffer provisions from the 2008–2017 MA, provided 7,157 upriver spring Chinook (kept plus release mortalities) to the recreational fishery below Bonneville Dam prior to a run size update with an expected impact of 0.99% to ESA-listed upriver spring Chinook.

Regulations for the 2018 spring Chinook fishery were adopted at the February 21 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 7 season for the lower Columbia River between Buoy 10 and Beacon Rock, plus the Oregon and Washington banks between Beacon Rock and Bonneville Dam. The two-fish daily bag limit was modified to one adult spring Chinook between Buoy 10 and Bonneville Dam effective March 1. The retention of American Shad and hatchery steelhead was allowed for the duration of the spring Chinook season.

Snowpack was mixed across the Columbia River basin at the beginning of 2018, ranging from 147% of average in the upper Clark Fork River basin in Montana to 37% of normal in the Owyhee and Malheur basins in eastern Oregon. Columbia River flows were moderate, clear and relatively warm in early February, making ideal angling conditions for early spring Chinook. The first spring Chinook of the year was sampled on February 15 at Prescott Beach; however, spring Chinook catches were very low for the remainder of the month. Low freezing levels and valley snow after mid-February caused the lower Columbia and its tributaries to become very low and clear, and the water temperature dropped from 44°F to 39°F. The total catch in February was 18 adult spring Chinook kept and 36 winter steelhead released from 3,293 angler trips. Based on VSI sampling, the February catch was 100% lower river stock spring Chinook.

Water temperatures remained cold during the first half of March in response to low elevation snowmelt and rising lower river tributaries, and catches remained light in spite of increased angler participation. Angling conditions improved gradually and were nearly ideal during the second half of March with flows averaging 203 kcfs and 43°F with 5.8 feet of visibility. Catch rates began to improve after March 14, but remained below expectations for the remainder of the month, especially in light of the ideal water conditions. The total catch during March was 2,149 adult spring Chinook (1,871 kept and 278 released) and 152 winter steelhead (67 kept and 85 released) from 38,633 angler trips. Based on VSI sampling, upriver spring Chinook comprised 61% of the kept catch during March.

The weather during April 1-7 was cool and wet, and some of the lower river tributaries became high and muddy as a result. However, angling conditions in the clear plume of the Columbia from Bonneville downstream to Bachelor Island remained nearly ideal with flows averaging 206 kcfs and 45°F with 5.5 feet of visibility at Bonneville Dam. Overall catch rates remained below expectations at about 0.40 fish per boat river-wide, with higher catch rates observed near Cathlamet and in the Gorge. Through April 7, anglers caught 5,442 adult spring Chinook (4,747 kept and 695 released) with 3,608 upriver spring Chinook mortalities, or just over 50% of the guideline. On April 11, the states met and proposed two more days of fishing on Saturday April 14 and

Wednesday April 18, projecting a handle of 2,400 more fish, which was less than half of the remaining guideline. During the hearing, the Columbia treaty tribes expressed concern that the states' proposal did not give enough consideration to fact that the cumulative passage of spring Chinook at Bonneville Dam was only 101 adult fish, the lowest count through April 10 on record; the NMFS representative advised taking a cautious approach. In response, states adopted an even more conservative, one-day extension of the recreational fishery on Saturday April 14.

Flow and temperature at Bonneville increased to 289 kcfs and 47°F with 4.5 feet of visibility during the April 14 opener, and effort was fairly high with 1,374 boats and 621 bank anglers counted on the flight. Catch rates remained at 0.40 fish per boat river-wide on Saturday the 14, but catch rates near Cathlamet averaged just over a Chinook per boat. The catch during April 14 was just under 1,100 fish total, which brought the total upriver catch including release mortality to 4,553 fish, or about 63% of the guideline. Given the low passage at Bonneville Dam, the states chose not to consider any additional fishing time for the recreational fishery below Bonneville Dam until after the run size update.

Chinook passage at Bonneville Dam increased markedly during early May, but the cumulative passage was below expectations, and counts dropped as the Columbia crested to near flood stage after May 10. On May 21, TAC updated the upriver run size to a minimum of 116,500 adults, which created a balance of 2,800 upriver spring Chinook mortalities on the guideline for the recreational fishery below Bonneville Dam. The states met on May 23 and reopened the recreational fishery between Tongue Point and Beacon Rock, plus the banks only between Beacon Rock and Bonneville Dam during May 25-June 6. With catches tracking less than expected, the states met again on June 5 and adopted additional fishing opportunity on the lower Columbia between Tongue Point and Bonneville Dam with a two-fish daily bag limit during June 7-15. The observed catch rate of 0.21 fish per angler during June 11-16 was higher than any other time during the 2018 recreational spring Chinook fishery except April 14. The final catch in the 2018 recreational fishery below Bonneville Dam was 9,039 adult spring Chinook (7,509 kept and 1,530 released), 54 spring Chinook jacks, 90 sockeye (released) and 1,870 steelhead (1,476 kept and 394 released) from 89,882 angler trips.

The final upriver spring Chinook run was 115,081, or 69% of the preseason forecast. The total upriver catch (kept catch plus release mortality) in the sport fishery below Bonneville Dam was 5,416 adult Chinook, or 74% of the catch balance guideline allowed in the MA; and the final impact to upriver spring Chinook was 0.54% compared to the allowable impact rate of 1.02%.

2018 Spring Chinook Recreational Fisheries upstream of Bonneville Dam

Following Commission guidance, 25% of the recreational ESA impact allocation is allocated to fisheries upstream of Bonneville Dam, including the Columbia River upstream to the Oregon and Washington border (located approximately 17 miles upstream of McNary Dam) and fisheries in Washington waters of the Snake River. Similar to past years, these impacts (25% of allowed) were shared 40% mainstem Columbia and 60% Snake River. For 2018, the pre-update ESA impact allowance totaled 0.33% 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, 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).

In 2018, a total of 0.132% upriver spring Chinook ESA impacts were set aside for this fishery to use prior to a run size update, which translated to 954 Chinook (kept + release mortalities) allocated to the fishery. The fishery opened under mark-selective regulations on March 16 and was scheduled to continue through May 7. The daily bag limit for adult Chinook was one fish. Washington's permanent regulations allowing only hand-casted lines to be used on the Washington shore 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 for 2018.

The fishery was tracking behind expectations in early May; however, with the upriver spring Chinook return tracking late and smaller than expected, the states opted not to extend the pre-run-update portion of the fishery. TAC's run size update on May 21 allowed the states to reopen the recreational fishery effective May 25. Beginning on June 7 the adult Chinook daily bag limit was increased to two hatchery fish, this regulation remained in place through the remainder of the spring season (June 15).

Season total catch estimates for adult Chinook include 613 kept and 100 released from approximately 6,850 angler trips (Table 25). ESA impacts associated with this fishery totaled 0.062%, or 46% of the 0.136% post-season impact guideline for this fishery. Kept and release mortalities totaled 623 fish or 64% 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 2018, prior to a run size update, 0.198% ESA impacts were set aside for this fishery, which translated to 920 Chinook allowed (kept plus release mortalities). The fishery was initially open in three sections of the Snake River in Washington waters. Each section 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). On April 20, the area downstream of Ice Harbor Dam opened to hatchery Chinook retention followed by the April 22 opening of the area downstream of Little Goose Dam and the area near Clarkston, Washington. On May 18, the run was downgraded from the 166,700 preseason forecast. Fishing at Ice Harbor was open through June 8 and at Little Goose Dam and Clarkston through June 10. Fisheries were closed as harvest levels of natural origin fish were being approached.

Season total catch estimates for adult Chinook include 742 kept and 308 released (Table 25). ESA impacts associated with this fishery totaled 0.272%, or 133% of the 0.204% post-season impact guideline for this fishery. Kept and release mortalities totaled 773 fish (85% of allowed 908).

Lower Columbia River Tributary Spring Chinook Fisheries

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

In 2018, 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 except anglers were allowed the use of two rods during March 1 through August 15 if they purchased a two-rod validation for all species except sturgeon. Based on mark-recapture studies conducted in the Willamette River during 1999-2001, the post-release mortality for Chinook in the Willamette River and tributaries is estimated to be 12.2%. The lower Willamette River recreational catch totaled 6,222 spring Chinook (kept and release mortalities). The 2018 catch was lower than the 2013-2017 average of 8,486 but the 37,943 total run entering the Willamette was also below the 5-year average of 52,926 (Table 3). Willamette River anglers harvested 16% of the total return which was the same as the recent 5-year average.

The upper Willamette River (upstream of Willamette Falls) spring Chinook recreational fishery opened on January 1, seven days per week, with a two fish daily bag limit under permanent mark-selective regulations. No in-season modifications were made. Estimates of the 2018 recreational catch for the fishery upstream of Willamette Falls are not yet available because of normal delays in receiving and processing angler catch records. Based on the 2013-2017 average proportion of the Willamette Falls count caught in recreational fisheries upstream of Willamette Falls (mainstem and tributaries combined) of 10.2%, the 2018 total catch is estimated to be 2,707 fish (Table 4).

The recreational fishery for spring Chinook on the Sandy River is not sampled for catch and effort during the season; therefore, catch is estimated from angler-returned catch records. Final catch estimates for 2018 are not available at this time due to normal delays in receiving and processing this information. Based on average catch rates from 2015-2017, the 2018 total catch in the Sandy is estimated to be 307 fish (Table 28).

The 2018 preseason forecasts for the Cowlitz and Kalama rivers allowed for a daily bag limit of two adult Chinook throughout the spring Chinook season (January 1 – July 31). The Lewis River was open from January 1 – April 30 with a one Chinook daily limit.

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 2,400 hatchery adult spring Chinook were harvested in Washington lower Columbia River tributaries in 2018 including 851 fish from the Cowlitz, 1,000 from the Kalama, and 549

from the Lewis (Table 28). The combined hatchery adult spring Chinook harvest rate in these Washington tributaries was 24%, compared to the 10-year average of 33%.

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 Priest Rapids Dam. Salmon are used for ceremonial and subsistence use only. Permits are issued annually by WDFW that regulate the times for and manner of taking the salmon. The Wanapum tribe did not harvest any spring Chinook in 2018.

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.

2018 Summer Mainstem Commercial Salmon Season

No summer season mainstem commercial fishery occurred in 2018 due to existing Commission guidance which limits the commercial allocation to 20% of the in-river harvestable surplus (below Priest Rapids Dam) and a requirement for non-gillnet gears, which have not been identified.

Past Columbia River Summer Steelhead and Summer Chinook Recreational Fisheries

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 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.

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 high. When spring Chinook fisheries are open during these timeframes, the retention of adipose

fin-clipped steelhead is allowed in conjunction with those opportunities. Conversely, when too few upriver spring Chinook impacts remain to allow incidental hooking mortality of Chinook during the target steelhead fishery, the steelhead fishery is delayed (as late as June 16), as was the case in 2005, 2008, 2009 and 2017.

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 as long as 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 wild 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 2002. Table 23 shows season dates and regulations for recreational fisheries for summer Chinook during 2002–2018.

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 run might follow the pattern shown by the 2005 spring Chinook run, which returned at less than half of the preseason forecast. By late June, the summer Chinook run size forecast appeared to be on target, and the states allowed the retention of both clipped and unclipped summer Chinook during July 1–31, 2005.

Non-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-selective recreational fisheries, and seasons were

shortened to an average of twelve days and 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 fin-clipped) regulations for fisheries during 2010–2017 and extended the open area from Tongue Point downstream to the Astoria-Megler Bridge. Also beginning in 2010, the states assigned a 15% mortality rate for adult summer Chinook released in recreational fisheries based on literature reviews conducted by TAC. During those years, summer Chinook fisheries lasted an average of 35 of the 46 possible retention days, with average annual catches of 3,400 adult summer Chinook kept from 48,900 angler trips. In 2015, the retention of unclipped Chinook was allowed 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 kept catch of 5,928 adult summer Chinook in the 2015 fishery stands as the highest catch total since at least 1969. The 2017 summer Chinook fishery was open for retention during June 16-30 and July 7-31 and produced a catch of 5,680 adult summer Chinook (3,516 kept and 2,164 released) from 39,500 angler trips.

2018 Lower Columbia River Summer Steelhead and Summer Chinook Recreational Fisheries

The 2018 summer steelhead fishery opened under permanent rules on May 16 between Tongue Point and the I-5 Bridge. The summer steelhead fishery also opened in conjunction with the reopening of the spring Chinook fishery between the I-5 Bridge and Bonneville Dam effective May 25-June 15. Although the 2018 summer steelhead run size outlook was improved over 2017, when wild B-Index summer steelhead were the limiting factor in fall fisheries, the states adopted a one-fish bag limit for summer steelhead effective August 1, 2018.

The 2018 recreational summer Chinook fishery was scheduled to be open for adipose-fin clipped Chinook for 13 days during June 22–July 4 from the Astoria-Megler Bridge upstream to Bonneville Dam with a daily limit of two adult hatchery fish. The guideline for the recreational fishery below Bonneville Dam was 2,400 adult summer Chinook (including release mortality) based on the adult run size forecast of 67,300 fish. Sockeye retention was initially prohibited in the recreational fishery based on the forecast for 99,000 fish and concern that the Wenatchee River would not meet escapement.

Flows in the Columbia were dropping during June 22–30, averaging 244 kcfs and 64°F with 5.7 feet of visibility. Summer Chinook catches started slowly in most areas of the Columbia, and although boat anglers had good catch rates near Rainier and in the Gorge, bank angling was generally poor everywhere. During June 22-24, catches were fairly light with just 432 adult Chinook kept; however, counts for adult summer Chinook at Bonneville Dam were not tracking with the run size forecast. TAC met on June 25 and indicated that the summer Chinook run was smaller than forecast and likely less than 52,000, at which run size the recreational share for the lower Columbia dropped to 919 summer Chinook. TAC also indicated that the sockeye run was likely close to 200,000 fish at the river mouth. As a result, the states held a hearing on June 28 to close the summer Chinook fishery and open the retention of sockeye in the recreational fishery effective July 1. The final catch for June 22-30 was 1,377 adult summer Chinook (1,021 kept and 356 released), 28 Chinook jacks (kept), 742 summer steelhead (451 kept and 291 released) and 57 sockeye (released) from 9,636 angler trips.

During June 16–July 31, salmon/steelhead anglers made 27,475 trips and caught 1,777 adult summer Chinook (1,027 kept and 750 fish released), 89 hatchery Chinook jacks (kept), 195 sockeye (73 kept and 122 released) and 5,212 summer steelhead (3,290 kept and 1,922 released). The summer Chinook handle and kept catch were the lowest totals since 2001 when the fishery was closed to retention (Table 26), and the sockeye catch was the lowest since 2007. The final summer Chinook run size entering the Columbia was 42,200 adults in 2018, or 62% of the preseason forecast.

2018 Summer Season Fisheries upstream of Bonneville Dam

Bonneville Dam upstream to Priest Rapids 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 Priest Rapids Dam, 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 release mortality rate for Chinook is estimated at 15% in recreational fisheries downstream of Priest Rapids Dam. The 2018 observed mark rate at Bonneville Dam for the summer management period was 76% for adult summer Chinook.

Summer season recreational fisheries were open June 16–July 31 from Bonneville Dam upstream to Priest Rapids Dam. This Chinook fishery was mark-selective; retention of Chinook was prohibited beginning July 7 in the area from Bonneville Dam to McNary Dam and beginning July 17 in the remaining area downstream of Priest Rapids Dam due to declining abundance estimates and corresponding caps on allowable harvest. Sockeye retention was allowed beginning July 1. Catch estimates total 120 adult summer Chinook kept (92 released) and 1,171 sockeye kept from 3,870 angler trips.

The recreational summer fishery upstream of Priest Rapids Dam was primarily mark selective for Chinook; catch estimates (including tributaries) includes 3,244 Chinook kept (including 395 unmarked) with 938 released from 20,217 angler trips; additionally, 16,171 sockeye were kept (5 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 Priest Rapids Dam. 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. Preseason, a total of 200 summer Chinook and 500 sockeye were allocated to the Wanapum Tribe. The 2018 catch include 64 adult summer Chinook (23 unclipped) and 3 clipped jacks, as well as 234 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, 50% of the harvestable fish available to fisheries upstream of Priest Rapids Dam were allocated to the Colville tribes, which amounted to 3,693 adult summer Chinook (including release mortalities). Post-season, based on the actual run size, 70% of the harvestable fish available to fisheries upstream of Priest Rapids Dam were allocated to the Colville Tribe, amounting to 2,221 fish. The 2018 catch estimates include 1,234 adult summer Chinook (161 released) and 11,224 sockeye.

Past Select Area Winter, Spring, and Summer Commercial Seasons

Spring Chinook commercial fisheries in the Select Areas were initiated in Youngs Bay in 1992. Initially, Youngs Bay fisheries were restricted to the spring season, with periods from late April through early June with less than 15 days annually and landings 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 through early-April through in-season management in years when usage of impacts to upriver fish 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. 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 2000–2016, the harvest of Chinook in Youngs Bay winter, spring and summer fisheries has ranged from 3,100–20,800 fish (excluding 2005). 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 and have a recent 5-year (2013–2017) average of 144 fish. Spring commercial fisheries for 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 winter/spring season landings have ranged from 500–3,500 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 was adopted each year since 2016. Harvests in Blind/Knappa Slough in late-spring/summer fisheries have averaged 785 fish from 2015 to 2017.

Trial winter periods in Tongue Point were initiated in 2000 and continued through 2001. Results from the trial fisheries were not substantial enough to continue winter fisheries at the site. Winter fisheries were initiated again in 2013 with up to ten winter periods occurring annually and an average harvest of 90 fish. Spring commercial fisheries in Tongue Point were initiated in 1998 and continued through 2003. Spring periods were expanded to include the South Channel in 1999 to reduce congestion during peak fishing periods. Annual Chinook harvest increased annually with peak landings of 3,003 fish in 2002. 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 and set 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 the 2008–2013 test fishery data supported the feasibility of reinstating the commercial fishery at Tongue Point/South Channel in 2014.

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 majority of fish harvested in Select Area commercial fisheries are from Select Area production. Since 2000, 85.6% of the Chinook harvested in winter-summer seasons have been Select Area-origin with another 10.5% other lower river stocks (Table 31).

2018 Youngs Bay Winter/Spring/Summer Seasons

The 2018 Youngs Bay commercial fishing periods were scheduled primarily during daylight hours. This approach aligns with public input received from the commercial fishing industry over the past several years. The 2018 winter season commenced with twelve 12- to 24-hour periods between February 5 and March 2, three 12-hour periods during March 5 to 8, and seven 4-hour periods during March 12 to 26; these periods were adopted pre-season. Upriver impacts accumulated slower than expected and six additional 4-hour periods were adopted in-season from March 329 to April 16. The 4-hour fishing periods were set proximal to low tide when non-local stocks may be less abundant. This strategy appears to be an effective alternative to closing the fishery entirely during mid to late-March. The fishing area was also reduced (open above the Alternate Highway 101 Bridge or above the Walluski River mouth) for some of the periods in April to reduce upriver impacts and provide consistent fishing opportunity. 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 weights restrictions are consistent throughout the Youngs Bay area and seasons except that additional weights are allowed upstream of the mouth of the Walluski River. The twenty-eight fishing periods in the Youngs Bay winter season resulted in landings of 737 spring Chinook, which was 78% greater than the average landings (415) since winter seasons began in 1998.

The 2018 spring season in Youngs Bay began with one 4-hour period on April 19. Nine four-hour periods were scheduled from April 24 to May 10. These shorter periods were set to stabilize fisheries opportunity in a timeframe that typically has high upriver impacts. The remainder of the spring season consisted of 4-day periods each week from May 14 to June 15. The 2018 Youngs Bay spring fishery landed 4,796 Chinook. The Chinook harvest was lower than pre-season expectations and was 80% of the recent 10-year average of 5,963 fish. Throughout the spring and summer seasons, mesh size was restricted to a maximum of 9¾-inches in Youngs Bay.

The 2018 summer season in Youngs Bay was open for four days per week from June 18 through June 29, three days per week from Monday July 2 through July 5, and two days per week from

July 10 to July 26. The Youngs Bay summer fishery landed 1,400 Chinook, and was 81% of the recent 10-year average of 1,737 fish.

The winter, spring and summer fisheries in Youngs Bay landed 6,933 Chinook, which ranks as the sixth highest since 1993 (Table 30). Stock composition of the landings is estimated by VSI and CWT analysis from 3,310 Chinook (48% of the Chinook landings) examined for fin marks and CWTs with 265 CWTs collected during all season combined. The stock composition of the 2018 combined winter/spring/summer Youngs Bay landings was estimated at 89.9% spring Chinook and 0.2% SAB fall Chinook originating from Select Area sites, 3.2% upriver spring and summer Chinook (caught before June 15), 0.4% upper Columbia summer Chinook (after June 15), 3.8% Willamette River spring Chinook, and 2.6% spring Chinook from the Cowlitz, Kalama, Lewis, and Sandy Rivers (CKLS) and Cathlamet Channel. Based on scale readings and CWT correction, the estimated age composition of the Chinook landings was 0.8% Age-3, 48.2% Age-4, 50.8% Age-5, and 0.2% Age-6 fish.

2018 Blind Slough/Knappa Slough Winter/Spring Seasons

Commercial fishing periods in Blind and Knappa Slough in the winter, spring and summer are typically 12 hours long from 7 PM to 7 AM the following morning. The 2018 winter season in Blind Slough and Knappa Slough opened with three periods per week from February 5 to March 23 and two 4-hour periods per week from March 26 to April 3. Two of those periods (March 29 and April 2) were extended in-season to twelve hours. Four additional 12-hour periods were added in-season for Blind Slough from April 5 to April 17. The additional periods were added due to the low harvest of upriver fish in March and reflects ongoing efforts to expand the winter fishery. Mesh size regulation is 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. During the 28 winter fishing periods, a total of 175 spring Chinook were landed, which was 30% above of the recent 10-year (2008–2017) average Chinook harvest (135) in Blind Slough/Knappa Slough.

Similar to the winter season, the spring Blind Slough season included Knappa Slough (downstream to the east end of Minaker Island). 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. Throughout the spring and summer seasons, mesh size was restricted to a maximum of 9¾-inches. The 2018 spring fishery was originally set to include twenty-four fishing periods between April 19 and June 15 and was able to proceed uninterrupted. During the 2018 Blind/Knappa Slough spring fishery, 1,532 spring Chinook were landed which was 9% greater than the recent 10-year average of 1,406.

For the third consecutive year, additional periods were set during the summer timeframe in Blind and Knappa Slough. This extension into the summer is due to stable harvest and low upriver impacts during the late spring season. From June 18 to June 29 four 12-hour periods were set pre-season. Due to consistent catches, eight additional 12-hour periods were added from June 2 to July 27. Landings from the summer periods in Blind/Knappa Slough totaled 457 Chinook.

The Blind Slough/Knappa Slough fisheries in winter, spring and summer seasons landed a total 2,164 Chinook. This was the sixth highest landings total on record and were bolstered by the extended summer season (Table 30). Stock composition of the landings is based on VSI and CWT analysis of sampled fish. A total of 1,215 Chinook (56% of the combined landings) were examined for fin-marks and CWTs and 152 CWTs were collected. The stock composition of the landings was estimated at 95.1% spring Chinook and 0% SAB fall Chinook originating from Select Area sites, 1.3% upriver spring Chinook, 3.0% Willamette River spring Chinook, and 0.6% CKLS-origin fish. Based on scale readings and CWT correction, the estimated age composition of the spring Chinook landings was 0.1% Age-3, 35.8% Age-4, 63.7% Age-5, and 0.4% age-6.

2018 Tongue Point/South Channel Winter/Spring Seasons

As part of the ongoing effort to expand fishery opportunities in the Select Areas, the winter season initially adopted for Tongue Point and South Channel in 2013 was continued in 2018. The 2018 winter season consisted of ten 12-hour periods from February 5 to March 9 and 4-hour period on March 12. Responding to industry input, three additional 12-hour periods were planned in South Channel from March 15 to March 23. Due to lower than expected upriver catch, the first two South Channel periods, on March 15 and March 19, were expanded to include the Tongue Point fishing area but were also shortened to four hours to limit upriver impacts. Additionally, one 12-hour and six 4-hour periods were added in-season for the South Channel site. 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 and additional weights on the leadline are allowed in South Channel only. The net length and weight restrictions are consistent throughout the Tongue Point and South Channel seasons. A total of 177 spring Chinook were landed in the winter season, which was almost 2.5 times greater than the recent 5-year average (2013–2017 (73 fish) and was the highest winter fishery landings on record (Table 30).

The spring season in Tongue Point/South Channel opened with three 4-hour periods from April 19 to April 26. Fourteen 12-hour periods were set for the remainder of the spring season from April 30 to June 15. Catch of upriver fish remained stable and no fishery modifications were necessary for the season. Mesh size was restricted to a maximum of 9¾-inches. During the 2018 Tongue Point/South Channel spring fishery, 1,327 spring Chinook were landed. This is the second highest spring landings in the last 10 years and is over two times the recent 10-year average of 639 Chinook.

For the third consecutive year, additional periods were set during the summer timeframe in Tongue Point and South Channel. This extension into the summer is a management result of stable harvest and low upriver impacts during late spring season. Four periods were set pre-season from June 18 to June 29. With consistent catches in the previous periods, eight additional 12-hour periods were added from June 2 to July 27 and the fishing area was extended to the lower (fall) boundary. Landings from these summer periods totaled 380 Chinook, which was similar to 2016 but was much lower than 2017.

The 2018 winter, spring and summer season fisheries in Tongue Point/South Channel harvested a total of 1,884 spring Chinook, which was the third highest on record (Table 30). Stock composition of the landings is based on VSI and CWT analysis of sampled fish. A total of 1,207

Chinook (64% of the landings) were examined for fin marks and CWTs and 134 CWTs were detected and recovered. The estimated stock composition of the landings was 87.4% spring Chinook and 0.2% SAB fall Chinook originating from Select Area sites, 3.3% upriver spring Chinook, 7% Willamette River spring Chinook, and 2.1% CKLS-origin fish. Based on scale readings and CWT correction, the estimated age composition of the spring Chinook landings was 0.1% Age-3, 33.0% Age-4, 66.4% Age-5 fish and 0.5% age-6.

2018 Deep River Winter/Spring Seasons

Due to challenges with funding and disease and survival of juvenile hatchery fish production, smolt releases were discontinued in 2014. For the first time since 2003, no commercial fishing periods were set for the winter, spring or summer seasons in Deep River.

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 reported in Table 30. Recreational harvest is estimated from catch record cards (also referred to as “punch 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 2018 recreational harvest estimate for spring Chinook in all Select Area sites is 918 adult fish, which is 73% of the recent 5-year (2013–17) average of 1,252 fish (Table 30).

2018 Commercial American Shad Season

Under permanent regulations, the lower Columbia River was open to commercial fishing for American Shad 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, regulations for the Area 2S American Shad fishery have included the following gear specifications designed to minimize the handle of salmonids: mesh size restriction of 5 $\frac{3}{8}$ to 6 $\frac{1}{4}$ -inches, ten-pound mesh breaking strength, and net not to exceed 40 meshes in depth or 150 fathoms in length. The shallower and shorter nets have proven to substantially reduce the handle of salmonids compared to gear used in American Shad fisheries prior to 1996. Only American Shad may be kept and sold, and all salmon, steelhead, walleye, and sturgeon are required to be released immediately. The 2018 fishery produced landings of 2,112 American Shad, which is the 7th lowest harvest since at least 1980 and 60% of the recent 10-year average. The recent trend of low harvest is likely due to a relatively low market value for American Shad (Table 21).

2018 Non-Treaty Impacts to ESA-Listed Stocks

The management intent for 2018 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 MA, and reach the objectives outlined in Commission guidance.

The 2018 preseason forecast for upriver spring Chinook was 166,700 adult fish to the Columbia River. Based on the *U.S. v. Oregon* Management Agreement, non-treaty fisheries were limited to an ESA impact of 1.9% and a catch balance limit of 15,170 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 9,685 upriver spring Chinook harvest mortalities and an ESA impact limit of 1.7% available prior to a run-size update. Commission 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 actual 2018 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:

2018 Non-Treaty Fisheries - Comparison of Pre-Season Allowed and Buffered ESA Impacts and Catch (kept plus release mortalities) of Adult Upriver Spring Chinook.							
2018 Non-Treaty Fishery	Pre-Season						
	(166.7 K run size, 1.9% ESA impact limit)						
	(Buffered - 116.69K run size, 1.7% ESA impact limit) ¹						
	ESA Impact	1.70% buffered	% of Allowed		Catch Balance	pre-update buffered	% of Allowed
Mainstem	0.000%	0.000%	--		0	0	--
Select Areas	0.380%	0.380%	100%		633	633	100%
Commercial total (20% of ESA total)	0.380%	0.380%	100%		633	633	100%
Downstream of Bonneville Dam (LCR)	1.140%	0.990%	87%		11,494	7,157	62%
Bonneville Dam to OR/WA border	0.152%	0.132%	87%		1,532	954	62%
Upper Col/Snake	0.228%	0.198%	87%		1,510	940	62%
Recreational total (80% of ESA total)	1.520%	1.320%	87%		14,536	9,052	62%
Non-Treaty Total	1.900%	1.700%	89%		15,170	9,685	64%

¹ Per Commission rule/policy, the effects of run size buffering are not applied to Select Area commercial fisheries

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:

2018 Non-Treaty Fisheries - Comparison of Post-Season Allowed and Actual ESA Impacts and Catch (kept plus release mortalities) of Adult Upriver Spring Chinook.						
2018 Non-Treaty Fishery	Post-Season					
	(115.1K run size, 1.7% ESA impact limit)					
	ESA Impact	Actual	% of Allowed	Catch Balance	Actual	% of Allowed
Mainstem	0.000%	0.000%	--	0	0	--
Select Areas	0.340%	0.270%	79%	391	311	79%
Commercial total (20% of ESA total)	0.340%	0.270%	79%	391	311	79%
Downstream of Bonneville Dam (LCR)	1.020%	0.608%	60%	7,264	5,868	81%
Bonneville Dam to OR/WA border	0.136%	0.062%	46%	968	623	64%
Upper Col/Snake	0.204%	0.272%	133%	928	773	83%
Recreational total (80% of ESA total)	1.360%	0.941%	69%	9,160	7,263	79%
Non-Treaty Total	1.700%	1.211%	71%	9,552	7,574	79%

Post-season, the Snake River natural-origin spring/summer Chinook return was less than 10% of the total upriver return, therefore the stipulation identified in Footnote 1 of Table A1 in the MA was in effect. Accordingly, the allowable harvest rate was based on the abundance of Snake River natural-origin spring/summer Chinook rather than the aggregate upriver run. The final non-treaty ESA impact rate was 1.21% for the Snake River ESU and 0.94% for the upper Columbia ESU, compared to the 1.70% allowed. Non-treaty fisheries used 71% 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, 2018 recreational fisheries were well within their ESA allocation, and more constrained by catch balancing mortalities of upriver Chinook. For commercial fisheries, since all impacts were allocated to the Select Area fisheries in 2018, ESA-impact and catch-balance limitations were equally constraining. Under the catch balance provisions outlined in the MA, non-treaty fisheries used 79% (7,574) of the 9,552 upriver spring Chinook mortalities available. Impacts to wild Willamette River spring Chinook in lower Columbia commercial and recreational fisheries were not available at time of publication.

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 2018, estimated at 0.30%, which was well within the 2.0% ESA impact rate limit (Table 9). Impact rates of Skamania Run unclipped summer steelhead were also very low in 2018 non-treaty fisheries: 0.74% 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 2018 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 0.05% 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 by the *U.S. v. Oregon* Management Agreement. Fisheries targeting upper Columbia River summer Chinook operated under principles described in the Management Guidelines section of this report. The preseason harvest allocation for non-treaty fisheries was 20,624 adult summer Chinook (mortalities), which included 9,696 expected in ocean fisheries and 10,928 allocated for in-river harvest. The in-river harvest was allocated 32.4% downstream of PRD, which equated to 3,541 fish (adult mortalities). These fish were further allocated 80/20 sport/commercial based on commission policy. Post-season, the actual Columbia River return of 42,120 adult summer Chinook to the Columbia River mouth dramatically decreased the non-treaty allocation to 9,594 fish. At time of publication, the actual harvest in ocean fisheries is 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. Given this adjusted ocean harvest expectation, and the actual return to the river mouth, only 3,526 fish were available for harvest in in-river non-treaty fisheries; of this 10% were allocated to fisheries downstream of PRD. The non-treaty harvest for Columbia River fisheries is estimated to be 6,019 fish, which is 171% of the allowed harvestable surplus.

2018 Non-Treaty Summer Chinook Fisheries Summary				
<i>(All data preliminary and includes kept + release mortalities)</i>				
	Pre	Post		
Runsize	67,300	42,120		
Harvest allocated	Allowed		Actual	Actual/
Fishery	Pre	Post	Take	Allowed
PFMC Ocean Fisheries	9,696	6,068	6,068	
Below Priest Rapids Dam (PRD)	32.4%	10.0%		
Commercial below BON	708	71	24	
Recreational Below Bonneville	2,408	240	1,140	
Recreational BON to PRD	425	42	134	
Below PRD Total	3,541	353	1,298	368%
Above Priest Rapids Dam (PRD)	67.6%	90.0%		
Wanapum Tribal	300	100	68	
Colville Tribal	3,693	2,221	1,268	
Recreational above PRD	3,393	852	3,385	
Above PRD Total	7,387	3,173	4,721	149%
Non-Treaty Total	20,624	9,594	12,087	126%

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 2018.

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 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.
4. A ceremonial permit fishery occurs beginning around March 22. 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 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 ceremonial and subsistence (C&S) fisheries, and in years of higher abundance, such as in 2000–2004 and 2008–2016, commercial fisheries have been allowed. 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.

Sockeye catch accounting is relatively simple. 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. Any adult Chinook caught between June 16 and July 31 in any treaty mainstem fishery counts 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 78cm fork length classified as A-Index and fish measuring 78cm or greater 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 A-Index or B-Index harvest in this time 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 before the Compact to approve purchase of harvested fish by non-treaty 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.

2018 Treaty Winter Season Fisheries

The 2018 winter sturgeon setline fishery was open in Zone 6 from January 1 to January 31. The harvest totaled 17 sturgeon from the Bonneville Pool, 63 from The Dalles Pool, and 9 from the John Day Pool. No salmonids are caught on setline gear.

The winter commercial gillnet fishery open dates were: John Day Pool – February 1- March 3 and March 14-March 24, The Dalles Pool – February 1-16, February 22-March 3, and March 15-19, Bonneville Pool – March 5-14. No mesh restrictions were in place and sales of platform and hook-and-line caught fish were allowed during open gillnet periods. Landings totaled 557 White Sturgeon, 116 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 (Table 35). Winter catch is shown by pool in the table below, and combined in Table 32.

2018 Treaty Winter Commercial Landings From Setline, Gillnet, Platform and Hook & Line							
Pool	White Sturgeon				Chinook	Steelhead	Walleye
	Guideline	Total	January Setline	Gillnet			
Bonneville	325	78	17	61	0	32	0
The Dalles	415	415	63	352	0	0	0
John Day	210	152	9	143	0	0	0
Total		645	89	557	0	116	0

2018 Treaty Mainstem Spring and Summer Chinook and Sockeye Fisheries

The tribal intent for 2018 spring and summer season fisheries was to remain within impact rates allowed by the 2008–2017 MA based on the actual river mouth run sizes for Chinook and sockeye.

The four tribes issued permits for gillnet C&S fisheries for spring Chinook from early April through mid- May. The platform and hook-and-line fishery retained spring Chinook and steelhead for subsistence purposes throughout the spring season with the exception of a short closure from June 1 until June 5 to assess catches. 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 2018. Tribal representatives accompanying non-treaty commercial test fishing operations in the lower Columbia River downstream of Bonneville Dam kept 22 Chinook that were distributed to the tribes for C&S purposes. Catch from the permit gillnet fisheries (C&S gillnet) is estimated at 4,386 spring Chinook. Catch estimates for the Zone 6 platform and hook-and-line fisheries totals 6,030 spring Chinook upstream of Bonneville. 454 Chinook were caught in permit hook and line fisheries downstream of Bonneville Dam.

Total harvest of upriver spring Chinook was 10,892 fish out of 9,552 allowed which is a 9.5 % total harvest rate compared to an 8.3% management limit (Table 5). The impact on the ESA-listed wild Snake River spring/summer Chinook and ESA listed upper Columbia spring Chinook was 10.0%. 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. The overage was a result of post season accounting for the final run size and harvest. In-season, the preliminary estimates of run size and harvest suggested the fishery was within its management limits.

During the summer management period, the Zone 6 platform and hook-and-line fishery was open from June 16-July 28. The commercial season consisted of four weekly periods (three 4.5 days/week and one 2.5 days/week) from June 18–July 13. Platform and hook and line fishing also occurred downstream of Bonneville. Summer Chinook landings totaled 9,498 (22.5% of the river mouth return; Table 8). The harvest was less than the preliminary total of 9,594 allowed. 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 2018 post season ocean fishery modeling is complete.

There were 7,724 sockeye caught in Zone 6 platform/hook-and-line and commercial gillnet fisheries as well as fisheries downstream of Bonneville. The catch was 3.7% of the river mouth return, compared to the allowed harvest rate of 7%. TAC estimated that 11 of the sockeye caught were Snake River sockeye (Table 15).

Steelhead harvest during winter and spring fisheries was low, estimated at 116 winter steelhead in Bonneville Pool winter season commercial fisheries, with 6 winter steelhead harvested in winter season platform/hook-and-line fisheries from November 1–March 31 (Table 32). No summer steelhead were harvested upstream of The Dalles Dam from January 1–March 31 (Table 35). A total of 668 summer steelhead were harvested in spring season fisheries from April 1–June 15 (Table 36). The summer season steelhead harvest was estimated at 1,404 steelhead (Table 37). The summer season harvest is a mixture of steelhead passing Bonneville Dam during the Skamania counting period and A/B-Index counting period, which begins July 1.

2018 Treaty Tributary Fisheries

Tributary spring Chinook fisheries were also 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 is estimated at 2,207 adult Chinook and 68 steelhead. Snake basin Chinook harvest was 3,607 adults.

2018 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 2018 upriver spring and summer Chinook returns were sufficient to allow the harvest in treaty fisheries to exceed the “safety net” level.

2018 Ceremonial and Subsistence “Safety Net” Summary	
Fishery	# Adult Chinook
C&S permit gillnet spring fishery	4,386
Winter commercial gillnet fishery	0
Zone 6 Platform/hook and line winter/spring fishery	6,030
Zone 5 Permit Platform/hook and line/ fishery <i>(includes fish donated from NI test fishery)</i>	476
Spring commercial gillnet fishery	0
Spring Chinook Subtotal	10,892
Zone 5 Platform/hook and line summer fishery	50
Zone 6 commercial gillnet and Platform/ hook and line/ fishery	9,448
Zone 6 C&S Permit fishery	0
Summer Chinook Subtotal	9,498
Total spring and summer adult Chinook	20,390

2018 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 or directly to the public, or retained for subsistence. In 2018, 315 American shad were sold to wholesale buyers (514 lbs). There are no precise estimates of American shad sold directly to the public or retained for personal use.

2018 Treaty Mainstem ESA Impacts on Upriver Spring Chinook

	Allowed Harvest Rate	Actual Harvest Rate
Stock		
Total Upriver Harvest	8.3%	9.5%

Natural-Origin Snake River Spring/Summer Chinook	8.9%	10.0%
Natural-Origin Upper Columbia Spring Chinook	8.9%	10.0%

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.

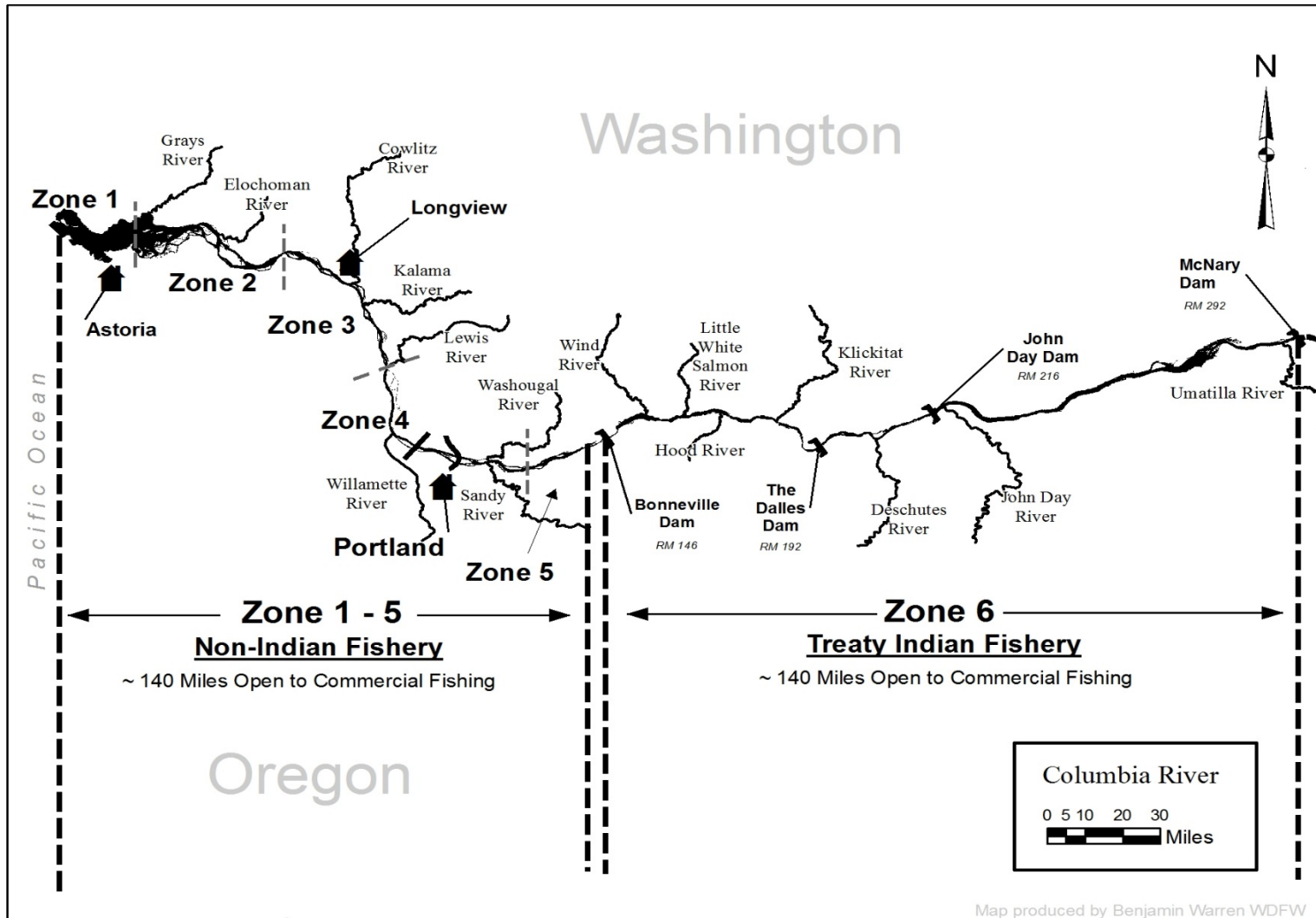


Figure 2. Map of the Columbia River downstream of McNary Dam showing areas open to commercial fishing.

2019 WINTER, SPRING, AND SUMMER SEASON EXPECTATIONS

2019 Management Guidelines

All fisheries conducted in 2019 will be managed in accordance with the 2008–2017 and 2018–2027 MAs, Willamette FMEP, UCMA, and Commission guidance as applicable.

According to the harvest rate schedule in the 2018–2027 MA and the 2019 upriver spring Chinook preseason forecast (99,300 adult fish), winter/spring season fisheries will be managed not to exceed a total ESA impact limit of 9.0% (1.6% for non-treaty fisheries and 7.4% 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 managed based on a forecasted run size of 35,900 adult upper Columbia summer Chinook to the Columbia River mouth and an expected ocean harvest in non-treaty PFMC-area fisheries. The forecast for upper Columbia summer Chinook would represent the lowest return since 2000. Given the management goal identified in the MA of 29,000 adults at the Columbia River mouth and harvest in PFMC-area ocean non-treaty fisheries, the allocation for in-river non-treaty fisheries will likely be quite low. Actual harvestable allocations will not be known until the ocean fishery season-modeling process is complete in early April.

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 Compact 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.

2019 Non-Treaty Fisheries

Mainstem Spring Chinook Commercial Fishery

- Guidance from OFWC and WFWC is non-concurrent. 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 20, 2019 hearing)

- 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 2019 season structure is expected to be generally similar to recent years. Staff will meet with the Columbia River Recreational Advisory Group (CRRAG) in mid-February to solicit input for developing a 2019 fishing plan.
- Given the pre-season forecasts for the Lewis and Cowlitz rivers, closures in the proximity of the tributary mouths are anticipated within the mainstem Columbia River, along with fishery closures within the tributaries.
- Chinook stock-specific average wild impact rate expectations for 2019 are presented below and are based on recent-year averages :
 - Upriver spring Chinook (January–June 15): 0.67% (2016–18 average)
 - Willamette spring Chinook (January–June 15): 0.33% (2016–18 average)

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

(Joint State consideration at the February 20, 2019 hearing)

- 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 2019 season structure is expected to be generally similar to recent years. Staff will meet with the CRRAG in mid-February to solicit input for developing a fishing plan.
- Chinook stock-specific average wild impact rate expectations for 2019 are presented below and are based on recent-year averages:
 - Upriver spring Chinook (January–June 15): 0.09% (2014–16 and 2018 average)

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

(Washington State action in late March 2019)

- 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.
- The 2019 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 2019 are presented below and are based on recent-year averages:
 - Snake River spring Chinook (January–June 15): 0.13% (2014–18 average)

Wanapum Tribal Spring Chinook Fishery

(Washington State action in late April – early May 2019)

- The 2019 season structure is expected to be similar to recent years.
- Chinook stock-specific average wild impact rate expectations for 2019 are presented below and are based on recent-year averages:
 - Upper Columbia River spring Chinook (January–June 15): 0.16% (2014–17 average)

Columbia River Steelhead Recreational Fishery

- From the mouth upstream to the Bonneville Dam, winter steelhead retention (hatchery fish only) is open November 1 through March 31 under permanent regulations. Catch and effort is minimal through February.
 - 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 impacts to upriver spring Chinook have previously 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 2018-2019 are presented below and are based on recent-year averages:
 - Wild winter steelhead (below Bonneville; November–April): 0.30% (2015–17 average)
 - Wild winter steelhead (Bonneville Pool; November–April): 0.03% (2015–17 average)
 - Skamania summer steelhead (below Bonneville; May–June): 0.34% (2014–17 average)
 - Skamania summer steelhead (Bonneville Pool; April–June): 0.02% (2014–17 average)
 - A-Index steelhead (The Dalles Dam to Highway 395 Bridge; January–June): 0.04% (2014–16 average)
 - B-Index steelhead (The Dalles Dam to Highway 395 Bridge; January–June): 0.03% (2014–16 average)
 - A-Index steelhead (CR mouth to Highway 395 Bridge; July): 0.48% (2014–16 average)
 - B-Index steelhead (CR mouth to Highway 395 Bridge; July): 0.07% (2014–16 average)

Mainstem Summer Chinook Commercial Fishery

- Guidance from OFWC and WFWC does not allow use of gillnets for summer season mainstem commercial fisheries. At time of publication, no other gears are readily available to the commercial fleet, therefore no fishery is expected to occur.

Columbia River Summer Chinook Recreational Fisheries

- Since 2002, summer Chinook fisheries have been established under temporary rules annually in the area from the Astoria-Megler Bridge to Priest Rapids Dam; season structure is based on the available allocation and public input. Under permanent rules revised for 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.
- The low 2019 forecast will complicate prosecution of mainstem summer Chinook fisheries, especially those downstream of Priest Rapids 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 in March–April 2019.
- The expected impact rate for sockeye in 2019 is presented below and is based on recent year averages:
 - Sockeye: 0.24% (2014–18 average)

Select Area Commercial Fisheries

(Compact and Oregon State consideration at the January 29, 2019 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.
- Fisheries are structured and managed for stability while minimizing interception of non-target stocks.
- The 2019 season structure will likely be similar to recent years and consider input from the January 8, 2019 public meeting concerning Select Area 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 2019 fisheries:
 - Upriver spring Chinook: 0.29% (2016–18 average)
 - Willamette spring Chinook: 1.67% (2016–18 average)
 - Sockeye: 0.01% (2016–18 average)
 - Wild winter steelhead (February–April): 0.03% (2014–16 average)
 - Skamania summer steelhead (May–June): 0.03% (2014–16 average)
 - A-Index and B-Index steelhead (July): 0.01% (2014–16 average)

Mainstem Commercial American Shad Fishery (Area 2S)

(Season as per permanent regulations)

- 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 2019 fisheries:

- Upriver spring Chinook: 0.00% (2016–18)
- Sockeye: 0.00% (2016–18)
- Skamania summer steelhead: 0.00% (2016–18)

2019 Treaty Indian Fisheries

Treaty Winter Commercial Fisheries

- The winter sturgeon setline fishery occurs by permanent regulation from January 1 through January 31.
- The winter gillnet fishery occurs by in Zone 6, typically during various parts of the period from February 1 to March 21. The management of the winter gillnet fishery will be determined in early 2019. The fishery will be managed for pool-specific sturgeon guidelines. The fishery will close early in any pool if sturgeon harvest guidelines are met. The 2019 winter season fisheries are expected to have effort similar to 2018, 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 2019 spring Chinook fisheries.
- Based on the 2018–2027 MA, the tribes will be allowed a 7.4% harvest rate on upriver spring Chinook if the run returns at the pre-season forecast level. The tribes will manage fisheries in-season and make adjustments as necessary based on the agreed harvest rate schedule and the actual river mouth run size. Steelhead harvest and stock composition is expected to be comparable to historic levels. 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 2019 summer Chinook and sockeye fisheries.
- Harvest will be managed in accordance with the 2018–2027 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 2008–2017 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 *U.S. v. Oregon* Management Agreement, treaty tributary fisheries outside the Snake Basin are managed under the terms of the Biological Opinion for the *U.S. v. Oregon* Management Agreement.
- 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, 1990–2018.¹

Year	Select Areas ²	Cowlitz River	Kalama River	Lewis River	Sandy River	Willamette River ³	Upriver Run ⁴	Total
<i>1980-84 Ave.</i>	--	22,737	4,165	3,834	2,057	62,935	63,521	159,248
<i>1985-89 Ave.</i>	--	11,176	1,552	10,312	2,005	90,803	105,481	221,328
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
<i>1990-94 Ave.</i>	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	55,552	97,544
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
<i>1995-99 Ave.</i>	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	440,336	539,438
2002	8,661	5,129	2,912	3,514	5,905	120,161	335,214	481,496
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
<i>2000-04 Ave.</i>	7,865	8,284	2,994	4,464	6,605	104,200	285,309	419,721
2005	2,366	9,398	3,367	3,512	7,665	59,471	106,900	192,679
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	178,629	221,197
2009	2,830	6,054	404	1,493	2,348	35,432	169,296	217,857
<i>2005-09 Ave.</i>	4,368	5,878	3,776	4,423	4,617	44,158	134,731	201,952
2010	22,955	8,615	977	2,347	7,343	107,675	315,345	465,257
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	294,676
2013	5,383	8,132	1,014	1,570	3,649	44,880	123,136	187,764
2014	2,479	8,294	1,013	1,396	3,054	49,765	242,635	308,636
<i>2010-14 Ave.</i>	9,730	8,527	934	1,704	4,663	68,381	221,073	315,011
2015	13,562	26,504	3,237	1,108	3,580	84,532	288,994	421,517
2016	9,920	24,554	4,462	597	3,965	47,225	187,816	278,539
2017	16,991	14,639	3,515	2,338	7,803	50,774	115,821	211,881
2018	10,805	4,076	2,371	3,454	4,733	37,441	115,081	177,961

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

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, 1985–2018 and 2019 forecasts.

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

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, 1970–2018. Includes jacks.

Year	Minimum Run Entering Columbia River	Mainstem River Comm. ¹	Columbia Sport ²	Run Entering Willamette River	Lower River Recreational Catch ³ Number ⁴	Willamette % of Run	Willamette Falls Count	Run Entering Clackamas River
1970–1974								
Average	71.6	10.1	2.6	58.9	18.2	31.0	38.3	2.1
1975–1979								
Average	56.6	5.4	1.7	49.5	14.7	30.0	31.1	3.0
1980–1984								
Average	64.8	4.4	1.7	57.7	13.7	24.0	35.5	8.7
1985–1989								
Average	93.7	9.8	2.2	81.7	19.3	24.0	53.6	7.7
1990–1994								
Average	86.2	6.5	3.5	76.2	19.6	26	44.8	10.4
1995–1999								
Average	42.4	0.2	0.0	41.9	6.1	15	28.8	6.6
2000	57.5	1.1	0.2	56.1	9.0	16	39.1	7.7
2001	80.4	3.5	3.8	73.0	7.7	11	54.0	10.8
2002	121.7	7.4	5.2	109.1	10.8	10	83.1	14.4
2003	126.6	1.8	7.2	117.6	13.5	11	87.7	15.4
2004	144.4	7.2	5.9	131.3	12.0	9	96.0	21.9
2000–2004								
Average	106.1	4.2	4.5	97.4	10.6	11	72.0	14.0
2005	61.0	2.3	2.8	55.8	5.8	10	36.6	12.7
2006	59.7	2.7	2.0	55.0	7.2	13	37.0	10.4
2007	41.0	1.3	1.6	38.1	5.7	15	23.1	8.6
2008	27.4	0.1	0.2	27.1	4.6	17	14.7	7.6
2009	39.4	0.3	1.4	37.7	4.5	12	28.5	4.3
2005–2009								
Average	45.7	1.3	1.6	42.7	5.6	13	28.0	8.7
2010	110.5	3.3	5.4	101.8	22.7	22	67.1	11.0
2011	80.3	2.3	2.1	75.9	22.8	30	45.1	6.8
2012	65.1	2.3	3.2	59.6	15.8	27	37.2	5.8
2013	47.3	1.8	1.7	43.8	7.4	17	29.6	6.2
2014	51.8	1.3	2.3	48.2	8.1	17	31.7	5.6
2010–2014								
Average	71.0	2.2	2.9	65.9	15.4	23	42.1	7.1
2015	87.1	2.6	3.5	81.0	13.6	17	53.1	8.4
2016	49.8	0.9	1.4	47.4	6.0	13	32.5	5.8
2017	53.7	1.3	1.3	44.2	7.4	17	36.6	4.5
2018	39.7	0.5	1.3	37.9	6.2	16	26.5	2.7

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, 1980–2018. Includes jacks.

Year	Upper Willamette Recreational Catch			Upper Willamette Hatchery Return			Received by Columbia River Tribes ²
	Willamette Falls Count	Number	% of Will. Falls Count	Number	% of Will. Falls Count	Clackamas Hatchery Return ¹	
1980	26,973	1,954	7	10,340	38	1,024	–
1981	30,057	2,241	7	10,246	34	1,065	–
1982	46,195	3,687	8	15,998	35	573	–
1983	30,589	1,877	6	11,888	39	1,923	–
1984	43,452	3,123	7	16,616	38	2,521	–
1985	34,533	2,510	7	11,614	34	944	–
1986	39,155	2,708	7	14,653	37	776	–
1987	54,832	6,442	12	19,514	36	1,005	–
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	9,484	14	28,362	42	5,484	0
2011	45,147	4,857	11	23,334	52	3,908	0
2012	37,213	4,900	13	21,767	58	2,954	0
2013	29,561	2,271	8	18,107	61	2,888	0
2014	31,669	3,467	11	17,889	56	4,136	0
2015	53,088	5,737	11	26,683	50	5,354	0
2016	32,478	3,168	10	13,011	40	1,696	0
2017	36,628	4,124	11	19,285	53	529	0
2018	26,542	2,707	10	10,841	41	188	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.

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 Willamette Falls.

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 1980-2018.

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		
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	105,481	2,416	805	113		3,334	102,146	0	208	0	5,991	6,199	95,948	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	106,900	2,267	7,224	22		9,513	97,387	464	1	0	6,163	6,628	90,759	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	288,994	6,528	15,689	290	929	23,436	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%

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 occurring 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 1980-2018.

Year	Return to Columbia River		Non-Treaty Wild Harvest ¹		Treaty Wild Harvest ²		Total Wild Harvest		Wild Passage Loss ³		Wild Escapement ⁴	
	Total	Wild	No.	% of Run	No.	% of Run	No.	% of Run	No.	% of Run	No.	% of Run
1980	16,954	7,131	12	0.2	229	3.2	241	3.4	4,118	57.7	2,772	38.9
1981	14,157	6,052	82	1.4	305	5.0	387	6.4	2,411	39.8	3,253	53.8
1982	15,840	6,310	109	1.7	434	6.9	543	8.6	2,752	43.6	3,015	47.8
1983	16,108	7,268	349	4.8	292	4.0	641	8.8	2,341	32.2	4,286	59.0
1984	16,816	6,722	231	3.4	446	6.6	677	10.1	1,437	21.4	4,608	68.6
1985	28,994	10,306	372	3.6	350	3.4	722	7.0	643	6.2	8,941	86.8
1986	29,482	7,924	162	2.0	459	5.8	621	7.8	1,783	22.5	5,519	69.7
1987	25,544	8,798	135	1.5	531	6.0	667	7.6	1,779	20.2	6,352	72.2
1988	21,093	7,521	480	6.4	497	6.6	977	13.0	886	11.8	5,658	75.2
1989	18,746	7,481	177	2.4	559	7.5	736	9.8	2,615	35.0	4,130	55.2
1990	12,045	4,449	223	5.0	292	6.6	515	11.6	1,126	25.3	2,808	63.1
1991	8,696	2,446	96	3.9	147	6.0	243	9.9	670	27.4	1,533	62.7
1992	20,739	4,264	69	1.6	257	6.0	326	7.6	776	18.2	3,163	74.2
1993	26,056	4,060	33	0.8	247	6.1	280	6.9	677	16.7	3,102	76.4
1994	3,458	1,055	41	3.9	51	4.8	92	8.7	351	33.3	612	58.0
1995	1,657	226	0	0.1	11	4.9	11	4.9	107	47.2	108	47.8
1996	3,501	576	1	0.1	30	5.2	31	5.4	235	40.8	310	53.9
1997	9,666	1,031	1	0.1	69	6.7	70	6.8	331	32.1	630	61.1
1998	4,541	537	0	0.1	27	5.0	27	5.0	153	28.5	356	66.3
1999	4,944	432	0	0.1	20	4.6	20	4.6	123	28.3	289	67.0
2000	22,354	1,418	3	0.2	86	6.1	89	6.3	387	27.3	942	66.4
2001	52,016	6,297	89	1.4	823	13.1	913	14.5	586	9.3	4,807	76.3
2002	37,236	3,032	59	1.9	323	10.7	382	12.6	700	23.1	1,957	64.5
2003	23,825	2,232	35	1.6	175	7.9	210	9.4	441	19.8	1,581	70.9
2004	15,575	2,341	50	2.1	202	8.6	252	10.8	450	19.2	1,641	70.1
2005	16,642	2,907	48	1.6	181	6.2	229	7.9	598	20.6	2,080	71.6
2006	15,132	1,463	22	1.5	96	6.6	118	8.1	413	28.2	933	63.7
2007	6,371	455	6	1.4	31	6.9	38	8.4	20	4.3	398	87.5
2008	15,425	833	18	2.2	114	13.7	132	15.8	27	3.2	675	81.0
2009	12,646	1,101	20	1.8	94	8.6	115	10.4			1,100	99.9
2010	37,295	3,110	62	2.0	461	14.8	523	16.8	117	3.8	2,476	79.6
2011	16,063	2,659	37	1.4	195	7.3	232	8.7	261	9.8	2,167	81.5
2012	26,499	5,871	73	1.2	545	9.3	617	10.5	849	14.5	4,405	75.0
2013	18,421	3,475	47	1.4	272	7.8	319	9.2	640	18.4	2,517	72.4
2014	33,101	6,287	105	1.7	680	10.8	785	12.5	1,092	17.4	4,415	70.2
2015	37,769	7,246	141	1.9	831	11.5	972	13.4	193	2.7	6,090	84.1
2016	25,317	5,111	85	1.7	491	9.6	576	11.3	776	15.2	3,764	73.7
2017	12,849	2,527	33	1.3	189	7.5	223	8.8	721	28.5	1,589	62.9
2018	12,844	1,977	18	0.9	197	10.0	216	10.9	546	27.6	1,215	61.5

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 1980-2018.

Year	Return to Columbia River		Non-Treaty Wild Catch ¹		Treaty Wild Catch ²		Total Wild Catch		Wild Passage Loss ³		Wild Escapement ⁴	
	Total	Wild	No.	% of Run	No.	% of Run	No.	% of Run	No.	% of Run	No.	% of Run
1980	27,338	20,979	35	0.2	675	3.2	709	3.4	13,615	64.9	6,646	31.7
1981	35,174	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	14,135	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	64,679	20,137	411	2.0	1,167	5.8	1,578	7.8	6,565	32.6	11,989	59.5
1987	52,471	15,927	245	1.5	962	6.0	1,207	7.6	4,001	25.1	10,716	67.3
1988	54,114	17,381	1,109	6.4	1,149	6.6	2,258	13.0	3,547	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	5,292	3,414	3	0.1	169	4.9	172	5.0	2,057	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	82,787	9,165	5	0.1	614	6.7	619	6.8	3,579	39.0	4,968	54.2
1998	26,989	13,864	13	0.1	696	5.0	709	5.1	5,790	41.8	7,365	53.1
1999	13,818	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	876	1.4	8,318	13.1	9,195	14.5	9,293	14.6	45,273	71.2
2002	173,285	52,907	962	1.8	5,637	10.7	6,598	12.5	15,853	30.0	30,213	57.1
2003	139,783	51,409	821	1.6	4,036	7.9	4,857	9.4	13,818	26.9	32,324	62.9
2004	128,365	33,747	732	2.2	2,918	8.6	3,649	10.8	8,507	25.2	21,367	63.3
2005	51,522	15,702	267	1.7	978	6.2	1,245	7.9	4,262	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	101,069	24,060	524	2.2	3,286	13.7	3,809	15.8	2,368	9.8	17,574	73.0
2009	90,379	20,513	339	1.7	1,758	8.6	2,098	10.2	3,375	16.5	14,947	72.9
2010	166,388	34,899	659	1.9	5,169	14.8	5,828	16.7	2,007	5.7	26,622	76.3
2011	123,971	30,757	452	1.5	2,260	7.3	2,712	8.8	3,159	10.3	24,526	79.7
2012	114,869	35,510	485	1.4	3,294	9.3	3,779	10.6	5,848	16.5	25,634	72.2
2013	68,938	22,481	313	1.4	1,757	7.8	2,070	9.2	5,637	25.1	14,576	64.8
2014	137,818	45,993	782	1.7	4,973	10.8	5,756	12.5	7,307	15.9	32,065	69.7
2015	164,092	30,193	583	1.9	3,463	11.5	4,046	13.4	3,391	11.2	22,577	74.8
2016	110,640	23,635	401	1.7	2,270	9.6	2,671	11.3	4,601	19.5	16,161	68.4
2017	59,777	7,204	80	1.1	540	7.5	620	8.6	2,157	29.9	4,425	61.4
2018	67,596	11,339	137	1.2	1,132	10.0	1,269	11.2	3,384	29.8	6,632	58.5

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, 1980-2018.

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)		PRD to Grand Coulee Dam		Colville Tribal		
		Non-Treaty (NT)			Treaty		NT	Treaty		Sport	Wanapum Tribal	Sport	(< PRD)		Sport	(>PRD)
		Sport	Comm.	Misc ²												
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			

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 2000/01–2017/18.¹

Run Year	Natural- Origin Columbia River Return	Recreational Downstream of Bonneville Dam ²		Recreational in Bonneville Pool ³			Total		Natural-Origin Winter Steelhead Impact Rate	
		Commercial 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	0	257	28	24	2	281	29	0.3%	2.0%

¹ 2016-17 and 2017-18 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.

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, 1999-2018.¹

Year	Downstream of Bonneville Dam (May–June)						Bonneville Pool (April–June)		Impact Rates			
	Commercial		Recreational		Total Mortalities		Recreational ²		Clipped Hatchery		Unclipped	
	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	2.7%	0.0%	0.27%	0.00%
2018	0	0	2,387	64	2,387	64	0	0	7.4%	0.0%	0.74%	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.

Table 11a. A-Index summer steelhead harvest in mainstem Columbia River non-treaty fisheries during winter, spring, and summer seasons, 1999-2018.¹

Year	Below Bonneville Dam (July)					Bonneville Dam – Hwy 395 (July)			The Dalles Dam – Hwy 395 (January – June of year+1)			Mortalities		Harvest/Impact Rates	
	Commercial		Recreational			Recreational ²			Recreational ³			Hatchery- Origin	Natural- Origin	Hatchery- Origin	Natural- Origin
	Mortalities (clipped and unclipped)	Natural- Origin Release Mortalities	Hatchery- Origin	Natural- Origin	Natural- Origin	Hatchery- Origin	Natural- Origin	Natural- Origin	Hatchery- Origin	Natural- Origin	Hatchery- Origin				
												Kept	Rel. Mort.	Rel. Mort.	Kept
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	531	4	22	6,218	434	3.5%	0.6%
2009	0	0	8,186	85	675	1,267	11	87	1,650	10	55	11,209	817	2.7%	0.6%
2010	0	0	7,974	68	623	1,703	16	145	752	6	45	10,519	813	5.5%	0.8%
2011	0	0	8,549	104	621	628	9	54	972	11	44	10,273	719	4.5%	0.8%
2012	0	0	10,295	145	851	451	5	32	783	10	36	11,688	918	8.6%	1.7%
2013	3	4	4,202	70	499	311	6	40	318	3	21	4,913	564	3.7%	0.7%
2014	21	19	5,221	64	511	708	9	74	531	5	34	6,558	638	3.9%	0.7%
2015	27	29	3,575	12	248	437	2	49	595	3	30	4,651	357	2.9%	0.5%
2016	20	10	2,979	19	136	352	3	18	209	2	7	3,583	171	3.6%	0.6%
2017	0	0	1,038	2	93	138	0	16	277	1	10	1,456	119	1.8%	0.4%
2018 ⁴	0	0	--	--	--	--	--	--	--	--	--	--	--	--	--

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. 2016 and 2017 data are preliminary and all data are subject to change.

² Includes mortalities in "dip-in" areas. Kept data based on catch record cards.

³ Kept data based on catch record cards.

⁴ At time of publication, the 2018 upriver summer steelhead run reconstruction was not available therefore the stock composition of July catches cannot be made. No commercial fisheries occurred in July 2018 so catches are known to be zero.

Table 11b. B-Index summer steelhead harvest in mainstem Columbia River non-treaty fisheries during winter, spring, and summer seasons, 1999-2018.¹

Year	Below Bonneville Dam (July)					Bonneville Dam – Hwy 395 (July)			The Dalles Dam – Hwy 395 (January – June of year+1)			Mortalities		Harvest/Impact Rates	
	Commercial		Recreational			Recreational ²			Recreational ³			Hatchery- Origin	Natural- Origin	Hatchery- Origin	Natural- Origin
	Mortalities (clipped and unclipped)	Natural- Origin Release Mortalities	Hatchery- Origin	Rel. Mort.	Natural- Origin	Hatchery- Origin	Rel. Mort.	Natural- Origin	Hatchery- Origin	Rel. Mort.	Natural- Origin				
												Kept	Rel. Mort.	Rel. Mort.	Kept
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	155	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	248	2	5	387	7	0.5%	0.0%
2009	0	0	35	0	12	5	0	2	128	1	5	170	19	0.5%	0.2%
2010	0	0	96	0	17	21	0	4	253	1	8	371	30	0.6%	0.2%
2011	0	0	0	0	10	0	0	1	115	1	2	117	13	0.4%	0.3%
2012	0	0	10	5	14	0	0	1	119	3	3	138	18	0.6%	0.4%
2013	0	0	17	0	2	1	0	0	22	1	0	41	2	0.4%	0.2%
2014	0	0	33	0	4	5	0	1	107	3	2	148	7	0.4%	0.1%
2015	0	0	0	0	2	0	0	0	37	1	1	38	4	0.3%	0.1%
2016	0	0	0	1	4	0	0	1	77	1	1	79	6	0.2%	0.2%
2017	0	0	0	0	1	0	0	0	18	0	0	19	1	0.3%	0.1%
2018 ⁴	0	0	--	--	--	--	--	--				--	--	--	--

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. 2016 and 2017 data are preliminary and all data are subject to change.

² Includes mortalities in "dip-in" areas. Kept data based on catch record cards.

³ Kept data based on catch record cards.

⁴ At time of publication, the 2018 upriver summer steelhead run reconstruction was not available therefore the stock composition of July catches cannot be made. No commercial fisheries occurred in July 2018 so catches are known to be zero.

Table 12. Upriver summer steelhead passage at Bonneville Dam (April–October), 1984–2018.

Year	Skamania Index		A-Index		B-Index		Total Passage		
	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	1,236	3,491	27,909	106,776	751	6,574	29,896	86,945	116,841
2018 ²	2,854	6,483	--	--	--	--	--	--	100,483

¹ Preliminary.

² 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, 1984–2018.

Run Year ¹	A-Index		B-Index		Total		
	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 ³	6,264	33,023	1,175	15,897	41,481	7,439	48,920

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, 2018 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 2019.

Table 14. Minimum numbers (in thousands) of lower river hatchery-origin summer steelhead entering the Columbia River, 1980–2018.

Year	Lower Col. Recreational Kept Catch (May–June) ¹	Tributary					Minimum Run
		Recreational Kept Catch ²		Dam Counts ³	Hatchery Returns ⁴		
		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	6.4	21.3	66.6
2016	3.3	6.0	28.8	24.2	1.2	24.6	88.2
2017	0.4	1.6	7.0	2.6	0.4	3.1	15.0
2018	2.4	1.9	11.9	9.7	0.6	5.6	32.1

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. 2016 and 2017 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, 1980-2018.

Year					Snake River Sockeye				Spawning Escapement	
	Columbia River Mouth ¹	Non-treaty Catch ²	Bonneville Dam Count	Treaty Catch ³	At	Non-treaty Catch ²	Treaty Catch ³	Lower Granite	Wenatchee ⁵	Okanogan ⁶
					Co. R. Mouth			Escapement ⁴		
1980	58,886	4	58,882	636	107	0	1	96	22,751	26,540
1981	56,037	0	56,037	1,507	236	0	6	218	16,490	28,004
1982	50,319	100	50,219	775	257	0	4	211	23,732	18,865
1983	100,610	83	100,527	3,349	241	0	8	216	60,345	27,697
1984	161,890	9,345	152,545	24,616	149	8	23	105	35,802	81,006
1985	200,758	32,213	166,340	49,969	59	9	15	35	49,123	52,945
1986	59,963	1,840	58,123	6,672	24	1	3	20	16,880	34,694
1987	145,546	28,553	116,993	39,560	55	11	15	29	28,753	40,052
1988	99,780	17,632	79,714	30,990	45	8	14	23	15,088	33,953
1989	47,478	36	41,884	2,138	4	0	0	4	21,185	15,952
1990	49,754	173	49,581	2,716	1	0	0	1	34,847	7,588
1991	76,484	3	76,481	3,271	10	0	0	9	34,678	27,464
1992	85,000	8	84,992	2,185	16	0	0	15	26,555	41,926
1993	88,025	64	80,178	5,020	18	0	1	17	37,311	27,829
1994	12,873	1	12,678	472	5	0	0	5	9,314	1,529
1995	9,913	1	8,774	445	5	0	0	5	4,474	4,826
1996	30,942	25	30,232	1,414	3	0	0	3	7,759	17,641
1997	49,979	12	47,008	2,046	18	0	1	17	9,714	24,600
1998	13,220	2	13,218	425	4	0	0	3	3,379	4,644
1999	19,094	1	17,877	704	19	0	1	18	4,260	12,388
2000	93,764	366	93,398	2,910	411	1	13	337	20,979	59,918
2001	117,879	1,691	114,934	7,300	49	1	3	45	35,355	74,486
2002	50,557	24	49,610	2,564	77	0	4	73	31,885	10,586
2003	39,291	0	39,291	1,090	40	0	1	37	5,074	28,931
2004	130,231	682	123,291	4,317	118	1	4	113	26,663	78,014
2005	77,399	4	72,971	2,766	19	0	1	18	15,646	55,352
2006	37,067	1	37,066	1,596	51	0	2	17	9,755	22,063
2007	26,604	0	24,376	1,414	58	0	3	55	4,439	22,193
2008	214,465	974	213,607	9,017	980	1	41	909	27,875	163,941
2009	179,732	1,188	177,823	9,731	1,497	2	81	1,406	26,609	116,792
2010	392,193	468	386,525	26,125	2,581	0	163	2,406	38,543	263,945
2011	187,365	1,873	185,796	12,853	1,800	1	123	1,502	18,634	108,677
2012	521,159	5,491	515,673	45,352	531	0	46	470	33,746	277,857
2013	186,191	718	185,505	8,046	1,139	1	49	757	20,083	117,830
2014	651,146	1,738	614,179	30,702	2,937	1	138	2,786	79,918	444,651
2015	512,455	1,547	510,706	30,095	1,743	2	101	440	41,931	121,669
2016	356,606	1,197	342,498	16,683	945	1	42	816	48,383	204,606
2017	88,263	429	87,693	4,480	439	0	21	228	26,517	35,361
2018	210,915	112	193,816	7,724	297	0	11	213	13,962	126,241

¹ Upriver run is the larger of Bonn. Count + Zones 1–5 harvest or Priest Rapids count + Snake River count + 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 The Wenatchee estimate is based on Rock Island or Priest Rapids Dam counts minus Rocky Reach Dam totals, or Tumwater Dam counts, except Priest Rapids count minus Wells count in 1995. Tributary harvest is subtracted to estimate spawning escapement.

⁶ The Okanogan estimate is based on the Wells Dam counts minus any harvest.

Table 16. Columbia River American Shad harvest and passage (in thousands), 1980–2018.

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

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 (*). Counting of American Shad at The Dalles Dam was discontinued in 2011; counts beginning in 2011 are from Bonneville Dam.

⁴ Limited experimental fishery with three boats.

⁵ Precise catch 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, 1975–2018.

Year	Season	Fishing Days	Mesh Size ²	Commercial Landings ¹	
				Chinook	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		5,177	266
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	—	—
2018	No Season	0	No Season	—	—

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), 1965–2018.

Year	Season	Fishing Days	Mesh Size ¹	Commercial Landings		
				Chinook	Sockeye	White Sturgeon ²
1965–2004	No Season	0	—	—	—	—
2005	Jun 23–Jul 26	6	8" min.	2,787	—	1,369
2006	Jun 26–Jul 31	13	8" min.	4,819	—	544
2007	Jun 25–Jul 3	2	8" min.	1,122	—	414
2008	Jun 24–July 8	3	8" min.	1,368	83	523
2009	Jun 18–July 1	3	8" min.	2,371	219	624
2005–2009 Avg		5		2,493	151	695
2010	Jun 17–23	2	8" min.	4,720	—	289
2011	Jun 16–23	2	8" min.	5,010	82	504
2012	Jun 17–18	1	8" min.	1,692	447	281
2013	Jun 16 – July 16	2	8" min.	1,868	140	328
2014	Jun 16 – July 29	5	8" min.	2,743	276	—
2010–2014 Avg		2		3,207	236	351
2015	Jun 17 – July 22	3	8" min.	3,944	332	—
2016	Jun 16 – July 12	2	8" min.	2,990	356	—
2017	No Season	0	—	—	—	—
2018	No Season	0	—	—	—	—

¹ Maximum mesh size of 9¾" 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, 2018.

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

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

Table 20. Lower Columbia River commercial landings, 2018.

Winter/Spring/Summer											
<i>(FINAL — OR/WA Fish Tickets — December 21, 2018)</i>											
Season	Mainstem	CHINOOK		Z 1—5 Spring Chinook		SOCKEYE		SHAD		WHITE STURGEON ¹	
		Numbers	Pounds	Adults	Jacks	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
Winter Sturgeon (no season during 2018)		0	0	—	—	0	0	0	0	No Retention	--
Spring (no season during 2018)		0	0	0	0	0	0	0	0	No Retention	--
Summer (no season during 2018)		0	0	—	—	0	0	0	0	No Retention	--
Shad (Area 2S)		—	—	—	—	—	—	2,112	5,701	No Retention	--
Mainstem Totals		0	0	—	—	0	0	2,112	5,701	0	0
<i>Select Areas</i>											
Youngs Bay Winter		737	9,287			0	0	0	0	No Retention	--
Youngs Bay Spring		4,796	55,993			0	0	0	0	52	1,568
Youngs Bay Summer		1,400	16,945			6	17	0	0	14	418
Tongue Point Winter		177	2,299			0	0	0	0	No Retention	--
Tongue Point Spring		1,327	16,931			0	0	0	0	81	2,297
Tongue Point Summer		380	5,060			0	0	0	0	94	3,106
Blind & Knappa Sloughs Winter		175	2,290			0	0	0	0	No Retention	--
Blind & Knappa Sloughs Spring		1,532	19,420			0	0	0	0	43	1,269
Blind & Knappa Sloughs Summer		457	5,898			0	0	0	0	12	376
Deep River Winter (no season during 2018)		0	0			0	0	0	0	No Retention	--
Deep River Spring (no season during 2018)		0	0			0	0	0	0	No Retention	--
Select Area Totals		10,981	134,123			6	17	0	0	296	9,034
Lower Columbia River Commercial GRAND TOTALS Winter/Spring/Summer 2018		10,981	134,123			6	17	2,112	5,701	296	9,034
Final											
<i>(FINAL — OR/WA Fish Tickets — December 21, 2018)</i>											
Season	Mainstem	CHINOOK		COHO		PINK		CHUM		WHITE STURGEON ¹	
		Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
August (Zone 4–5; 9–9 3/4 inch gillnet)		8,320	128,317	380	2,811	0	0	No Retention		413	13,927
August Subtotals		8,320	128,317	380	2,811	0	0	No Retention		413	13,927
Late-Fall (no season during 2018)		0	0	0	0	0	0	No Retention		0	0
Late-Fall Subtotals		0	0	0	0	0	0	No Retention		0	0
Fall Mainstem Totals		8,320	128,317	380	2,811	0	0	0	0	413	13,927
<i>Select Areas</i>											
Youngs Bay		2,945	31,926	4,229	33,769	0	0	No Retention		52	1,634
Tongue Point		1,035	11,970	3,682	24,679	1	4	No Retention		32	932
Blind Slough & Knappa Slough		1,401	17,609	1,477	10,422	0	0	No Retention		23	741
Deep River		1,223	13,199	2,723	20,398	1	2	No Retention		10	281
Fall Select Area Totals		6,604	74,704	12,111	89,268	2	6	0	0	117	3,588
Lower Columbia River Commercial GRAND TOTALS Fall 2018		14,924	203,021	12,491	92,079	2	6	0	0	530	17,515
FINAL GRAND TOTALS 2018											
		CHINOOK		COHO		PINK		CHUM		WHITE STURGEON¹	
		Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
		25,905	337,144	12,491	92,079	2	6	No Retention		826	26,549
for Lower Columbia R. Commercial Fisheries		SOCKEYE		SHAD		SMELT (Mainstem)		GREEN STURGEON			
		Numbers	Pounds	Numbers	Pounds	Pounds		Numbers		Pounds	
		6	17	2,112	5,701	110				No Retention	

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

Table 21. Stock composition of hatchery spring Chinook (in thousands) landed during non-treaty mainstem commercial fisheries, 1990–2018.

Year	Spring Season Kept Catch by Stock				Total
	Willamette River	C,K,L,S ¹	Upriver	Select Area ²	
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	—	—	—	—	—

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, 2002–2018.

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 and June 4–15 from Tower Is. powerlines upstream to McNary Dam plus the Oregon Bank between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.
2006	Open January 1–April 13. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open January 1–April 13 and May 17–June 15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open May 17–June 15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open March 16–April 30 and May 13–June 15 from Tower Is. powerlines upstream to McNary Dam plus the Oregon bank between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.
2007	Open January 1–April 15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open January 1–April 15 and May 16–June 15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open June 6–15. Two adipose fin-clipped adult spring Chinook daily bag limit.	Open March 16–May 3 and June 6–15 from Tower Is. powerlines upstream to McNary Dam plus the Oregon bank between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.
2008	Open January 1– February 24 under permanent rules, then March 24–April 4 with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open January 1– February 24 under permanent rules, then March 24–April 4 upstream to Hayden Island powerlines with one adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 16–April 20 from Hayden Island powerlines upstream to Bonneville Dam (except closed Tuesdays March 25, April 1, 8, and 15). One adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 16–May 10 from Tower Is. powerlines upstream to McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Is. Two adipose fin-clipped adult spring Chinook daily bag limit.

Table 22. Columbia River recreational spring Chinook fishing regulations, 2002–2018 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 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 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 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, 2002–2018 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 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 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 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 adipose fin-clipped 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 adipose fin-clipped 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 adipose fin-clipped adult spring Chinook in the daily bag limit.	Open March 16–May 5 from Tower Island powerlines upstream McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Island powerlines with one adipose fin-clipped adult Chinook in the daily bag limit. In Washington, hand-casted lines only when angling from shore.
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 adipose fin-clipped 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 adipose fin-clipped 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 McNary Dam plus the Oregon and Washington banks between Bonneville Dam and Tower Island powerlines. One adipose fin-clipped 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.

Table 23. Recreational seasons for adult summer Chinook downstream of Bonneville Dam¹.

Year	Area	Season Dates	Daily Bag Limit	Additional Regulations
2002	Tongue Pt.-Bonn.	June 28-July 31	2 Chinook	Fin-clipped summer Chinook only
2003	Tongue Pt.-Bonn.	June 16-July 31	2 Chinook	Fin-clipped summer Chinook only
2004	Tongue Pt.-Bonn.	June 16-July 31	2 Chinook	Fin-clipped summer Chinook only
2005	Tongue Pt.-Bonn.	June 16-July 31	2 Chinook	Fin-clipped Chinook June 16-30, any Chinook 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	Fin-clipped summer Chinook only
2011	Astoria Br.-Bonn.	June 16-July 17	2 Chinook	Fin-clipped summer Chinook only
2012	Astoria Br.-Bonn.	June 16-July 1	2 Chinook	Fin-clipped summer Chinook only
2013	Astoria Br.-Bonn.	June 16-30	2 Chinook	Fin-clipped summer Chinook only
2014	Astoria Br.-Bonn.	June 16-30, July 3-6, July 11-31	2 Chinook	Fin-clipped summer Chinook only
2015	Astoria Br.-Bonn.	June 16-July 31	2 Chinook June 16-July 2, 1 Chinook July 3-31	Fin-clipped Chinook June 16-July 2, any Chinook July 3-31
2016	Astoria Br.-Bonn.	June 16-July 31	2 Chinook	Fin-clipped summer Chinook only
2017	Astoria Br.-Bonn.	June 16-June 30, July 7-31	2 Chinook	Fin-clipped summer Chinook only
2018	Astoria Br.-Bonn.	June 22-30	2 Chinook	Fin-clipped summer Chinook only

¹ Prior to 2002, recreational fisheries for adult summer Chinook had been closed since 1973.

Table 24. Salmonid angler trips and adult Chinook catch by month in the lower Columbia River, 2003–2018.

2003					2004					2005				
Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook	
			Kept	Released				Kept	Released				Kept	Released
2003	Feb	9,573	209	223	2004	Feb	9,467	48	31	2005	Feb	7,551	39	0
	Mar	65,841	5,597	3,193		Mar	44,576	2,614	727		Mar	36,865	1,899	542
	Apr	66,351	9,110	4,729		Apr	102,058	21,078	6,482		Apr	65,705	8,653	2,389
	May	24,875	1,976	1,122		May	5,891	0	180		May	4,082	0	143
	Jun 1–15	7,776	0	106		Jun 1–15	2,046	0	59		Jun 1–15	10,492	724	486
	Jun 16–30	15,114	1,348	908		Jun 16–30	17,929	619	844		Jun 16–30	12,824	669	485
	Jul	24,053	506	763		Jul	21,875	500	422		Jul	25,681	902	15
	Total	213,583	18,746	11,044		Total	203,842	24,859	8,745		Total	163,200	12,886	4,060
2006					2007					2008				
Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook	
			Kept	Released				Kept	Released				Kept	Released
2006	Feb	2,471	19	0	2007	Feb	4,405	24	0	2008	Feb	4,150	3	1
	Mar	27,418	1,810	413		Mar	27,949	1,110	311		Mar	35,453	4,107	668
	Apr	33,750	3,595	712		Apr	34,890	4,507	924		Apr	63,369	15,930	2,463
	May	12,225	634	345		May	10,989	505	234		May	0	0	0
	Jun 1–15	10,971	927	991		Jun 1–15	4,777	330	179		Jun 1–15	0	0	0
	Jun 16–30	19,088	3,360	5		Jun 16–30	23,732	2,214	0		Jun 16–30	30,505	2,051	463
	Jul	24,714	1,564	11		Jul	16,036	0	219		Jul	20,783	0	427
	Total	130,637	11,909	2,477		Total	122,778	8,690	1,867		Total	154,260	22,091	4,022
2009					2010					2011				
Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook	
			Kept	Released				Kept	Released				Kept	Released
2009	Feb	4,539	34	1	2010	Feb	7,614	128	40	2011	Feb	5,598	280	47
	Mar	55,061	3,906	933		Mar	65,160	6,646	989		Mar	59,971	3,349	1,099
	Apr	82,693	12,983	2,304		Apr	99,001	22,473	3,407		Apr	48,962	4,026	928
	May	0	0	10		May	6,196	0	311		May	21,237	1,687	385
	Jun 1–15	4,109	0	148		Jun 1–15	7,005	0	608		Jun 1–15	19,127	2,352	695
	Jun 16–30	23,569	1,749	381		Jun 16–30	26,932	1,866	845		Jun 16–30	30,858	3,787	1,731
	Jul	39,644	507	469		Jul	43,729	673	483		Jul	44,960	1,373	1,040
	Total	209,615	19,179	4,246		Total	255,637	31,786	6,683		Total	230,713	16,854	5,925
2012					2013					2014				
Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook	
			Kept	Released				Kept	Released				Kept	Released
2012	Feb	8,188	37	23	2013	Feb	4,856	46	11	2014	Feb	3,292	0	0
	Mar	39,600	1,560	309		Mar	40,955	1,462	431		Mar	25,275	910	246
	Apr	57,357	11,105	1,810		Apr	28,895	3,634	845		Apr	60,429	10,652	2,525
	May	15,024	630	739		May	13,751	461	458		May	33,799	2,727	1,978
	Jun 1–15	7,750	0	595		Jun 1–15	21,198	1,347	921		Jun 1–15	22,847	1,439	2,027
	Jun 16–30	31,298	2,698	1,521		Jun 16–30	26,473	1,820	1,172		Jun 16–30	23,645	1,669	2,074
	Jul	49,435	199	1,037		Jul	25,564	12	336		Jul	30,016	311	629
	Total	208,652	16,229	6,034		Total	161,692	8,782	4,174		Total	199,303	17,708	9,479
2015					2016					2017				
Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook		Year	Month	Angler Trips	Adult Chinook	
			Kept	Released				Kept	Released				Kept	Released
2015	Feb	5,133	24	6	2016	Feb	6,399	151	19	2017	Feb	1,892	0	0
	Mar	40,963	2,594	423		Mar	45,166	3,950	658		Mar	10,120	53	6
	Apr	50,470	10,800	1,691		Apr	33,964	5,916	990		Apr	51,291	8,994	937
	May	38,991	4,853	1,875		May	25,886	1,428	1,049		May	0	0	0
	Jun 1–15	15,616	1,315	1,057		Jun 1–15	15,411	1,221	1,060		Jun 1–15	0	0	0
	Jun 16–30	18,726	1,673	1,028		Jun 16–30	25,157	1,920	2,080		Jun 16–30	23,438	2,864	1,521
	Jul	31,829	4,255	463		Jul	32,910	1,160	2,090		Jul	18,157	652	727
	Total	201,728	25,514	6,543		Total	184,893	15,746	7,946		Total	104,898	12,563	3,191
2018														
Year	Month	Angler Trips	Adult Chinook											
			Kept	Released										
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										

Table 25. Recreational fisheries upstream of Bonneville Dam, 2002–2018.

<u>Zone 6 Spring Chinook Recreational Fishery</u>					
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)	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	
<u>Snake River Spring Chinook Recreational Fishery</u>					
Year	Kept	Released	Season	General Area	
2002	866	351	Apr 25–Jun 2 (4d/wk)	LGO	
2003	513	405	Apr 26–Jun 15	LGO	
2004	1,224	337	April 16–May 7	LGO	
2005	77	83	June 11–30	LGO	
2006	192	100	May 17– Jun 30	LGO	
2007	284	67	May 9–Jun 30	LGO	
2008	515	128	Apr 22/Apr 24–May 11	Ice Harbor (IHD)/ LGO	
2009	498	100	April 24–May 17	LGO	
2010	1,663	199	April 20/24–May 21	IHD/ LGO/LRG/Clarkston	
2011	1,913	357	April 20/25–May 13/15, May 28–Jun 2	IHD/ LGO/Clarkston	
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/LRG/Clarkston	
2018	742	308	Apr 20–June 11	IHD/ LGO/LRG/Clarkston	
<u>Zone 6 Summer Chinook Recreational Fishery (includes MCN–PRD)</u>					
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	

Table 26. Recreational fisheries downstream of Bonneville Dam, 2000–2018.^{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	186,132	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
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

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, 1990–2018.

Year	Spring Season Kept Catch by Stock				Total
	Willamette River	C,K,L,S ¹	Upriver	Select Area ²	
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

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, 1980-2018.

Year ¹	Cowlitz River		Kalama River		Lewis River		Sandy River		Total	
	Kept Catch	Harvest Rate	Kept Catch	Harvest Rate	Kept Catch	Harvest Rate	Kept Catch	Harvest Rate	Kept Catch	Harvest Rate
1980-84 Ave.	7,094	32%	1,292	32%	2,554	65%	1,269	62%	12,215	32%
1985-89 Ave.	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%
Ave.	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%
Ave.	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%
Ave.	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%	293	12%	2,726	26%
Ave.	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	28%
2014	2,801	34%	0	0%	14	1%	380	12%	3,195	23%
Ave.	3,300	39%	232	26%	254	14%	837	18%	4,623	29%
2015	8,410	32%	1,088	34%	104	9%	192	5%	9,794	28%
2016	9,386	38%	1,588	36%	124	21%	227	6%	11,325	34%
2017 ²	5,615	38%	1,625	46%	244	10%	679	9%	8,163	29%
2018 ²	851	21%	1,000	42%	549	16%	307	6%	2,707	18%

¹ 1995–2001 and 2008 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 2005–2016.

Brood Year	Species ¹	Release Site									Total
		Youngs Bay			Blind Slough			Tongue Point	Deep River		
		South Fork Klaskanine Hatchery	Klaskanine Hatchery	Youngs Bay Net Pens	Big Creek Hatchery	Blind Slough Net Pens	Gnat Creek Hatchery	Tongue Point Net Pens	Deep River Net Pens	Grays River Hatchery	
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 ²	CHS	—	—	1,159,889	—	129,830	385,563	459,832	—	—	2,135,114
	SAB	—	599,463	—	—	—	—	—	—	—	599,463
	CHF	—	—	—	2,312,352	—	—	—	910,000	—	3,222,352
	CO	487,415	1,693,979	761,511	567,394	509,235	—	922,455	723,000	43,550	5,708,539

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

² Release numbers are preliminary and subject to change

Table 30. Winter/spring/summer season commercial and recreational Chinook harvest in Select Area sites, 1993–2018.

Year	Commercial				Recreational ²		Sum
	Youngs Bay	Blind Slough	Tongue Point ¹	Deep River	subtotal	subtotal	
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 ³	6,933	2,164	1,884	0	10,981	918	11,899

¹ No winter, spring, or summer seasons occurred in Tongue Point/South Channel from 2004–2007. Volunteer test fishing in mid-April 2008 resulted in a full-fleet experimental fishery beginning in late April and continuing through the remainder of the spring season. Abbreviated full-fleet experimental fisheries occurred in late April 2009, and in late April–early June, 2010–2013 following test fishing activities. Winter and spring fisheries were reinstated beginning in 2014.

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, 2000–2018.

Year	Stock					
	Select Area ¹	Willamette River	C,K,L,S ²	Upriver ³	Summer Chinook ³	Coastal Stocks
2000	84.9%	11.6%	2.7%	0.7%	0.0%	0.0%
2001	88.2%	5.9%	1.3%	3.8%	0.3%	0.5%
2002	73.6%	16.8%	4.0%	4.8%	0.5%	0.3%
2003	77.8%	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	93.5%	4.8%	1.0%	0.7%	0.1%	0.0%
2008	88.6%	2.4%	1.9%	5.6%	1.5%	0.0%
2009	83.6%	7.4%	4.3%	3.9%	0.8%	0.0%
2010	86.5%	6.8%	0.6%	6.0%	0.1%	0.0%
2011	85.6%	9.9%	1.3%	2.8%	0.3%	0.0%
2012	88.5%	7.3%	0.8%	3.4%	0.0%	0.0%
2013	79.2%	16.2%	1.1%	3.5%	0.1%	0.0%
2014	75.5%	15.5%	1.8%	6.1%	1.1%	0.0%
2015	82.1%	9.1%	2.1%	5.9%	0.8%	0.0%
2016	85.7%	5.5%	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%
All year Average	85.6%	8.4%	2.1%	3.4%	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, 1977–2018.

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	14

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

² Treaty sales to licensed fish buyers. Includes January Setline fishery and winter season gillnet fisheries.

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.

Table 33. Spring season commercial landings in treaty fisheries, 2009–2017.¹

<i>Spring Season</i>					
Numbers of Fish Sold Commercially to wholesale fish buyers					
Year	Season	Chinook ²	Steelhead	Sockeye	Walleye
2009	June 1–June 14	1,039	44	11	1
2010	April 27–May 19	2,090	46	0	1
2011	May 10–June 15	10,519	124	0	0
2012	May 15– June 15	4,910	77	968	7
2013	June 8– June 15	694	26	265	0
2014	May 6–June 15	14,447	144	39	16
2015	March 12–June 15	19,028	55	97	9
2016	May 16–June 15	5472	107	3	4
2017	None	0	0	0	0

¹ Includes platform and hook and line fisheries since 2010.

² Includes both adult and jack Chinook.

Note: Updates to this table were not provided prior to publication.

Table 34. Summer season commercial landings in treaty fisheries, 2009–2017.¹

<i>Summer Season</i>					
Numbers of Fish Sold Commercially to wholesale fish buyers					
Year	Season	Chinook ²	Steelhead	Sockeye	Walleye
2009	Jun 16–July 17	9,730	1,040	5,958	6
2010	June 16–July 29	15,569	10,957	21,843	57
2011	June 16–July 31	17,521	2,683	4,763	55
2012	June 16–July 12	6,474	548	18,931	33
2013	June 16–July 25	12,057	1,691	3,278	28
2014	June 16–July 31	15,389	4,361	21,448	15
2015	June 16–July 31	31,545	2,142	22,884	28
2016	June 16–July 31	17,988	2,426	13,021	40
2017	June 16–July 31	14,755	3,251	1,051	28

¹ Includes platform and hook and line fisheries since 2010.

² Includes both adult and jack Chinook.

Note: Updates to this table were not provided prior to publication.

Table 35. Winter season harvest of winter and summer steelhead in treaty fisheries in Zone 6, 2001–2018.

Run Year	Bonneville Pool Winter Steelhead ¹			The Dalles and John Day Pool Summer Steelhead ²		
	Clipped	Unclipped	Total	Clipped	Unclipped	Total
2001-2	74	22	96	0	0	0
2002-3	481	95	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	217	83	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	17	41	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	35	101	0	0	0
2017-18	74	48	122	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, 2001–2018.¹

Year	Total	Clipped	Unclipped
2001	617	450	167
2002	411	257	154
2003	385	258	127
2004	400	245	155
2005	216	137	79
2006	422	301	121
2007	323	256	67
2008	99	71	28
2009	382	328	54
2010	331	250	81
2011	167	160	7
2012	387	323	64
2013	267	202	65
2014	397	318	79
2015	147	106	41
2016	226	204	22
2017	605	446	159
2018	668	433	235

¹ Clipped and unclipped based on Bonneville Dam clip rate for Skamania stock. Includes spring Drano Lake harvest since 2005 and summer season harvest from June 16-June 30 since 2017.

Table 37. Summer season treaty steelhead harvest in Zone 6 and in bank fisheries downstream of Bonneville Dam, 1999–2017.¹

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	671

¹ Stock proportions from 2008 on 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.

Note: Updates to this table were not provided prior to publication.