

# ALASKA DEPARTMENT OF FISH AND GAME DIVISION OF COMMERCIAL FISHERIES NEWS RELEASE



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## **2018 Preliminary Yukon River Summer Season Summary**

The following is a summary of the 2018 Yukon River Chinook and summer chum salmon fisheries. All data reported here are considered preliminary. For management purposes, the Yukon River is divided into several fishing districts and subdistricts (Figure 1).

During the “summer season” (early May through July 15 in District 1) management and research staff are based in the Emmonak office and the focus is on assessing and managing the summer chum and Chinook salmon runs. After July 15, in Emmonak, Chinook salmon are nearly done entering the river and fall chum start to replace summer chum as the dominant species. On July 16, management transitions to the “fall season” and assessment and management become focused on fall chum and coho salmon entering the mouth of the Yukon River. However, summer season management continues beyond this date in upper river districts as the Chinook and summer chum salmon migration progresses upstream.

Data presented in this summary applies to “summer season” species only. While most summer season assessment and escapement projects have wrapped up by the date of this news release, subsistence harvest estimation is only now beginning; therefore, that data is not available and final run sizes cannot be estimated at this time.

## **2018 Management Outreach**

The summer season management team consists of Alaska Department of Fish and Game (ADF&G) area management and research biologists, their assistants, subsistence resource specialists, and the manager and assistant manager from U.S. Fish and Wildlife Service (USFWS). The team met preseason to form the management strategy based on public input and met daily inseason to discuss the summer chum and Chinook salmon assessment and escapement data, and subsistence and commercial fishery openings. To improve outreach with communities, area staff from commercial fisheries and subsistence divisions visited villages including Alakanuk, Kotlik, Tanana, Rampart, and Eagle during the fishing season. The Area manager and the ADF&G commissioner joined a larger delegation on a trip sponsored by Tanana Chiefs Conference (TCC) to attend meetings in Russian Mission, Grayling, Holy Cross, Shageluk, and

Anvik. The trip was important for ADF&G staff to hear directly from fishermen about Chinook salmon management and how it affects their fishing uniquely in each village.

The summer management team was also honored to host visiting Canadian fishermen and staff during the Yukon River Drainage Fisheries Association (YRDFA) educational exchange. It was a unique opportunity to show stakeholders from Canada how the management team makes decisions inseason regarding the fisheries using assessment data and reports from fishermen.

To more effectively reach fishermen, daily test fish counts and news releases were posted on a Facebook page called “Yukon River Fishing-ADFG” and magnets with the fishery hotline number were widely distributed. Updates were also provided via the YRDFA weekly public teleconferences, the ADF&G News Release list-serve, the ADF&G web page with daily escapement counts, and the ADF&G daily Yukon Area assessment data list-serve.

## **2018 Preseason Outlook**

### Chinook Salmon

The 2018 drainage-wide Chinook salmon outlook was for a run size of 173,000 to 251,000 fish which would be similar to, or slightly smaller than, the run in 2017. Though a run of this size should be large enough to meet escapement objectives, the surplus available for harvest could vary. Due to the uncertainty associated with the outlook, a cautious management approach was taken to ensure minimum escapement objectives would be met.

### Summer Chum Salmon

It was expected that the 2018 total run would be above average. The 2018 preseason outlook was for approximately 2.5 million summer chum salmon. A run of this size was anticipated to provide for escapements, an average subsistence harvest, and a surplus for commercial harvest. Based on the preseason outlook, it was expected that a commercially harvestable surplus of up to 1.6 million summer chum salmon would be available. Similar to last year, the harvest of summer chum salmon in 2018 was anticipated to be limited by the management of a below average Chinook salmon run.

## **2018 Preseason Management Strategy**

YRDFA facilitated a preseason planning meeting funded by the Yukon River Panel to provide managers, fishermen, tribal council representatives, and other stakeholders the opportunity to share information, provide input, and discuss management options available for the 2018 salmon fisheries. The purpose of this meeting was to cooperatively identify practical management strategies that would assist in getting adequate numbers of Chinook salmon to their spawning grounds in Alaska and Canada while also providing subsistence harvest opportunity.

Fishermen from all districts gave feedback about the previous year’s management actions and suggested improvements for 2018. Based on input from this meeting, a conservative preseason management plan was developed for the Yukon River summer season fishery. The preseason plan and publicly-distributed “Outlook Flier” included the following key management strategies:

- Before Chinook salmon enter the river, subsistence fishing will be open 24 hours per day, seven days per week with 7.5-inch or smaller mesh gillnets.

- As Chinook salmon enter each district, subsistence salmon fishing will be provided on a reduced regulatory schedule with 7.5-inch or smaller mesh gillnets during the early part of the run.
- Commercial fishing for summer chum will begin with selective gear (dipnets, beach seines, live-release fish wheels).
- When confidence is high that the Chinook salmon run is adequate and escapement goals are likely to be met, the use of 7.5-inch gillnets on a full regulatory schedule will be considered. If inseason assessment indicates a poorer than anticipated run, subsistence fishing time or mesh size may be reduced or gear may be limited to selective gear types with no retention of Chinook salmon allowed.
- The sport fishery for Chinook salmon will begin the season closed (effective May 11) throughout the U.S. portion of the Yukon River drainage, excluding the Tanana River drainage. Chinook salmon may not be retained or possessed. Management actions for the Tanana River drainage will be announced in early June.

### **2018 Inseason Run Assessment Overview**

The department monitors a suite of assessment projects operated by multiple agencies and cooperators. These provide critical information regarding salmon run timing, relative abundance, and stock composition. Inseason run assessments included test fisheries, sonar passage estimates, subsistence and commercial harvest reports, and age, sex, and length (ASL) data. In addition, tissue samples were collected from Chinook and summer chum salmon at the sonar project near Pilot Station to determine stock contribution. Assessment of the salmon runs in the lower river is critical to implementing an inseason management plan throughout the drainage. Managers use information from all inseason assessment projects and fishermen reports to make daily management decisions and adjustments to fishing schedules based on the best currently available data and projections.

Ice break-up at the mouth of the Yukon River (near Alakanuk) occurred on May 18, which was only one day earlier than the average break-up (based on the years 1997–2017). However, it was a unique year in that there was an all-time low spring sea ice coverage in the Bering Sea, one of the predictors for run timing where warming waters are related to initial salmon spawning migration. The first Chinook and summer chum salmon of the year were caught in the subsistence fishery on May 27; the first Chinook salmon was four days earlier than the average date of May 31 (based on the years 1997–2017), and the first summer chum salmon was nearly a week earlier than the average date of June 2 (based on the years 1997–2017). The department relied on subsistence harvest reports to guide initial management actions during the early portion of the salmon runs.

The Lower Yukon Test Fishery (LYTF) program is primarily designed to assess salmon run timing and consists of two Chinook salmon test fisheries. An 8.5-inch mesh set gillnet operated in the Middle and South mouths of the Yukon River and an 8.25-inch mesh drift gillnet operated at Big Eddy in the South Mouth, near Emmonak. The LYTF also has a summer chum salmon-directed drift gillnet test fishery using 5.5-inch mesh gear operated in the Middle and South mouths. These test fisheries provide relative catch data and Catch Per Unit Effort (CPUE) which gives an index of abundance and indicates the presence of large groups of fish or “pulses” entering the mouths of the river.

The LYTF was fully operational at the South Mouth (Big Eddy) drift gillnet site on May 29 and at the Middle Mouth set gillnet site on June 7. The first Chinook salmon caught in the test fishery was on June 2 in the South Mouth 8.25-inch drift gillnet. Early catch per unit effort was low due to very heavy debris loads in the river hampering ideal set net operations. The LYTF set gillnets concluded operations on July 12 with a cumulative CPUE of 24.32, which was similar to the historical<sup>1</sup> average CPUE of 24.44. The first quarter point, midpoint, and third quarter point were June 20, June 23, and June 29, respectively, which indicated later than average run timing. The 8.25-inch drift gillnet project for Chinook salmon operated in Big Eddy until July 15 and provided valuable supplemental run timing information for Chinook salmon entering the South Mouth of the Yukon River. This season, 538 Chinook salmon were released alive from the LYTF and 1,007 Chinook were distributed to locals in mostly lower Yukon communities, with emphasis given to elders and people who are unable to fish. This fish donation program was coordinated with village tribal councils and with the assistance of Yukon Delta Fisheries Development Association.

During the summer season, the mainstem sonar project near Pilot Station provides abundance estimates for Chinook and summer chum salmon. The test fishery at the sonar project is used to apportion the daily sonar counts by species and is also used to sample the salmon runs for ASL and genetic data. The department has endeavored to reduce Chinook salmon mortality in the Pilot Station sonar test fisheries by releasing all healthy Chinook salmon alive immediately. Any Chinook salmon mortalities were delivered to tribal councils in various nearby communities for distribution to elders.

The cumulative passage estimate at Pilot Station sonar was approximately 161,900 Chinook salmon (with a 90% confidence interval of 137,400 to 186,400 Chinook salmon). This passage was below the recent historical average<sup>2</sup> of approximately 182,600 fish. Chinook salmon entered the river in four pulses consisting of 26,600 fish; 27,400 fish; 55,000 fish; and 22,100 fish. The first quarter point, midpoint, and third quarter point for Chinook at the Pilot Station sonar project were on June 19, June 26, and July 1, respectively. The 2018 Chinook salmon run appears to have been three days later than average based on the midpoint at the sonar project near Pilot Station. The first two pulses were weaker than expected based on pre-season forecast, which triggered restrictive management actions to reduce harvest, but the later part of the run came in stronger and thus gave management confidence to relax some restrictions.

Approximately 1.6 million summer chum salmon were counted (with 90% confidence interval of approximately 1.5 million to 1.7 million salmon) at the Pilot Station sonar, which was below the historical median of 1.9 million fish for the project. The first quarter point, midpoint, and third quarter point were June 21, June 29, and July 5, respectively, which is similar to average run timing. Four pulses of summer chum salmon were detected at the sonar project; the largest group consisted of approximately 552,000 fish and passed by the sonar between July 2 and July 7.

## **2018 Subsistence Fishery Management Overview**

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<sup>1</sup> Average includes years 1989–2000, 2002–2008, 2010–2011, and 2014–2017.

<sup>2</sup> Average includes years 1995, 1997, 2000, 2002–2008, and 2010–2017. The sonar did not operate in 1996 and project difficulties occurred in 1998-1999, 2001, and 2009.

In accordance with discussions at the fishermen’s pre-season planning meeting, managers expected to provide some restricted subsistence harvest opportunity for Chinook salmon and liberal subsistence and commercial opportunity for summer chum salmon.

Managers waited for increased Chinook salmon catches at the LYTF before restricting the subsistence gillnet fishery. This was to provide fishermen early opportunity to target sheefish and other species when there would be little effect on the Chinook salmon run. In District 1 fishermen were placed on a reduced regulatory schedule of two 18-hour periods per week starting on June 8.

Subsistence fishing efforts in the Lower Yukon Area were affected by river conditions for much of the early part of the season. During the YRDFA teleconferences throughout the first two weeks of June, callers remarked on high water, bank erosion, lots of “drift” debris, and poor fishing weather.

During the 2018 Board of Fisheries meeting, the regulation requiring full fishing closures during the first pulse of Chinook salmon in Districts 1 and 2 was removed when projected run sizes are adequate. However, inseason uncertainty about the size and timing of the Chinook salmon run triggered subsistence fishing closures in the form of “cancelled periods” and restrictions limiting fishing time or gear in most districts that effectively protected each part of the run and spread the harvest across all pulses. The 2018 Chinook salmon run had later than average run timing, and the early trickle and first two pulses (as assessed at Pilot station sonar) were relatively weak compared to preseason forecasts, but run size improved by the third and fourth pulses.

While the Chinook run was late, the summer chum run had average run timing, causing the two runs to overlap more than usual and further complicate management. This meant that very large numbers of summer chum were passing at the same time as Chinook, which can have a self-limiting effect on the harvest of Chinook for fishermen in Districts 1 through 4, particularly when 6-inch or smaller mesh gear (chum gear) is the maximum mesh size allowed.

In most districts, the normal regulatory schedule consists of two fishing periods per week but varies by duration and days of the week (Table 1). This season, once Chinook salmon were in the river, districts were put on a reduced regulatory schedule in which each period was shorted by about half the usual fishing time.

Table 1.–Yukon Area Regulatory Subsistence Salmon Fishing Schedule.

Area	Regulatory subsistence fishing periods	Open fishing times
Coastal District	7 days per week	M/T/W/TH/F/SA/SU - 24 hours/day
District 1	Two 36-hour periods per week	Mon 8 pm to Wed 8 am / Thu 8 pm to Sat 8 am
District 2	Two 36-hour periods per week	Wed 8 pm to Fri 8 am / Sun 8 pm to Tue 8 am
District 3	Two 36-hour periods per week	Wed 8 pm to Fri 8 am / Sun 8 pm to Tue 8 am
District 4	Two 48-hour periods per week	Sun 6 pm to Tue 6 pm / Wed 6 pm to Fri 6 pm
Koyukuk and Innoko Rivers	7 days per week	M/T/W/TH/F/SA/SU - 24 hours/day
Subdistricts 5-A, -B, -C	Two 48-hour periods per week	Tue 6 pm to Thu 6 pm / Fri 6 pm to Sun 6 pm
Subdistrict 5-D	7 days per week	M/T/W/TH/F/SA/SU - 24 hours/day
District 6	Two 42-hour periods per week	Mon 6 pm to Wed Noon / Fri 6 pm to Sun Noon
Old Minto Area	5 days per week	Friday 6 pm to Wednesday 6 pm

*Note:* This schedule was altered during the 2018 season based on Chinook salmon run strength. In the Upper Yukon, fishing times are longer by regulation to help account for longer travel times and lower numbers of fish available as they leave the mainstem Yukon River to spawn.

The low passage of Chinook salmon counted at Pilot Station sonar triggered cancelation of one fishing period per week in most districts to protect each pulse of fish and to spread the harvest across all pulses. To further protect Chinook salmon, fishing was also limited to 6-inch or smaller mesh gillnets at times. This was to allow fishermen opportunity to harvest summer chum for subsistence while restricting the harvests of Chinook salmon. Some districts in the lower and middle parts of the river complained that without any 7.5-inch gillnet gear opportunity during the week, they wouldn't catch any Chinook. Or, they wouldn't even go fishing because they wanted to avoid large unwanted harvests of summer chum salmon, since the quality of that fish for human consumption begins to decrease in District 3. Consequently, some districts were put on alternating periods of 6-inch and 7.5-inch gear, so that for one period per week, some Chinook-directed subsistence harvest would be possible, though time for fishing was still reduced in half.

Chinook salmon run strength had improved by the time the run reached District 5, and it was no longer warranted to cancel fishing periods. However, fishing remained on half the regulatory fishing schedule with 6-inch and smaller mesh gillnets and fishwheels through most of the run.

The management rationale for these upriver actions is that there are far fewer chum present as most summer chum have turned off into tributaries such as the Anvik and the Tanana River, which makes targeting Chinook salmon easier in these areas, even when using "chum gear". Furthermore, using 6-inch or smaller mesh gear may have the effect of reducing the harvest of the largest and oldest fish. With a below-average run size overall, trying to let older and larger fish escape to spawning areas may be an added benefit to using this mesh size in the upper river.

As usual, the use of 4-inch or smaller mesh gillnets was allowed for the harvest of non-salmon species, such as sheefish, whitefish species, and Northern pike at all times during subsistence salmon fishing closures throughout the season, in all districts.

In 2018, the South Coastal area (including the communities of Hooper Bay and Scammon Bay) and the Innoko and Koyukuk Rivers were not restricted all season because these areas experience very low harvests of Chinook due to inefficient fishing conditions.

Over the last several years, Yukon River fishermen have exhibited incredible flexibility in complying with schedule changes and gear restrictions. The department acknowledges the continued commitment made by fishermen to conserve and share the Chinook salmon resource. Managers rely heavily on input from fishermen post-season about how management strategies worked and didn't work for their area.

## **2018 Commercial Fishery**

Since Chinook salmon are encountered incidentally in the commercial summer chum salmon fishery, the commercial fishery was conservatively managed to minimize the impact to the Chinook salmon run. This season there were three processors purchasing chum salmon in District 2 and one processor returned to District 4 for the second consecutive year. For the eleventh consecutive year, no commercial periods targeting Chinook salmon were allowed in the Yukon Management Area during the summer season. Sale of incidentally-caught Chinook salmon was prohibited for the eighth consecutive year in the summer season, and no sales of Chinook salmon were allowed during fall commercial fishing.

### Lower Yukon Districts Commercial Fishery

In Districts 1 and 2, dip nets and beach seines were used for a large part of the season. Although these gear types are less efficient at harvesting summer chum salmon, they do allow fishing opportunity to occur early in the run. Chinook salmon are required to be released alive from selective gear types. These selective gear openings were timed around subsistence fishing openings, and based on processing capacity.

Selective fishing for summer chum salmon using dip nets and beach seines began June 9 in District 1, and June 12 in District 2. For details about the number of openings see Appendix A. Approximately 342 permit holders fished these commercial openings. The majority of fishermen used dip nets and less than 2% of the fishermen used beach seines. The combined harvest in Districts 1 and 2 with selective gear types was 243,811 summer chum salmon with 11,928 Chinook salmon reported released alive. The number of summer chum salmon harvested in selective gear types was above the 2013–2017 average.

The use of gillnets in the summer chum commercial fishery was delayed until approximately 94% of the Chinook salmon run had passed through District 1, this was in part because of the below-average Chinook run size, but also because of the many restrictions that had been in place on subsistence fishing, which has a priority use. Commercial fishermen were required to report any Chinook salmon caught but not sold on fish tickets. An estimated 2,982 Chinook salmon were kept for personal use in Districts 1 and 2 during the summer season commercial gillnet fishery which is about average for the fishery in recent years (2013–2017). An additional 147 Chinook salmon were retained during the fall season

The cumulative summer chum salmon commercial harvest for Districts 1 and 2 for all gear types combined was 446,381 fish (Appendices A and B). Also sold during the summer season were 39,226 pink and 3 coho salmon. The summer chum harvest was 7% above the 2013–2017 average harvest of 415,117 fish and was the second largest harvest since 2008 (Appendix B).

### Upper Yukon Districts Commercial Fishery

Fishing opened in District 4 on June 26 with live-release fish wheels. Fishermen were required to continuously monitor fish wheels and immediately release any Chinook salmon alive until July 21. After July 21, fishermen were allowed to retain any Chinook for personal use, however, none were reported caught. Less than 300 Chinook salmon were encountered and released alive in District 4; this is because migrating Chinook are not typically found on the same bank that the summer chum are migrating along in this area of the river, so they are not frequently caught in the commercial fish wheels. The District 4 summer chum salmon harvest of 126,892 fish was the second largest harvest from since 2008 (Appendix B).

The first summer chum salmon-directed commercial fishing period in District 6 was on July 13 (Appendix A). Gear restrictions were not implemented during the commercial fishery; fishermen could use 7.5-inch or smaller mesh gillnets and fish wheels. Chinook salmon could not be sold but could be retained for personal use. The preliminary cumulative harvest was 3,427 summer chum salmon and 143 Chinook kept for personal use (Appendix A). The 2018 District 6 commercial harvest was 33% below the recent five-year average of 5,188 summer chum salmon (Appendix B).

The total 2018 commercial harvest for the Yukon Area was 576,700 summer chum salmon, which was 17% above the 2013–2017 average harvest of 491,249 fish (Appendix B) and the largest since 1996.

### **2018 Fishing Effort and Exvessel Value**

A total of 426 permit holders participated in the summer chum salmon commercial fishery, approximately 9% below the 2008–2017 average of 470 permit holders. The Lower Yukon Area (Districts 1–3) and Upper Yukon Area (Districts 4–6) are separate Commercial Fisheries Entry Commission (CFEC) permit areas. A total of 417 permit holders fished in the Lower Yukon Area in 2018, which is below the 2008–2017 average of 456 permits. In the Upper Yukon Area, at least 9 permit holders fished, which was below the 2008–2017 average of 13. In 2018, fishing was open with selective gear for more hours than in previous seasons, however overall fishing efficiency (harvest per hour of fishing) in the lower river was low. Managers heard throughout the season that fishing was poor due to river conditions and low catch rates.

Lower Yukon Area fishermen received an average \$0.60 per pound for summer chum salmon and estimated \$1.7 million for their summer chum harvest in 2018 (Appendix C). Pink salmon in the Lower Yukon were sold for \$0.15 per pound with a total value of \$16,024. The estimated average income for Lower Yukon Area fishermen in the 2018 summer season was \$4,014 per fisherman, which was above the recent 10-year average (2008–2017) income of \$3,161 per fisherman from commercial sales. Upper Yukon Area fishermen received an average of \$0.33 per pound for summer chum salmon for a total value of \$217,064. The estimated average income for upper Yukon Area fishermen in the 2018 summer season was \$24,118, which was above the recent 10-year average (2008–2017) income of \$8,432 per fisherman. This average includes years when the commercial fishery occurred in District 6 only.

### **2018 Age, Sex and Stock Composition**

#### Age and Sex Composition in LYTF

The Chinook salmon age composition from the 8.5-inch mesh LYTF set nets (Big Eddy and Middle Mouth sites combined) was 4% age-4, 35% age-5, 60% age-6, and 2% age-7 fish. The sample size was 684 fish and females comprised 56% of the samples. The age-5 percentage was slightly below average; the age-6 and age-7 percentages were above average; and females were above average based on the years 2008–2017. It is important to note that while mesh sizes have been consistent across years, catch in the large mesh gear used at LYTF is biased toward older, larger fish.

The summer chum salmon age composition from the 5.5-inch mesh LYTF drift nets was 1% age-3, 57% age-4, 40% age-5, 2% age-6, and less than 1% age-7 fish. The sample size was 1,028 fish and females comprised 61% of the samples. The age-4 percentage was above average and the age 5 percentage was below average based on the years 2008–2017. Percent female was near average.

#### Age and Sex Composition in Pilot Station Sonar test fishery

The Chinook salmon age composition from the 513 samples that were aged from the test fishery at the Pilot Station sonar project (all mesh sizes combined) was less than 1% age-3, 12% age-4, 50% age-5, 37% age-6, and less than 1% age-7 fish. Females comprised 48% of the 564 fish sampled. The age-3 and age-5, percentages were near average; age-4 and age-6 percentages were



above average; age-7 percentage was below average and females were above average based on the years 2008–2017. It is important to note that while the project uses a wide range of mesh sizes, and likely captures a representative sample across sizes and age classes, the sex is determined visually, and this method has reduced accuracy compared to internal inspection.

#### Stock identification in Pilot Station test fishery

Genetic mixed stock analysis (MSA) on the early group and the first pulse of Chinook salmon sampled at the Pilot Station sonar (June 2 to June 19) estimated 56% of the sampled fish were of Canadian-origin. Genetic MSA on the second pulse and part of the third pulse of Chinook salmon (June 20 to June 29) estimated 47% of the sampled fish were of Canadian-origin. Only samples through June 29 were used for inseason analysis. The remaining samples will be analyzed post season to provide estimates for the third and fourth pulses and an overall season total stock composition. For more background information on genetic MSA for Yukon River Chinook salmon, please refer to the department's Gene Conservation Laboratory webpage<sup>3</sup>.

Four strata of chum salmon genetic samples were processed from the 2018 summer season. The strata from June 1–June 18 consisted of 99% summer chum salmon; 74% of which were lower river stocks, 25% were bound for the middle river; and less than 1% were bound for the Tanana River. The strata from June 19–June 26 also consisted of 99% summer chum salmon; 79% lower river stocks, 20% were bound for the middle river; and less than 1% were bound for the Tanana River. The strata from June 27–July 8 consisted of 99% summer chum salmon; 57% were lower stocks, 33% were middle river stocks; and about 10% were Tanana River stocks. The strata from July 9–18 consisted of 99% summer chum salmon; 65% were lower stocks, 17% were middle river stocks; and 16% were Tanana River stocks. Stock proportions were generally within normal ranges, however, lower summer stocks were below average while upper Koyukuk/mainstem Yukon stocks and Tanana stocks were above average. Additionally, the strata from July 19–25, which has historically been predominately fall chum salmon was determined to be 82% summer chum salmon (29% lower; 53% middle).

#### Age and Sex Composition in Eagle Sonar test fishery

The Chinook salmon age composition from the 257 samples that were aged from the test fishery at the Eagle sonar project (all mesh sizes combined) was 8% age-4, 42% age-5, 48% age-6, and 2% age-7 fish. This is only a partial season age composition of data collected through July 25 and remaining samples are being processed. Females comprised 45% of the 285 fish sampled. All ages and percent female are near the 2008–2017 averages but samples to date only account for the front portion of the run. It is important to note that while the project has used a consistent suite of mesh sizes, the smallest mesh used is 5.25-inch, so the smallest fish may be underrepresented in the samples. An internal versus external sex identification study was done on 250 fish caught in the Eagle test fishery. Preliminary results indicate that the accuracy using external visual characteristics is extremely high at the sonar project. Final results will be available later in the year. The 250 fish used for this study were distributed to community members in Eagle.

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<sup>3</sup> [http://www.adfg.alaska.gov/index.cfm?adfg=fishinggeneconservationlab.yukonchinook\\_baseline](http://www.adfg.alaska.gov/index.cfm?adfg=fishinggeneconservationlab.yukonchinook_baseline)

### Age and Sex Composition in Subsistence Harvest

Age, sex, and length data and genetic samples were taken by subsistence fishermen in two communities in the Coastal District, and Districts 1 through 5, to estimate the age and genetic composition from Chinook salmon kept for subsistence. These data were collected as part of a Yukon River Panel Restoration and Enhancement fund project. These data are especially important since fishing practices (e.g., timing of harvest, gear types used) have changed in recent years due to conservation concerns and fishing restrictions. Results from this project will be available later in the year.

### Age and Sex Composition in Commercial Harvest

The summer chum salmon age composition from the District 1 dip net commercial fishery was 45% age-4, 52% age-5, and 3% age-6 fish. The sample size was 442 fish and females comprised 41% of the selective gear harvest. The summer chum salmon age composition from the District 1 gillnet commercial fishery was 1% age-3, 59% age-4, 37% age-5, and 3% age-6 fish. The sample size was 312 fish and females comprised 43% of the gillnet harvest. No summer chum commercial samples were collected from Districts 2, 4 or 6.

## **2018 Escapement**

### Chinook Salmon Escapement

In 2018, most systems with Chinook salmon escapement goals were met or exceeded (Table 2). Tower counts for Chinook salmon were hampered by high water conditions in the Chena and Salcha rivers. The goals on the Chena and Salcha River were met based on preliminary passage estimates expanded to account for missed days using sonar counts.

Preliminary Chinook salmon passage at the sonar project near Eagle was 57,959 fish. This is not considered a true escapement estimate as it does not account for harvest between Eagle and the border in Alaska, nor Canadian harvests. This passage exceeded the Interim Management Escapement Goal (IMEG) for Canada of 42,500–55,000 salmon. This passage likely provided for the additional 20–26% of the estimated total allowable catch needed for the Canadian harvest share as agreed to in the U.S./Canada Yukon River Salmon Treaty.

The USFWS was unable to run the Gisasa weir due to staffing issues and TCC was unable to install the Henshaw weir because of high water. Therefore, Chinook and summer chum were not monitored in the Koyukuk Drainage this season.

Table 2.–Escapement goals and passage estimates for Chinook salmon at selected Yukon River tributaries, 2018. Estimates are preliminary.

Project	Current Goal	Type of Goal	2018 Escapement
Eagle Sonar	42,500–55,000	IMEG	57,959 *
East Fork Andreafsky Weir	2,100–4,900	SEG	3,972
Chena River Tower	2,800–5,700	BEG	4,227 <sup>a</sup>
Salcha River Tower	3,300–6,500	BEG	4,053 <sup>a</sup>
Anvik River Aerial survey	1,100–1,700	SEG	1,109 <sup>b</sup>
West Fork Andreafsky Aerial	640–1600	SEG	455
Nulato River Aerial survey	940–1,900	SEG	870

\*Note: The passage estimate at Eagle Sonar is not an escapement estimate. There is some harvest that occurs between the project and the border, and harvest that occurs in Canada.

<sup>a</sup> Passage estimates are considered preliminary and consist of partial tower counts expanded using sonar counts for missed days. Project was hindered by unfavorable water conditions.

<sup>b</sup> Partial estimate due to poor visibility in parts of the index area.

### Summer Chum Salmon Escapement

Three escapement goals exist for summer chum salmon: a drainage-wide goal of 500,000–1,200,000 fish (established in 2016) and goals at the East Fork Andreafsky River and the Anvik River (Table 3). The drainage-wide escapement goal was exceeded; however, goals on the East Fork Andreafsky and Anvik rivers were not met. This is not entirely unexpected based on the recent trend of lower river stocks not performing as well as upriver stocks. The summer chum salmon tower counts were considered incomplete for the Chena and Salcha rivers for the 2018 season due to unfavorable water conditions, yet summer chum passage was still considered about average (Table 3). Estimates derived from sonar counts will be provided at a later date.

Table 3.–Escapement goals and passage estimates for summer chum salmon at selected Yukon River tributaries, 2018. Estimates are preliminary.

Stream	Current Goal	Type of Goal	2018 Escapement
Drainage-wide	500,000–1,200,000		1,613,076 <sup>a</sup>
East Fork Andreafsky River Weir	> 40,000	SEG	36,312
Anvik River Sonar	350,000–750,000	BEG	304,938
Stream	Historical Median	Years Included	2018 Escapement
Chena River Tower	8,620	1993–2015 <sup>b</sup>	9,088 <sup>d</sup>
Salcha River Tower	26,485	1993–2015 <sup>c</sup>	22,782 <sup>d</sup>

<sup>a</sup> Estimate of abundance at the Pilot Station sonar. After accounting for commercial harvest in District 4 and District 6 (130,300 fish) and average subsistence harvests above the sonar (33,000 fish) it is assumed the upper end of the goal was exceeded.

<sup>b</sup> Excludes 1995, 1996, 2000, 2002, 2005, 2011, 2016, and 2017.

<sup>c</sup> Excludes 1996, 2003, 2008, 2011, 2014, 2016 and 2017.

<sup>d</sup> Project was hindered by unfavorable water conditions. These are partial tower counts, full passage estimates will not be available until late 2018.

### **Canadian Fisheries**

The pre-season outlook was for a run size of approximately 71,000 to 103,000 Canadian-origin Chinook salmon. Fishery Managers at the Department of Fisheries and Oceans (DFO) conduct Canadian Chinook salmon fisheries based on available abundance and international harvest sharing provisions. Based on the estimated passage of approximately 58,000 Chinook salmon at Eagle sonar and a Canadian Management target of 48,750 fish, the Chinook salmon run was classified to be in the “yellow management zone”, allowing for a conservative harvest in the First Nations subsistence fishery. DFO maintained closures in the commercial, domestic, and recreational fisheries throughout the 2018 Chinook salmon run. While not all information is currently available, preliminary data indicates that First Nation harvest on the mainstem Yukon River is likely to be near or less than 50% of historical average.

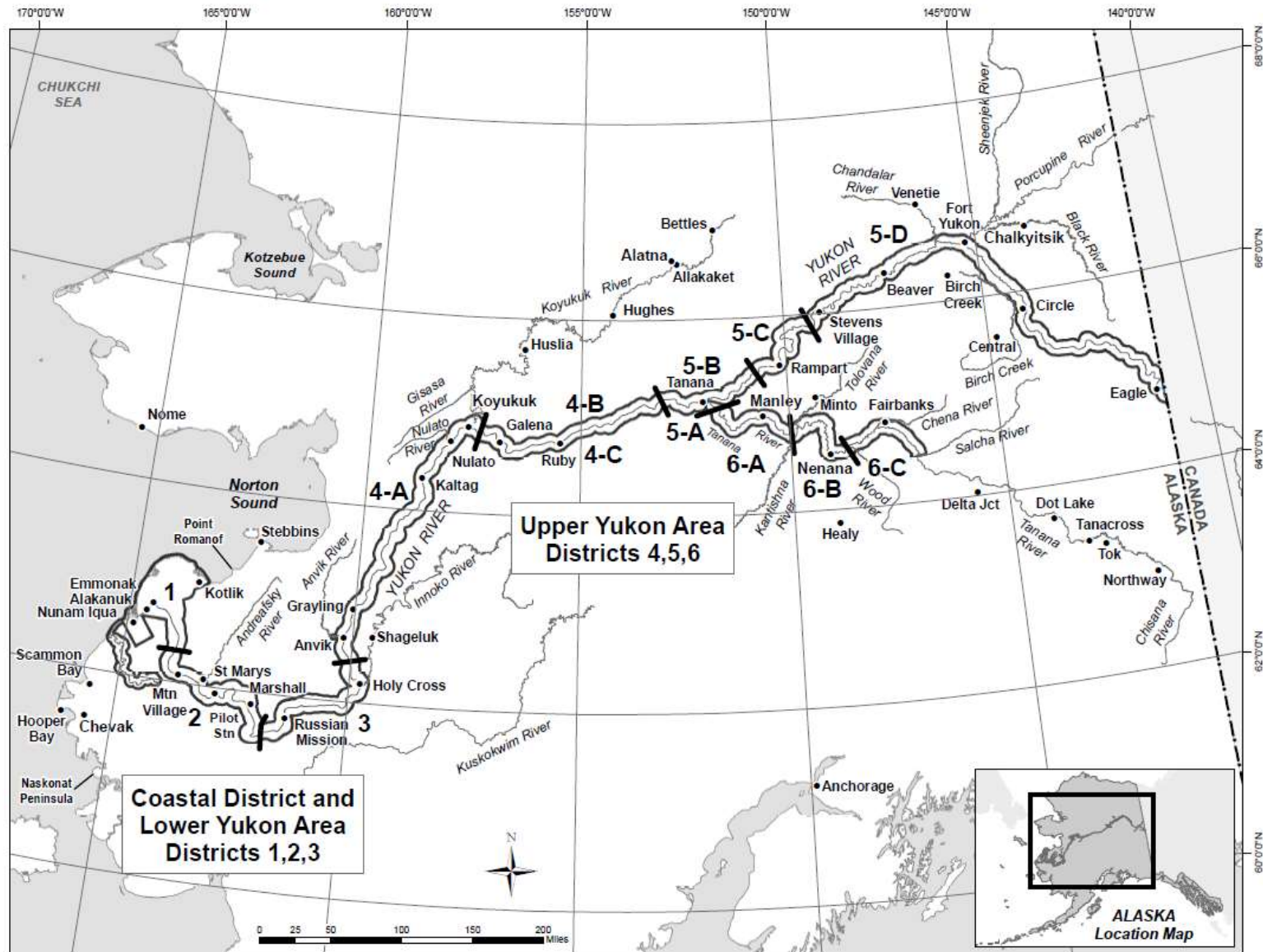


Figure 1.—Yukon Area communities and fishing districts.

Appendix A.–Preliminary summer season commercial harvest summary, Yukon Area, 2018. Page 1 of 5.

District 1													
Period	Start Time	Start Date	End Time	End Date	Hours Fished	Gear Type	Mesh Size	Number of Fishermen	Chinook Salmon		Summer Chum Salmon		Avg. Wt.
									Number Caught and Released	Number Caught but Not Sold	Number	Pounds	
1	2:00 PM	9-Jun	2:00 AM	10-Jun	12	BS/DN		70	89		2,089	13,184	6.3
2	2:00 PM	10-Jun	2:00 AM	11-Jun	12	BS/DN		44	56		1,366	8,670	6.3
3	2:00 PM	11-Jun	2:00 AM	12-Jun	12	BS/DN		22	68		1,085	6,956	6.4
4	12:00 PM	13-Jun	11:59 PM	13-Jun	12	BS/DN		77	321		6,290	41,046	6.5
5	12:00 PM	14-Jun	12:00 PM	15-Jun	24	BS/DN		85	792		15,959	102,486	6.4
6	12:00 PM	16-Jun	11:59 PM	16-Jun	12	BS/DN		17	52		1,107	7,047	6.4
7	12:00 AM	17-Jun	11:59 PM	17-Jun	24	BS/DN		77	384		14,324	90,486	6.3
8	12:00 AM	18-Jun	11:59 PM	18-Jun	24	BS/DN		87	480		13,328	84,860	6.4
9	12:00 AM	19-Jun	12:00 PM	19-Jun	12	BS/DN		67	542		11,540	73,332	6.4
10	12:01 AM	20-Jun	11:59 PM	20-Jun	24	BS/DN		73	401		10,301	65,546	6.4
11	12:01 AM	21-Jun	11:59 PM	21-Jun	24	BS/DN		56	260		3,676	22,772	6.2
12	12:01 AM	22-Jun	10:00 AM	22-Jun	10	BS/DN		31	166		2,381	14,650	6.2
13	12:00 PM	23-Jun	11:59 PM	23-Jun	12	BS/DN		79	261		4,960	30,036	6.1
14	12:00 PM	24-Jun	11:59 PM	24-Jun	12	BS/DN		67	349		4,418	26,712	6.0
15	12:00 PM	25-Jun	11:59 PM	25-Jun	12	BS/DN		27	66		391	2,312	5.9
16	12:00 PM	26-Jun	11:59 PM	26-Jun	12	BS/DN		72	310		3,890	23,259	6.0
17	12:00 PM	27-Jun	11:59 PM	27-Jun	12	BS/DN		59	256		3,394	20,996	6.2
18	12:00 PM	28-Jun	11:59 PM	28-Jun	12	BS/DN		54	129		946	5,610	5.9
19	12:00 PM	30-Jun	11:59 PM	30-Jun	12	BS/DN		74	189		2,971	17,409	5.9
20	12:00 PM	1-Jul	11:59 PM	1-Jul	12	BS/DN		117	304		9,399	56,234	6.0
21	12:00 PM	2-Jul	11:59 PM	2-Jul	12	BS/DN		109	384		14,391	86,367	6.0
22	6:00 PM	4-Jul	11:59 PM	4-Jul	6	DGN	6	154	9	415	10,229	65,272	6.4
23	6:00 PM	5-Jul	11:59 PM	5-Jul	6	DGN	6	121		196	3,541	22,574	6.4
24	6:00 PM	7-Jul	3:00 AM	8-Jul	9	DGN	6	115		188	9,250	59,646	6.4
25	6:00 PM	8-Jul	3:00 AM	9-Jul	9	DGN	6	170		216	37,797	246,259	6.5
26	6:00 PM	9-Jul	3:00 AM	10-Jul	9	DGN	6	151	51	159	25,092	164,320	6.5

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Appendix A.–Preliminary summer season commercial harvest summary, Yukon Area, 2018. Page 2 of 5.

District 1													
Period	Start Time	Start Date	End Time	End Date	Hours Fished	Gear Type	Mesh Size	Number of Fishermen	Chinook Salmon		Summer Chum Salmon		Avg. Wt.
									Number Caught and Released	Number Caught but Not Sold	Number	Pounds	
27	6:00 PM	10-Jul	3:00 AM	11-Jul	9	DGN	6	95		99	5,093	32,916	6.5
28	6:00 PM	11-Jul	3:00 AM	12-Jul	9	DGN	6	39		20	1,753	11,276	6.4
29	6:00 PM	12-Jul	3:00 AM	13-Jul	9	DGN	6	125		75	10,112	63,498	6.3
30	6:00 PM	13-Jul	3:00 AM	14-Jul	9	DGN	6	98		75	12,307	76,050	6.2
31	6:00 PM	14-Jul	3:00 AM	15-Jul	9	DGN	6	117		92	7,578	48,553	6.4
Fall Season									1	106			
District 1 Subtotal: <sup>a</sup>					394			264	5,920	1,641	250,958	1,590,334	6.3

District 2													
Period	Start Time	Start Date	End Time	End Date	Hours Fished	Gear Type <sup>a</sup>	Mesh Size	Number of Fishermen	Chinook Salmon		Summer Chum Salmon		Avg. Wt.
									Number Caught and Released	Number Caught but Not Sold	Number	Pounds	
1	2:00 PM	12-Jun	2:00 AM	13-Jun	12	BS/DN	0	45	151		2,781	17,228	6.2
2	2:00 PM	13-Jun	2:00 AM	14-Jun	12	BS/DN	0	33	85		1,352	8,410	6.2
3	12:00 PM	16-Jun	11:59 PM	16-Jun	12	BS/DN	0	63	301		5,555	34,682	6.2
4	12:00 PM	17-Jun	11:59 PM	17-Jun	12	BS/DN	0	68	361		5,389	33,109	6.1
5	12:00 PM	19-Jun	11:59 PM	19-Jun	12	BS/DN	0	81	581		8,275	51,730	6.3
6	12:00 PM	20-Jun	11:59 PM	20-Jun	12	BS/DN	0	94	516		9,926	62,192	6.3
7	12:00 PM	22-Jun	11:59 PM	22-Jun	12	BS/DN	0	73	371		6,265	38,259	6.1
8	12:00 PM	23-Jun	11:59 PM	23-Jun	12	BS/DN	0	66	307		3,590	21,774	6.1
9	12:00 PM	24-Jun	11:59 PM	24-Jun	12	BS/DN	0	42	215		2,354	14,463	6.1
10	12:00 PM	26-Jun	11:59 PM	26-Jun	12	BS/DN	0	87	672		8,335	50,370	6.0
11	12:00 PM	27-Jun	11:59 PM	27-Jun	12	BS/DN	0	70	433		5,747	34,951	6.1
12	12:00 PM	28-Jun	11:59 PM	28-Jun	12	BS/DN	0	81	601		8,713	52,782	6.1
13	12:00 PM	29-Jun	11:59 PM	29-Jun	12	BS/DN	0	78	461		6,677	39,908	6.0
14	12:00 PM	30-Jun	11:59 PM	30-Jun	12	BS/DN	0	40	206		3,249	19,075	5.9
15	12:00 PM	1-Jul	11:59 PM	1-Jul	12	BS/DN	0	29	99		2,180	13,004	6.0
16	10:00 AM	3-Jul	10:00 PM	3-Jul	12	BS/DN	0	98	277		14,717	87,163	5.9
17	10:00 AM	4-Jul	10:00 PM	4-Jul	12	BS/DN	0	74	252		13,524	81,219	6.0

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Appendix A.–Preliminary summer season commercial harvest summary, Yukon Area, 2018. Page 3 of 5.

District 2													
Period	Start Time	Start Date	End Time	End Date	Hours Fished	Gear Type <sup>a</sup>	Mesh Size	Number Fishermen	Chinook Salmon		Summer Chum Salmon		Avg. Wt.
									Number Caught and Released	Number Caught but Not Sold	Number	Pounds	
18	10:00 AM	6-Jul	10:00 PM	6-Jul	12	BS/DN	0	47	180		6,976	40,558	5.8
19	4:00 PM	7-Jul	10:00 PM	7-Jul	6	DGN	6	63		249	8,846	55,549	6.3
20	4:00 PM	8-Jul	10:00 PM	8-Jul	6	DGN	6	29		105	2,710	17,200	6.3
21	12:00 PM	10-Jul	11:59 PM	10-Jul	12	DGN	6	98		397	18,911	120,882	6.4
22	12:00 PM	11-Jul	11:59 PM	11-Jul	12	DGN	6	103		297	12,628	81,141	6.4
23	12:00 PM	13-Jul	11:59 PM	13-Jul	12	DGN	6	51		143	7,287	44,284	6.1
24	12:00 PM	14-Jul	11:59 PM	14-Jul	12	DGN	6	57		83	6,281	39,351	6.3
25	12:00 PM	15-Jul	11:59 PM	15-Jul	12	DGN	6	43		60	4,305	27,166	6.3
26	12:00 PM	17-Jul	11:59 PM	17-Jul	12	DGN	6	67		54	11,708	75,349	6.4
27	3:00 PM	18-Jul	9:00 PM	18-Jul	6	DGN	6	69		59	7,142	46,947	6.6
Fall Season									0	41			
District 2 Subtotal: <sup>a</sup>					306			167	6,069	1,488	195,423	1,208,746	6.2
Lower Yukon Area, Summer Season, Districts 1, and 2 Subtotal <sup>a, b</sup> :					700			417	11,989	3,129	446,381	2,799,080	6.3
Upper Yukon Summer Season													
Subdistricts 4-A													
Period	Start Time	Start Date	End Time	End Date	Hours Fished	Gear Type	Mesh Size	Number Fishermen	Chinook Salmon		Summer Chum Salmon		Avg. Wt.
									Number Caught and Released	Number Caught but Not Sold	Number	Pounds	
1	12:00 AM	26-Jun	11:59 PM	26-Jun	24	FW	0	4	0	0	2,409	12,045	5.0
2	12:00 AM	27-Jun	11:59 PM	27-Jun	24	FW	0	7	1	0	4,172	20,860	5.0
3	12:00 AM	28-Jun	11:59 PM	28-Jun	24	FW	0	7	4	0	5,109	25,545	5.0
4	12:00 AM	29-Jun	11:59 PM	29-Jun	24	FW	0	6	9	0	3,181	15,905	5.0
5	12:00 AM	30-Jun	11:59 PM	30-Jun	24	FW	0	6	6	0	2,755	13,775	5.0
6	12:00 AM	1-Jul	11:59 PM	1-Jul	24	FW	0	6	14	0	2,403	12,015	5.0
7	12:00 AM	2-Jul	11:59 PM	2-Jul	24	FW	0	7	1	0	2,861	14,305	5.0
8	12:00 AM	3-Jul	9:00 AM	4-Jul	33	FW	0	8	5	0	3,162	15,810	5.0
9	9:00 AM	4-Jul	9:00 AM	5-Jul	24	FW	0	8	13	0	5,165	25,825	5.0

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Appendix A.–Preliminary summer season commercial harvest summary, Yukon Area, 2018. Page 4 of 5.

Subdistricts 4-A													
Period	Start Time	Start Date	End Time	End Date	Hours Fished	Gear Type	Mesh Size	Number Fishermen	Chinook Salmon		Summer Chum Salmon		Avg. Wt.
									Number Caught and Released	Number Caught but Not Sold	Number	Pounds	
10	9:00 AM	5-Jul	9:00 AM	6-Jul	24	FW	0	6	9	0	3,821	19,105	5.0
11	9:00 AM	6-Jul	9:00 AM	7-Jul	24	FW	0	7	0	0	4,862	24,310	5.0
12	9:00 AM	7-Jul	9:00 AM	8-Jul	24	FW	0	8	9	0	4,395	21,975	5.0
13	9:00 AM	8-Jul	9:00 AM	9-Jul	24	FW	0	8	2	0	3,593	17,965	5.0
14	9:00 AM	9-Jul	9:00 AM	10-Jul	24	FW	0	8	34	0	3,459	17,295	5.0
15	9:00 AM	10-Jul	9:00 AM	11-Jul	24	FW	0	8	19	0	4,137	20,685	5.0
16	9:00 AM	11-Jul	9:00 AM	12-Jul	24	FW	0	8	16	0	6,811	34,055	5.0
17	9:00 AM	12-Jul	9:00 AM	13-Jul	24	FW	0	8	30	0	4,489	22,445	5.0
18	9:00 AM	13-Jul	9:00 AM	14-Jul	24	FW	0	7	22	0	5,885	29,425	5.0
19	9:00 AM	14-Jul	9:00 AM	15-Jul	24	FW	0	7	14	0	6,087	30,435	5.0
20	9:00 AM	15-Jul	9:00 AM	16-Jul	24	FW	0	7	32	0	5,253	26,265	5.0
21	9:00 AM	16-Jul	9:00 AM	17-Jul	24	FW	0	8	13	0	10,227	51,135	5.0
22	9:00 AM	17-Jul	9:00 AM	18-Jul	24	FW	0	7	26	0	4,427	22,135	5.0
23	9:00 AM	18-Jul	9:00 AM	19-Jul	24	FW	0	7	6	0	3,059	15,295	5.0
24	9:00 AM	19-Jul	9:00 AM	20-Jul	24	FW	0	7	0	0	3,390	16,950	5.0
25	9:00 AM	20-Jul	9:00 AM	21-Jul	24	FW	0	5	0	0	2,030	10,150	5.0
26 <sup>d</sup>	9:00 AM	21-Jul	9:00 AM	22-Jul	24	FW	0	6	0	0	2,827	14,135	5.0
27	9:00 AM	22-Jul	9:00 AM	23-Jul	24	FW	0	6	0	0	2,096	10,480	5.0
28	9:00 AM	23-Jul	9:00 AM	24-Jul	24	FW	0	8	1	0	2,957	14,785	5.0
29	9:00 AM	24-Jul	9:00 AM	25-Jul	24	FW	0	7	0	0	1,849	9,245	5.0
30	9:00 AM	25-Jul	9:00 AM	26-Jul	24	FW	0	6	0	0	1,563	7,815	5.0
31	9:00 AM	26-Jul	9:00 AM	27-Jul	24	FW	0	7	0	0	1,495	7,475	5.0
32	9:00 AM	27-Jul	9:00 AM	28-Jul	24	FW	0	5	0	0	1,691	8,455	5.0
33	9:00 AM	28-Jul	9:00 AM	29-Jul	24	FW	0	6	0	0	1,419	7,095	5.0
34	9:00 AM	29-Jul	9:00 AM	30-Jul	24	FW	0	5	0	0	1,535	7,675	5.0
35	9:00 AM	30-Jul	9:00 AM	31-Jul	24	FW	0	7	0	0	1,445	7,225	5.0
36	9:00 AM	31-Jul	9:00 AM	1-Aug	24	FW	0	5	0	0	873	4,365	5.0
District 4 Subtotal:					873			8	286	0	126,892	634,460	5.0

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Appendix A.–Preliminary summer season commercial harvest summary, Yukon Area, 2018. Page 5 of 5.

Subdistricts 6-A, 6-B, and 6-C													
Period	Start Time	Start Date	End Time	End Date	Hours Fished 6-AB	Gear Type	Mesh Size	Number Fishermen	Chinook Salmon		Summer Chum Salmon		Avg. Wt.
									Number Caught and Released	Number Caught but Not Sold	Number	Pounds	
1	6:00 PM	13-Jul	12:00 PM	15-Jul	42	FW/GN	7.5	1	45	50	214	1,310	6.1
2	6:00 PM	16-Jul	12:00 PM	18-Jul	42	FW/GN	7.5	1	0	46	109	735	6.7
3	6:00 PM	20-Jul	12:00 PM	22-Jul	42	FW/GN	7.5	1	6	20	461	2,799	6.1
4	6:00 PM	23-Jul	12:00 PM	25-Jul	42	FW/GN	7.5	1	0	12	780	4,590	5.9
5	6:00 PM	27-Jul	12:00 PM	29-Jul	42	FW/GN	7.5	1	0	11	1,065	6,145	5.8
6	6:00 PM	30-Jul	12:00 PM	1-Aug	42	FW/GN	7.5	1	0	4	798	4,730	5.9
District 6 Subtotal:					252			1	51	143	3,427	20,309	5.9
Upper Yukon Area Subtotal:					1,125			9	337	143	130,319	654,769	5.0
Yukon Area, Summer Season, Districts 1 Through 6 Total <sup>a, b, c</sup> :					1,825			426	12,326	3,272	576,700	3,453,849	6.0
Harvest by dip nets and beach seines								Fishermen	Chinook released	Number summer chum	Pounds	Avg.	
District 1								199	5,859	128,206	799,970	6.2	
District 2								148	6,069	115,605	700,877	6.1	
Total								342 <sup>b</sup>	11,928	243,811	1,500,847	6.2	

Note: Chinook salmon caught in gillnets were not allowed to be sold throughout the summer season. Chinook salmon caught in dip nets and beach seines were required to be immediately released alive. DN = dip net; BS = beach seine; GN = gillnet; FW = fish wheel. No commercial fishing occurred in Districts 3 and 5.

<sup>a</sup> Includes Chinook salmon caught but not sold in the fall season.

<sup>b</sup> The number of fishermen is the unique number of permits fished. Some fishermen may fish multiple areas, therefore the subtotals may not add up by district.

<sup>c</sup> Lower Yukon Area fishermen also sold 39,226 pink salmon (106,591 pounds) and 3 coho salmon (18 pounds).

<sup>d</sup> Requirement to man fish wheels at all times and release all Chinook salmon was relaxed on July 21.

Appendix B.–Summer chum salmon commercial harvests by district for 2008–2018.

District/ Subdistrict	Guideline Harvest Range	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	5-yr Average (2013–2017)
District 1		67,459	71,355	102,267	163,439	150,800	207,871	198,240	172,639	293,576	345,395	250,958	243,544
District 2		58,139	86,571	80,948	103,071	57,049	171,272	229,107	181,447	228,267	47,770	195,423	171,573
<b>Subtotal</b>													
Districts 1–2	251,000–755,000	125,598	157,926	183,215	266,510	207,849	379,143	427,347	354,086	521,843	393,165	446,381	415,117
Subdistrict 4-A	113,000–338,000	23,746	4,589	44,207		108,222	100,507	96,385			157,831	126,892	118,241
District 6	13,000–38,000	1,842	7,777	5,466	8,651	3,504	5,937	6,912	4,770	4,020	4,300	3,427	5,188
Total	400,000–												
Districts 1-6	1,200,000	151,186	170,292	232,888	275,161	319,575	485,587	530,644	358,856	525,863	555,296	576,700	491,249

*Note:* Commercial harvest only includes summer chum salmon sold in the round. The guideline harvest ranges for District 3 and District 5 are 6,000–19,000 fish, and 1,000–3,000 fish. No summer chum salmon were sold in Districts 3 and 5 from 2008–2018.

Appendix C.–Value of commercial salmon fishery to Yukon Area fishermen, 2008–2018.

Year	Chinook			Summer Chum				Value by Species (dollars)		Value by Area (dollars)		Total dollars	
	Lower Yukon		\$/lb	Lower Yukon		Upper Yukon		Chinook	Summer Chum	Lower	Upper		
	\$/lb	Value (\$)		\$/Roe	Value (\$)	\$/lb	\$/Roe						Value (\$)
2008	4.64	325,470	0.40		326,930	0.25	3.00	65,840	325,470	392,770	657,056 <sup>a</sup>	65,840	722,896
2009	5.00	20,970	0.50		514,856	0.26	3.00	20,430	20,970	535,286	535,873 <sup>b</sup>	20,430	556,303
2010	5.00	639,230	0.70		823,967	0.23		61,534	639,230	885,501	1,463,226 <sup>b</sup>	61,534	1,524,760
2011			0.75		1,301,008	0.26		12,966		1,313,974	1,301,103 <sup>b</sup>	12,966	1,314,069
2012			0.75		980,424	0.37		137,817		1,118,241	980,424	137,817	1,118,241
2013			0.75		1,721,524	0.30		152,110		1,873,634	1,721,552 <sup>b</sup>	152,110	1,873,662
2014			0.60		1,648,866	0.29		154,959		1,803,825	1,662,634 <sup>c</sup>	154,959	1,817,593
2015			0.60		1,259,908	0.23		7,166		1,267,074	1,262,034 <sup>c</sup>	7,166	1,269,200
2016			0.60		1,903,490	0.26		6,030		1,909,520	1,958,311 <sup>c</sup>	6,030	1,964,341
2017			0.60		1,470,353	0.34		276,682		1,747,035	1,470,353 <sup>d</sup>	276,682	1,747,035
2018			0.60		1,657,816	0.33		217,064		1,874,879	1,673,853 <sup>c</sup>	217,064	1,890,917
2008–2017													
Average	4.88	328,557	0.63		1,195,153	0.28	3.00	89,553	328,557	1,284,686	1,301,257	89,553	1,390,810

Note: Blank cells indicate no sales occurred or harvest level was insufficient to generate summary information.

<sup>a</sup> Includes sales of pink salmon in Districts 1 and 2.

<sup>b</sup> Includes sales of coho salmon in Districts 1 and 2.

<sup>c</sup> Includes sales of pink and coho salmon in Districts 1 and 2.

<sup>d</sup> Does not include value from Chinook salmon sold during fall season.