

Kuskokwim River In-season Harvest and Effort Estimates

7/2/2021 Subsistence Harvest Opportunity (Drift & Set Nets)

Opportunity Time Period: 6:00 AM – 3:00 PM (9 Hours)

Area Covered by Estimates: Tuntutuliak ↔ Akiak

Contact Person(s): Kevin Whitworth (kevinwhitworth@kritfc.org), Katie Russell (krussell@nativecouncil.org)

Special Action #: 3-KS-03-21

Special Action: https://www.fws.gov/uploadedFiles/3-KS-03-21_Final_7.1.2021.pdf?fbclid=IwAR2tAlnoL7tVqfm3s40yFia6NXPVI9yaIYMCrY6-fm4BGfZDt98c4e7a8Lg



Data Sources

TABLE 1. The number and percent of fisher interviews conducted by location and organization.

Data Source	Interviews	Percent
Other Villages (BSFA/KRITFC)	55	45%
Bethel Boat Harbor (ONC)	48	39%
Bethel Area Fish Camps (ONC)	19	16%
Total	122	100%

Of these interviews, **119** were from drift nets and **3** were from set nets, but set net interview information was deemed insufficient to produce a reliable estimate.

TABLE 2. The time each flight was conducted and fishers counted each flight.

Time Information			Nets Counted	
Start Time	End Time	Hours	Drift	Set
10:05 AM	11:40 AM	1.58	148	4

Effort Estimates

- An estimated **211** total drift boat trips occurred.
 - Since only one flight was conducted, the counts did not need to be corrected for double counts.
 - An estimated **62** trips were not counted during any flight.
- An estimated **4** total set net trips occurred, but no harvest estimate was made.

Harvest Estimates

- An estimated total of **11,460 (10,120 – 12,880)** salmon were harvested.
 - An estimated total of **1,330 (1,100 – 1,570)** Chinook salmon were harvested.
 - An estimated total of **1,150 (820 – 1,510)** chum salmon were harvested.
 - An estimated total of **8,990 (7,790 – 10,170)** sockeye salmon were harvested.

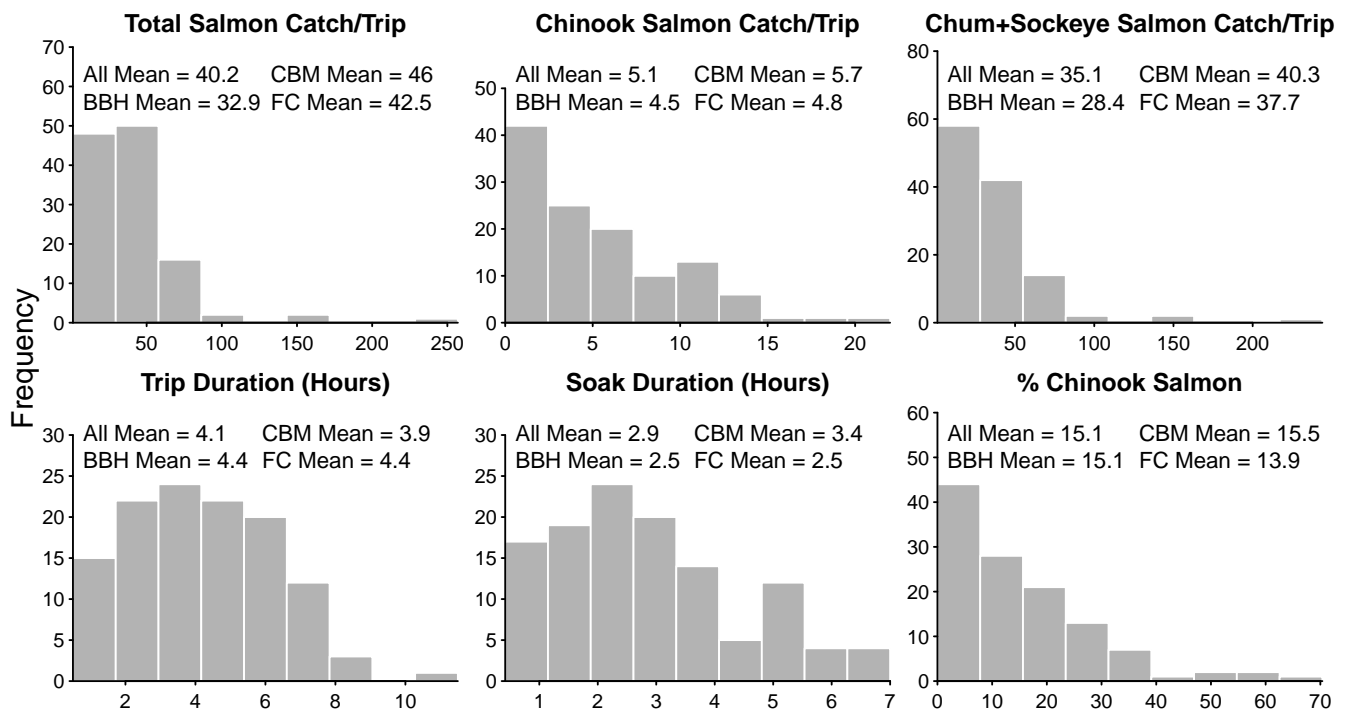
TABLE 3. Summary of relevant quantities by river stratum (area) for drift nets. Numbers in parentheses are 95% confidence intervals.

Stratum	Interviews	Effort Est.	Estimated Harvest			
			Chinook	Chum	Sockeye	Total
Tuntutuliak ↔ Johnson R.	7	54	360 (260 – 490)	430 (220 – 680)	2,960 (2,280 – 3,850)	3,750 (3,000 – 4,730)
Johnson R. ↔ Napaskiak	38	57	310 (220 – 400)	440 (230 – 700)	2,580 (2,110 – 3,150)	3,320 (2,760 – 3,940)
Napaskiak ↔ Akiachak	74	91	600 (430 – 800)	260 (160 – 360)	3,130 (2,410 – 3,900)	3,990 (3,140 – 4,880)
Akiachak ↔ Akiak	0	9	60 (40 – 80)	30 (20 – 40)	310 (240 – 390)	400 (310 – 490)
All	119	211	1,330 (1,100 – 1,570)	1,150 (820 – 1,510)	8,990 (7,790 – 10,170)	11,460 (10,120 – 12,880)

TABLE 4. Average (95% confidence limits) total salmon catch per trip and percent Chinook salmon, summarized for the areas above and below the confluence of the Johnson River with the Kuskokwim River. Quantities are derived from the strata- and species-specific harvest estimates, not the raw interview data.

Quantity	Proximity to Johnson R. Mouth	
	Downstream	Upstream
Total Catch/Trip	69 (56 – 88)	49 (43 – 56)
% Chinook Salmon	10% (7% – 13%)	12% (10% – 15%)

FIGURE 1. Distributions of relevant quantities from all completed trips using drift nets. The mean quantity by primary data source is shown in the top right; BBH = Bethel Boat Harbor (ONC), CBM = Other Villages (BSFA/KRITFC), FC = Bethel Area Fish Camps (ONC).



Appendix: Detailed Interview Summaries

Column Meanings

- **Area:** the area of the river the trip occurred in
- **N:** the number of interviews with usable information in each area
- **Min:** the minimum value among trips in each area
- **25%:** the value that 25% of trips fell below in each area
- **Mean:** the average value across trips in each area
- **75%:** the value that 75% of trips fell below in each area
- **Max:** the maximum value among trips in each area

Information is for drift net trips only.

TABLE A1. Summary of drift net catch rate of Chinook salmon by fishing area (salmon per 150 feet of net per hour).

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ↔ Johnson R.	7	0	2.6	3.5	4.4	7.5
Johnson R. ↔ Napaskiak	38	0	0.7	1.6	1.9	8
Napaskiak ↔ Akiachak	74	0	0.6	2.6	2.8	22
All	119	0	0.6	2.3	2.8	22

TABLE A2. Summary of drift net catch per trip of Chinook salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ↔ Johnson R.	7	0	10	11	14	22
Johnson R. ↔ Napaskiak	38	0	2	5	6	14
Napaskiak ↔ Akiachak	74	0	1	5	8	19
All	119	0	2	5	8	22

TABLE A3. Summary of drift net catch rate of chum+sockeye salmon by fishing area (salmon per 150 feet of net per hour).

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ↔ Johnson R.	7	2.8	5.2	28.7	49.2	75
Johnson R. ↔ Napaskiak	38	3.2	8.9	16	16.7	62.4
Napaskiak ↔ Akiachak	74	0.4	5.7	14.5	16.3	80
All	119	0.4	6.4	15.9	17.7	80

TABLE A4. Summary of drift net catch per trip of chum+sockeye salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ↔ Johnson R.	7	14	22	68	62	244
Johnson R. ↔ Napaskiak	38	4	26	42	59	160
Napaskiak ↔ Akiachak	74	1	12	28	36	161
All	119	1	16	35	44	244

TABLE A5. Summary of drift net percent composition of Chinook salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ↔ Johnson R.	7	0%	11%	25%	38%	61%
Johnson R. ↔ Napaskiak	38	0%	6%	10%	14%	26%
Napaskiak ↔ Akiachak	74	0%	5%	17%	25%	70%
All	119	0%	5%	15%	22%	70%

TABLE A6. Summary of drift net active fishing hours by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ↔ Johnson R.	7	0.5	1.3	2.4	3.2	4.5
Johnson R. ↔ Napaskiak	38	0.5	2.1	3.5	4.9	7
Napaskiak ↔ Akiachak	74	0.4	1.5	2.7	3.3	6.8
All	119	0.4	1.6	2.9	4	7

TABLE A7. Summary of drift net total trip duration by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ↔ Johnson R.	7	0.5	3.8	5.1	5.9	11.5
Johnson R. ↔ Napaskiak	38	0.5	2.6	4.1	5.9	8
Napaskiak ↔ Akiachak	74	0.8	2.5	4.1	5.6	9
All	119	0.5	2.5	4.1	5.7	11.5

TABLE A8. Summary of drift net trip start time by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ↔ Johnson R.	7	7:00 AM	8:00 AM	9:45 AM	10:55 AM	2:30 PM
Johnson R. ↔ Napaskiak	38	6:00 AM	7:30 AM	9:16 AM	10:45 AM	2:30 PM
Napaskiak ↔ Akiachak	74	5:30 AM	6:00 AM	8:44 AM	10:30 AM	2:00 PM
All	119	5:30 AM	6:30 AM	8:58 AM	10:30 AM	2:30 PM

TABLE A9. Summary of drift net trip end time by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ↔ Johnson R.	7	1:30 PM	1:56 PM	2:54 PM	3:00 PM	6:30 PM
Johnson R. ↔ Napaskiak	38	10:00 AM	12:30 PM	1:23 PM	2:29 PM	3:20 PM
Napaskiak ↔ Akiachak	74	7:30 AM	11:15 AM	12:47 PM	2:41 PM	3:25 PM
All	119	7:30 AM	12:00 PM	1:06 PM	2:41 PM	6:30 PM