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# Kuskokwim River In-season Harvest and Effort Estimates

## 8/3/2023 Subsistence Harvest Opportunity (Drift & Set Nets)

Opportunity Time Period: 9:00 AM – 9:00 PM (12 Hours)

Area Covered by Estimates: Tuntutuliak ↔ Bogus Cr.

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## Data Sources

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

Data Source	Interviews	Percent
Bethel Boat Harbor (ONC)	68	80%
Other Villages (KRITFC)	17	20%
<b>Total</b>	<b>85</b>	<b>100%</b>

Of these interviews, **79** were from drift nets and **6** were from set nets.

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

Time Information			Nets Counted	
Start Time	End Time	Hours	Drift	Set
4:00 PM	5:34 PM	1.57	59	4

## Effort Estimates

- An estimated **129** drift boat trips occurred.
  - An estimated **70** trips started and ended when no flights occurred.
- An estimated **6** set net trips occurred.

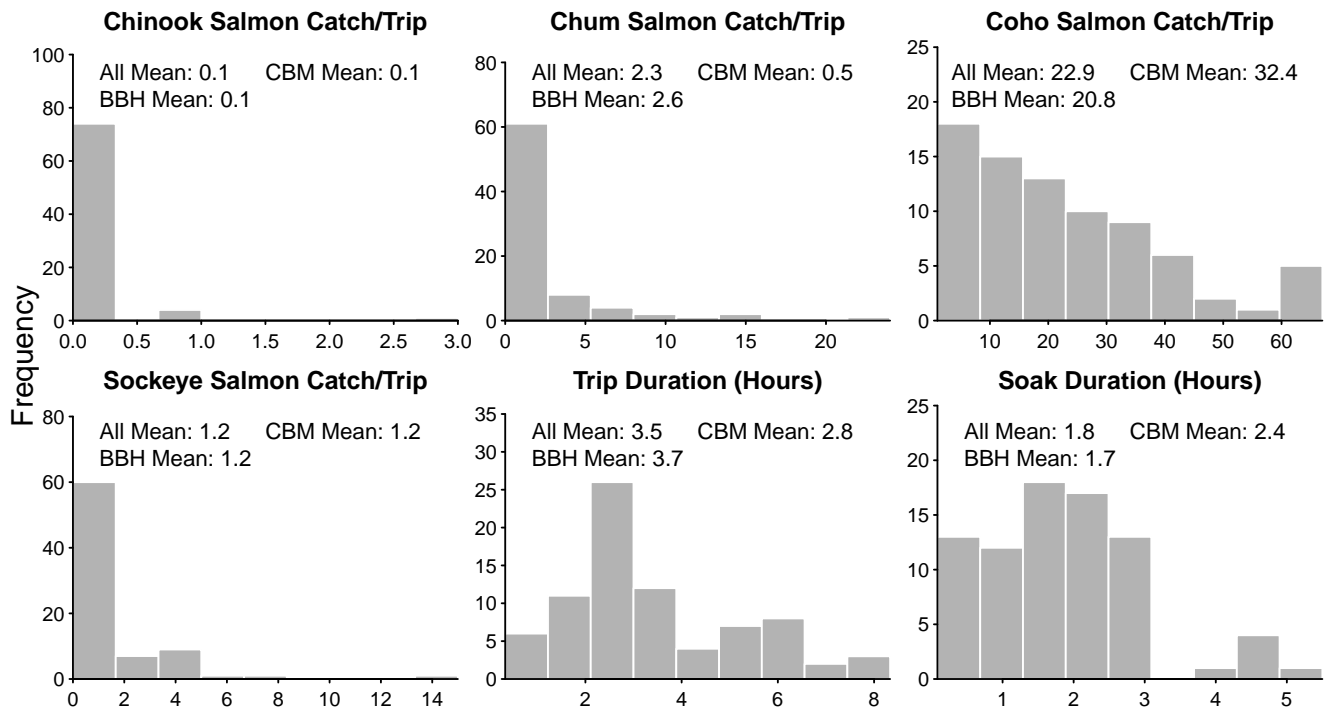
## Harvest Estimates

- An estimated total of **4,771 (4,062 – 5,598)** salmon were harvested.
  - An estimated total of **35 (9 – 75)** Chinook salmon were harvested.
  - An estimated total of **521 (338 – 742)** chum salmon were harvested.
  - An estimated total of **4,027 (3,388 – 4,769)** coho salmon were harvested.
  - An estimated total of **188 (122 – 282)** sockeye salmon were harvested.
- Harvest by set nets accounted for an estimated **216 (65 – 464)** total salmon (**0%** Chinook salmon, **9%** chum salmon, **76%** coho salmon, and **15%** sockeye salmon).

**TABLE 3.** Summaries by river stratum (area) for drift nets. Numbers in parentheses are 95% confidence intervals.

Stratum	Interviews	Effort Est.	Estimated Harvest				
			Chinook	Chum	Coho	Sockeye	Total
Tuntutuliak ↔ Johnson R.	2	4	1 (0 – 2)	16 (4 – 35)	210 (152 – 276)	9 (3 – 16)	<b>236</b> (174 – 306)
Johnson R. ↔ Napaskiak	21	18	3 (0 – 10)	81 (17 – 166)	831 (608 – 1,070)	41 (13 – 77)	<b>956</b> (705 – 1,232)
Napaskiak ↔ Akiachak	56	96	28 (3 – 67)	363 (191 – 563)	2,530 (1,977 – 3,169)	94 (54 – 148)	<b>3,016</b> (2,396 – 3,679)
Akiachak ↔ Akiak	0	7	2 (0 – 5)	27 (15 – 41)	185 (143 – 232)	7 (4 – 11)	<b>220</b> (175 – 269)
Akiak ↔ Bogus Cr.	0	4	1 (0 – 3)	15 (8 – 24)	106 (83 – 132)	4 (2 – 6)	<b>127</b> (100 – 155)
<b>Total</b>	<b>79</b>	<b>129</b>	<b>35</b> (9 – 75)	<b>502</b> (322 – 719)	<b>3,863</b> (3,234 – 4,585)	<b>155</b> (102 – 221)	<b>4,555</b> (3,889 – 5,309)

**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 (KRITFC).



# Appendix A: 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 per trip of Chinook salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ↔ Johnson R.	2	0	0	0	0	0
Johnson R. ↔ Napaskiak	21	0	0	0	0	1
Napaskiak ↔ Akiachak	56	0	0	0	0	3
<b>All</b>	<b>79</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>

**TABLE A2.** Summary of drift net catch rate of Chinook salmon by fishing area (fish per 150 feet of net per hour).

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ↔ Johnson R.	2	0	0	0	0	0
Johnson R. ↔ Napaskiak	19	0	0	0.1	0	2
Napaskiak ↔ Akiachak	56	0	0	0.2	0	7.2
<b>All</b>	<b>77</b>	<b>0</b>	<b>0</b>	<b>0.2</b>	<b>0</b>	<b>7.2</b>

**TABLE A3.** Summary of drift net catch per trip of chum salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ↔ Johnson R.	2	0	0	0	0	0
Johnson R. ↔ Napaskiak	21	0	0	2	2	24
Napaskiak ↔ Akiachak	56	0	0	2	3	15
<b>All</b>	<b>79</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>24</b>

**TABLE A4.** Summary of drift net catch rate of chum salmon by fishing area (fish per 150 feet of net per hour).

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ↔ Johnson R.	2	0	0	0	0	0
Johnson R. ↔ Napaskiak	19	0	0	2.3	2	20
Napaskiak ↔ Akiachak	56	0	0	2.7	3.1	30
<b>All</b>	<b>77</b>	<b>0</b>	<b>0</b>	<b>2.6</b>	<b>2.5</b>	<b>30</b>

**TABLE A5.** Summary of drift net catch per trip of coho salmon by fishing area.

<b>Area</b>	<b>N</b>	<b>Min</b>	<b>25%</b>	<b>Mean</b>	<b>75%</b>	<b>Max</b>
<b>Tuntutuliak ↔ Johnson R.</b>	2	25	29	32	36	40
<b>Johnson R. ↔ Napaskiak</b>	21	2	23	32	38	62
<b>Napaskiak ↔ Akiachak</b>	56	1	8	19	26	67
<b>All</b>	<b>79</b>	<b>1</b>	<b>10</b>	<b>23</b>	<b>32</b>	<b>67</b>

**TABLE A6.** Summary of drift net catch rate of coho salmon by fishing area (fish per 150 feet of net per hour).

<b>Area</b>	<b>N</b>	<b>Min</b>	<b>25%</b>	<b>Mean</b>	<b>75%</b>	<b>Max</b>
<b>Tuntutuliak ↔ Johnson R.</b>	2	8.9	31.7	54.4	77.2	100
<b>Johnson R. ↔ Napaskiak</b>	19	4.2	11.4	25.2	29.7	88
<b>Napaskiak ↔ Akiachak</b>	56	1	6.7	18.9	23.2	96
<b>All</b>	<b>77</b>	<b>1</b>	<b>7.7</b>	<b>21.3</b>	<b>24</b>	<b>100</b>

**TABLE A7.** Summary of drift net catch per trip of sockeye salmon by fishing area.

<b>Area</b>	<b>N</b>	<b>Min</b>	<b>25%</b>	<b>Mean</b>	<b>75%</b>	<b>Max</b>
<b>Tuntutuliak ↔ Johnson R.</b>	2	0	0	0	0	0
<b>Johnson R. ↔ Napaskiak</b>	21	0	0	1	2	8
<b>Napaskiak ↔ Akiachak</b>	56	0	0	1	1	15
<b>All</b>	<b>79</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>15</b>

**TABLE A8.** Summary of drift net catch rate of sockeye salmon by fishing area (fish per 150 feet of net per hour).

<b>Area</b>	<b>N</b>	<b>Min</b>	<b>25%</b>	<b>Mean</b>	<b>75%</b>	<b>Max</b>
<b>Tuntutuliak ↔ Johnson R.</b>	2	0	0	0	0	0
<b>Johnson R. ↔ Napaskiak</b>	19	0	0	1.3	1.6	10.7
<b>Napaskiak ↔ Akiachak</b>	56	0	0	0.7	1	5
<b>All</b>	<b>77</b>	<b>0</b>	<b>0</b>	<b>0.8</b>	<b>1</b>	<b>10.7</b>

**TABLE A9.** Summary of drift net percent composition of Chinook salmon by fishing area.

<b>Area</b>	<b>N</b>	<b>Min</b>	<b>25%</b>	<b>Mean</b>	<b>75%</b>	<b>Max</b>
<b>Tuntutuliak ↔ Johnson R.</b>	2	0%	0%	0%	0%	0%
<b>Johnson R. ↔ Napaskiak</b>	21	0%	0%	<1%	0%	3%
<b>Napaskiak ↔ Akiachak</b>	56	0%	0%	1%	0%	27%
<b>All</b>	<b>79</b>	<b>0%</b>	<b>0%</b>	<b>1%</b>	<b>0%</b>	<b>27%</b>

**TABLE A10.** Summary of drift net trip duration by fishing area.

<b>Area</b>	<b>N</b>	<b>Min</b>	<b>25%</b>	<b>Mean</b>	<b>75%</b>	<b>Max</b>
<b>Tuntutuliak ↔ Johnson R.</b>	2	2.6	3.3	4	4.7	5.4
<b>Johnson R. ↔ Napaskiak</b>	20	0.8	2.4	3.5	4.1	8.3
<b>Napaskiak ↔ Akiachak</b>	56	0.3	2.2	3.4	4.7	8
<b>All</b>	<b>78</b>	<b>0.3</b>	<b>2.2</b>	<b>3.5</b>	<b>4.6</b>	<b>8.3</b>

**TABLE A11.** Summary of drift net active fishing hours by fishing area.

<b>Area</b>	<b>N</b>	<b>Min</b>	<b>25%</b>	<b>Mean</b>	<b>75%</b>	<b>Max</b>
<b>Tuntutuliak ↔ Johnson R.</b>	2	0.2	1.3	2.4	3.4	4.5
<b>Johnson R. ↔ Napaskiak</b>	20	0.1	1.6	2.2	2.5	4.5
<b>Napaskiak ↔ Akiachak</b>	56	0.2	1	1.6	2	4.5
<b>All</b>	<b>78</b>	<b>0.1</b>	<b>1</b>	<b>1.8</b>	<b>2.3</b>	<b>4.5</b>

## Appendix B: Non-salmon Harvest Information

- An estimated total of **68 (26 – 122)** nonsalmon were harvested.
  - An estimated total of **9 (1 – 20)** sheefish were harvested.
  - An estimated total of **60 (22 – 113)** all whitefishes were harvested.
- Harvest by set nets accounted for an estimated **16 (0 – 56)** total nonsalmon (**0%** sheefish and **100%** all whitefishes).

**TABLE B1.** Summaries by river stratum (area) for drift nets. Numbers in parentheses are 95% confidence intervals.

Stratum	Interviews	Effort Est.	Estimated Harvest		
			Sheefish	Whitefish	Total
Tuntutuliak ↔ Johnson R.	2	4	1 (0 – 2)	2 (0 – 3)	2 (0 – 5)
Johnson R. ↔ Napaskiak	21	18	3 (0 – 10)	8 (2 – 16)	11 (2 – 23)
Napaskiak ↔ Akiachak	56	96	5 (0 – 12)	31 (5 – 71)	36 (7 – 76)
Akiachak ↔ Akiak	0	7	0 (0 – 1)	2 (0 – 5)	3 (0 – 6)
Akiak ↔ Bogus Cr.	0	4	0 (0 – 1)	1 (0 – 3)	1 (0 – 3)
<b>Total</b>	<b>79</b>	<b>129</b>	<b>9</b> (1 – 20)	<b>44</b> (17 – 86)	<b>53</b> (23 – 95)

**TABLE B2.** Summary of drift net catch per trip of sheefish by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ↔ Johnson R.	2	0	0	0	0	0
Johnson R. ↔ Napaskiak	21	0	0	0	0	2
Napaskiak ↔ Akiachak	56	0	0	0	0	2
<b>All</b>	<b>79</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>

**TABLE B3.** Summary of drift net catch per trip of all whitefishes by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ↔ Johnson R.	2	0	0	0	0	0
Johnson R. ↔ Napaskiak	21	0	0	0	0	1
Napaskiak ↔ Akiachak	56	0	0	0	0	6
<b>All</b>	<b>79</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>