Meeting Agenda

Date: **06/21/2023** **Time**: **10:00 a.m.–12:00 p.m.** Place: **ADF&G Office, Bethel, AK**

Time Called to Order: Chair:

ROLL CALL TO ESTABLISH QUORUM:

Upriver Elder:
Downriver Elder:
Commercial Fisher:
Lower River Subsistence:
Middle River Subsistence:
Upper River Subsistence:
Headwaters Subsistence:

QUORUM MET? Yes / No

Member at Large 1:
Member at Large 2:
Sport Fisher:
Western Interior RAC:
Y-K Delta RAC:
KRITFC:
ADF&G:

INTRODUCTIONS:
INVOCATION:
APPROVAL OF MINUTES: *Optional. ADF&G does not prepare official meeting minutes.*
APPROVAL OF AGENDA: *the agenda may be amended at this time.*
USFWS/KRITFC UPDATE:
ADF&G MANAGEMENT ACTIONS UNDER CONSIDERATION:
PEOPLE TO BE HEARD: *Non-Working Group Members*
CONTINUING BUSINESS:

- Subsistence Reports: Lowest River, ONC Inseason Subsistence Report, Lower River, Middle River, Upper River, Headwaters
- Inseason Harvest Report
- Overview of Kuskokwim River salmon run assessment:
  a. Test Fisheries (Bethel and Aniak):
  b. Sonar/Weirs/Aerial Surveys/Other:
  c. Subsistence Division Project Update:
  d. NVN Report:
- Working Group KRITFC Representative Report:
- Sport Fish Report:
- Intercept Fishery Report
- Discussion of ADF&G Management considerations and discussion of possible alternatives (recommendations from the Working Group):
- Motion for Discussion and Action:

OLD BUSINESS:

NEW BUSINESS:

- **Recruitment for vacant positions.**

COMMENTS FROM WORKING GROUP MEMBERS:

NEXT MEETING DATE:_____Time:_____Place:_____

Information Packets *ARE*:

- **Intended to help inform Working Group discussions.**
- **To be viewed and used in context with Working Group meetings only.**

Packets *ARE NOT*:

- **To be viewed as standalone documents.**
- **A final say on fisheries management decisions.**

Please use this information responsibly:
Packet information is an incomplete snapshot of an ongoing discussion and changing conditions. Packet information should not be reproduced for any purpose other than to describe Working Group meeting discussions.

Misuse of Packet information can contribute to misunderstandings that can **cause harm to salmon users** and potentially **damage salmon resources**.

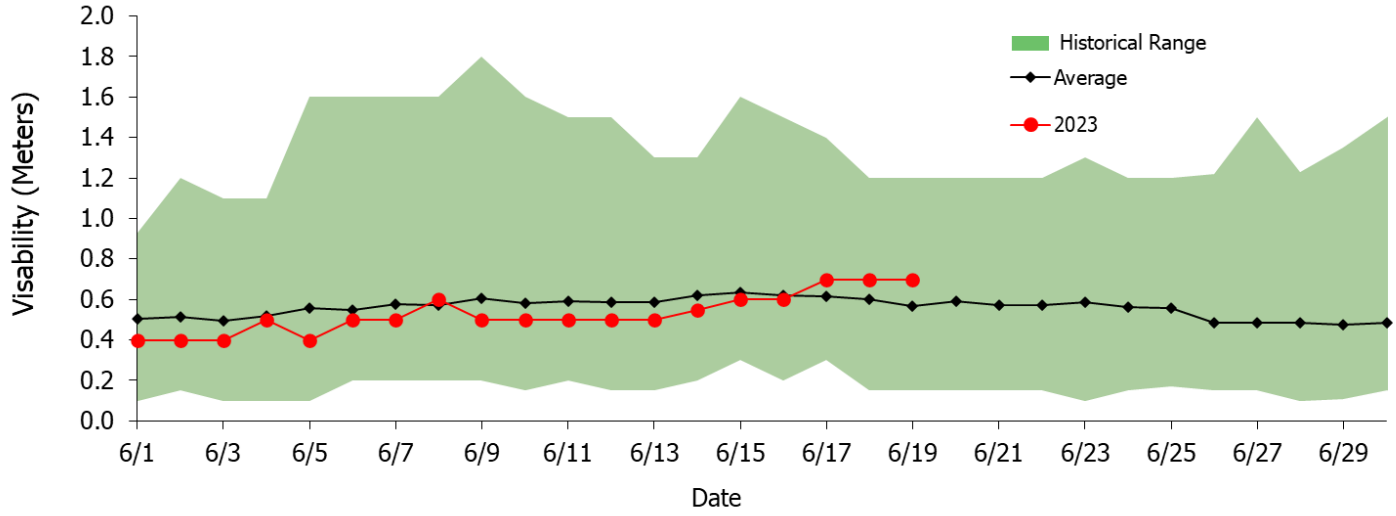
Ask Questions: ADF&G staff will be happy to answer biology and management questions. Please call **1-855-933-2433** to reach ADF&G Kuskokwim Area staff.

Attend Meetings: Each Working Group meeting is announced at least 48 hours prior to time and date of meeting. In addition, each meeting is recorded. Recordings can be found here: **http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareakuskokwim.kswg**

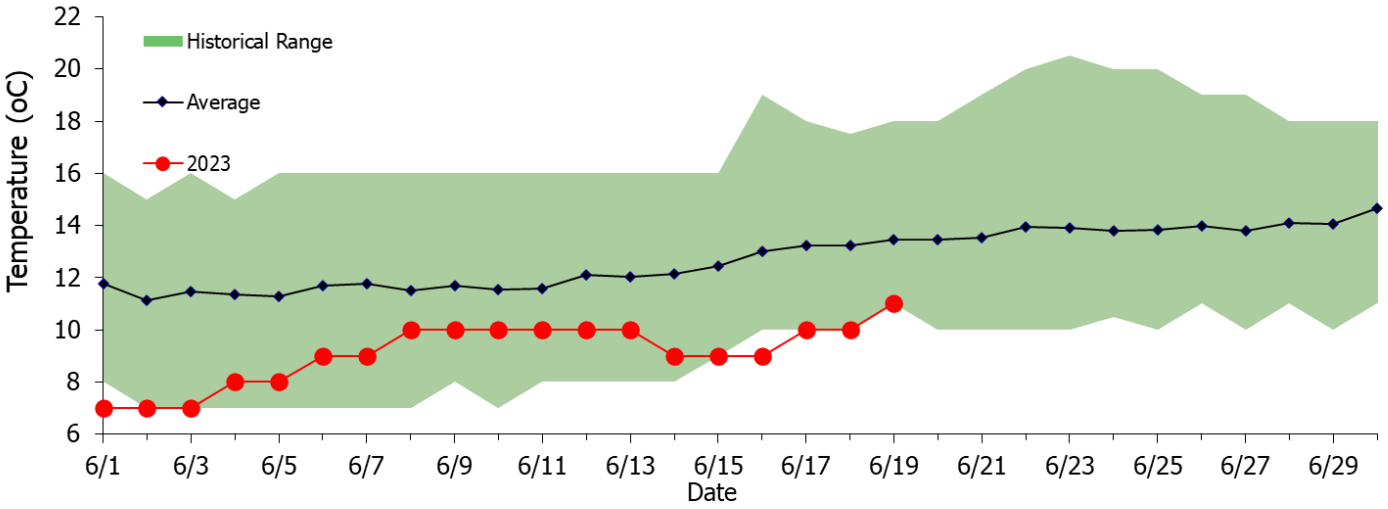
Viewing the information packet while listening to meetings/recordings will provide a better understanding of the information presented in this packet.

Thank you,
Savannah Hollingworth
Working Group Coordinator

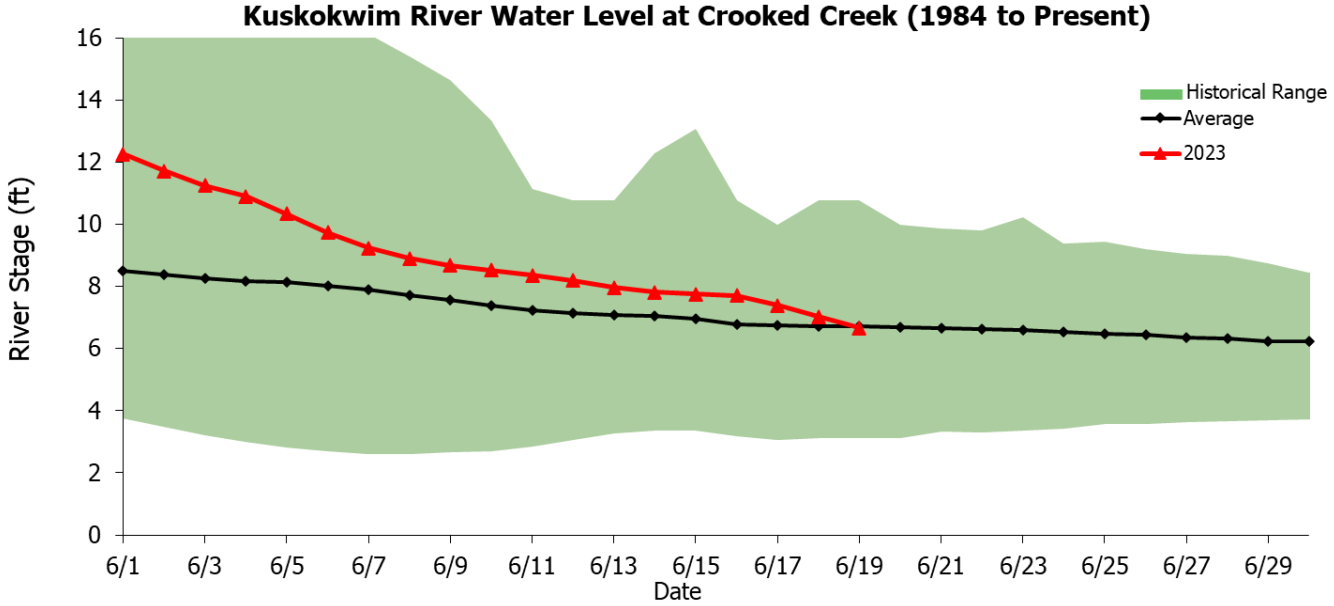
Historical Water Clarity at BTF site (1984 to Present)



Historical Water Temperature at BTF Site (1984 to Present)



Kuskokwim River Water Level at Crooked Creek (1984 to Present)



Kuskokwim River Salmon Assessment Update
6/19/2023

This document presents the key assessment information considered by managers in-season. The production of this document is a collaborative effort between USFWS and ADF&G. **All data and analyses contained are preliminary and are subject to change, so please make interpretations carefully**.

If you have any questions about the content, please contact Spencer Rearden (USFWS; spencer_rearden@fws.gov) or Sean Larson (ADF&G; sean.larson@alaska.gov). Major credit for the development of this data packet belongs to Benjamin Staton.

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Abbreviations:

- BTF: Bethel Test Fishery
- ATF: Aniak Test Fishery
- CPUE: Catch-per-unit-effort
- EOS: End-of-Season
- ADF&G: Alaska Department of Fish and Game
- KRITFC: Kuskokwim River Inter-tribal Fisheries Commission
- OTNC: Orutsaramiut Traditional Native Council
- USFWS: United States Fish and Wildlife Service
- YDNWR: Yukon Delta National Wildlife Refuge

To view escapement information, please visit the ADF&G Kuskokwim River Fish Counts page:

- http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareakuskokwim.salmon#fishcounts

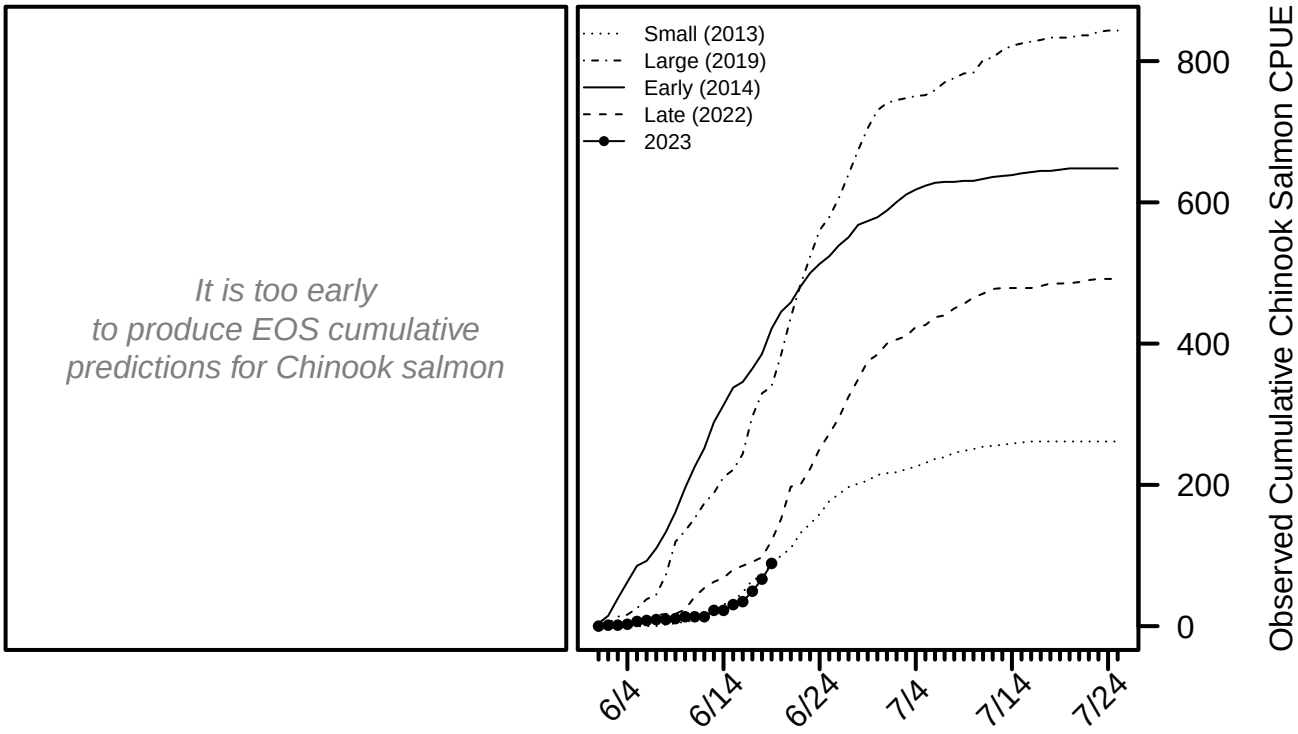
For the most up-to-date information regarding fishing opportunities please visit:

- **USFWS:** https://www.fws.gov/refuge/yukon_delta/wildlife_and_habitat/dailyupdate.html
- **ADF&G:** http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main

Chinook Salmon BTF Summary (6/19)

- The BTF daily CPUE was **22**.
- The BTF cumulative CPUE is now **89**.
- **14%** years since 2008 fell below this cumulative CPUE on this date.
- **36%** of the run is complete based on historical average run timing.
- **26% - 47%** of the run is complete based the central 50% of all historical run timing scenarios.
- **20% - 22%** of the run is expected to pass Bethel in the next 5 days.
- Over the last 3 days, Chinook salmon made up **46%** of the BTF catches, compared to **25%** on average.

Chinook Salmon Figure 1. *Left*: will show predicted cumulative EOS BTF CPUE according to various run timing scenarios when enough data have been collected. *Right*: The cumulative BTF CPUE from 2023 plotted along with four previous years intended to represent a range of early/late and small/large index values.



For more detailed information, see the ***Chinook salmon appendix*** *at the end of this document.*

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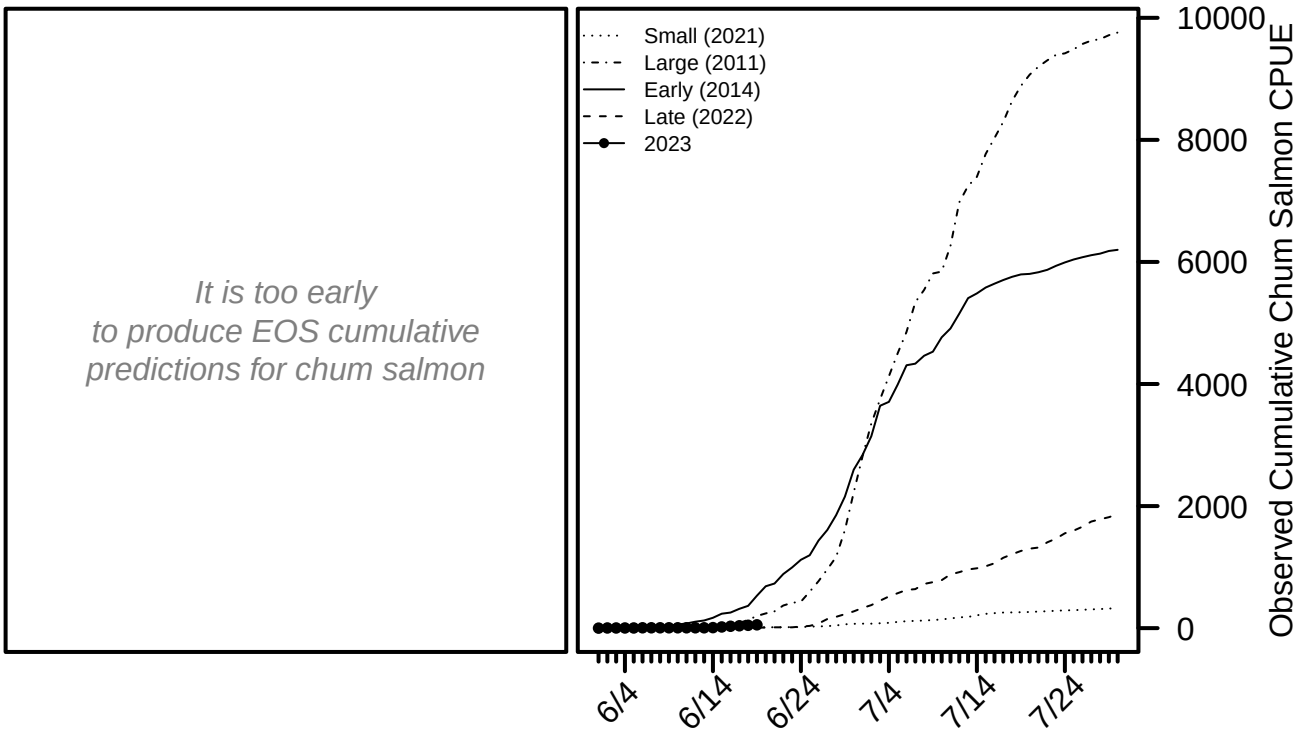
Chum Salmon BTF Summary (6/19)

- The BTF daily CPUE was **8**.
- The BTF cumulative CPUE is now **54**.
- **29%** years since 2008 fell below this cumulative CPUE on this date.
- **4%** of the run is complete based on historical average run timing.
- **2% - 8%** of the run is complete based the central 50% of all historical run timing scenarios.
- **5% - 13%** of the run is expected to pass Bethel in the next 5 days.
- Over the last 3 days, chum salmon made up **20%** of the BTF catches, compared to **41%** on average.

Chum Salmon Figure 1. *Left*: will show predicted cumulative EOS BTF CPUE according to various run timing scenarios when enough data have been collected. *Right*: The cumulative BTF CPUE from 2023 plotted along with four previous years intended to represent a range of early/late and small/large index values.



For more detailed information, see the ***chum salmon appendix*** *at the end of this document.*

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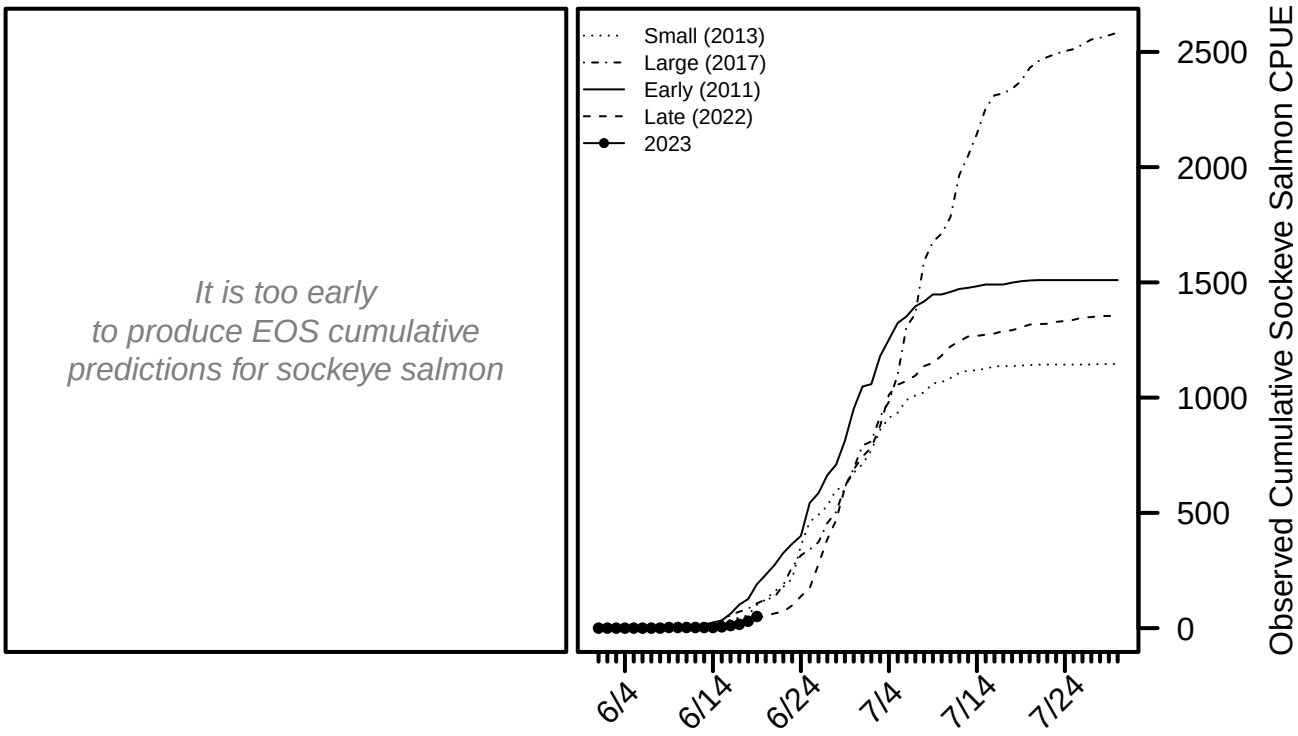
Sockeye Salmon BTF Summary (6/19)

- The BTF daily CPUE was **21**.
- The BTF cumulative CPUE is now **50**.
- **36%** years since 2008 fell below this cumulative CPUE on this date.
- **8%** of the run is complete based on historical average run timing.
- **4% - 15%** of the run is complete based on the central 50% of all historical run timing scenarios.
- **11% - 24%** of the run is expected to pass Bethel in the next 5 days.
- Over the last 3 days, sockeye salmon made up **34%** of the BTF catches, compared to **34%** on average.

Sockeye Salmon Figure 1. *Left*: will show predicted cumulative EOS BTF CPUE according to various run timing scenarios when enough data have been collected. *Right*: The cumulative BTF CPUE from 2023 plotted along with four previous years intended to represent a range of early/late and small/large index values.



For more detailed information, see the ***sockeye salmon appendix*** *at the end of this document.*

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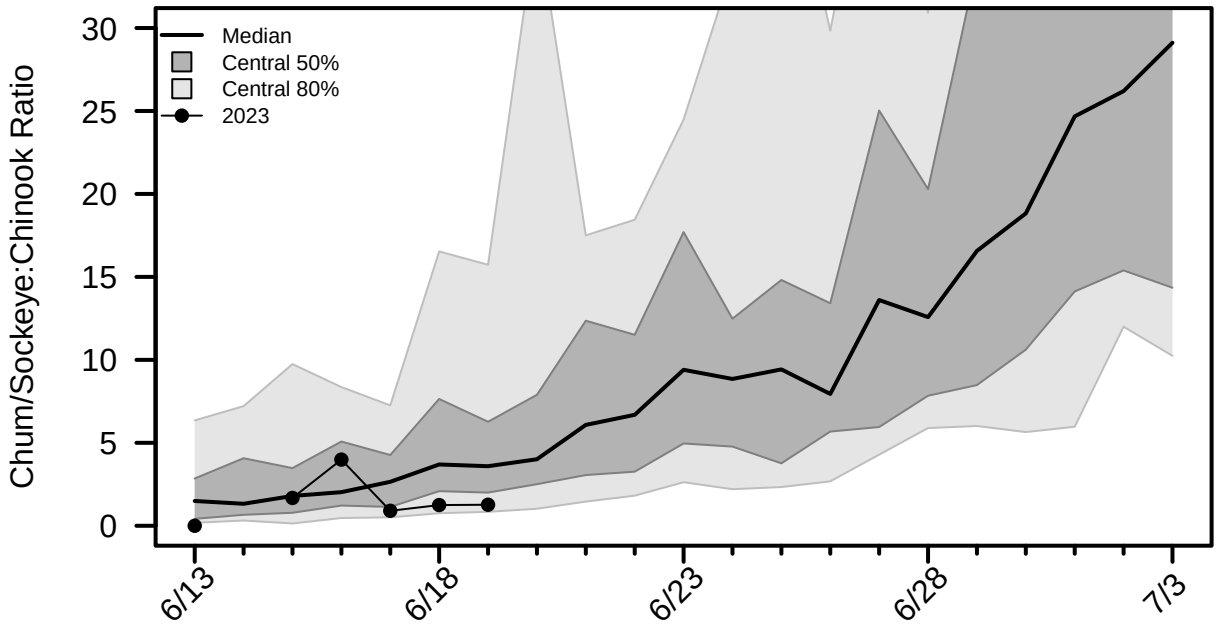
Chum/Sockeye:Chinook Salmon Ratio

This ratio is calculated by dividing the total number of chum and sockeye salmon counted by the number of Chinook salmon counted by a project each day. A value of zero indicates Chinook salmon were counted that day, but not chum or sockeye salmon. A missing value on a day the project operated indicates no Chinook salmon were counted that day.

Species Ratio Figure 1. Time series of the species ratio with historical quantiles shown as grey regions and the ratio time series for 2023 shown with points connected by lines.



Ratio Table 1. A subset of the species ratios displayed in **Ratio Figure 1**, including the ratios from the ATF.

Date	2023 BTF	BTF Median	BTF Lower 10%	BTF Upper 10%	2023 ATF
6/16	3.99	2.03	0.47	8.36	–
6/17	0.9	2.65	0.51	7.26	–
6/18	1.25	3.7	0.76	16.53	–
6/19	**1.27**	**3.59**	**0.84**	**15.73**	**0**
6/20		4.01	1.03	36.55	
6/21		6.08	1.46	17.5	
6/22		6.69	1.81	18.44	

Ratio Table 2. The percent of previous years in which a given species ratio was exceeded at least once before a certain day in the BTF.

Date	Ratio > 1	Ratio > 3	Ratio > 5	Ratio > 10	Ratio > 20
6/16	87%	69%	46%	18%	5%
6/17	92%	74%	49%	21%	5%
6/18	92%	77%	54%	33%	10%
6/19	**95%**	**85%**	**67%**	**36%**	**13%**
6/20	100%	87%	72%	44%	21%
6/21	100%	90%	85%	54%	21%
6/22	100%	92%	90%	59%	21%

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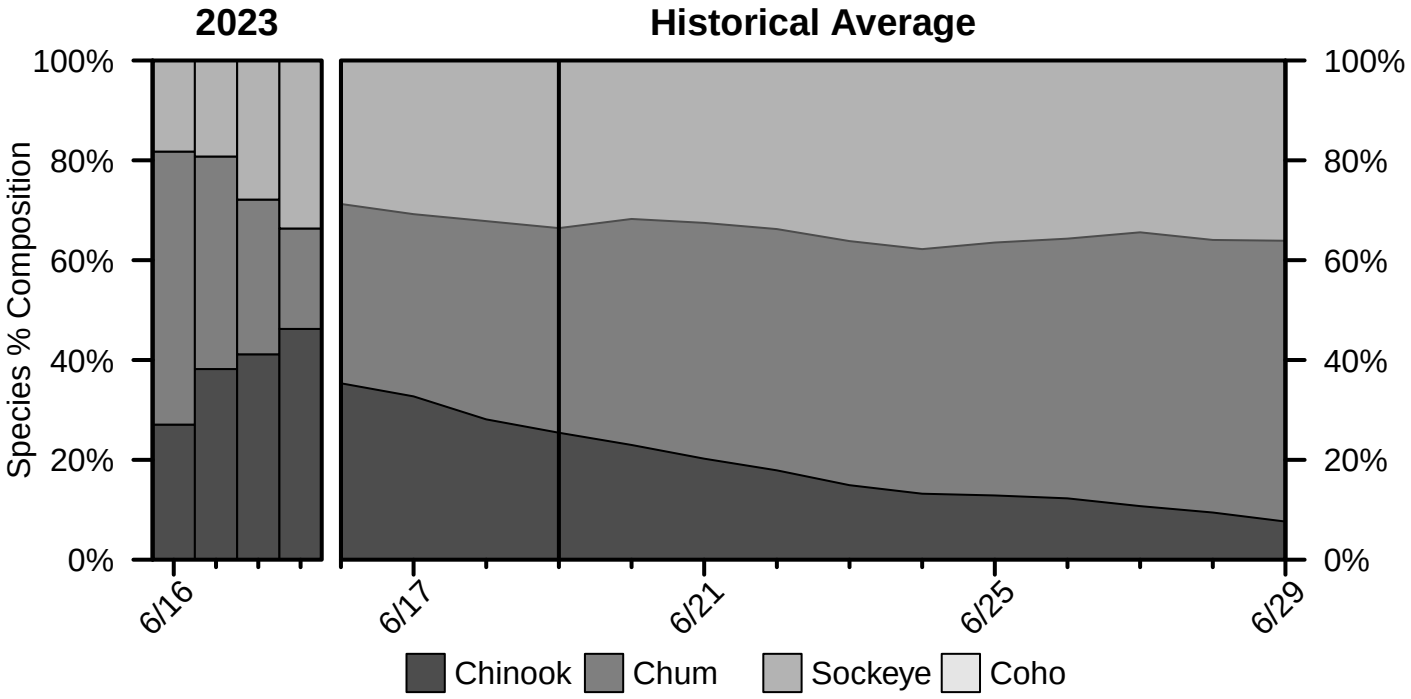
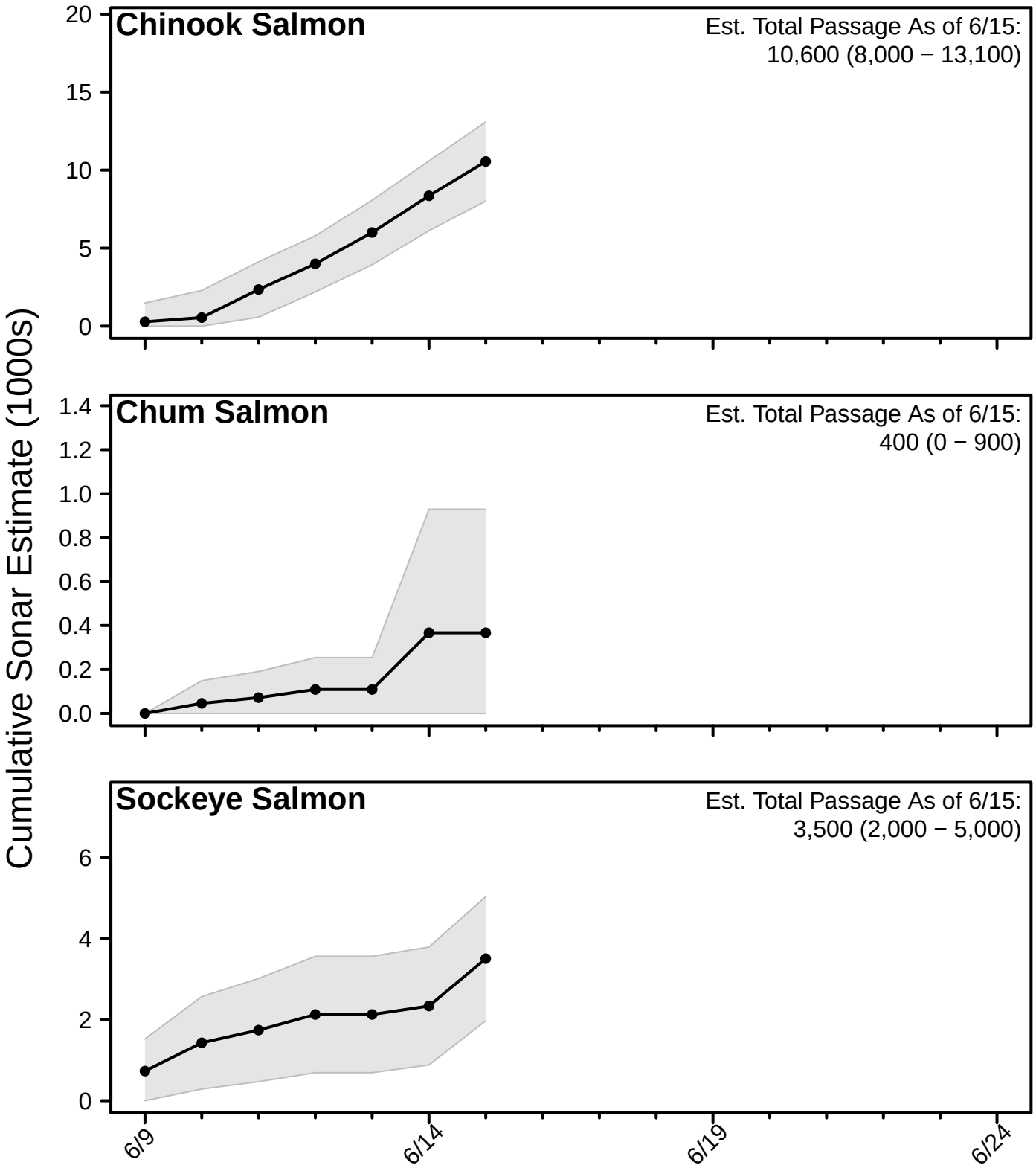
Percent Composition by Salmon Species

Percent Composition Figure 1. Species percent composition in the BTF from 2023 and based on the historical average. The composition presented on each day represents the average composition over the past 2 days.



Sonar Passage Estimates

Sonar Figure 1. Cumulative estimates of salmon passage from the 2023 sonar operation through the last complete reporting day. Grey bands show the 95% confidence intervals on each complete reporting day.



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Chinook Salmon Appendix

Chinook Salmon Table A1. Cumulative CPUE from the BTF.

Date	2023	2022	2021	2020	2019	5-Yr Avg.	2008 - 2022 Avg.
6/16	35	85	130	104	244	145	143
6/17	49	91	135	116	297	163	160
6/18	66	98	155	134	330	181	177
6/19	**89**	**121**	**169**	**135**	**339**	**193**	**196**
6/20		152	185	154	385	218	218
6/21		198	196	176	438	246	242
6/22		200	207	182	483	261	263
EOS		504	532	487	848	608	562

Chinook Salmon Table A2. Cumulative CPUE from the ATF.

Date	2023	2022	2021	2020	2019
6/16	7	8	99	68	595
6/17	7	35	182	107	645
6/18	7	73	233	140	795
6/19	**14**	**118**	**261**	**167**	**810**
6/20		125	302	218	836
6/21		157	387	245	836
6/22		213	464	285	953
EOS		1,277	1,891	1,874	1,691

Chinook Salmon Table A3. Percent of run complete according to various historical run timing scenarios from the BTF.

Timing	Midpoint	6/19 Cumulative %
Earliest	6/14	67%
Early 10%	6/18	56%
Early 25%	6/21	47%
Median	6/22	36%
Late 25%	6/25	26%
Late 10%	6/26	18%
Latest	7/3	11%

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Chum Salmon Appendix

Chum Salmon Table A1. Cumulative CPUE from the BTF.

Date	2023	2022	2021	2020	2019	5-Yr Avg.	2008 - 2022 Avg.
6/16	30	6	8	12	19	50	72
6/17	38	9	9	12	24	54	87
6/18	46	9	12	12	34	62	124
6/19	**54**	**9**	**14**	**17**	**36**	**78**	**174**
6/20		9	14	17	55	100	222
6/21		14	14	40	95	122	281
6/22		14	14	44	108	140	353
EOS		2,193	327	1,442	6,427	3,720	5,590

Chum Salmon Table A2. Cumulative CPUE from the ATF.

Date	2023	2022	2021	2020	2019
6/16	0	0	0	13	5
6/17	0	0	0	13	5
6/18	0	0	0	13	5
6/19	**0**	**0**	**6**	**26**	**5**
6/20		0	6	32	5
6/21		0	6	45	5
6/22		7	6	52	5
EOS		952	267	2,611	1,051

Chum Salmon Table A3. Percent of run complete according to various historical run timing scenarios from the BTF.

Timing	Midpoint	6/19 Cumulative %
Earliest	6/23	19%
Early 10%	7/1	13%
Early 25%	7/3	8%
Median	7/6	4%
Late 25%	7/9	2%
Late 10%	7/11	1%
Latest	7/16	<1%

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Sockeye Salmon Appendix

Sockeye Salmon Table A1. Cumulative CPUE from the BTF.

Date	2023	2022	2021	2020	2019	5-Yr Avg.	2008 - 2022 Avg.
6/16	11	5	30	1	15	13	33
6/17	16	22	36	1	24	20	42
6/18	30	22	48	15	29	26	55
6/19	**50**	**41**	**56**	**22**	**35**	**35**	**79**
6/20		53	72	27	63	50	99
6/21		64	78	43	86	61	123
6/22		72	93	56	138	81	161
EOS		1,372	1,694	1,060	2,685	1,817	1,747

Sockeye Salmon Table A2. Cumulative CPUE from the ATF.

Date	2023	2022	2021	2020	2019
6/16	0	0	0	0	0
6/17	0	0	0	0	0
6/18	0	6	0	0	0
6/19	**0**	**6**	**0**	**0**	**0**
6/20		6	0	0	0
6/21		6	0	0	0
6/22		6	6	0	0
EOS		129	241	209	33

Sockeye Salmon Table A3. Percent of run complete according to various historical run timing scenarios from the BTF.

Timing	Midpoint	6/19 Cumulative %
Earliest	6/22	34%
Early 10%	6/24	23%
Early 25%	6/27	15%
Median	6/29	8%
Late 25%	7/2	4%
Late 10%	7/6	2%
Latest	7/10	1%

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2021 Lower River Harvest Estimates (Tuntutuliak to Akiak) – *KRITFC + ONC + USFWS Data*

2021 FISHING DATE	PERIOD	GEAR TYPE	TRIPS	CHINOOK SALMON HARVEST	CHUM SALMON HARVEST	SOCKEYE SALMON HARVEST	TOTAL SALMON HARVEST	CUMULATIVE CHINOOK SALMON HARVEST	CUMULATIVE CHUM SALMON HARVEST
6/2/2021	16 h	S	29S	30	0	0	30	30	0
6/5/2021	16 h	S	91S	300	10	40	350	330	10
6/9/2021	16 h	S	107S	390	0	20	410	720	10
6/12/2021	12 h	D/S	381D, 23S	3,260	70	350	3,640	3,980	80
6/15/2021	12 h	D/S	467D, 31S	8,580	360	1,400	10,340	12,560	440
6/19/2021	12 h	D/S	511D, 31S	6,190	990	2,400	9,580	18,750	1,430

2022 Lower River Harvest Estimates (Tuntutuliak to Akiak) – *KRITFC + ONC + USFWS Data*

2022 FISHING DATE	PERIOD	GEAR TYPE	TRIPS	CHINOOK SALMON HARVEST	CHUM SALMON HARVEST	SOCKEYE SALMON HARVEST	TOTAL SALMON HARVEST	CUMULATIVE CHINOOK SALMON HARVEST	CUMULATIVE CHUM SALMON HARVEST
6/1/2022	16 h	S	30S	30	0	0	30	30	0
6/4/2022	16 h	S	75S	80	0	0	80	110	0
6/8/2022	16 h	S	78S	120	0	20	140	230	0
6/12/2022	12 h	D/S	457D, 22S	4,700	60	360	5,120	4,930	60
6/16/2022	12 h	D/S	473D, 32S	7,680	160	1,920	9,770	12,610	220
6/22/2022	12 h	D/S	572D, 17S	14,000	950	13,720	28,670	26,610	1,170

2023 Lower River Harvest Estimates (Tuntutuliak to Tuluksak) – *KRITFC + ONC + USFWS Data*

2023 FISHING DATE	PERIOD	GEAR TYPE	TRIPS	CHINOOK SALMON HARVEST	CHUM SALMON HARVEST	SOCKEYE SALMON HARVEST	TOTAL SALMON HARVEST	CUMULATIVE CHINOOK SALMON HARVEST	CUMULATIVE CHUM SALMON HARVEST
6/3/2023	16 h	S	60S	376	4	0	381	376	4
6/6/2023	16 h	S	82S	220	1	0	221	596	5
6/9/2023	16 h	S	129S	1,064	15	122	1,201	1,660	20
6/12/2023	12 h	D/S	202D/31S	1,003	107	414	1,524	2,663	127
6/17/2023	12 h	D/S	484D/36S	10,437	2,957	6,160	19,554	13,100	3,084

Kuskokwim River In-season Harvest and Effort Estimates

6/3/2023 Subsistence Harvest Opportunity (Set Nets Only)

Opportunity Time Period: 6:00 AM – 10:00 PM (16 Hours)

Area Covered by Estimates: Tuntutuliak ⟷ Bogus Cr.

Contact Person(s): Bill Bechtol (bechtolresearch@hughes.net)

Announcement #: FSA-YD-23-01

Data Sources

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

Data Source	Interviews	Percent
Other Villages (KRITFC)	11	46%
Bethel Boat Harbor (ONC)	9	37%
Bethel Area Fish Camps (ONC)	4	17%
Total	**24**	**100%**

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

Time Information			Nets Counted	
Start Time	**End Time**	**Hours**	**Drift**	**Set**
2:00 PM	4:20 PM	2.33	0	60

Effort Estimates

- An estimated **60** set net trips occurred.

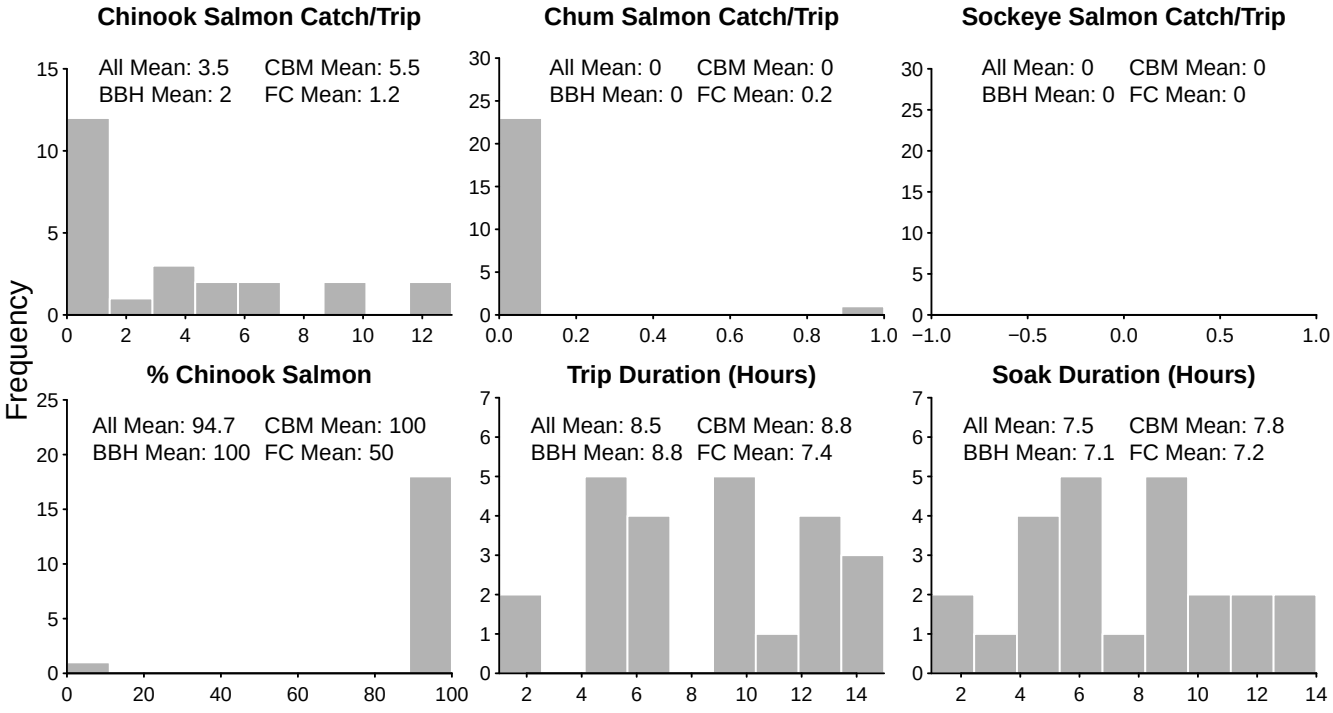
Harvest Estimates

- An estimated total of **381 (195 – 613)** salmon were harvested.
  - An estimated total of **376 (191 – 613)** Chinook salmon were harvested.
  - An estimated total of **4 (0 – 14)** chum salmon were harvested.
  - An estimated total of **0 (0 – 0)** sockeye salmon were harvested.

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

Stratum	Interviews	Effort Est.	Estimated Harvest			
			Chinook	Chum	Sockeye	Total
Tuntutuliak ⟷ Johnson R.	0	1	6 (3 – 10)	0 (0 – 0)	0 (0 – 0)	**6 (3 – 10)**
Johnson R. ⟷ Napaskiak	6	10	63 (32 – 102)	1 (0 – 2)	0 (0 – 0)	**64 (33 – 103)**
Napaskiak ⟷ Akiachak	17	41	257 (130 – 419)	3 (0 – 10)	0 (0 – 0)	**260 (133 – 419)**
Akiachak ⟷ Akiak	1	5	31 (16 – 51)	0 (0 – 1)	0 (0 – 0)	**32 (16 – 51)**
Akiak ⟷ Bogus Cr.	0	3	19 (10 – 31)	0 (0 – 1)	0 (0 – 0)	**19 (10 – 31)**
Total	**24**	**60**	**376 (191 – 613)**	**4 (0 – 14)**	**0 (0 – 0)**	**381 (195 – 613)**

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



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 set net trips only.

TABLE A1. Summary of set net catch per trip of Chinook salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Johnson R. ⟷ Napaskiak	6	6	8	9	11	13
Napaskiak ⟷ Akiachak	17	0	0	2	3	5
Akiachak ⟷ Akiak	1	1	1	1	1	1
All	**24**	**0**	**1**	**3**	**5**	**13**

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

Area	N	Min	25%	Mean	75%	Max
Johnson R. ⟷ Napaskiak	6	2.1	2.4	2.8	3.1	3.9
Napaskiak ⟷ Akiachak	17	0	0	1.6	0.6	12.5
Akiachak ⟷ Akiak	1	0	0	0	0	0
All	**24**	**0**	**0**	**1.9**	**2.4**	**12.5**

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

Area	N	Min	25%	Mean	75%	Max
Johnson R. ⟷ Napaskiak	6	0	0	0	0	0
Napaskiak ⟷ Akiachak	17	0	0	0	0	1
Akiachak ⟷ Akiak	1	0	0	0	0	0
All	**24**	**0**	**0**	**0**	**0**	**1**

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

Area	N	Min	25%	Mean	75%	Max
Johnson R. ⟷ Napaskiak	6	0	0	0	0	0
Napaskiak ⟷ Akiachak	17	0	0	0	0	0.5
Akiachak ⟷ Akiak	1	0	0	0	0	0
All	**24**	**0**	**0**	**0**	**0**	**0.5**

TABLE A5. Summary of set net catch per trip of sockeye salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Johnson R. ⟷ Napaskiak	6	0	0	0	0	0
Napaskiak ⟷ Akiachak	17	0	0	0	0	0
Akiachak ⟷ Akiak	1	0	0	0	0	0
All	**24**	**0**	**0**	**0**	**0**	**0**

TABLE A6. Summary of set net catch rate of sockeye salmon by fishing area (fish per 150 feet of net per hour).

Area	N	Min	25%	Mean	75%	Max
Johnson R. ⟷ Napaskiak	6	0	0	0	0	0
Napaskiak ⟷ Akiachak	17	0	0	0	0	0
Akiachak ⟷ Akiak	1	0	0	0	0	0
All	**24**	**0**	**0**	**0**	**0**	**0**

TABLE A7. Summary of set net percent composition of Chinook salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Johnson R. ⟷ Napaskiak	6	100%	100%	100%	100%	100%
Napaskiak ⟷ Akiachak	17	0%	100%	92%	100%	100%
Akiachak ⟷ Akiak	1	100%	100%	100%	100%	100%
All	**24**	**0%**	**100%**	**95%**	**100%**	**100%**

TABLE A8. Summary of set net trip duration by fishing area.

Area	N	Min	25%	Mean	75%	Max
Johnson R. ⟷ Napaskiak	6	5	6.8	9.1	10.4	14
Napaskiak ⟷ Akiachak	17	1	5.5	8	12	14.5
Akiachak ⟷ Akiak	1	15	15	15	15	15
All	**24**	**1**	**5.5**	**8.5**	**12.1**	**15**

TABLE A9. Summary of set net active fishing hours by fishing area.

Area	N	Min	25%	Mean	75%	Max
Johnson R. ⟷ Napaskiak	6	4.8	6.4	8.6	9.9	13
Napaskiak ⟷ Akiachak	17	1	4.8	6.9	9	14
Akiachak ⟷ Akiak	1	10	10	10	10	10
All	**24**	**1**	**4.9**	**7.5**	**9.6**	**14**

Kuskokwim River In-season Harvest and Effort Estimates

6/6/2023 Subsistence Harvest Opportunity (Set Nets Only)

Opportunity Time Period: 6:00 AM – 10:00 PM (16 Hours)

Area Covered by Estimates: Tuntutuliak ⟷ Bogus Cr.

Contact Person(s): Bill Bechtol (bechtolresearch@hughes.net)

Announcement #: FSA-YD-23-01

Data Sources

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

Data Source	Interviews	Percent
Other Villages (KRITFC)	19	41%
Bethel Boat Harbor (ONC)	17	37%
Bethel Area Fish Camps (ONC)	10	22%
Total	**46**	**100%**

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

Time Information			Nets Counted	
Start Time	**End Time**	**Hours**	**Drift**	**Set**
2:10 PM	4:20 PM	2.17	0	82

Effort Estimates

- An estimated **82** set net trips occurred.

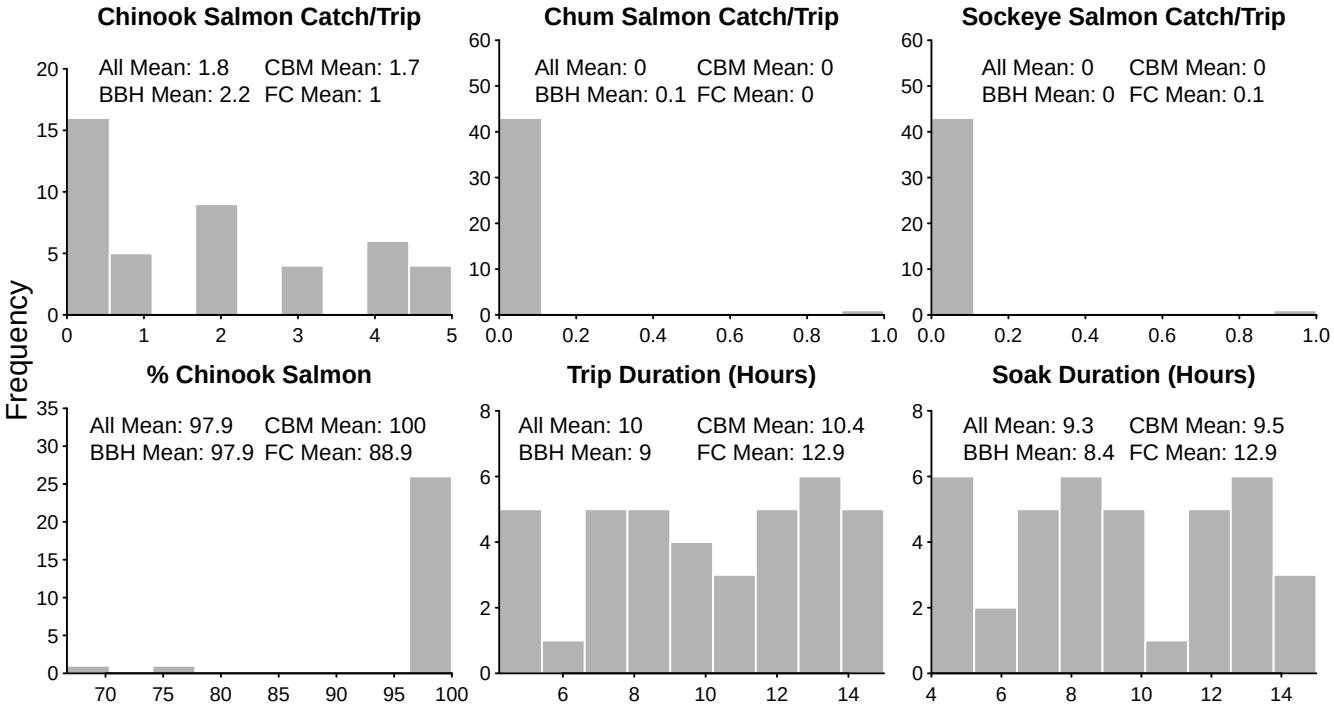
Harvest Estimates

- An estimated total of **221 (149 – 297)** salmon were harvested.
  - An estimated total of **220 (149 – 295)** Chinook salmon were harvested.
  - An estimated total of **1 (0 – 5)** chum salmon were harvested.
  - An estimated total of **0 (0 – 0)** sockeye salmon were harvested.

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

Stratum	Interviews	Effort Est.	Estimated Harvest			
			Chinook	Chum	Sockeye	Total
Tuntutuliak ⟷ Johnson R.	1	1	3 (2 – 4)	0 (0 – 0)	0 (0 – 0)	**3 (2 – 4)**
Johnson R. ⟷ Napaskiak	8	9	24 (16 – 32)	0 (0 – 1)	0 (0 – 0)	**24 (16 – 33)**
Napaskiak ⟷ Akiachak	31	57	153 (104 – 205)	1 (0 – 3)	0 (0 – 0)	**154 (104 – 206)**
Akiachak ⟷ Akiak	5	4	11 (7 – 14)	0 (0 – 0)	0 (0 – 0)	**11 (7 – 14)**
Akiak ⟷ Bogus Cr.	0	11	30 (20 – 40)	0 (0 – 1)	0 (0 – 0)	**30 (20 – 40)**
Total	**45**	**82**	**220 (149 – 295)**	**1 (0 – 5)**	**0 (0 – 0)**	**221 (149 – 297)**

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



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 set net trips only.

TABLE A1. Summary of set net catch per trip of Chinook salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	2	2	2	2	2
Johnson R. ⟷ Napaskiak	8	0	2	2	3	4
Napaskiak ⟷ Akiachak	31	0	0	2	4	5
Akiachak ⟷ Akiak	5	0	0	0	1	1
All	**45**	**0**	**0**	**2**	**3**	**5**

TABLE A2. Summary of set 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.	1	0.4	0.4	0.4	0.4	0.4
Johnson R. ⟷ Napaskiak	8	0	0.5	0.6	0.9	1.1
Napaskiak ⟷ Akiachak	31	0	0	0.8	1	3.1
Akiachak ⟷ Akiak	5	0	0	0.1	0.2	0.2
All	**45**	**0**	**0**	**0.7**	**0.9**	**3.1**

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

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	0	0	0	0	0
Johnson R. ⟷ Napaskiak	8	0	0	0	0	0
Napaskiak ⟷ Akiachak	31	0	0	0	0	1
Akiachak ⟷ Akiak	5	0	0	0	0	0
All	**45**	**0**	**0**	**0**	**0**	**1**

TABLE A4. Summary of set 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.	1	0	0	0	0	0
Johnson R. ⟷ Napaskiak	8	0	0	0	0	0
Napaskiak ⟷ Akiachak	31	0	0	0	0	0.2
Akiachak ⟷ Akiak	5	0	0	0	0	0
All	**45**	**0**	**0**	**0**	**0**	**0.2**

TABLE A5. Summary of set net catch per trip of sockeye salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	0	0	0	0	0
Johnson R. ⟷ Napaskiak	8	0	0	0	0	0
Napaskiak ⟷ Akiachak	31	0	0	0	0	1
Akiachak ⟷ Akiak	5	0	0	0	0	0
All	**45**	**0**	**0**	**0**	**0**	**1**

TABLE A6. Summary of set net catch rate of sockeye salmon by fishing area (fish per 150 feet of net per hour).

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	0	0	0	0	0
Johnson R. ⟷ Napaskiak	8	0	0	0	0	0
Napaskiak ⟷ Akiachak	31	0	0	0	0	0
Akiachak ⟷ Akiak	5	0	0	0	0	0
All	**45**	**0**	**0**	**0**	**0**	**0**

TABLE A7. Summary of set net percent composition of Chinook salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	100%	100%	100%	100%	100%
Johnson R. ⟷ Napaskiak	8	100%	100%	100%	100%	100%
Napaskiak ⟷ Akiachak	31	67%	100%	97%	100%	100%
Akiachak ⟷ Akiak	5	100%	100%	100%	100%	100%
All	**45**	**67%**	**100%**	**98%**	**100%**	**100%**

TABLE A8. Summary of set net trip duration by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	9	9	9	9	9
Johnson R. ⟷ Napaskiak	8	7	8.5	9	10	10.5
Napaskiak ⟷ Akiachak	31	4.2	7	9.8	12.7	15
Akiachak ⟷ Akiak	5	12	12	12.6	13	13
All	**45**	**4.2**	**7.5**	**10**	**12.7**	**15**

TABLE A9. Summary of set net active fishing hours by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	8.5	8.5	8.5	8.5	8.5
Johnson R. ⟷ Napaskiak	8	5	7.6	8.3	9.6	10.2
Napaskiak ⟷ Akiachak	31	4	6	9.1	12.7	15
Akiachak ⟷ Akiak	5	11.5	11.8	12.3	12.8	13
All	**45**	**4**	**7**	**9.3**	**12.2**	**15**

Kuskokwim River In-season Harvest and Effort Estimates

6/9/2023 Subsistence Harvest Opportunity (Set Nets Only)

Opportunity Time Period: 6:00 AM – 10:00 PM (16 Hours)

Area Covered by Estimates: Tuntutuliak ⟷ Bogus Cr.

Contact Person(s): Bill Bechtol (bechtolresearch@hughes.net)

Announcement #: FSA-YD-23-01

Data Sources

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

Data Source	Interviews	Percent
Other Villages (KRITFC)	38	52%
Bethel Area Fish Camps (ONC)	18	25%
Bethel Boat Harbor (ONC)	17	23%
Total	**73**	**100%**

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

Time Information			Nets Counted	
Start Time	**End Time**	**Hours**	**Drift**	**Set**
1:00 PM	3:30 PM	2.5	0	129

Effort Estimates

- An estimated **129** set net trips occurred.

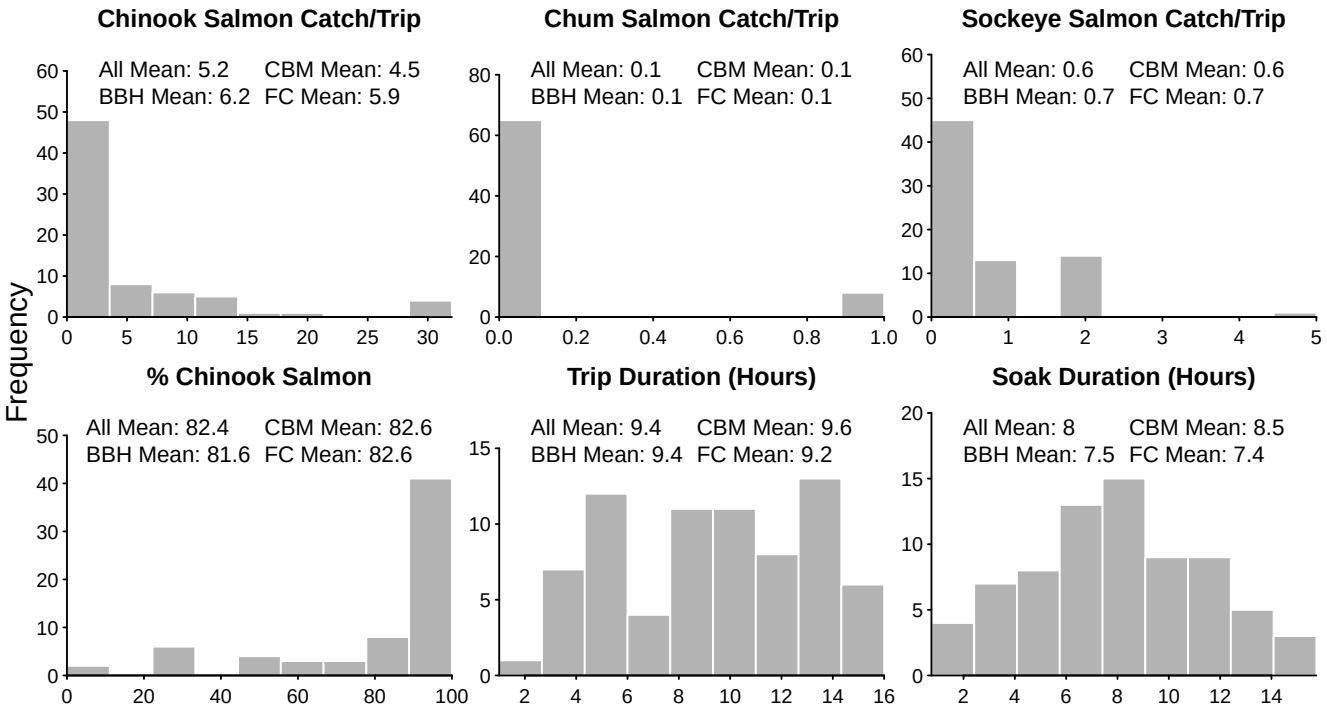
Harvest Estimates

- An estimated total of **1,201 (807 – 1,698)** salmon were harvested.
  - An estimated total of **1,064 (697 – 1,557)** Chinook salmon were harvested.
  - An estimated total of **15 (6 – 28)** chum salmon were harvested.
  - An estimated total of **122 (78 – 174)** sockeye salmon were harvested.

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

Stratum	Interviews	Effort Est.	Estimated Harvest			
			Chinook	Chum	Sockeye	Total
Tuntutuliak ⟷ Johnson R.	1	1	8 (5 – 12)	0 (0 – 0)	1 (1 – 1)	**9 (6 – 13)**
Johnson R. ⟷ Napaskiak	21	28	231 (151 – 338)	3 (1 – 6)	26 (17 – 38)	**261 (175 – 369)**
Napaskiak ⟷ Akiachak	47	68	561 (368 – 821)	8 (3 – 15)	64 (41 – 92)	**633 (426 – 895)**
Akiachak ⟷ Akiak	4	20	165 (108 – 241)	2 (1 – 4)	19 (12 – 27)	**186 (125 – 263)**
Akiak ⟷ Bogus Cr.	0	12	99 (65 – 145)	1 (1 – 3)	11 (7 – 16)	**112 (75 – 158)**
Total	**73**	**129**	**1,064 (697 – 1,557)**	**15 (6 – 28)**	**122 (78 – 174)**	**1,201 (807 – 1,698)**

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



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 set net trips only.

TABLE A1. Summary of set net catch per trip of Chinook salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	1	1	1	1	1
Johnson R. ⟷ Napaskiak	21	0	1	6	11	18
Napaskiak ⟷ Akiachak	47	0	1	5	5	32
Akiachak ⟷ Akiak	4	0	1	1	1	1
All	**73**	**0**	**1**	**5**	**7**	**32**

TABLE A2. Summary of set 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.	1	0.2	0.2	0.2	0.2	0.2
Johnson R. ⟷ Napaskiak	20	0	0.7	3.7	3.6	22.5
Napaskiak ⟷ Akiachak	47	0	0.2	1.6	1.3	10.3
Akiachak ⟷ Akiak	4	0	0.2	0.2	0.3	0.4
All	**72**	**0**	**0.3**	**2.1**	**1.7**	**22.5**

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

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	0	0	0	0	0
Johnson R. ⟷ Napaskiak	21	0	0	0	0	1
Napaskiak ⟷ Akiachak	47	0	0	0	0	1
Akiachak ⟷ Akiak	4	0	0	0	0	0
All	**73**	**0**	**0**	**0**	**0**	**1**

TABLE A4. Summary of set 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.	1	0	0	0	0	0
Johnson R. ⟷ Napaskiak	20	0	0	0	0	0.5
Napaskiak ⟷ Akiachak	47	0	0	0	0	0.3
Akiachak ⟷ Akiak	4	0	0	0	0	0
All	**72**	**0**	**0**	**0**	**0**	**0.5**

TABLE A5. Summary of set net catch per trip of sockeye salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	0	0	0	0	0
Johnson R. ⟷ Napaskiak	21	0	0	1	1	5
Napaskiak ⟷ Akiachak	47	0	0	1	1	2
Akiachak ⟷ Akiak	4	0	0	0	0	0
All	**73**	**0**	**0**	**1**	**1**	**5**

TABLE A6. Summary of set net catch rate of sockeye salmon by fishing area (fish per 150 feet of net per hour).

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	0	0	0	0	0
Johnson R. ⟷ Napaskiak	20	0	0	0.5	0.7	2.4
Napaskiak ⟷ Akiachak	47	0	0	0.2	0.4	0.8
Akiachak ⟷ Akiak	4	0	0	0	0	0
All	**72**	**0**	**0**	**0.2**	**0.4**	**2.4**

TABLE A7. Summary of set net percent composition of Chinook salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	100%	100%	100%	100%	100%
Johnson R. ⟷ Napaskiak	21	0%	67%	78%	100%	100%
Napaskiak ⟷ Akiachak	47	0%	80%	83%	100%	100%
Akiachak ⟷ Akiak	4	100%	100%	100%	100%	100%
All	**73**	**0%**	**75%**	**82%**	**100%**	**100%**

TABLE A8. Summary of set net trip duration by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	7	7	7	7	7
Johnson R. ⟷ Napaskiak	21	1	3	7.2	10	16
Napaskiak ⟷ Akiachak	47	3.9	7.8	10.2	13	16
Akiachak ⟷ Akiak	4	7	12.2	13.2	16	16
All	**73**	**1**	**6**	**9.4**	**13**	**16**

TABLE A9. Summary of set net active fishing hours by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	2	2	2	2	2
Johnson R. ⟷ Napaskiak	21	0.8	2.5	6.7	9.8	15.8
Napaskiak ⟷ Akiachak	47	3.9	6.5	8.5	10.4	15.8
Akiachak ⟷ Akiak	4	6.8	9.2	10.2	12	12
All	**73**	**0.8**	**5.8**	**8**	**10.5**	**15.8**

Appendix B: Non-salmon Harvest Information

- An estimated total of **183 (86 – 307)** nonsalmon were harvested.
  - An estimated total of **83 (41 – 133)** sheefish were harvested.
  - An estimated total of **100 (31 – 190)** all whitefishes were harvested.

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

			Estimated Harvest		
Stratum	**Interviews**	**Effort Est.**	**Sheefish**	**Whitefish**	**Total**
Tuntutuliak ⟷ Johnson R.	1	1	1 (0 – 1)	1 (0 – 1)	**2 (0 – 2)**
Johnson R. ⟷ Napaskiak	21	28	18 (9 – 29)	22 (7 – 41)	**40 (19 – 67)**
Napaskiak ⟷ Akiachak	47	68	44 (22 – 70)	53 (16 – 100)	**96 (46 – 162)**
Akiachak ⟷ Akiak	4	20	13 (6 – 21)	16 (5 – 30)	**28 (13 – 48)**
Akiak ⟷ Bogus Cr.	0	12	8 (4 – 12)	9 (3 – 18)	**17 (8 – 28)**
Total	**73**	**129**	**83 (41 – 133)**	**100 (31 – 190)**	**183 (86 – 307)**

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

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	0	0	0	0	0
Johnson R. ⟷ Napaskiak	21	0	0	0	1	2
Napaskiak ⟷ Akiachak	47	0	0	0	0	2
Akiachak ⟷ Akiak	4	0	3	4	4	6
All	**73**	**0**	**0**	**0**	**0**	**6**

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

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	1	0	0	0	0	0
Johnson R. ⟷ Napaskiak	21	0	0	0	0	1
Napaskiak ⟷ Akiachak	47	0	0	0	0	3
Akiachak ⟷ Akiak	4	6	6	8	9	13
All	**73**	**0**	**0**	**1**	**0**	**13**

Kuskokwim River In-season Harvest and Effort Estimates

6/12/2023 Subsistence Harvest Opportunity (Drift & Set Nets)

Opportunity Time Period: 7:00 AM – 7:00 PM (12 Hours)

Area Covered by Estimates: Tuntutuliak ⟷ Bogus Cr.

Contact Person(s): Bill Bechtol (bechtolresearch@hughes.net)

Announcement #: FSA-YD-23-01

Data Sources

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

Data Source	Interviews	Percent
Bethel Boat Harbor (ONC)	79	45%
Other Villages (KRITFC)	75	43%
Bethel Area Fish Camps (ONC)	22	12%
Total	**176**	**100%**

Of these interviews, **171** were from drift nets and **5** 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	6:00 PM	2	105	31

Effort Estimates

- An estimated **202** drift boat trips occurred.
  - An estimated **97** trips started and ended when no flights occurred.
- An estimated **31** set net trips occurred.

Harvest Estimates

- An estimated total of **1,524 (1,280 – 1,787)** salmon were harvested.
  - An estimated total of **1,003 (826 – 1,219)** Chinook salmon were harvested.
  - An estimated total of **107 (76 – 146)** chum salmon were harvested.
  - An estimated total of **414 (300 – 562)** sockeye salmon were harvested.
- Harvest by set nets accounted for an estimated **14 (0 – 44)** total salmon (**78%** Chinook salmon, **29%** chum salmon, and **0%** sockeye salmon).

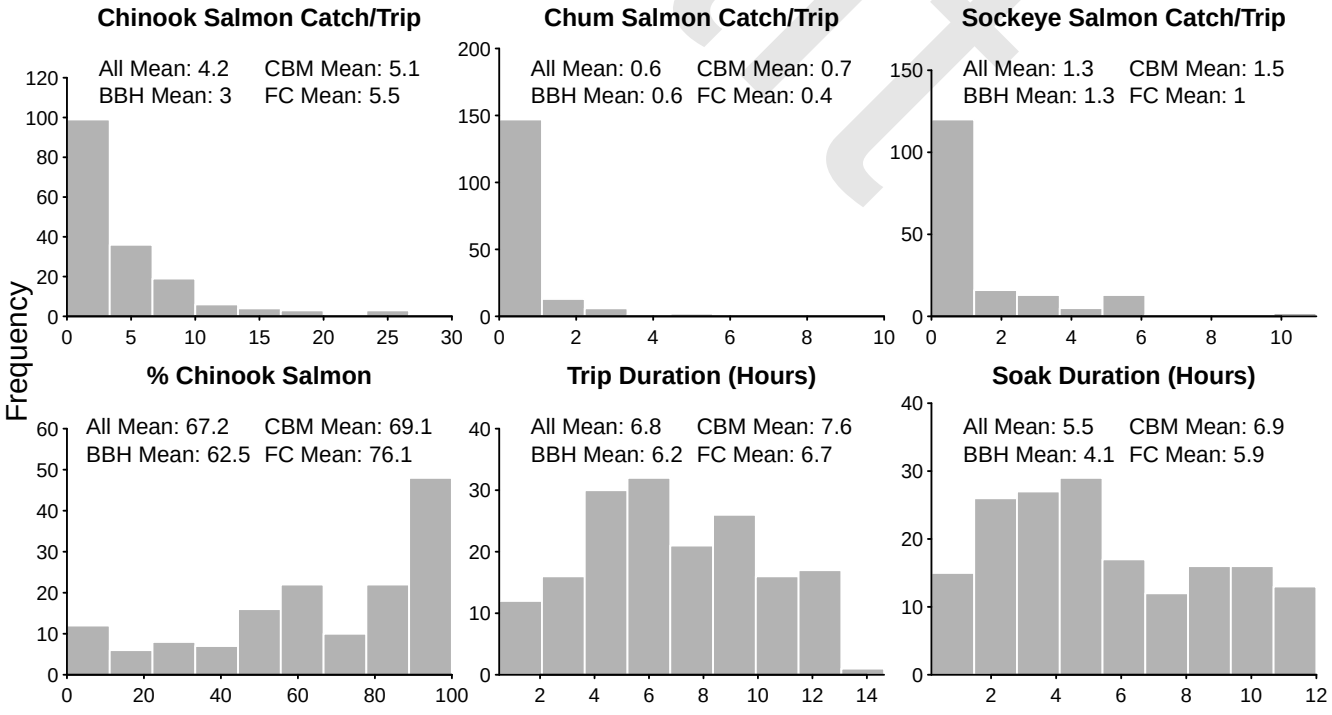
TABLE 3. Summaries by river stratum (area) for drift nets. Numbers in parentheses are 95% confidence intervals.

Stratum	Interviews	Effort Est.	Estimated Harvest			
			Chinook	Chum	Sockeye	Total
Tuntutuliak ⟷ Johnson R.	0	6	27 (19 – 36)	5 (2 – 10)	18 (9 – 29)	**51 (36 – 68)**
Johnson R. ⟷ Napaskiak	45	25	113 (80 – 149)	22 (8 – 40)	75 (41 – 117)	**210 (152 – 277)**
Napaskiak ⟷ Akiachak	116	139	685 (515 – 897)	58 (34 – 93)	259 (158 – 407)	**1,003 (778 – 1,238)**
Akiachak ⟷ Akiak	9	15	78 (60 – 98)	8 (5 – 12)	29 (18 – 43)	**115 (92 – 141)**
Akiak ⟷ Bogus Cr.	1	17	89 (68 – 117)	10 (6 – 14)	32 (20 – 48)	**131 (105 – 163)**
Total	**171**	**202**	**992 (813 – 1,205)**	**104 (73 – 142)**	**414 (300 – 562)**	**1,510 (1,271 – 1,770)**

TABLE 4. Estimated trips, average (95% confidence limits) total salmon catch per trip, and percent catch by species 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.

Location	Total Trips	Total Catch/Trip	Salmon Species % Composition		
			Chinook	Chum	Sockeye
Downstream of Johnson R.	6	8 (6 – 11)	54% (42% – 67%)	10% (5% – 17%)	36% (23% – 49%)
Upstream of Johnson R.	196	7 (6 – 9)	66% (58% – 73%)	7% (5% – 9%)	27% (21% – 35%)

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), FC = Bethel Area Fish Camps (ONC).



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
Johnson R. ⟷ Napaskiak	45	0	1	4	6	18
Napaskiak ⟷ Akiachak	116	0	1	4	5	30
Akiachak ⟷ Akiak	9	0	3	5	7	9
Akiak ⟷ Bogus Cr.	1	6	6	6	6	6
All	**171**	**0**	**1**	**4**	**6**	**30**

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
Johnson R. ⟷ Napaskiak	43	0	0.2	0.9	1.3	3.6
Napaskiak ⟷ Akiachak	114	0	0.2	0.9	0.9	8.6
Akiachak ⟷ Akiak	9	0	1.3	1.7	2.1	4
Akiak ⟷ Bogus Cr.	1	1.6	1.6	1.6	1.6	1.6
All	**167**	**0**	**0.2**	**0.9**	**1.2**	**8.6**

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

Area	N	Min	25%	Mean	75%	Max
Johnson R. ⟷ Napaskiak	45	0	0	1	1	10
Napaskiak ⟷ Akiachak	116	0	0	0	1	5
Akiachak ⟷ Akiak	9	0	0	2	3	4
Akiak ⟷ Bogus Cr.	1	0	0	0	0	0
All	**171**	**0**	**0**	**1**	**1**	**10**

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
Johnson R. ⟷ Napaskiak	43	0	0	0.2	0.1	2.1
Napaskiak ⟷ Akiachak	114	0	0	0.1	0.1	1.6
Akiachak ⟷ Akiak	9	0	0	0.5	0.9	1.2
Akiak ⟷ Bogus Cr.	1	0	0	0	0	0
All	**167**	**0**	**0**	**0.1**	**0.1**	**2.1**

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

Area	N	Min	25%	Mean	75%	Max
Johnson R. ⟷ Napaskiak	45	0	0	2	3	11
Napaskiak ⟷ Akiachak	116	0	0	1	2	8
Akiachak ⟷ Akiak	9	0	0	1	3	6
Akiak ⟷ Bogus Cr.	1	0	0	0	0	0
All	**171**	**0**	**0**	**1**	**2**	**11**

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

Area	N	Min	25%	Mean	75%	Max
Johnson R. ⟷ Napaskiak	43	0	0	0.6	0.5	6.4
Napaskiak ⟷ Akiachak	114	0	0	0.3	0.4	9
Akiachak ⟷ Akiak	9	0	0	0.5	0.9	2
Akiak ⟷ Bogus Cr.	1	0	0	0	0	0
All	**167**	**0**	**0**	**0.4**	**0.4**	**9**

TABLE A7. Summary of drift net percent composition of Chinook salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Johnson R. ⟷ Napaskiak	45	0%	40%	61%	86%	100%
Napaskiak ⟷ Akiachak	116	0%	50%	69%	100%	100%
Akiachak ⟷ Akiak	9	31%	50%	74%	100%	100%
Akiak ⟷ Bogus Cr.	1	100%	100%	100%	100%	100%
All	**171**	**0%**	**50%**	**67%**	**100%**	**100%**

TABLE A8. Summary of drift net trip duration by fishing area.

Area	N	Min	25%	Mean	75%	Max
Johnson R. ⟷ Napaskiak	45	1	4.5	6.3	9	12
Napaskiak ⟷ Akiachak	115	0.5	5	6.8	9.2	14.6
Akiachak ⟷ Akiak	9	5	8.5	9.7	12	12
Akiak ⟷ Bogus Cr.	1	12	12	12	12	12
All	**170**	**0.5**	**4.8**	**6.9**	**9.2**	**14.6**

TABLE A9. Summary of drift net active fishing hours by fishing area.

Area	N	Min	25%	Mean	75%	Max
Johnson R. ⟷ Napaskiak	45	0.5	2.8	5.1	6.7	11
Napaskiak ⟷ Akiachak	115	0.2	2.9	5.4	8.2	12
Akiachak ⟷ Akiak	9	5	8	8.5	10	11.5
Akiak ⟷ Bogus Cr.	1	11	11	11	11	11
All	**170**	**0.2**	**3**	**5.5**	**8.5**	**12**

Appendix B: Non-salmon Harvest Information

- An estimated total of **197 (139 – 262)** nonsalmon were harvested.
  - An estimated total of **154 (107 – 213)** sheefish were harvested.
  - An estimated total of **43 (19 – 74)** all whitefishes were harvested.
- Harvest by set nets accounted for an estimated **7 (0 – 31)** total nonsalmon (**100%** sheefish and **0%** all whitefishes).

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

			Estimated Harvest		
Stratum	**Interviews**	**Effort Est.**	**Sheefish**	**Whitefish**	**Total**
Tuntutuliak ⟷ Johnson R.	0	6	4 (2 – 6)	2 (0 – 6)	**6 (3 – 10)**
Johnson R. ⟷ Napaskiak	45	25	17 (8 – 28)	9 (0 – 24)	**26 (12 – 42)**
Napaskiak ⟷ Akiachak	116	139	103 (60 – 160)	22 (4 – 51)	**125 (75 – 186)**
Akiachak ⟷ Akiak	9	15	11 (7 – 17)	5 (2 – 8)	**16 (10 – 22)**
Akiak ⟷ Bogus Cr.	1	17	12 (7 – 19)	5 (2 – 9)	**17 (11 – 25)**
Total	**171**	**202**	**147 (102 – 204)**	**43 (19 – 74)**	**190 (135 – 252)**

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

Area	**N**	**Min**	**25%**	**Mean**	**75%**	**Max**
Johnson R. ⟷ Napaskiak	45	0	0	1	1	4
Napaskiak ⟷ Akiachak	116	0	0	1	1	8
Akiachak ⟷ Akiak	9	0	0	0	1	1
Akiak ⟷ Bogus Cr.	1	0	0	0	0	0
All	**171**	**0**	**0**	**1**	**1**	**8**

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

Area	**N**	**Min**	**25%**	**Mean**	**75%**	**Max**
Johnson R. ⟷ Napaskiak	45	0	0	0	0	2
Napaskiak ⟷ Akiachak	116	0	0	0	0	2
Akiachak ⟷ Akiak	9	0	0	1	1	5
Akiak ⟷ Bogus Cr.	1	0	0	0	0	0
All	**171**	**0**	**0**	**0**	**0**	**5**

Kuskokwim River In-season Harvest and Effort Estimates

6/17/2023 Subsistence Harvest Opportunity (Drift & Set Nets)

Opportunity Time Period: 7:00 AM – 7:00 PM (12 Hours)

Area Covered by Estimates: Tuntutuliak ⟷ Bogus Cr.

Contact Person(s): Bill Bechtol (bechtolresearch@hughes.net)

Announcement #: FSA-YD-23-01

Data Sources

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

Data Source	Interviews	Percent
Bethel Boat Harbor (ONC)	144	55%
Other Villages (KRITFC)	95	36%
Bethel Area Fish Camps (ONC)	24	9%
Total	**263**	**100%**

Of these interviews, **250** were from drift nets and **13** 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
10:00 AM	11:35 AM	1.58	372	13
2:15 PM	4:15 PM	2.00	442	36

Effort Estimates

- An estimated **484** drift boat trips occurred.
  - An estimated **79%** of the trips counted on flight 2 were also counted on flight 1.
  - An estimated **21** trips started and ended when no flights occurred.
- An estimated **36** set net trips occurred.

Harvest Estimates

- An estimated total of **19,554 (16,585 – 23,096)** salmon were harvested.
  - An estimated total of **10,437 (8,959 – 11,989)** Chinook salmon were harvested.
  - An estimated total of **2,957 (2,290 – 3,674)** chum salmon were harvested.
  - An estimated total of **6,160 (4,472 – 8,058)** sockeye salmon were harvested.
- Harvest by set nets accounted for an estimated **292 (155 – 476)** total salmon (**69%** Chinook salmon, **6%** chum salmon, and **25%** sockeye salmon).

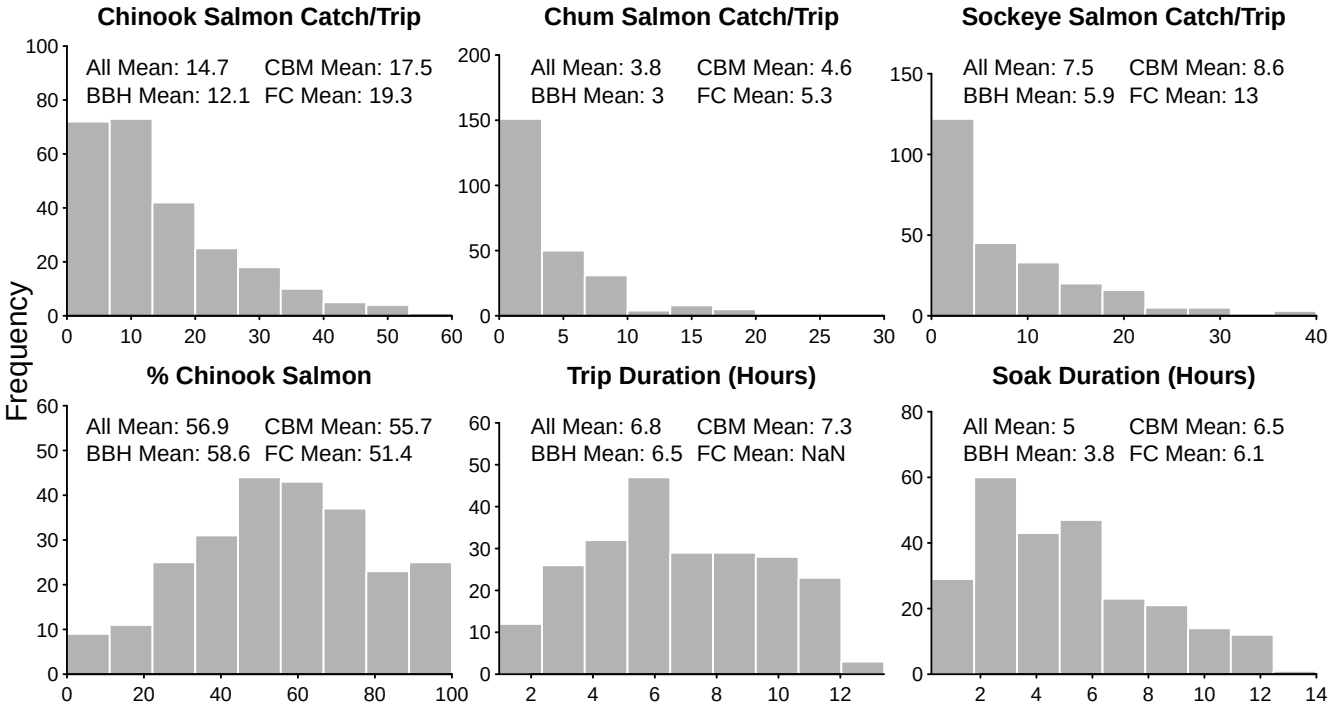
TABLE 3. Summaries by river stratum (area) for drift nets. Numbers in parentheses are 95% confidence intervals.

Stratum	Interviews	Effort Est.	Estimated Harvest			
			Chinook	Chum	Sockeye	Total
Tuntutuliak ⟷ Johnson R.	13	135	4,176 (2,891 – 5,559)	1,572 (918 – 2,300)	2,793 (1,202 – 4,679)	**8,541 (5,704 – 11,772)**
Johnson R. ⟷ Napaskiak	70	75	1,542 (1,196 – 1,914)	495 (374 – 627)	1,144 (785 – 1,549)	**3,181 (2,601 – 3,762)**
Napaskiak ⟷ Akiachak	150	217	3,457 (2,919 – 4,032)	625 (463 – 819)	1,828 (1,387 – 2,300)	**5,909 (5,056 – 6,810)**
Akiachak ⟷ Akiak	17	32	633 (328 – 983)	169 (77 – 259)	104 (46 – 169)	**905 (565 – 1,285)**
Akiak ⟷ Bogus Cr.	0	25	429 (366 – 494)	79 (60 – 102)	217 (165 – 276)	**725 (624 – 826)**
Total	**250**	**484**	**10,236 (8,777 – 11,821)**	**2,940 (2,273 – 3,661)**	**6,086 (4,395 – 7,990)**	**19,262 (16,327 – 22,763)**

TABLE 4. Estimated trips, average (95% confidence limits) total salmon catch per trip, and percent catch by species 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.

Location	Total Trips	Total Catch/Trip	Salmon Species % Composition		
			Chinook	Chum	Sockeye
Downstream of Johnson R.	135	63 (42 – 87)	49% (39% – 62%)	18% (14% – 24%)	32% (18% – 44%)
Upstream of Johnson R.	349	31 (27 – 34)	57% (53% – 61%)	13% (11% – 15%)	31% (26% – 35%)

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), FC = Bethel Area Fish Camps (ONC).



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.	13	6	14	24	28	60
Johnson R. ⟷ Napaskiak	70	0	7	16	23	51
Napaskiak ⟷ Akiachak	150	0	4	14	19	50
Akiachak ⟷ Akiak	17	0	2	11	20	31
All	**250**	**0**	**6**	**15**	**21**	**60**

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.	13	0.7	1.8	3.4	4.3	8.6
Johnson R. ⟷ Napaskiak	61	0	1.6	3.9	4.6	28.8
Napaskiak ⟷ Akiachak	149	0	1.6	3.9	5.3	18.3
Akiachak ⟷ Akiak	17	0	0.4	2.3	2.7	13.7
All	**240**	**0**	**1.6**	**3.8**	**4.6**	**28.8**

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.	13	0	3	9	14	20
Johnson R. ⟷ Napaskiak	70	0	2	5	7	18
Napaskiak ⟷ Akiachak	150	0	0	3	4	30
Akiachak ⟷ Akiak	17	0	0	3	4	15
All	**250**	**0**	**0**	**4**	**6**	**30**

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.	13	0	0.4	1.3	1.9	3.5
Johnson R. ⟷ Napaskiak	61	0	0.3	1.2	1.5	6.9
Napaskiak ⟷ Akiachak	149	0	0	0.7	0.9	8
Akiachak ⟷ Akiak	17	0	0	0.6	0.8	3.3
All	**240**	**0**	**0**	**0.9**	**1.1**	**8**

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

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	13	0	4	16	24	40
Johnson R. ⟷ Napaskiak	70	0	4	11	15	40
Napaskiak ⟷ Akiachak	150	0	1	6	7	30
Akiachak ⟷ Akiak	17	0	0	3	4	10
All	**250**	**0**	**2**	**7**	**11**	**40**

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

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	13	0	0.4	2.2	3.6	10
Johnson R. ⟷ Napaskiak	61	0	1.1	2.9	2.9	20.6
Napaskiak ⟷ Akiachak	149	0	0.3	2.1	2	22.5
Akiachak ⟷ Akiak	17	0	0	0.4	0.5	1.5
All	**240**	**0**	**0.3**	**2.2**	**2.2**	**22.5**

TABLE A7. Summary of drift net percent composition of Chinook salmon by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	13	25%	32%	55%	65%	100%
Johnson R. ⟷ Napaskiak	70	0%	35%	50%	62%	100%
Napaskiak ⟷ Akiachak	150	0%	50%	61%	77%	100%
Akiachak ⟷ Akiak	17	0%	33%	54%	75%	100%
All	**250**	**0%**	**40%**	**57%**	**75%**	**100%**

TABLE A8. Summary of drift net trip duration by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	13	6.9	8.2	9.3	10.1	12.9
Johnson R. ⟷ Napaskiak	70	1	5	6.8	8.9	12
Napaskiak ⟷ Akiachak	149	1	4.2	6.3	8.2	13.4
Akiachak ⟷ Akiak	17	2	8.5	10	12	12
All	**249**	**1**	**4.6**	**6.8**	**9**	**13.4**

TABLE A9. Summary of drift net active fishing hours by fishing area.

Area	N	Min	25%	Mean	75%	Max
Tuntutuliak ⟷ Johnson R.	13	1.5	3	5.1	7	12
Johnson R. ⟷ Napaskiak	70	0.5	3	5.5	8	10.5
Napaskiak ⟷ Akiachak	149	0.2	2.5	4.2	5.2	12
Akiachak ⟷ Akiak	17	1.8	7.5	9.1	11.5	11.5
All	**249**	**0.2**	**2.7**	**5**	**7**	**12**

Appendix B: Non-salmon Harvest Information

- An estimated total of **185 (121 – 264)** nonsalmon were harvested.
  - An estimated total of **130 (86 – 178)** sheefish were harvested.
  - An estimated total of **55 (18 – 116)** all whitefishes were harvested.
- Harvest by set nets accounted for an estimated **6 (0 – 15)** total nonsalmon (**50%** sheefish and **33%** all whitefishes).

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

			Estimated Harvest		
Stratum	**Interviews**	**Effort Est.**	**Sheefish**	**Whitefish**	**Total**
Tuntutuliak ⟷ Johnson R.	13	135	7 (0 – 23)	0 (0 – 0)	**7 (0 – 23)**
Johnson R. ⟷ Napaskiak	70	75	22 (6 – 48)	4 (0 – 11)	**26 (8 – 53)**
Napaskiak ⟷ Akiachak	150	217	61 (30 – 93)	44 (9 – 102)	**104 (48 – 179)**
Akiachak ⟷ Akiak	17	32	29 (8 – 51)	0 (0 – 0)	**29 (8 – 51)**
Akiak ⟷ Bogus Cr.	0	25	8 (5 – 12)	5 (1 – 12)	**13 (7 – 22)**
Total	**250**	**484**	**127 (83 – 175)**	**53 (16 – 113)**	**180 (116 – 257)**

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

Area	**N**	**Min**	**25%**	**Mean**	**75%**	**Max**
Tuntutuliak ⟷ Johnson R.	13	0	0	0	0	1
Johnson R. ⟷ Napaskiak	70	0	0	0	0	2
Napaskiak ⟷ Akiachak	150	0	0	0	0	2
Akiachak ⟷ Akiak	17	0	0	1	1	2
All	**250**	**0**	**0**	**0**	**0**	**2**

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.	13	0	0	0	0	0
Johnson R. ⟷ Napaskiak	70	0	0	0	0	1
Napaskiak ⟷ Akiachak	150	0	0	0	0	10
Akiachak ⟷ Akiak	17	0	0	0	0	0
All	**250**	**0**	**0**	**0**	**0**	**10**

Alaska Peninsula Inseason Commercial Harvest Estimates

https://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareaakpeninsula.salmonharvestsummary

ESTIMATED SALMON CATCH TO DATE
BY GEOGRAPHIC AREA / FISHERY, WITHIN THE ALASKA PENINSULA MANAGEMENT AREA

Monday, June 19, 2023

South Peninsula	Chinook	Sockeye	Coho	Pink	Chum
Post June Cold Bay	0	0	0	0	0
Post June Thin Point Section	0	0	0	0	0
Post June Morzhovoi Bay to South Unimak	0	0	0	0	0
Post June Shumagin Islands	0	0	0	0	0
Southeastern District Mainland	0	0	0	0	0
Northwest Stepovak Section (7/1-7/25)	0	0	0	0	0
Dolgoi Island Area1*	0	1,815	0	31	227
Dolgoi Island Area2	0	0	0	0	0
June Shumagin Islands	149	130,204	1	18,981	27,821
June South Unimak	655	414,798	18	43,512	63,139
	804	**546,817**	**19**	**62,524**	**91,187**