KUSKOKWIM RIVER
INTER-TRIBAL FISH COMMISSION

# Appendix 7: Additional Information about Causes, Impacts, and Recommendations to Restore Abundance of Kuskokwim River Chum Salmon

***Appendix 9: Original Submissions from Cooperating Agencies TCC and KRITFC***


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**Kuskokwim River Inter-Tribal Fish Commission**
**terese@kritfc.org**
**Council February 2025**

# Tribal Nations & Fisheries Co-Stewardship on the Kuskokwim River

See:
→ Appendix 7.3.A, 7.3.B

- *PDEIS 4.3.3.2 (Importance of Chum for Indigenous Peoples in YK Regions)*
- *Appendix 9.4.4*

## 7.3.A Ancestral Communities' Relationships with Chum Salmon

Human communities have inhabited and harvested salmon in the Kuskokwim (and Yukon) regions for **over 11,000 years**

- Development of a **stewardship relationship with salmon** over this time
  - Careful & respectful harvest, preparation, consumption, and celebration of fish
  - 4 major ethnolinguistic groups, each with distinct language & name for chum salmon *(below)*

## 7.3.B Kuskokwim River Tribes and Inter-Tribal Fish Commission

**40 federally recognized Tribal Nations** with cultural & traditional ties to salmon in the Kuskokwim drainage:

Newtok Village (Mertarvik), Native Village of Tununak, Nunakauyarmiut (Toksook Bay), Native Village of Nightmute, Native Village of Mekoryuk, ***Village of Chefornak***, *Native Village of Kipnuk*, ***Native Village of Kwigillingok***, *Native Village of Kongiganak*, Platinum Traditional Village, Native Village of Goodnews Bay, ***Native Village of Kwinhagak (Quinhagak), Native Village of Tuntutuliak, Native Village of Eek, Native Village of Napakiak, Native Village of Napaskiak, Kasigluk Traditional Elders Council, Native Village of Nunapitchuk, Village of Atmautluak,*** *Oscarville Traditional Village,* ***Orutsararmiut Traditional Native Council (Bethel)***, ***Organized Village of Kwethluk***, ***Akiachak Native Community, Akiak Native Community, Tuluksak Native Community, Village of Lower Kalskag, Village of Kalskag, Village of Aniak, Native Village of Chuathbaluk, Native Village of Napaimute, Village of Crooked Creek, Native Village of Georgetown,*** *Village of Red Devil*, ***Village of Sleetmute, Village of Stony River***, *Lime Village,* ***Takotna Village, McGrath Native Village, Telida Village, and Nikolai Edzeno' Village***.

(Italics = KRITFC region; Boldface = authorized with KRITFC)

| Name | Language | Peoples/Regions using this name |
|---|---|---|
| **Iqalluk** | Yugtun | **Central Yupiit** peoples of the lower and middle Kuskokwim |
| **Nalay** | Deg Xinag | **Deg Xit'an** peoples of the middle and upper Kuskokwim |
| **Alima** | Tanaina | **Dena'ina** peoples of Lime Village and the Stony River region |
| **Srughot'aye** | Dinak'i | **Upper Kuskokwim Athabascan** peoples in the headwaters of the Kuskokwim |
| **Chum salmon** | English | English speakers throughout the Kuskokwim |
| **Dog salmon** | English | English speakers throughout the Kuskokwim |
| **Oncorhynchus keta** | Latin | Western scientific researchers and agencies throughout the Kuskokwim |

# Chum Salmon of the Kuskokwim River

See:
→ Appendix 7.2

- *PDEIS 3.2.3.1 (WAK Chum Salmon Stock Status)*
- *PDEIS 4.3.3.2 (Importance of Chum for Indigenous Peoples in YK Regions)*

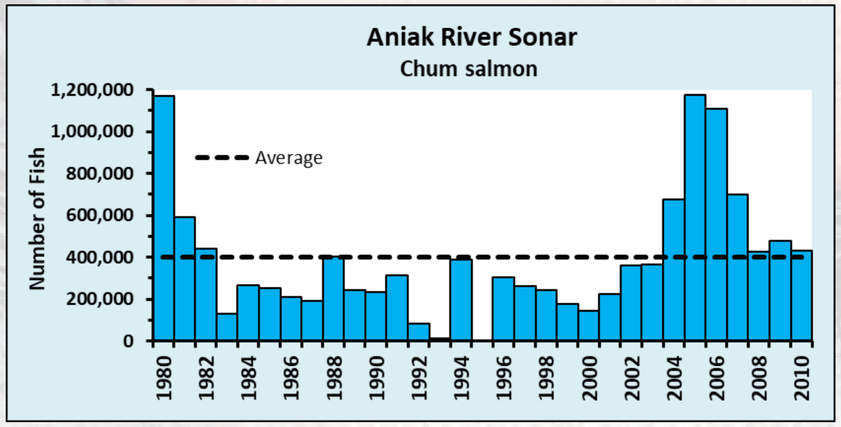
## 7.2 Chum Salmon of the Kuskokwim River

Salmon provide a **key link between marine and freshwater ecosystems** in the 700-mile-long Kuskokwim.

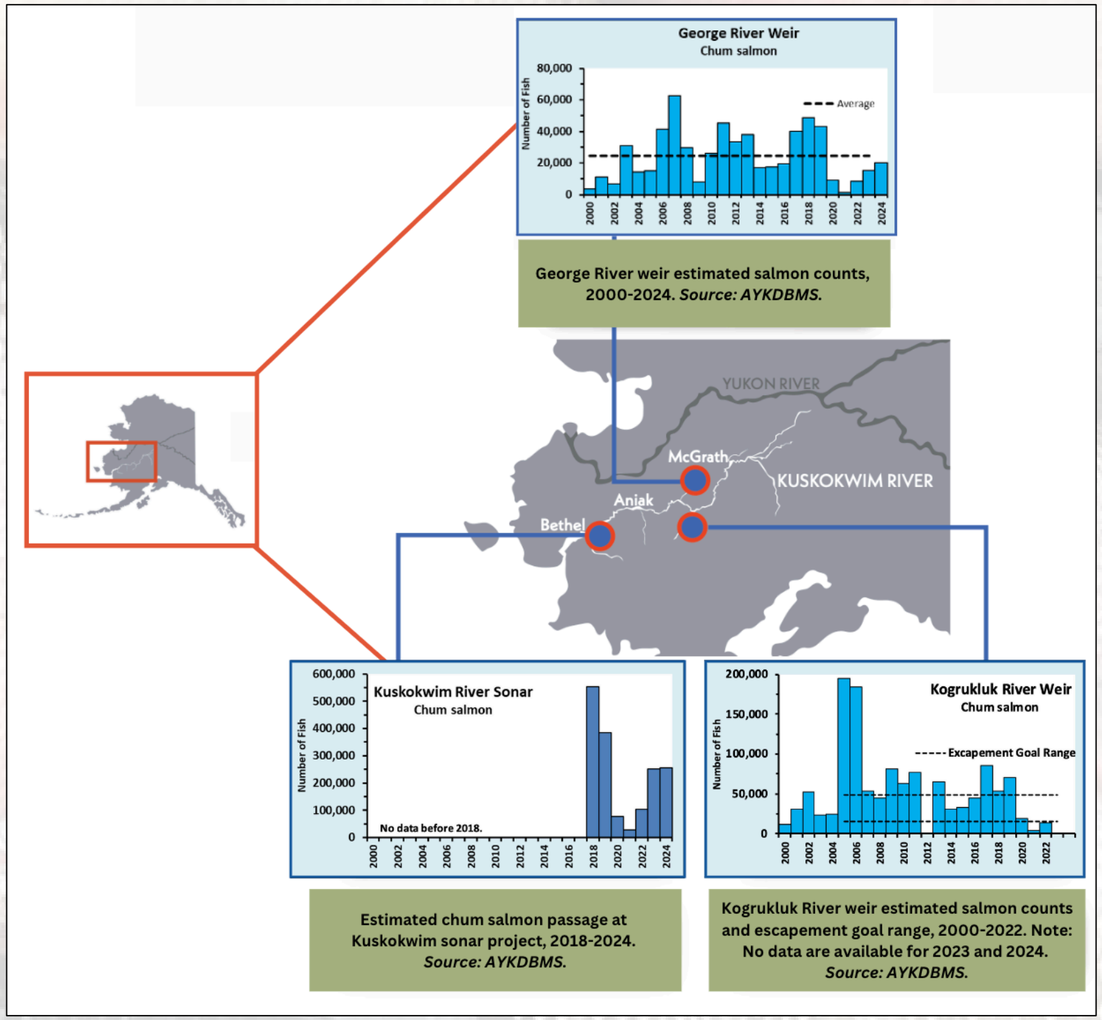
Historically, chum salmon were one of the most abundant and reliable species of salmon in the Kuskokwim region.

Aniak River returns: average **400,000 chum/year** 1980-2010 *(below)*

- Aniak River known for its “stink” of decaying chum salmon
- Annual chum salmon returns to the entire Kuskokwim **may have averaged around 1 million fish**




Abundance **declined dramatically in 2021** and has remained well-below historic levels *(right)*



# Chum Salmon Support Holistic Well-Being Of People and Place

See:
→ Appendix 7.4.A

- *PDEIS 3.2.3.1.1.1 (TK of Chum Salmon Declines)*
- *PDEIS 4.3.3.2.2 (Chum Salmon Support Holistic Well-being)*
- *Appendix 9.4.4, 9.4.5.2*

## 7.4.A Additional TK of the Importance of Chum Salmon

**Importance of chum salmon for**:

- Winter/year-round food stores, especially for Elders, those with open wounds, those needing less oily foods
- Waterproof fish-skin clothing, boots, containers
- Fish camp & teaching young fish-cutters how to process salmon
- Sled dog teams, used for transportation, trapping, hauling supplies between camps, racing

→ **Chum (and all) salmon are meant to be shared and not wasted**

**TK Holders note causes of declines:**

- Wasting fish and improperly disposing of inedible fish parts, including in bycatch and intercept fisheries
- Overharvest in bycatch and intercept fisheries
- Decline in traditional education of youth
- Fighting and arguing over fish
- Increasing fishing restrictions
- Changing reliance on technology and Western storebought food

**Impacts of declines to regional food security, physical and mental health, millennia-old cultural traditions, spiritual wellness, economic security, and holistic well-being**

"In Yup'ik, the general word for food is *neqa*, which is also the word for fish. **So if *neqa* is not how you view fish—if food is not the first thing you think of—then we come from different worlds.**

"For us, **we wouldn't exist without salmon**. On the river, we coexist, salmon and people. And it's always been that way. We have this deep spiritual relationship that we have the obligation, but also the privilege, to maintain between fish and people."

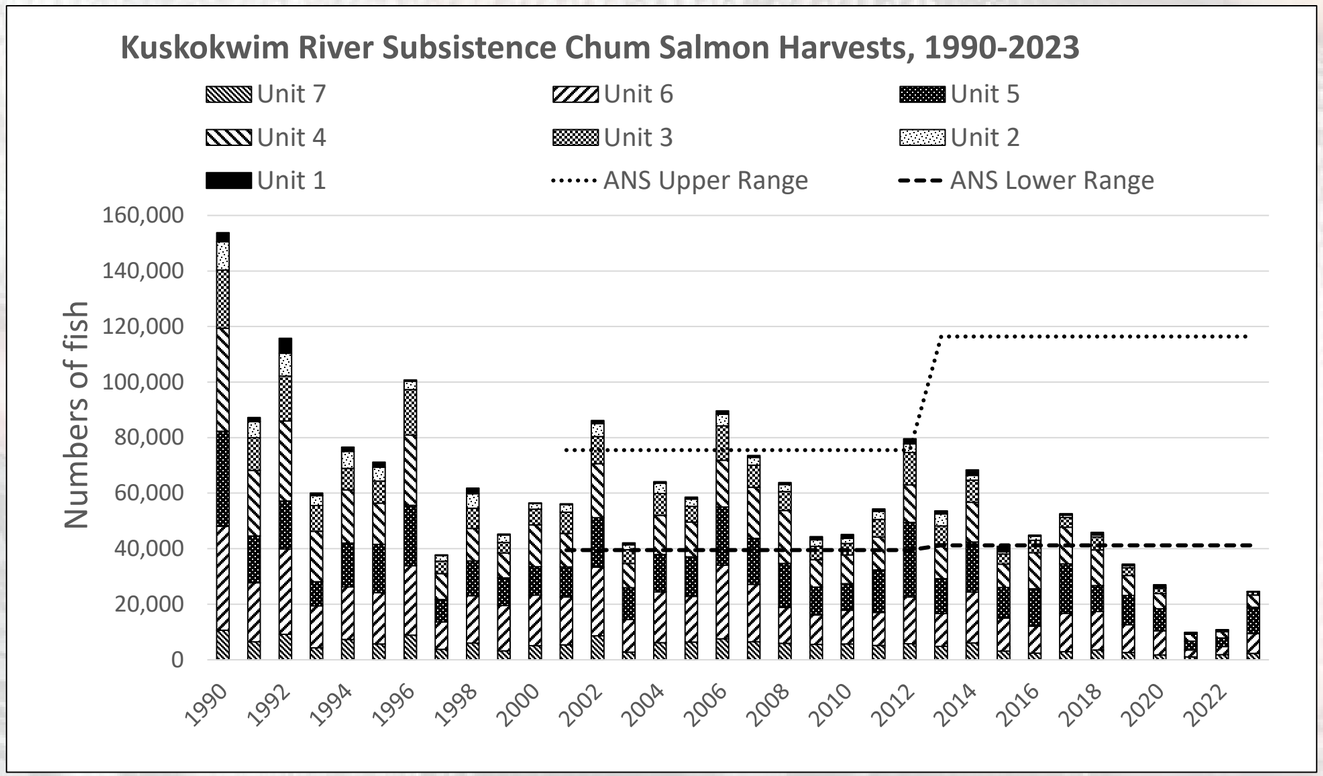
*–Jonathan Samuelson, Georgetown, quoted in KRITFC 2021*

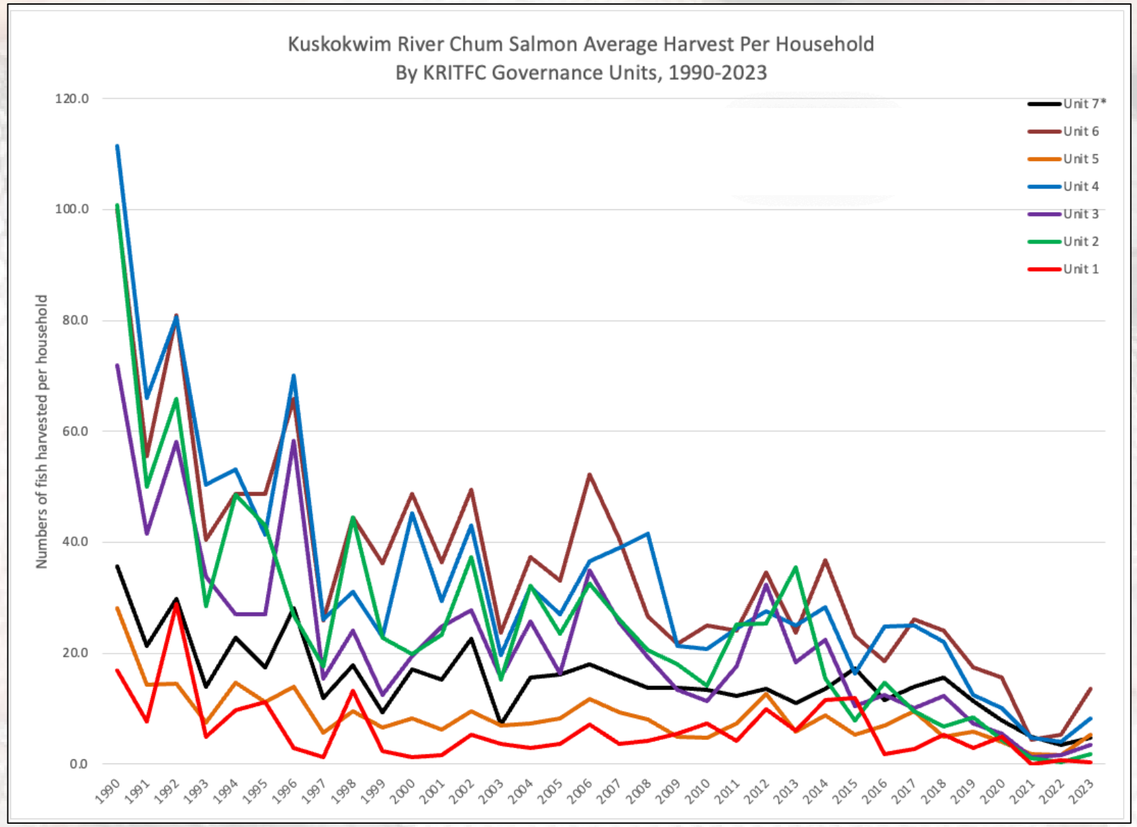
# Chum Salmon Support Holistic Well-Being Of People and Place

See:
→ Appendix 7.4.B

- *PDEIS 3.2.3.1 (WAK Chum Salmon Stock Status)*
- *PDEIS 4.3.3 (Subsistence Harvests of Chum)*

## 7.4.B Subsistence Fisheries & Role of Chum Salmon in Subsistence Diets




River-wide Amounts Reasonably Necessary for Subsistence Uses (ANS) (41,200–116,400 chum salmon) **not met 2019-2023**

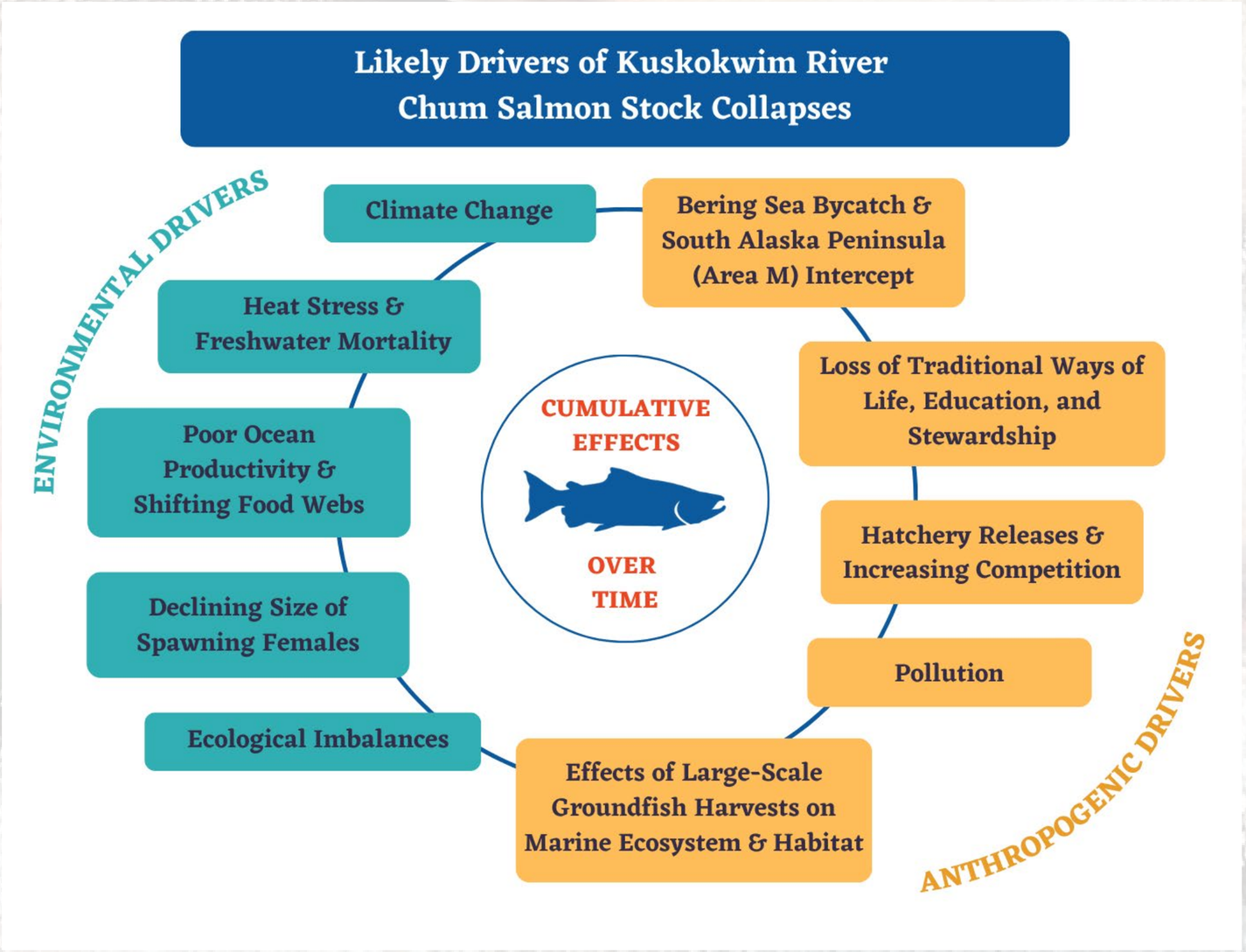
1990: Kuskokwim population = 12,170, households = 2,934
2023: Kuskokwim population = 15,100, households = 3,975

Four communities reported **0 chum salmon harvests** in 2022.

# Cumulative Factors Contributing to Kuskokwim Chum Salmon Declines

See:
→ Appendix 7.5

- *PDEIS 2.3.2.1.1 (Enviro. Factors Re: WAK Chum Declines)*
- *PDEIS 3.2.4.5 (Cumulative Effects on Chum)*
- *PDEIS 4.3.3.2.3 (Chum – Ecosystems & Biodiversity)*
- *PDEIS 4.4.7 (Cumulative Effects for Chum Communities)*
- *Appendix 9.6.1.1.1*



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- *PDEIS 4.3.3.2.3 (Chum – Ecosystems & Biodiversity)*
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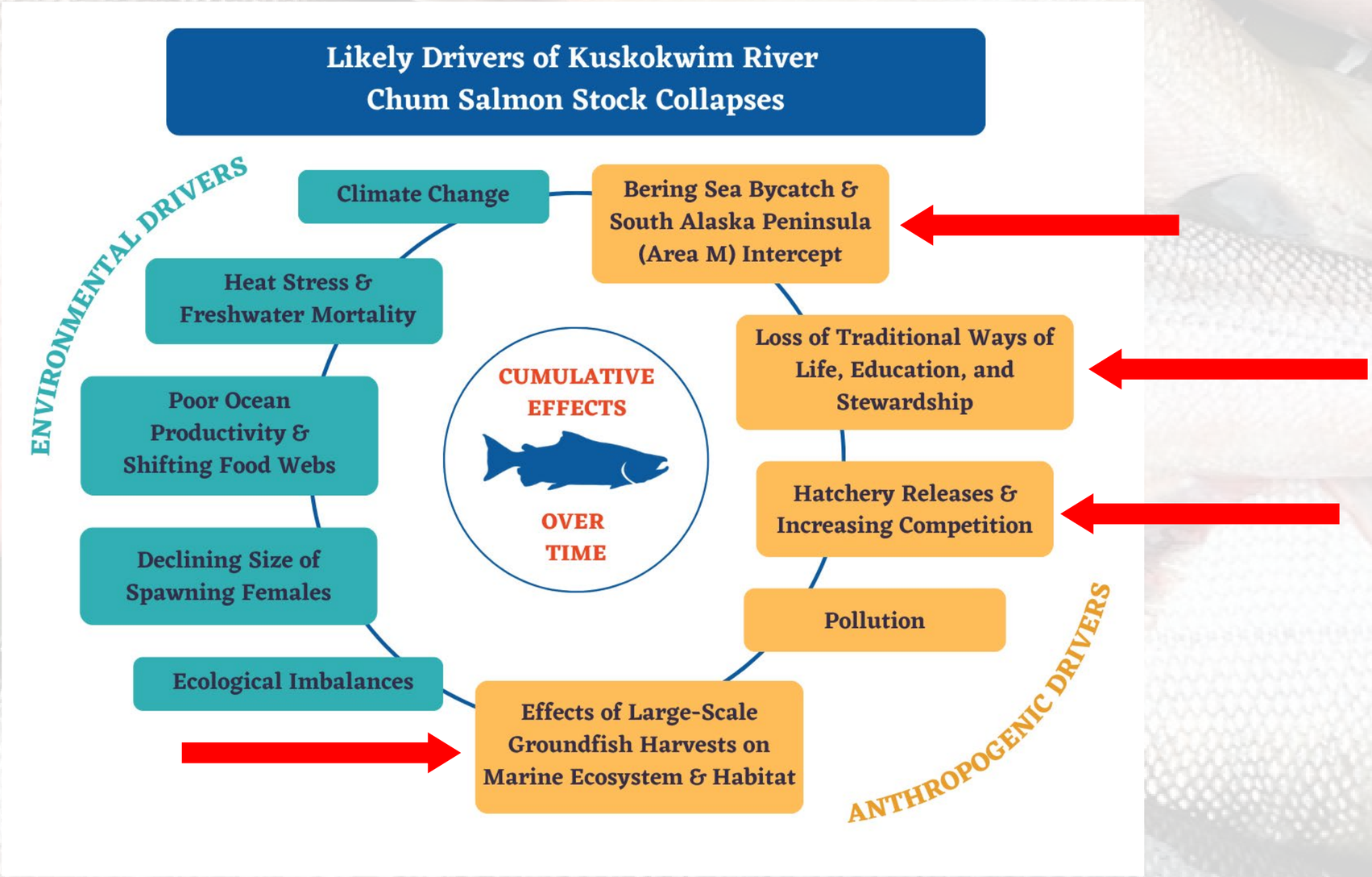


# Cumulative Factors Contributing to Kuskokwim Chum Salmon Declines

**See:**
**→ Appendix 7.5.A**

- ***PDEIS 3.2.4.1 (Alt. 1 Effects on Chum)***
- ***PDEIS 3.2.4.5 (Cumulative Effects on Chum)***
- ***PDEIS 4.3.4.2 (Area M)***
- ***PDEIS 4.4.7 (Cumulative Effects for Chum Communities)***

## 7.5.A Bycatch and Intercept

From a Tribal perspective, it is nearly **impossible to silo the impacts** of bycatch by Bering Sea fisheries from the Area M June fishery

Kuskokwim/WAK chum salmon annually migrate through these fishery regions *(right)*

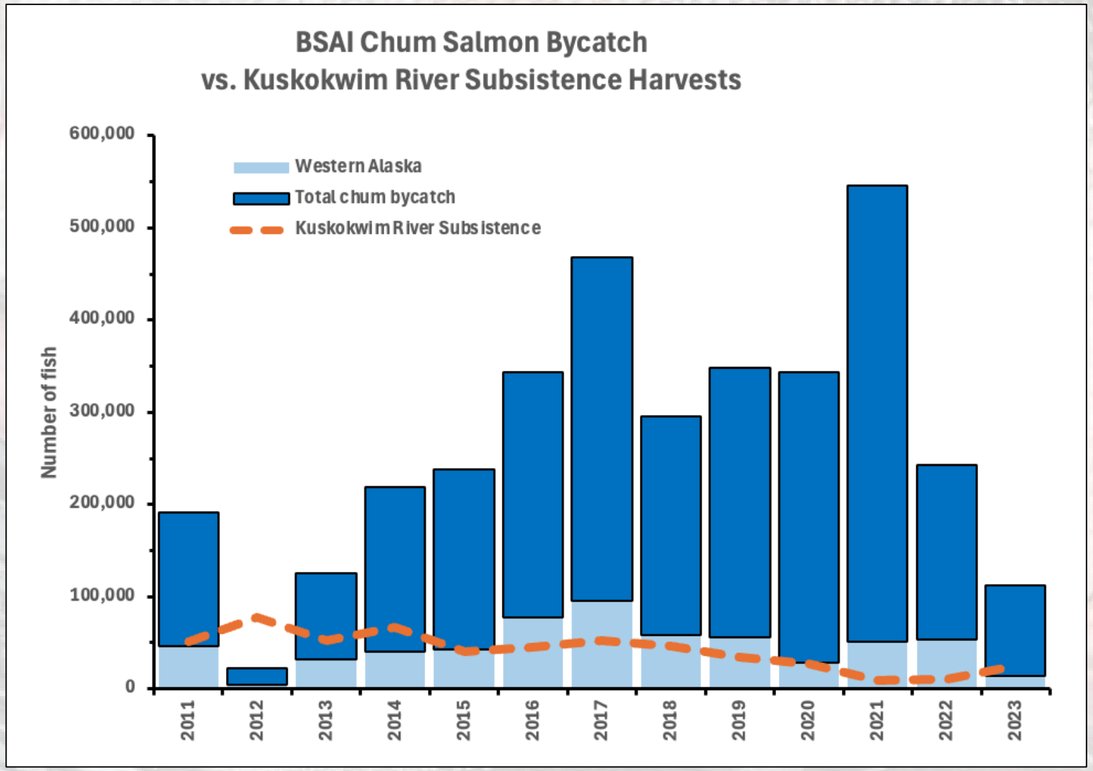
**Disjointed management** of chum salmon in these critical migratory corridors (e.g., NMFS/Council vs. ADF&G/BOF) contributes to the failure to conserve and rebuild Western Alaska and Kuskokwim chum salmon

# Cumulative Factors Contributing to Kuskokwim Chum Salmon Declines

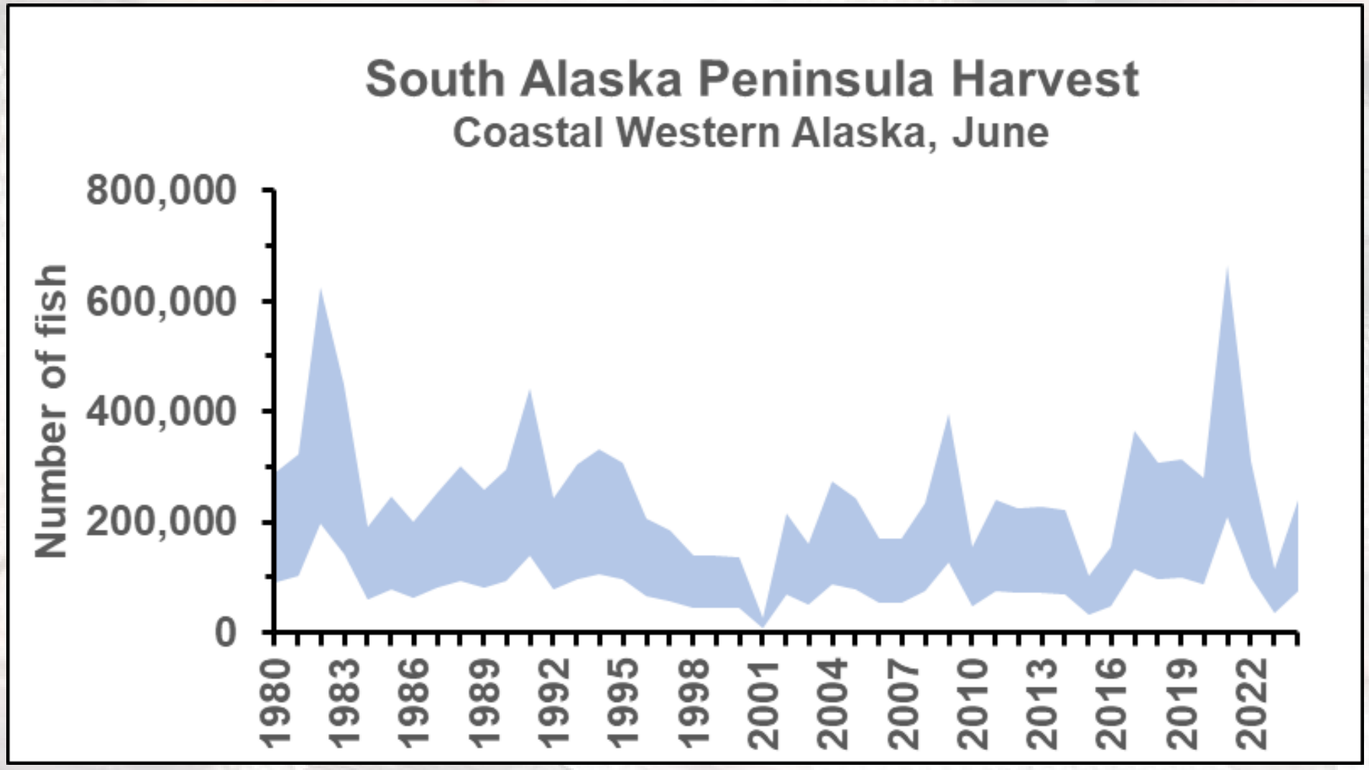
See:
→ Appendix 7.5.A

- *PDEIS 3.2.4.1 (Alt. 1 Effects on Chum)*
- *PDEIS 3.2.4.5 (Cumulative Effects on Chum)*
- *PDEIS 4.3.4.2 (Area M)*
- *PDEIS 4.4.7 (Cumulative Effects for Chum Communities)*

## 7.5.A Bycatch and Intercept




**Bering Sea Bycatch**: Coastal Western Alaska chum bycatch as part of total chum salmon bycatch in BSAI pollock fishery compared with Kuskokwim subsistence harvests, 2011-2023




**Area M Intercept:** Potential contributions of Coastal Western Alaska chum salmon stock grouping in June Area M fisheries, 1980-2024 (18–57%)

See:
→ Appendix 7.5.A

# Cumulative Factors Contributing to Kuskokwim Chum Salmon Declines

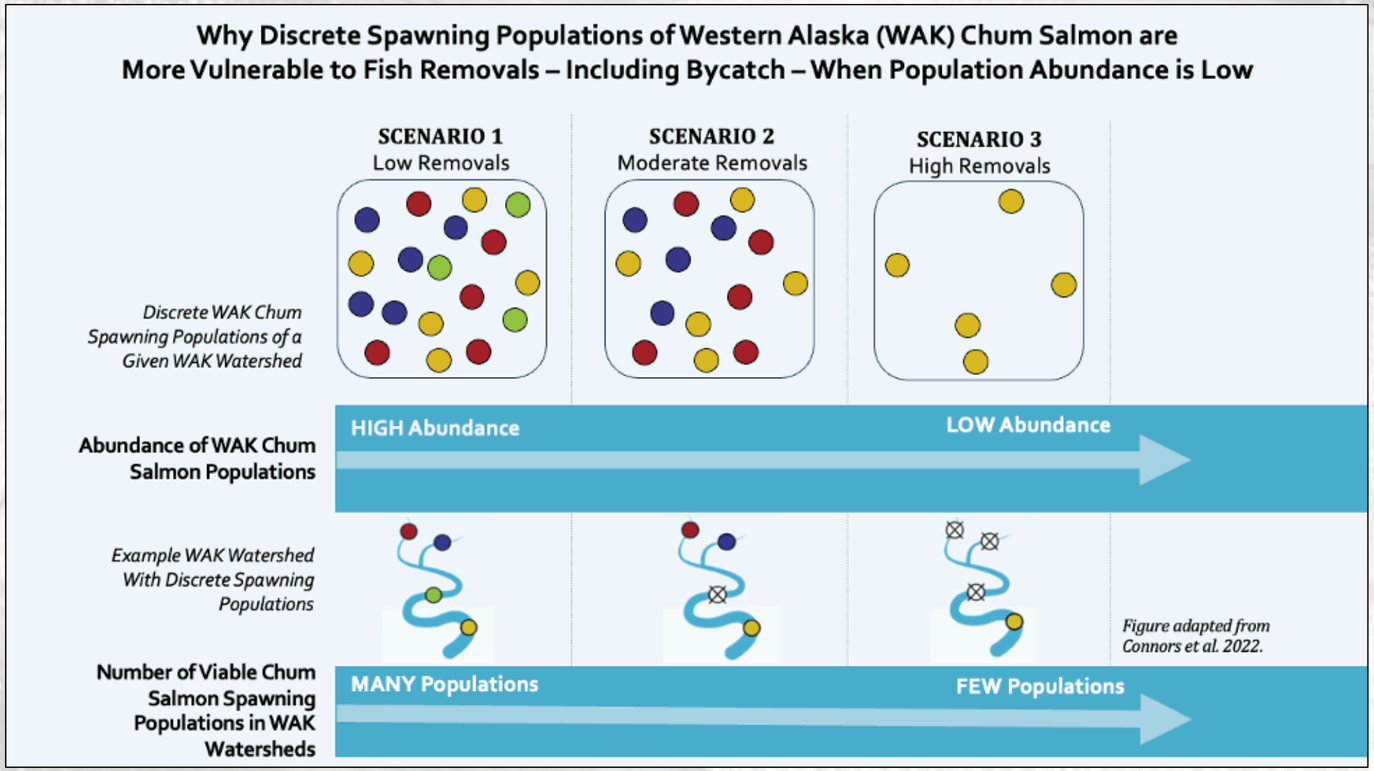
- *PDEIS 3.2.4.1 (Alt. 1 Effects on Chum)*
- *PDEIS 3.2.4.5 (Cumulative Effects on Chum)*
- *PDEIS 4.3.3.2.3 (Chum – Ecosystems & Biodiversity)*
- *PDEIS 4.3.4.2 (Area M)*
- *PDEIS 4.4.7 (Cumulative Effects for Chum Communities)*
- *Appendix 9.6.1.1.1*

## 7.5.A Bycatch and Intercept

Chum salmon removals **accumulate** over decades

**Chum salmon removals prevent ability of fish to:**
- Pass on climate resilience genetics
- Rebuild stock abundance
- Support the continuation of subsistence fishing traditions

The return of a single chum salmon can support the viability of **discrete spawning populations** *(right)*
- **T**ributary stocks with significant spatial separation such that they may be genetically distinct
- Sustained levels of chum salmon removals likely have **greater negative impacts** to discrete spawning populations at times of low abundance



See:
→ Appendix 7.5.B, 7.5.D

# Cumulative Factors Contributing to Kuskokwim Chum Salmon Declines

- *PDEIS 3.2.4.5 (Cumulative Effects on Chum)*
- *PDEIS 4.3.3.21 (Traditional & Modern Salmon Fishing)*
- *PDEIS 4.3.3.2.3 (Chum – Ecosystems & Biodiversity)*
- *PDEIS 4.4.7 (Cumulative Effects for Chum Communities)*
- *Appendix 9.6.1.1.1*

## 7.5.B. Impacts to Food Webs, Habitat, and Rivers-to-Seas Ecosystems

Kuskokwim freshwater ecosystem is connected to that of the North Pacific through anadromous salmon → **impacts of trawl fisheries on salmon, food webs, and habitat extend into the headwaters of the river system**

- Bears predating on moose
- Whitefish/trout abundance

Reduction of bycatch to:

- Restore chum salmon abundance
- Rebalance ecosystems
- Support stock restoration and equity in bearing burden of conservation

## 7.5.D Erasure of Indigenous Stewardship and Loss of Traditional Ways of Life

**Colonization of salmon management** and **exclusions of Indigenous people, knowledge systems, and values** from management systems have driven chum salmon declines & loss of traditional ways of life

**Conflicting stewardship/management principles** *(below)*

| | Indigenous Stewardship | Western Management |
|---|---|---|
| **Values** | • Sharing in times of abundance and scarcity<br>• Taking only what is needed<br>• Avoiding all waste<br>• Respecting all life (value in each fish that returns) | • Maximum Sustainable Yield (MSY) and Optimum Yield (OY)<br>• Minimizing bycatch “to the extent practicable” for industry |
| **Priorities** | Balancing community harvests with ecosystems services/needs | Industry harvest and profit |

KUSKOKWIM RIVER
INTER-TRIBAL FISH COMMISSION

# Quyana, Dogidinh, Chin’an, Tsen’anh, Thank You

*Photos by Titiana Albrite, Beverly Hoffman, Lisa Hupp/USFWS, Sophie Jackson, Rachel Konteh, Megan Leary, Andrew Magel, Kristen Maxie, James Nicori, Jonathan Samuelson, Terese Vicente*

KUSKOKWIM RIVER
INTER-TRIBAL FISH COMMISSION

# Additional Information

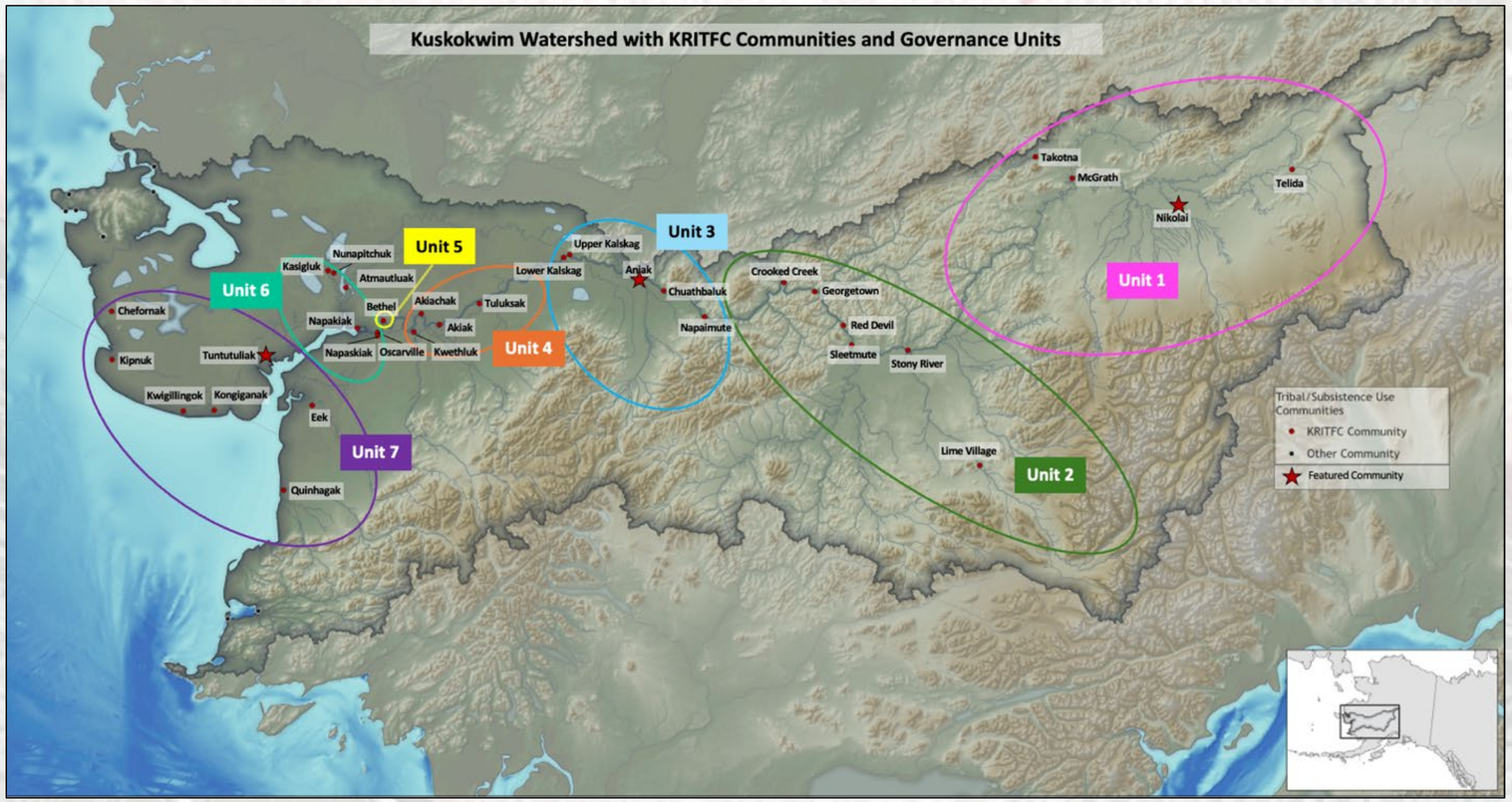
# Tribal Nations & Fisheries Co-Stewardship on the Kuskokwim River

See:
→ Appendix 7.3.B

## 7.3.B Kuskokwim River Tribes and Inter-Tribal Fish Commission

KRITFC (2015)

- 33 federally recognized Tribes (28 authorized Commissioners)
- 7 Executive Council governance units (below)
- 2 Elder Advisors




### Preamble to the KRITFC Constitution

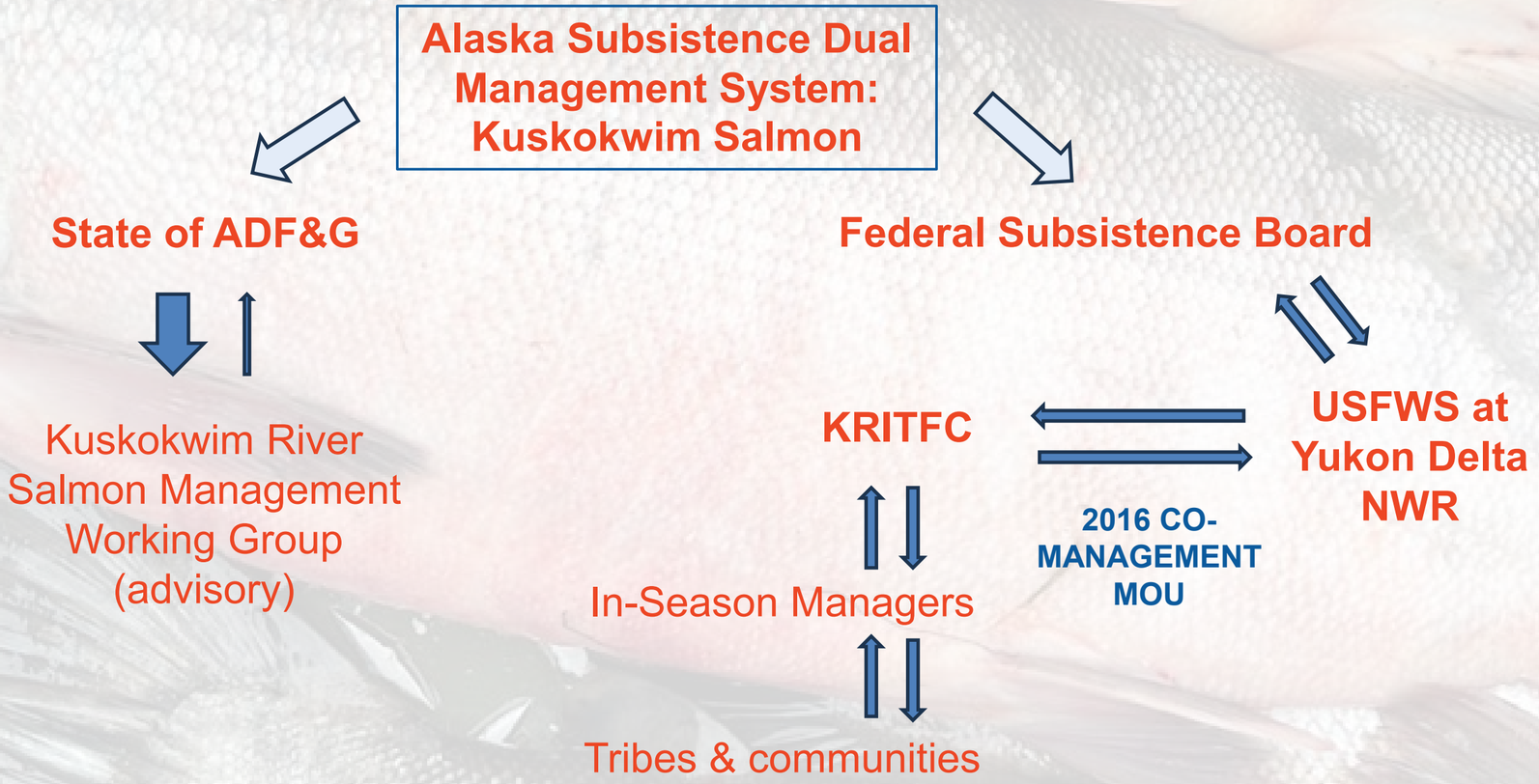
"We, the Tribes of the Kuskokwim River and its tributaries, proclaim that ***our fisheries are essential to our cultural, nutritional, economic and spiritual well-being and our way of life***. We recognize our responsibility and authority to exercise our ***inter-tribal treaty rights to act as stewards*** to our common traditional territories and resources. Since time immemorial, we have properly cared for the fishery resources of the Kuskokwim River Drainage. ***We commit to conserve, restore, and provide for tribal use of fisheries based on indigenous knowledge systems and scientific principles***. Founded on ***tribal unity, and striving for consensus***, we form the Kuskokwim River Inter-Tribal Fisheries Commission for the health and well-being of our tribal members, our future generations, and all Alaskans who rely upon the health of the fisheries."

# Tribal Nations & Fisheries Co-Stewardship on the Kuskokwim River

See:
→ Appendix 7.3.C

- *PDEIS 3.2.3 (Alaska Salmon Fisheries Management & WAK Stock Status)*

## 7.3.C Kuskokwim Fisheries Co-Stewardship




**KRITFC-USFWS Salmon Management and Harvest Strategies**

- Avoid collective (cumulative) overharvest
- Take conservation-based and precautionary management approach
- Maintain drainage-wide perspective while making decisions to provide subsistence harvest opportunities in federal waters
- Rely on LKTK and best available scientific information

→ **Equity & Environmental Justice assessment:** Are Tribes directly involved in decision-making, how, and to what extent?

# Chum Salmon Support Holistic Well-Being Of People and Place

See:
→ Appendix 7.4.C

- *PDEIS 4.3.3.2.2.3 (Chum – Economies & Livelihoods)*
- *PDEIS 4.3.4.1 (Commercial Harvests of Chum)*

## 7.4.C Commercial Fisheries

Chum salmon intentionally targeted for commercial harvest & sale since 1967

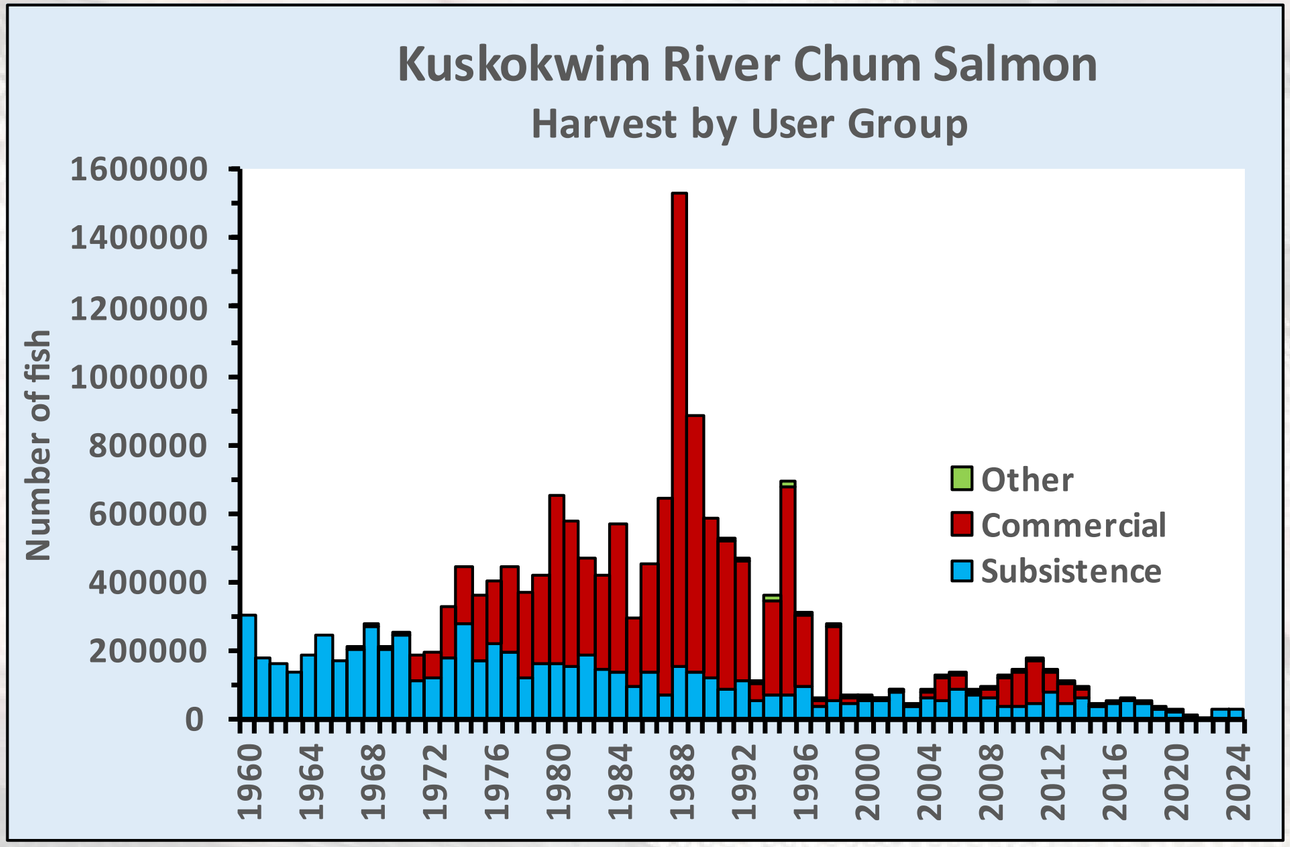
**Important source of revenue for families**

- **Support subsistence** harvesting practices & mixed economies
- **Local, family-operated vessels** in 1970s and 1980s
- CFEC permits held locally, passed down between generations/family members
- Peak commercial chum salmon harvests of 1,381,700 fish in 1988 *(right)*

Constraints to commercial fisheries starting in late 1990s

- Minimal commercial fishing opportunities in mainstem since early 2000s, and in Kuskokwim Bay since 2021

**Part of cumulative impacts that have contributed to salmon declines**

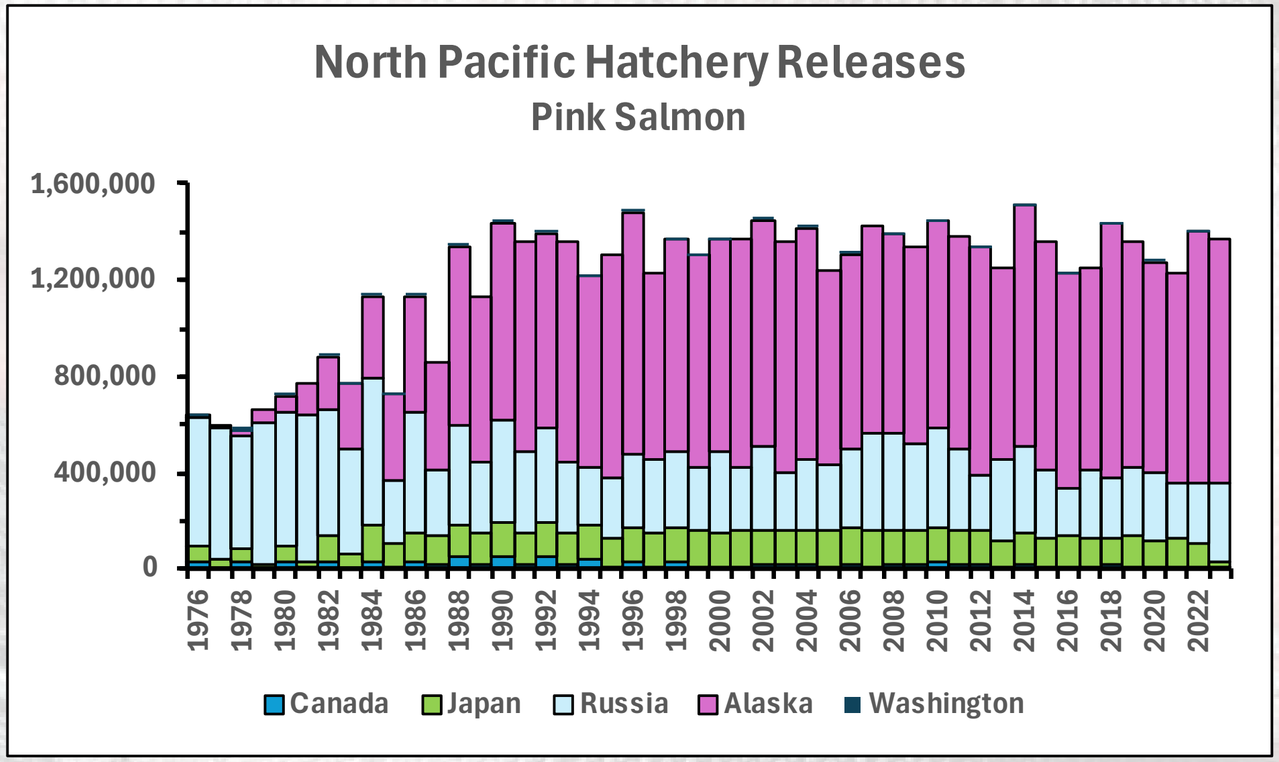


# Cumulative Factors Contributing to Kuskokwim Chum Salmon Declines

See:
→ Appendix 7.5.C

- *PDEIS 3.2.2.1 (Hatchery Releases)*
- *PDEIS 3.2.4.5 (Cumulative Effects on Chum)*
- *PDEIS 4.4.7 (Cumulative Effects for Chum Communities)*

## 7.5.C Hatcheries and Competition




Alaska's contribution to pink salmon hatchery production in the North Pacific: 57% (1990) → 74% (2023)

Hatchery pink salmon are voracious eaters and may have **particularly strong negative impacts** on wild chum salmon stocks

# Kuskokwim River Sonar to Measure Chum Salmon Abundance (Alternative 3, Option 1)

**See:**
**→ Appendix 7.6**

- ***PDEIS 2.4 (Alt. 3 Description)***
- ***Appendix 2***

## 7.6 Kuskokwim River Sonar to Measure Chum Salmon Abundance

The Kuskokwim River Sonar Project:

- Provides an estimate of total fish passage (7.6.A)
- Provides accurate abundance estimates compared to test fisheries (7.6.B)
- Records chum salmon swimming in new migratory channel (7.6.C; *top*)
- Is available after discontinuance of Bethel Test Fishery (7.6.D)
- Is available in early post-season (~September) period (7.6.E)
- Is in alignment with sonar as standard for state-wide salmon management (7.6.F)
- Shows correlations to Chinook salmon run reconstructions (7.6.G; *bottom*)