



# KUSKOKWIM RIVER

## INTER-TRIBAL FISH COMMISSION

OUR RIVER, OUR PEOPLE, OUR FISH

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December 2, 2022

Simon Kinneen, Chair  
North Pacific Fishery Management Council  
1007 West Third Ave., Suite 400  
Anchorage, Alaska 99501-2252

### **RE: KRITFC Written Comment on D1: Salmon Bycatch**

Dear Chair Kinneen and Members of the Advisory Panel and Council:

The Kuskokwim River Inter-Tribal Fish Commission (KRITFC) appreciates this opportunity to provide public comment regarding the upcoming North Pacific Fishery Management Council (Council) meeting, specifically regarding agenda item D1: Salmon Bycatch. As you are aware, subsistence-dependent communities on the Kuskokwim and throughout Western and Interior Alaska rivers are suffering from multi-year, multi-species salmon declines. We are grateful for the Council's attention to this matter, especially by creating the Salmon Bycatch Committee and directing your staff to produce the Chum Salmon Bycatch discussion paper. We urge you to immediately take further action to reduce the impact of salmon bycatch on our people.

KRITFC represents the 33 federally recognized Tribes of the Kuskokwim River watershed in fisheries management, research, and monitoring, and works to protect and sustain our Kuskokwim salmon fisheries and traditional ways of life using both Indigenous Knowledge and the best available Western science. All of our Tribal communities rely on salmon to nourish us physically, culturally, spiritually, and economically. However, due to poor Chinook, chum, and coho salmon returns and subsequent subsistence fishing closures, our communities faced the most restricted fishing season ever experienced on the Kuskokwim in 2022. We are feeling the pangs of this summer's empty smokehouses and freezers as another long winter sets in. We cannot underscore the urgency of our situation.

We understand that bycatch is not the sole cause of salmon declines, yet it is significant and, importantly, is manageable within this Council's control and jurisdiction. This is especially noticeable when compared with rising sea surface temperatures, decreased prey abundance, and other climate-related factors cumulatively contributing to salmon declines. In the face of multiple uncertain factors and the need for conservation, the ecologically sound thing to do is not to delay action while waiting for more data, but to take precautionary management action now while pursuing more information to refine that action.

In 2022, Kuskokwim fishing communities faced the third year of depressed chum salmon returns, yet the Council has not taken action to limit the amount of chum salmon bycatch in the

TELIDA | NIKOLAI | TAKOTNA | MCGRATH | LIME VILLAGE | STONY RIVER | SLEETMUTE | RED DEVIL  
GEORGETOWN | CROOKED CREEK | NAPAIMUTE | CHUATHBALUK | ANIAK | UPPER KALSKAG | LOWER KALSKAG | TULUKSAK  
AKIAK | AKIACHAK | KWETHLUK | BETHEL | OSCARVILLE | NAPASKIAK | NAPAKIAK | KASIGLUK | ATMAUTLUAK  
NUNAPITCHUK | TUNTUTULIAK | EEK | QUINHAGAK | KONGIGANAK | KWIGILLINGOK | KIPNUK | CHEFORNAK

Bering Sea-Aleutian Island (BSAI) pollock fishery. Over the past three years, while Western Alaska chum salmon runs have crashed and subsistence and in-river commercial fisheries have been closed or limited, chum salmon bycatch has increased – and this despite incentives for the pollock fleet to avoid chum salmon. It is incredibly inequitable that our Western Alaska Tribal communities are unable to fish while the pollock fleet is allowed to harvest exorbitant numbers of chum salmon without restrictions. We are disappointed that this inequity was not addressed in the Chum Salmon Bycatch discussion paper, instead dismissing Western and Interior Alaska chum salmon bycatch as a marginal fraction of overall chum salmon bycatch. At this point in our regional chum salmon crisis, every spawned or harvested fish counts.

Our Chinook salmon returns in 2022 were poor compared to historical run averages, similar to the previous 13 years. Though the BSAI pollock fleet has a hard cap on Chinook salmon bycatch, the proportion of Western Alaska Chinook salmon caught and discarded by pollock vessels remains the greatest stock proportion by far. This, too, happens despite continued in-river conservation closures imposed on subsistence fishing communities and incentives for the pollock fleet to avoid Chinook salmon; this, too, is inequitable for our people.

With this in mind, KRITFC urges the Council to act quickly to protect chum and Chinook salmon and our Tribal communities' ways of life through the following:

**The Council should take immediate and meaningful action to reduce chum salmon bycatch in the Bering-Sea Aleutian Island (BSAI) pollock fishery with a goal of zero chum salmon bycatch.** Any limitations associated with chum salmon data are not an excuse to delay taking action to protect chum salmon now. The dire situation in our Western and Interior Alaska subsistence-dependent communities warrants urgency on this matter. We urge the Council begin this action through the following:

1. ***The Council should take immediate action to set a chum salmon prohibited species catch (PSC) limit, based on historical bycatch levels and average Western Alaska stock compositions, while developing other measures.***
  - We recommend the Council use a quartile-based approach and set this interim PSC limit at 50% of historic (1991-2021) chum salmon bycatch to protect declined Western Alaska chum salmon incidentally caught, calculated to be roughly 200,000 chum salmon.
  - The Council should work to implement this PSC limit immediately, no later than the 2023 B-Season pollock fishery. The urgency of the chum salmon crisis necessitates the Council take proactive, precautionary measures now.
2. ***The Council should initiate an analysis of science-based alternatives to set a chum salmon PSC limit, with an ultimate goal of zero chum salmon bycatch.***
  - We recommend the Council consider a range of alternatives based on a variety of metrics, including but not limited to abundance estimates, historic bycatch levels, historic Western Alaska subsistence harvest levels, or Western Alaska escapement estimates.
  - We urge the Council to consider restrictions in the BSAI pollock fishery as an alternative. Thus far, conversations among the Council (including in the recent Chum Salmon Bycatch discussion paper) have posited that reducing chum salmon bycatch will increase Chinook salmon bycatch, and vice versa, without recognizing an alternative approach of

reducing BSAI pollock fishing time to minimize the PSC of both chum and Chinook salmon.

- The Council should also consider indexing a PSC limit to salmon returns and to whether subsistence-dependent communities have or have not met their chum salmon harvest needs.
  - We remind the Council that Traditional and Indigenous Knowledge systems are sciences and urge the Council to incorporate these knowledges into this analysis by consulting directly with Tribes and Tribal organizations in this process.
3. ***The Council should send a letter to the State of Alaska in support of the State's expanded efforts to collect genetic stock and age composition data in the Alaska Peninsula fishery.***
- While we repeat that there can be no delay in taking action to wait for more data, we also encourage expanded research on Western Alaska chum salmon declines, including the impacts of intercept by South Alaska Peninsula commercial fisheries.
  - Based on previous genetic data collected by the Western Alaska Salmon Stock Identification Program (WASSIP) from 2007–2009, on average, 57% of all chum salmon harvested in the South Alaska Peninsula commercial fishery are of Coastal Western Alaska origin. This is a significant percentage.
  - In 2022, the Alaska Department of Fish & Game began another series of genetic stock composition research as well as new age composition data collection.
  - We request the Council write in support of the State of Alaska's new, expanded research initiative. This would simultaneously acknowledge the State's role in addressing the overarching problem of significant, lingering data gaps in Western Alaska salmon research; the interconnectivity of the wider Western Alaska salmosphere; and the need for the Council and State to better cooperate with each other and with Tribal subsistence-dependent communities on this issue.
4. ***The Council should task the Salmon Bycatch Committee with further developing salmon bycatch reduction measures as a standing committee.***
- This Committee offers a forum to workshop solutions to reduce salmon bycatch and sustain all fisheries dependent upon the Bering Sea ecosystem, and we commend the Council on the creation of this Committee and its inclusiveness of Tribal voices.
  - Furthermore, it is evident that salmon bycatch and salmon declines are not going away so long as commercial pollock fishing and climate change continue. For this reason, the newly formed Salmon Bycatch Committee should transition from a temporary committee to a fully permanent committee. It would be a shame to see this Committee dissolve while the issue itself remains a permanent fixture in our ecosystem.
  - This Committee should continue to do its work without delaying immediate action.

Additionally, **the Council must continue to take strong action to reduce Chinook salmon bycatch, with a goal of zero Chinook salmon bycatch.** Again, there is no need to wait to act because of a lack of data, especially considering in-river subsistence fisheries are almost or completely shut down despite data gaps and limitations.

1. ***The Council should task the Salmon Bycatch Committee with discussing Chinook salmon bycatch reduction.***

- This newly formed Salmon Bycatch Committee, complete with several Tribal experts from the Western Alaska region, is one forum to continue discussions and workshop solutions to reducing Chinook salmon bycatch in tandem with protecting Western Alaska chum salmon. Conversations about both species must be on the Committee's table for consideration.
- See (4) above to convert this Committee into a standing committee.

**2. *The Council should continue analyzing ways to reduce Chinook salmon bycatch, considering continued high stock compositions of Western Alaska Chinook salmon populations despite concurrent declines in Western Alaska Chinook salmon populations.***

- Especially during prolonged periods of low Western Alaska Chinook salmon abundance (i.e. 2006-current), the established Chinook PSC limit and Performance Standard values are not adequately protecting salmon stocks, and the pollock fleet continues to take a relatively high number of Western Alaska Chinook salmon. We highlight that recent numbers of Chinook salmon caught from the Coastal Western Alaska stock (10,337 in 2020 and 8,381 in 2021) were substantially higher than the 10-year average, and 2020 represented the highest Coastal Western Alaska bycatch in the last decade.
- The Council should develop a discussion paper that evaluates new ways to refine the Chinook salmon PSC limit such that it is responsive to Chinook salmon stock status by including expected run size as described in the Alaska Department of Fish and Game annual forecasts.
- The Council must include Traditional and Indigenous Knowledge in this discussion paper, as these knowledge systems form part of the suite of best available science.

KRITFC also notes the Council is scheduled to discuss the Programmatic Supplemental Environmental Impact Statement (PSEIS) scoping paper in February 2023. **We continue to urge the Council and NOAA Fisheries to comprehensively update the outdated 2004 PSEIS to account for a changing climate and subsistence communities' needs.** This update should begin with a scoping process that consults with Tribes and engages with the public, fishing communities, and the fishing industry. We look forward to further discussion of this issue in February 2023.

In closing, we ask you to learn more about our experiences in our 2022 Kuskokwim River Salmon Situation Report, appended to this comment, and we look forward to discussions at the Council's upcoming meeting.

Quyana, Tsen'ahn,



Mike Williams Sr.  
Chair, KRITFC



Kevin Whitworth  
Executive Director, KRITFC



# Kuskokwim River Salmon Situation Report

DECEMBER 2022

*Last updated December 2, 2022*

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*Photo courtesy: Jonathan Samuelson.*



## Introduction

This situation report documents the current Chinook, chum, and coho salmon disasters on the Kuskokwim River and their impacts on the 33 subsistence-dependent communities in its watershed. The aim of the Kuskokwim River Inter-Tribal Fish Commission (KRITFC) in this report is to communicate the magnitude of our subsistence salmon declines and articulate the critical need for a new conservation-based, ecosystem-wide management approach, particularly in the marine environment. These multi-year, multi-species salmon declines threaten food, cultural, spiritual, and economic security in the Kuskokwim drainage, and they demand attention and immediate action by all management entities.

While this report focuses on the impacts of these salmon stock collapses in the Kuskokwim drainage, we are acutely aware of other watersheds in Western and Interior Alaska experiencing the same, if not more severe, declines. Moreover, this situation report is not meant to diminish our gratitude for the fish we have been able to harvest along the Kuskokwim. Rather, it is meant to be an honest documentation of the experiences of our communities during salmon shortages so we can act effectively and equitably to maintain our fishing ways of life for future generations.

## About the Kuskokwim River Inter-Tribal Fish Commission

The KRITFC represents the interests of the 33 federally recognized Tribes of the Kuskokwim River in salmon management, research, and monitoring to protect and sustain our salmon fisheries and traditional ways of life. The work of our 27 Tribally appointed Fish Commissioners, 7 Executive Council members, and 5 In-Season Managers uses both our Yupik and Athabascan Dené Indigenous Knowledge and the best available Western science, and centers our values of unity, sharing in abundance and scarcity, respect for all life, and stewardship for our ancestors and future generations.

### At A Glance: The Status of Kuskokwim River Salmon Runs, Subsistence Harvests, & Causes of Decline

- 2022 is the **seventh year in a row of successful collaborative salmon management** between KRITFC and the U.S. Fish and Wildlife Service at Yukon Delta National Wildlife Refuge.
- Chinook salmon escapement goals were met in 2022 because of **continued sacrifices and conservation efforts by Kuskokwim subsistence communities**, who only met about **one-third of their long-term Chinook salmon subsistence harvest needs**.
- **Chum salmon returns remain unprecedentedly low** in the Kuskokwim River, and **2022 is the third year of an alarmingly steep decline of coho salmon**.
- The sockeye salmon run remains strong, but it is not possible to harvest them in large numbers without impacting declined Chinook and chum salmon populations.
- **The 2022 season was the most restricted subsistence fishing season** ever seen on the Kuskokwim.
- With the coho salmon decline, it becomes clear that **Kuskokwim River communities now face a multi-species salmon collapse**. There appears to no longer be any highly abundant “backup” salmon species to fill unmet food security needs.
- Massive intercept catches of chum salmon occurred in the South Alaska Peninsula area (Area M) commercial salmon fisheries during June 2021 and 2022. The most recent and rigorous genetic analysis of samples from these fisheries showed that **Coastal Western Alaska stocks comprised an average of 57% of the chum salmon harvested in Area M, and nearly 1 million Coastal Western Alaska chum salmon were harvested in the two-year period of 2021 to 2022**.
- While the bycatch of Chinook salmon in the Bering Sea-Aleutian Island pollock fishery has declined, chum salmon bycatch remains high, with **no chum salmon bycatch caps** in place by federal managers.



Figure 1: Timeline of a subsistence salmon catastrophe on the Kuskokwim River.

## *The Multi-Species Salmon Collapse Threatens Our Well-Being & Way of Life*

The Kuskokwim River has historically supported the largest subsistence salmon fishery in the State of Alaska, both based on the number of residents in the 33 villages who participate in the fishery and the number of salmon harvested (Fall et al. 2011). With some of the lowest per capita monetary incomes and highest poverty rates in the state, this region is characterized by a high production of wild foods for local use (Wolfe and Walker 1987).

Over the past thirty years, village residents in the Kuskokwim region have annually harvested over 360 pounds of wild foods per person for human consumption, with fish comprising up to 85% of the total poundage of subsistence harvests, and salmon contributing up to 53% of subsistence harvests (Simon et al. 2007; Wolfe et al. 2011). Residents harvest all five species of Pacific salmon: Chinook, chum, coho, pink, and sockeye. Historically, one out of every two Chinook salmon caught for subsistence in the state was harvested by Kuskokwim River communities. In other words, salmon-dependent communities in the Kuskokwim watershed utilize half of all Chinook salmon harvested for subsistence state-wide.

The importance of salmon, particularly Chinook salmon, to residents extends well beyond nutrition and economy to include socio-cultural identities and a way of life (Ikuta et al. 2013). The Indigenous people of the Kuskokwim – from our Yupik communities at the coast to our Upper Kuskokwim Athabascan Dené Tribes of the Interior headwaters – are, have been, and will always be salmon people. Salmon are essential to our physical, economic, cultural, and spiritual wellbeing.

From the late 1970's into the mid-1990's, the Kuskokwim River saw large runs of Chinook, chum and coho salmon, supporting significant commercial fisheries in addition to meeting subsistence needs in much of the watershed.

For example, between 1990 and 1995, an average of over 1.5 million salmon of multiple species were harvested in the commercial fisheries alone (Figure 2).

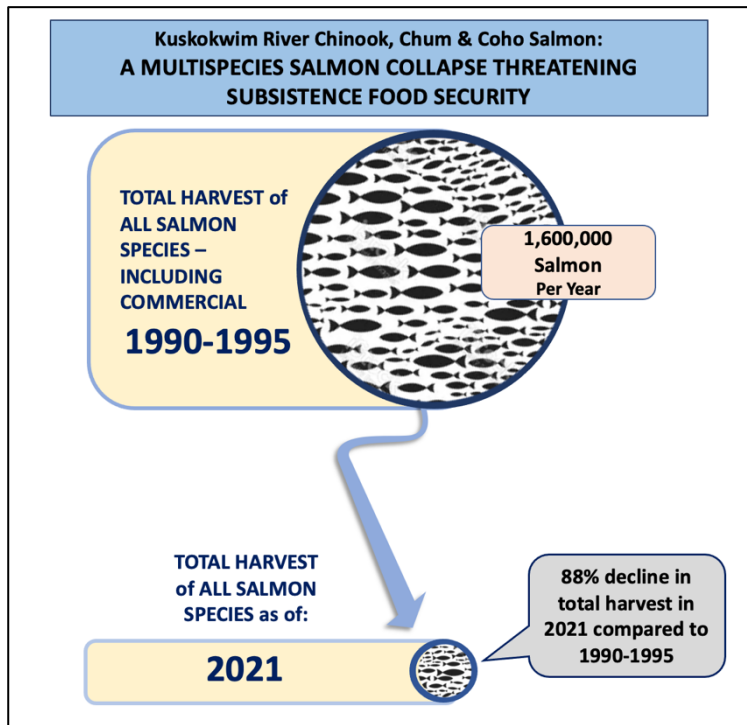


Figure 2: Total subsistence and commercial harvest of all Kuskokwim River salmon species, 1990–1995 compared to 2021.

As of 2022, the Kuskokwim River is experiencing a catastrophic multi-species salmon decline not seen in living memory, and our Elders, youth, and entire communities are suffering because of it. Since at least 2009, subsistence-dependent communities in the Kuskokwim drainage have witnessed steep declines in their salmon populations, beginning with Chinook salmon and now, within the past three years, extending to chum and coho salmon (Figures 1 & 2).

Due to the multi-species nature of the salmon collapse and the complete closure of much of the coho salmon run, the 2022 season was the most restricted subsistence fishing season ever seen on the Kuskokwim.

The State of Alaska Department of Fish and Game (ADF&G) closed all subsistence gillnet fishing in the flowing waters of the Kuskokwim River from August 17 through September 15, including fishing for non-salmon fishes. Because of prolonged conservation closures, subsistence fishing families not only faced salmon harvest restrictions, but also experienced challenges harvesting whitefish and

other non-salmon species that are critical for traditional diets and well-being.

In the recent past, the subsistence harvest of chum and coho could help make up for the absence of Chinook salmon. This was not possible in 2022 with the steep decline of coho salmon on top of the Chinook and chum crashes. And, while sockeye salmon have increased in abundance, it is not possible to target them without potentially overharvesting the declined Chinook and chum populations present in the river at the same time. Kuskokwim River communities are realizing that there is no longer any “backup” salmon species to fill unmet salmon needs, leaving us with a heavy reliance on whitefish, moose, and other subsistence resources, as well as on store-bought foods of significantly less nutritional and cultural value. These current dramatic multi-species salmon declines are thus threatening food security and overall well-being within the Kuskokwim region, as well as the health of our drainage-wide ecosystem.

### Impacts of the Prolonged Chinook Salmon Crash (2009–2022)

Since at least 2009, the Chinook salmon (king salmon, *kiagtaq*, *taryaqvak*, *gas*, *Oncorhynchus tshawytscha*) populations in the Kuskokwim River have crashed and remain severely depressed through the 2022 season. Many fishing families in upriver communities, including Nikolai, McGrath, and Takotna, reported Chinook salmon declines dating back to 2000 when average household harvests decreased to approximately half of what they had been in the 1990s.

The preliminary 2022 Kuskokwim River Chinook salmon total run estimate shows a midpoint of about 143,600 fish, and an estimated escapement of about 105,700 fish (though preliminary estimates are considerably uncertain because poor weather prevented aerial surveys) (Rabung 2022). The 2022 estimate is about 41% below the long-



term total run average from 1976 to 2009 (Figure 3). During the run, subsistence-dependent communities were heavily regulated with very few limited harvest opportunities per week and net size and gear restrictions to try to meet the critical escapement goals. As a result of the sacrifices of subsistence users working to rebuild the Chinook salmon stocks, the drainage-wide Chinook salmon escapement goal (65,000–120,000 fish) has been achieved every year that KRITFC and U.S. Fish and Wildlife Service at Yukon Delta National Wildlife Refuge (YDNWR) have collaboratively managed the run, including 2022.

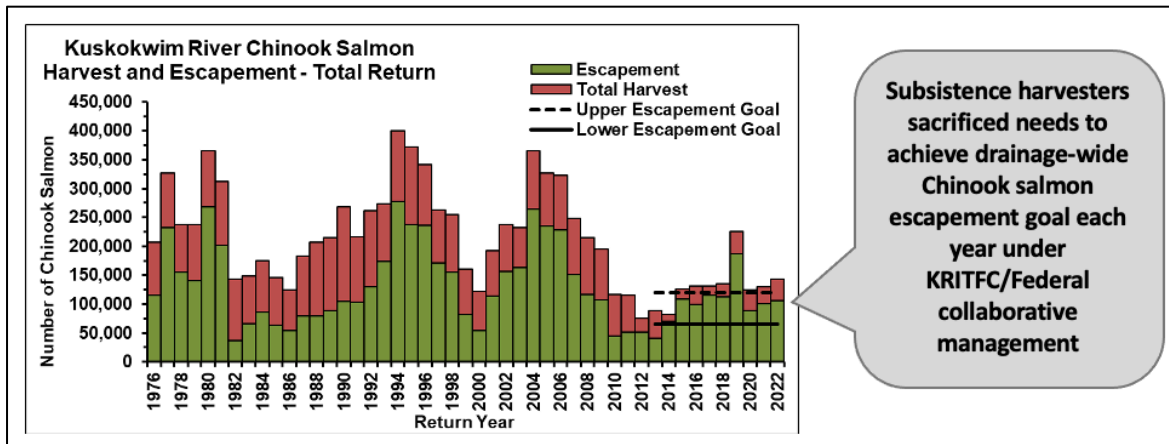


Figure 3: Kuskokwim River Chinook salmon escapement and total harvest by all user groups, 1976–2022. Note: 2022 data is preliminary. Source: Rabung 2022.

Despite Chinook salmon escapement goals being met throughout the period of KRITFC–YDNWR co-management, the Kuskokwim River Chinook salmon run remains concerning because of the inability to maintain expected historic yields, or harvestable surpluses, above the stock’s escapement needs, despite the use of specific management measures. As a result, Kuskokwim River residents have not been able to meet their long-term harvest levels – termed amounts reasonably necessary for subsistence (ANS) by the Alaska Board of Fisheries (BOF) – of 67,200–109,800 fish since 2010 (Figure 4).

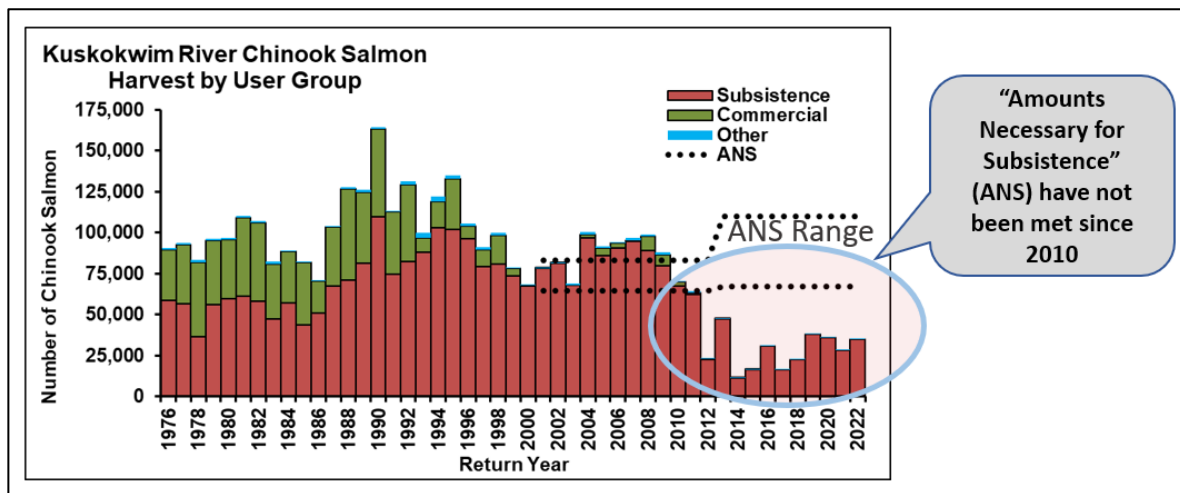


Figure 4: Kuskokwim River Chinook salmon harvest by user groups during 1976–2022, showing that long-term subsistence harvest needs (based on ANS) in the watershed have not been met since 2010. Note: 2022 data is preliminary. Source: ADF&G AYK Database Management System.

While post-season household harvest surveys have yet to be conducted to estimate total salmon harvests during the 2022 season, based upon the in-season community-based harvest monitoring program operated by KRITFC, Orutsararmiut Native Council, and YDNWR, we estimate at this time that residents of the Kuskokwim River met only about one-third of their average long-term Chinook salmon harvest needs. Moreover, as the average size of Chinook salmon returning to the Kuskokwim has decreased, subsistence fishers are not only harvesting fewer numbers of fish but fewer total pounds of fish (Ohlberger et al. 2018). This compounds the food security crisis already unfolding with declined Chinook salmon stocks and restricted harvest opportunities.

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June 16 was not a good day. Many Kalskag fishermen started at 6:00 am or 8:00 am and fished for eight to ten hours, with a range of zero to five Chinook salmon caught. One person caught ten kings after fishing almost the whole opener. Some are waiting because they can't afford to spend the whole day out for one or two fish. It was a hard day.

Megan Leary, Aniak  
(Native Village of Napaimute)

### Continued Recent Chum Salmon Crash (2020–2022)

Chum salmon (dog salmon, *aluyak*, *iqalluk*, *neqepik*, *srugbot'aye*, *O. keta*) have been especially important for food security during years of poor Chinook salmon returns. Because of their lower fat content, they also provide unique traditional foods that cannot be prepared with other salmon species. While chum salmon harvests have declined in recent decades resulting from changes in customary and traditional use patterns, including fewer dog teams in the region, they are highly sought for preparing traditional delicacies like *eggamarrluk* (half-dried, half-smoked salmon) and for Elders and other family members who cannot consume fattier salmon species.

However, in 2020, 2021, and 2022, Kuskokwim chum salmon returns crashed unexpectedly. The 2022 chum salmon run appears to be the second lowest chum salmon return on record, better only than the 2021 return (Figure 5). Chum salmon used to return to middle and headwaters tributaries in the millions, feeding more than just human subsistence users, but bears, vegetation, and other life. The lack of chum salmon in tributary valleys has the potential to significantly affect the health of the Kuskokwim ecosystem.

Moreover, because in-season data showed a weak chum salmon return, Kuskokwim subsistence-dependent communities were restricted from harvesting chum salmon through area and gear type closures. For the second year in a row – and the second year in living memory – subsistence gillnet fishing in the lower Kuskokwim River remained closed through the majority of July, preventing families from being able to efficiently harvest sockeye salmon and non-salmon fish species to store food for the winter.

As a result of this crash and harvest restrictions to meet escapement and conservation goals, subsistence harvests of chum salmon in the Kuskokwim River from 2020 through 2022 have been well below the ANS range of 41,200–116,400 fish designated by the Alaska BOF, representing some of the poorest harvests on record.

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On June 22, I caught only five chums; most people are catching five to ten. People are calling them ‘precious.’  
Mike Williams Sr., Aniak (Aniak Native Community)

When I first came to Aniak in the 1960s, there were people who made their money off fur in the winter and fish in the summer; that's how they could buy a new outboard or net. They were able to do that because the chum salmon went up the Aniak valley to die. Elders talk about the stink up there, and the first year we had a sonar on the Aniak, we had a million chums up there; but no longer. We should think of chums as the sponsor of marine-derived nutrients and make sure we don't downplay this.

LaMont Albertson, Aniak

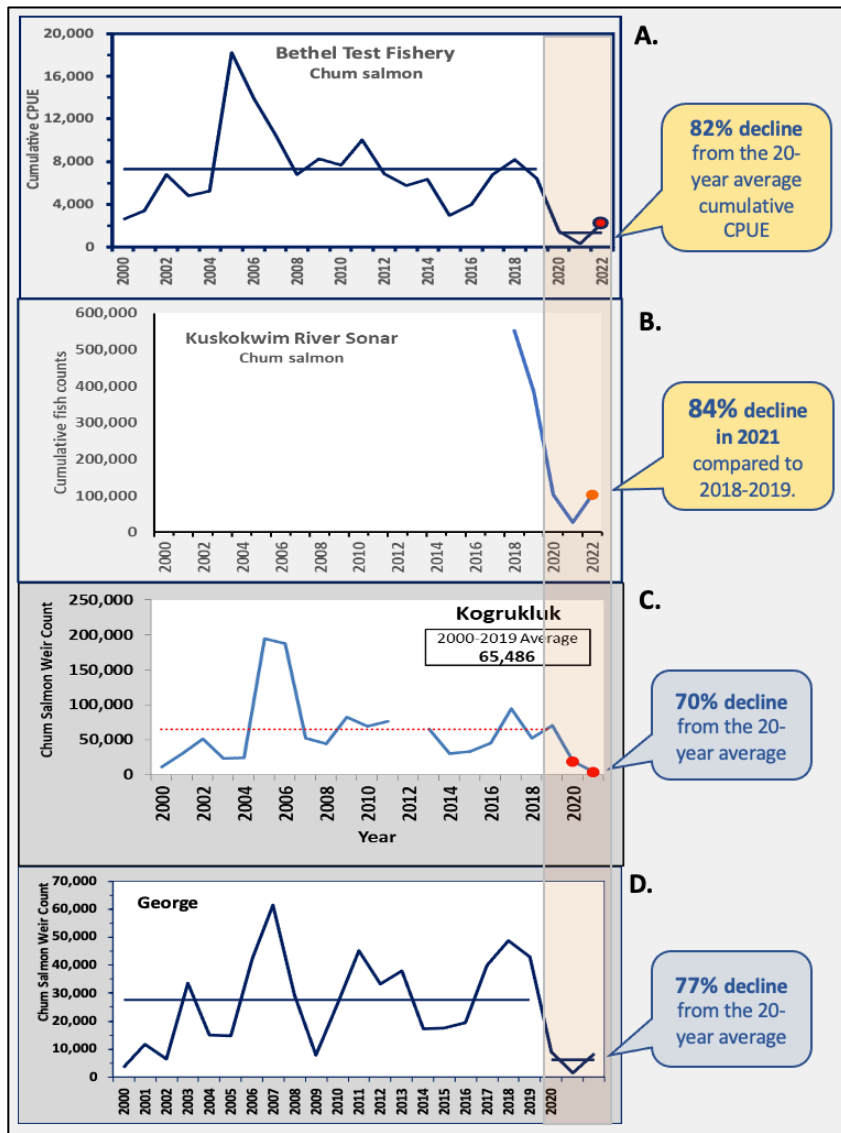


Figure 5: Evidence of low 2020 - 2022 Kuskokwim River chum salmon abundance:

- A. Cumulative end-of-season catch per unit effort (CPUE) of chum salmon caught in the Bethel Test Fishery, 2000-2022.
- B. Cumulative annual counts of chum salmon from the Kuskokwim River sonar project, 2018-2022.
- C. Kogrukluq river weir, 2000-2021.
- D. George River weir, 2000-2022.

Source: ADF&G AYK Database Management System.

### Unprecedented Coho Salmon Crash (2022)

Coho salmon (silver salmon, *ciayuryaq*, *caayuryaq*, *uqurliq*, *qakiyyaq*, *nosdlaghe*, *O. kisutch*) are the last salmon species to return to the Kuskokwim each season. With the run beginning toward the end of July and continuing until ice covers the river, coho salmon provide Kuskokwim fishing communities with their final opportunities to meet their subsistence salmon needs.

In the past, Kuskokwim River coho salmon returns appeared to be highly productive, supporting both commercial and subsistence fisheries. During the 1990s, commercial harvests of coho salmon averaged around 460,000 fish per year, with a peak harvest of nearly 1 million coho salmon in 1996. However, this large commercial fishery was managed without a reliable in-season estimate of abundance or post-season run reconstruction, meaning there was no method for ADF&G managers to assess the long-term sustainability of this commercial fishery.

Unlike the commercial fishery, long-term coho salmon subsistence harvests until 2018 averaged and remained relatively stable around 35,000 fish. With ongoing Chinook and chum salmon declines, river-wide dependence on

coho salmon to meet subsistence needs is especially strong. Many families rely on coho salmon to fill their freezers, jar smoked strips, and taste the last fresh salmon of the season.

Available long-term run assessment data from the Bethel Test Fishery (BTF) show that the Kuskokwim River coho salmon run has declined significantly since 2018 (Figure 6), which corresponds with coho conservation concerns voiced by Kuskokwim residents in recent years at the State of Alaska’s advisory body, the Kuskokwim River Salmon Management Working Group. BTF cumulative coho salmon catch-per-unit-effort (CPUE) has dropped 54% in the past four years. As a result of these declines, the coho salmon ANS of 27,400–57,600 fish was not met in 2018, 2020, 2021, or 2022.

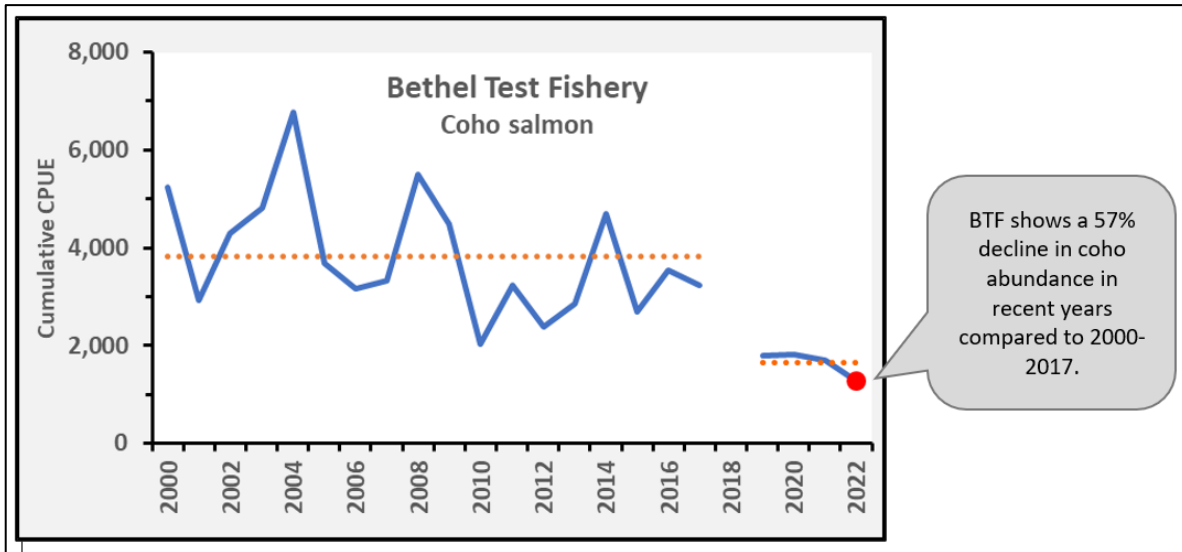


Figure 6: Cumulative end of season CPUE of coho salmon caught in the Bethel Test Fishery, 2000-2022, showing a steep decline in coho salmon runs for the past four years. The 2019–2022 average CCPUE was 57% below the 2000–2017 average. Source: ADF&G AYK Database Management System.

Despite recent years of steep coho salmon declines, ADF&G managers did not act until 2022, when they implemented a drainage-wide closure of the Kuskokwim from mid-August to mid-September to protect a record-low coho salmon return. This drainage wide closure effectively shut down all subsistence fishing, including the use of smaller-sized mesh nets targeting whitefish and the use of selective non-gillnet gear types, that resulted in severely harming subsistence communities by the lack of reasonable opportunity to harvest non-salmon species.

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I’m really saddened and devastated for our Tribal families upriver who haven’t had a chance to catch Chinook or chum salmon, and we don’t get reds up here. Now there’s no silver fishing. The people that live a subsistence lifestyle up here are going to be hit really hard. It was open downriver, but the fish take two or more weeks to get upriver. By the time the silvers were up here this year, we were closed and couldn’t fish. It’s devastation up here.

*Betty Magnuson, McGrath (McGrath Native Community)*

Everybody is caught off-guard by the silvers. A lot of people upriver who were waiting for the silvers to arrive do not have any chance for that. With the closures, we also effectively have no access to the fall whitefish and any other fish that people need to put away for the winter.

*Jonathan Samuelson, Georgetown (Native Village of Georgetown)*

## ***Commercial Intercept & Bycatch Impacts on Critically Declined Western Alaska Salmon Stocks***

Many potential factors have cumulatively caused declines in Coastal Western Alaska (CWAK) salmon populations. Salmon bycatch and interception in marine fisheries, while not the sole driver of current poor salmon returns to the Kuskokwim, undeniably impacts salmon stocks in this region and is a driver that is directly under human control. However, unlike many drivers of declines, humans can directly and effectively influence salmon bycatch and intercept levels – a particularly crucial power during present-day collapses in subsistence salmon fisheries. Moreover, the 33 Tribes of the Kuskokwim River share Indigenous values associated with deep respect and gratitude for subsistence foods, and the excessive waste of bycaught salmon is deeply offensive to the Tribal stewardship principles practiced by the subsistence cultures in the watershed.

### **At A Glance: Impacts of Commercial Salmon Interception & Bycatch**

- **Both the South Alaska Peninsula (Area M) salmon fishery and the Bering Sea pollock fishery** are documented contributors to the severe chum salmon crash impacting communities throughout the Coastal Western Alaska region.
- The most recent and rigorous genetic analysis of samples from these fisheries found an average of **57% of the documented Area M chum salmon catch in June** were of Coastal Western Alaska origin.
- **Huge numbers of chum salmon** bound for Western Alaska rivers were harvested in the Area M fishery in recent years. A combined total of **nearly 1 million Coastal Western Alaska chum salmon were harvested in the two-year period of 2021 to 2022.**
- Chum salmon bycatch of Western Alaska stocks in the Bering Sea pollock fishery in 2021 was significant but smaller compared to the harvest in the Area M fishery. For comparison, in recent years the **Area M harvest of Coastal Western Alaska stocks has been 10 times larger than the Bering Sea bycatch of those same stocks.**
- **The South Alaska Peninsula fishery has profited** for more than 100 years off the sustained productivity of distant salmon stocks – especially the Yukon and Kuskokwim River chum salmon stocks, which were the most abundant stocks in the Coastal Western Alaska region prior to the current crash.
- There is **currently no limitation or cap on the number of Western Alaska chum salmon** that can be caught and sold in Area M or caught and discarded in Bering Sea pollock fishery, regardless of the impacts to spawner escapement or food security threats in the salmon's regions of origin.
- Fundamentally, both **state Area M harvest management and federal bycatch management are disconnected from** in-river stock assessments, escapement monitoring, and other best management practices to ensure sustainability of our Western Alaska salmon stocks that are harvested in these marine fisheries.
- Both state and federal policy declare that meeting salmon escapement goals and providing for subsistence uses are to be prioritized over commercial harvests. However, in practice, the current management regimes under **both North Pacific Fisheries Management Council and Alaska Board of Fisheries effectively prioritize commercial uses** over Western Alaska escapement needs or subsistence uses. For example, in 2021, when chum salmon harvests were severely restricted on the Kuskokwim and not allowed on the Yukon, **over 740,000 Western Alaska chum were legally caught** between both the Area M fishery and the Bering Sea pollock fishery.

### South Alaska Peninsula (Area M) Interception of Western Alaska Chum Salmon

The South Alaska Peninsula Management Area, more commonly known as a portion of Area M, neighbors the Chignik and Bristol Bay areas along the Alaska Peninsula and eastern Aleutian Islands (Figure 7). Managed by ADF&G, Area M is an intercept fishery that has operated since at least the early 1900’s targeting all salmon species as they pass through the fishery.

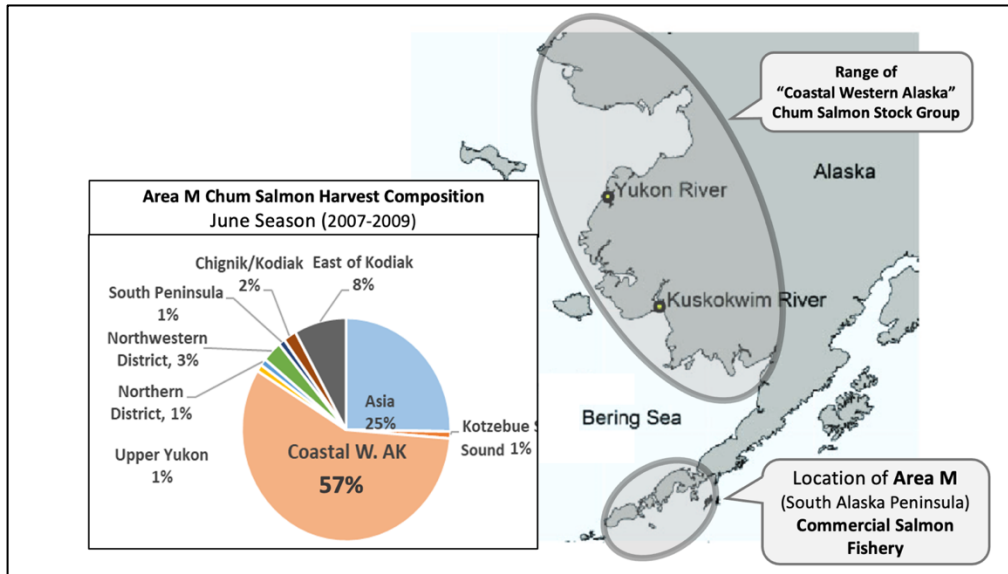


Figure 7: Map of South Alaska Peninsula intercept fishery with inset showing the average genetic composition of chum salmon caught in commercial fisheries there during June 2007–2009 as reported by WASSIP. Source: Munro et al. 2012.

Arctic-Yukon-Kuskokwim (AYK) region immature chum salmon stocks travel to the Gulf of Alaska and North Pacific to rear and mature. As the salmon begin to mature in late winter and spring and migrate to their natal rivers to spawn, they must travel through the island passes at the end of the Alaska Peninsula (Figure 7). The Area M fishery is located in these island passes, which create natural bottlenecks, concentrating chum salmon stocks and making them more vulnerable to commercial fishing interception. Unlike salmon bycatch in pollock fisheries of the Bering Sea, where salmon are designated as a prohibited species that cannot be sold, harvesters in Area M can catch and sell as many salmon as possible during the ADF&G managed openings, regardless of where these salmon originate.

Districts in the South Alaska Peninsula – specifically the commercial fisheries in the South Unimak and Shumagin Islands – are a primary concern to Yukon and Kuskokwim subsistence harvesters. During the month of June, commercial fishing vessels in these Area M districts intercept and sell large numbers of chum salmon bound for the AYK region at a rate nearly 10 times more impactful than chum salmon bycatch in the Bering-Sea Aleutian Islands pollock trawl fishery (Figures 8 & 9).

For decades, fishermen from the Kuskokwim and other AYK rivers have urged the Alaska BOF and ADF&G to manage the South Unimak and Shumagin Islands June fishery to avoid intercepting AYK-bound salmon. A previous study (Seeb and Crane 1999) to explore genetic composition of South Alaska Peninsula resulted in a seasonal harvest cap which expired long ago. Continued public outcry led to the creation of the Western Alaska Salmon Stock Identification Program (WASSIP) to further identify the origin of stocks that the Area M fishery depends on.

The Coastal Western Alaska (CWAK) chum salmon genetic stock grouping includes the Kuskokwim, Yukon, Norton Sound, Kotzebue, and Bristol Bay regions, which, at this time, cannot be genetically differentiated. Based

on genetic analysis of samples from the commercial salmon fishery in the South Alaska Peninsula during 2007–2009, WASSIP showed that CWAK stocks comprised an average of 57% (range 52%–60%) of the chum salmon harvested (Munro et al. 2012; Foster and Dann 2022; Figure 7). This agreed well with the average of 57% observed in June 1993–1994 by Seeb and Crane (1999; range 15%–72% over periods and years).

“

Again, it’s subsistence users as the ones trying to save them. Without my dog team, I don’t take many fish. Some people want to put restrictions on commercial fishing for a bit so the fish come back, but they’ll never stop commercial fishing in the ocean because it’s called ‘progress.’ They say they feed the world. I always say, look what happened to the East Coast, West Coast, and now it’s up here: There’s no more fish. History repeats itself.  
*Robert Lekander, Bethel (Orutsararmit Native Council)*

These analyses of stocks of origin conducted 14 years apart suggest considerable stability in the proportion of CWAK chum salmon in the South Alaska Peninsula commercial intercept fishery during the period 1993-2007. The rationale for assuming CWAK chum salmon currently continue to comprise the majority of the Area M June chum salmon harvest is based on the evidence that Kuskokwim salmon stocks, which rear in the Gulf of Alaska, must pass through the Area M region, making them highly vulnerable to harvest regardless of their total abundance.

It is important to note that these studies are based on sampling of chum salmon after they have been caught at sea and then delivered to the processor. There is significant uncertainty in the number of chum salmon that are landed, discarded or released, and not reported in the Area M fishery. Chum salmon caught and released, rather than harvested, by these commercial vessels are highly unlikely to survive and thus will not return to their natal streams to spawn. Impact rates based on documented harvest and genetic studies are therefore conservative estimates at best.

WASSIP findings at the time showed that despite the large proportion of chum in the Area M fishery 2007–2009, the harvest rate on CWAK chum salmon was fairly small compared to total returns in their rivers of origin (Munro et al. 2012). With current declines in AYK rivers, the impact is clearly more pronounced. Based on our estimate of the likely number of CWAK chum salmon harvested in the commercial salmon fisheries during the month of June from 1980–2021, the harvest of Kuskokwim and other AYK region chum salmon stocks in this intercept fishery in recent years has been massive (Figure 8).

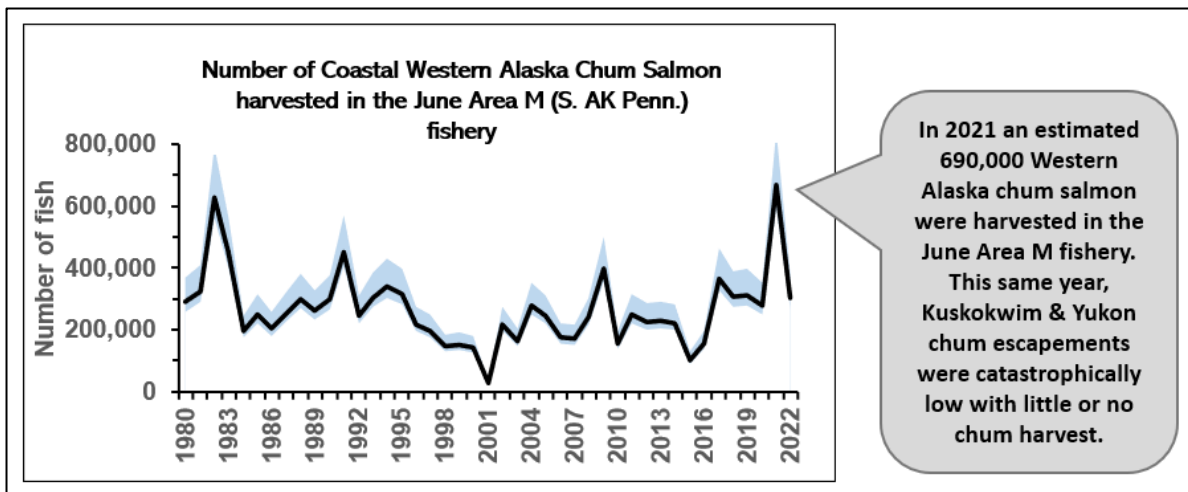


Figure 8: Estimates of the number of Coastal Western Alaska and Yukon River chum salmon harvested in the during the month of June 1980–2021. Data are derived from genetic analysis of chum salmon in the South Alaska Peninsula salmon fisheries sampled in 1993–1994 and in 2007–2009. The solid line shows the mean estimate of (57% of all harvest), and the shaded area shows the plausible range (51%–72%). Source: Seeb and Crane 1999; Munro et al. 2012; Fox et al. 2022.

In 2021 alone, an estimated 690,000 chum salmon bound for Western Alaska rivers were harvested in the June South Alaska Peninsula. (Figures 8 & 9). With a preliminary 2022 chum salmon harvest of over 544,000 fish, a combined total of nearly 1 million CWAK chum salmon were harvested in this commercial fishery between 2021 and 2022. For comparison, that is larger than the total combined estimated chum salmon in-shore returns (or, the harvest and escapement in-river of the total year’s run size) in 2021 to both the Yukon *and* Kuskokwim Rivers.

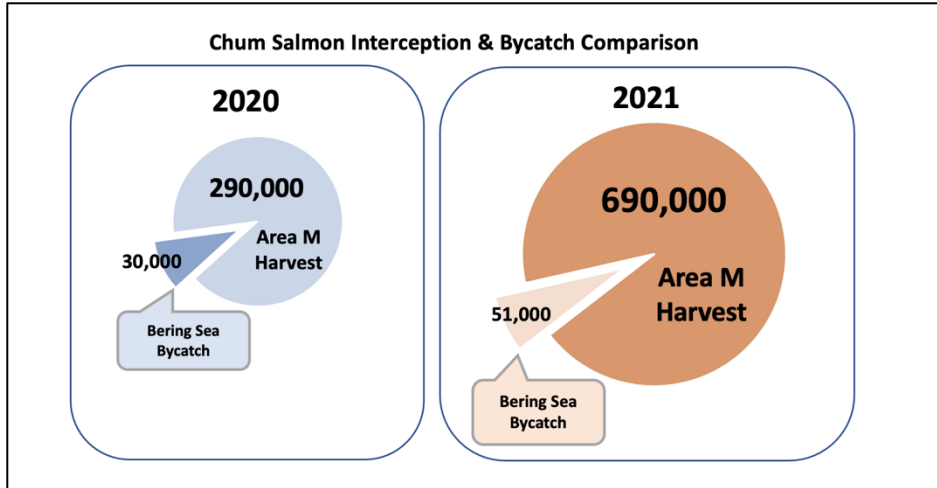


Figure 9: Catch of chum salmon from Coastal Western Alaska and the Middle- and Upper-Yukon in the BSAI pollock fishery (small pie slice) and the Area M South Alaska Peninsula salmon fisheries (remaining portion of pie) in 2020–2021. Stock composition source: Seeb and Crane (1999) and Foster and Dann (2022).

### Bycatch of Western Alaska Chinook and Chum Salmon in the Bering Sea Pollock Fishery

Bycatch, or the unintended catch of one species while targeting another, also accelerates AYK region salmon declines, including on the Kuskokwim. In the Bering Sea–Aleutian Islands (BSAI) management area, the commercial pollock trawl fishery accounted for 99% and 87% of all 2021 chum and Chinook salmon bycatch, respectively (NOAA 2022). These salmon, many of which are bound for the Yukon and Kuskokwim drainages, are not the target of the pollock fleet. Because of this, Chinook and chum salmon caught by the pollock fishery cannot be sold but must be discarded or donated.

The North Pacific Fishery Management Council (NPFMC) manages chum and Chinook salmon as prohibited species catch in Alaska, meaning they cannot be targeted or sold by federally managed commercial fisheries. In response to record-high chum and Chinook bycatch levels from 2003–2007, the NPFMC implemented Chinook salmon bycatch caps, based on prior year salmon returns to the Kuskokwim, Upper Yukon, and Unalakleet rivers, as well as salmon avoidance incentives for the commercial fleet.

The establishment and strict enforcement of bycatch caps and full observer coverage on-board vessels appear to be effective in significantly reducing Chinook bycatch in recent years. An estimated total of 126,104 Chinook salmon from CWAK rivers were caught as bycatch in the BSAI pollock trawl fishery 2011–2020 (annual average: 12,610 salmon). While there are no new genetic analyses of bycatch since 2020, as of December 1, 2022, over 8,300 Chinook salmon have been caught as bycatch in 2022 directed BSAI commercial fisheries, and over 6,000 of those were caught and discarded by non-community development quota program (CDQ) commercial pollock vessels (NOAA 2022).

CWAK Chinook stocks comprise the largest portion of Chinook salmon bycatch in the BSAI pollock fishery most years, especially during the A-season (January 20 to April). From 2011 to 2020, CWAK stocks averaged over 44% of the estimated Chinook salmon bycatch, and over 60% of bycatch in some years (Guthrie et al. 2022). From 2017 to 2020, the relative proportion of CWAK stocks caught in the pollock fishery increased from 24% to 52% of Chinook salmon bycatch (Figure 10).



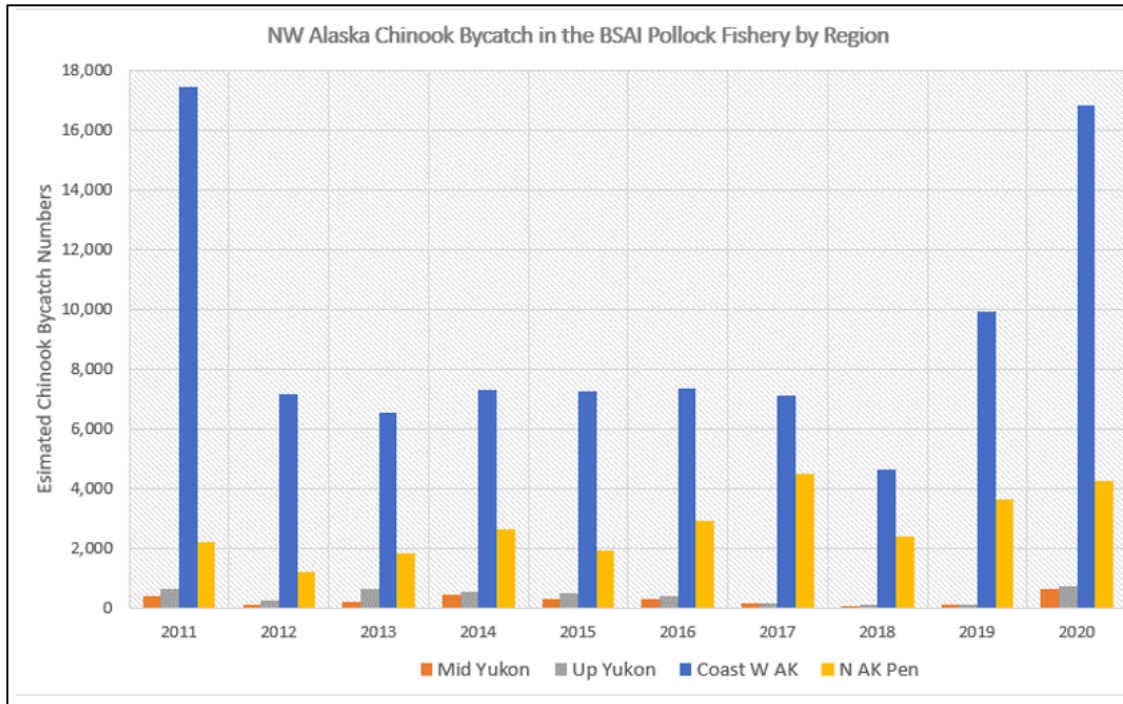


Figure 10: Estimated Chinook salmon bycatch numbers in the BSAI pollock fishery 2011–2020 by northwest Alaska region, with bars showing the origins of different regional stock groupings. This graph shows only up to year 2020, when the latest genetic analysis and reporting took place. Source: Guthrie et al. 2022.

Chum salmon bycatch in the Bering Sea, primarily occurring in the B-season (June 10 to November), increased dramatically after 2011 (Figure 10). The CWAK rivers accounted for approximately 9% of chum incidentally caught in the 2021 BSAI B-season pollock fishery, and an annual average of 37,423 salmon were caught as bycatch during 2011-2021 (Barry et al. 2022; P. Barry, NMFS, pers. comm.).

Genetic analyses from recent years confirm that Western Alaska, Upper/Middle Yukon, and Southwest Alaska chum salmon stocks are impacted by pollock trawl bycatch annually. A very low proportion of Upper/Middle Yukon chum salmon were caught in BSAI B-season pollock fishery in 2020 and 2021, which may have been an early indicator that the Upper/Middle Yukon chum salmon are experiencing a decline in stock status. In-season data from 2022 shows over 245,000 chum salmon across all genetic reporting regions have been taken as bycatch through December 1, 2022, with over 242,000 fish taken as bycatch by non-CDQ commercial pollock vessels (NOAA 2022).

“

We need to look at both ends, from the beginning of the routes of the salmon to the headwaters spawning grounds. Are we conserving salmon for the people in the high seas fisheries and Alaska Peninsula fisheries that are intercepting our fish?

*James Nicori, Kwethluk (Organized Village of Kwethluk)*

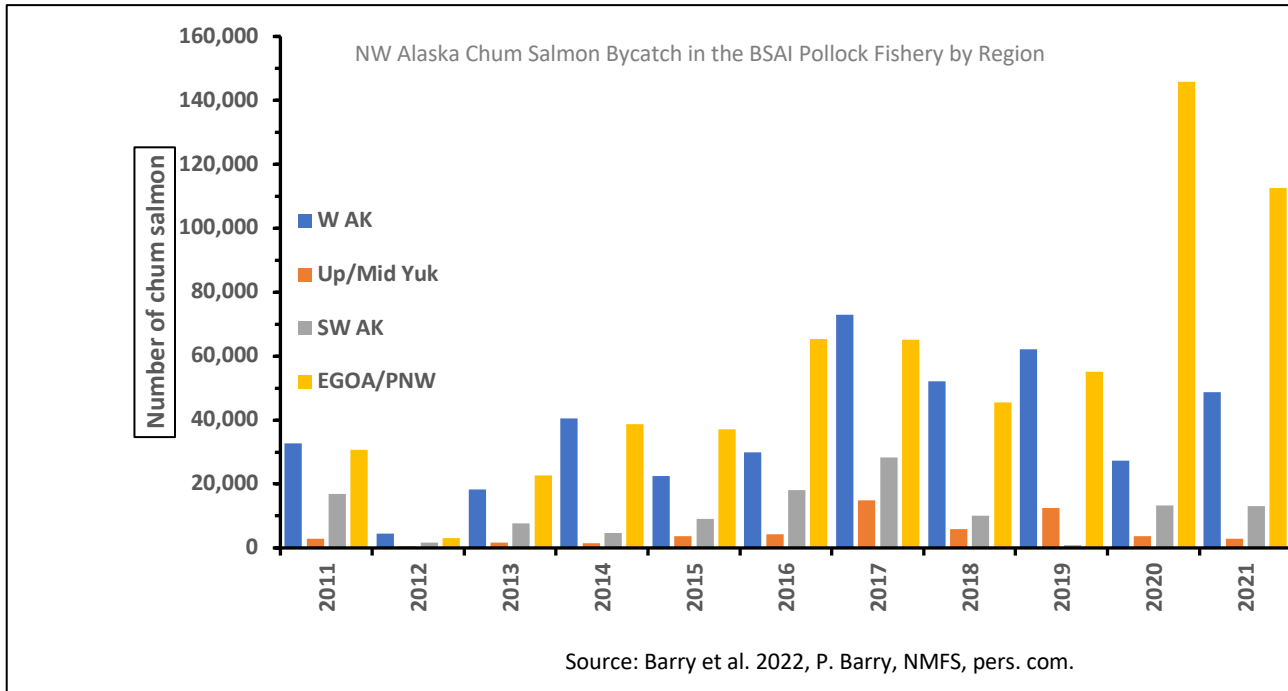


Figure 11: Estimated chum salmon bycatch in the BSAI pollock fishery, 2011–2021 showing bycatch composition by Eastern Pacific reporting group. Source: Barry et al. 2022; P. Barry, NMFS, pers. comm.

### Salmon Intercept and Bycatch Management Concerns

Given the combined impacts of the Area M intercept fishery and BSAI salmon bycatch on AYK chum salmon stocks, it is of grave concern that neither the Alaska BOF nor NPFMC have demonstrated any willingness in recent years to take action to limit the take of Western Alaska chum salmon in the fisheries they manage. Moreover, both state and federal agencies have fragmented systems and prioritize commercial fishery profit over meeting spawner escapement and subsistence harvest needs.

A root problem with NPFMC management of BSAI salmon bycatch and ADF&G management of the South Alaska Peninsula June chum salmon intercept fishery is their disconnection from Kuskokwim and Yukon rivers in-river stock assessments, escapement monitoring, and other best management practices to ensure sustainability of distant stocks that are harvested in this intercept fishery.

For example, ADF&G managers in the AYK region repeatedly claim that they have no authority nor obligation to coordinate with Area M managers to ensure that the Area M fishery is not overharvesting chum salmon stocks essential for escapement and subsistence uses within AYK rivers. ADF&G has also been reluctant to fund updated genetic data collection following the end of the WASSIP program in 2009. Earlier this year, Governor Dunleavy tasked ADF&G with initiating an Area M genetics update only after the public pressure prompted the State legislature to allocate funding for updated genetic stock identification analysis for the years 2022 to 2026. It is not the fault of Western Alaska subsistence fishing communities for the State’s lack of prioritization to protect AYK-bound chum salmon, yet they are the ones suffering because of it.

In the BSAI pollock fishery, there is currently no cap or limit on the amount of chum salmon that the pollock fleet can take as bycatch, despite sustained pressure from AYK region Tribes and subsistence users on NPFMC decisionmakers, most recently at the June 2022 NPFMC meeting.

Regulations written in the Alaska BOF policy and federal Alaska National Interest Lands Conservation Act (ANILCA) declare that meeting escapement needs and providing for subsistence uses are to be prioritized over commercial harvests in both state and federal fisheries. However, in practice, the current management regimes under both the Alaska BOF and NPFMC effectively prioritize commercial uses over Western Alaska salmon escapement needs or subsistence uses. For example, in 2021 – when Kuskokwim chum salmon harvests were severely restricted and Yukon River communities were allowed no harvest opportunities for the entire season – over 740,000 Western Alaska chum salmon were legally caught between both the Area M fishery and the Bering Sea pollock fishery (Figures 7 & 9).

Thus, while subsistence communities on the Kuskokwim and throughout the AYK region are forced to sacrifice their local harvests to help meet escapement goals essential for sustainable salmon management and stock rebuilding, state and federal managers are prioritizing commercial yield and profit. ADF&G and the Alaska BOF solely focus on allocating and managing the commercial harvest among different subdistricts in Area M; meanwhile, escapement and subsistence needs in AYK rivers that have produced the majority of the salmon intercepted in this lucrative fishery for over 100 years are disregarded by Area M managers. BSAI pollock fishing vessels have no mandates to avoid chum salmon bycatch and the NPFMC continues to manage their fishery with a single-species, profit-driven lens.

Inequitably, the entire burden of conservation is being carried by subsistence fishing communities as downstream harvesters in Area M and marine vessels in the BSAI are focused on maximizing harvest and profits while in-river subsistence harvesters face restrictions to meet escapement goals.

### ***Moving Forward: The Necessity of Collective Conservation & Restoration Efforts***

The Kuskokwim River watershed is facing a food security and ecological crisis, given the river-wide declines in Chinook, chum, and coho salmon. This crisis, brought on by the cumulative effects of cross-regional overharvest, unsustainable management, climate change, and other factors, threatens a total collapse of our ecosystem and Indigenous way of life.

Local subsistence users are currently the only users bearing the brunt of conservation and supporting salmon stock rebuilding efforts. Unfortunately, conservation in a mixed-stock fishery means that Alaska Native subsistence users – who rely on salmon for our physical, spiritual, cultural, and economic wellbeing – are unable to fish for healthy runs of sockeye salmon or non-salmon species like whitefish while protecting species of concern.

In-river harvest restrictions imposed upon traditional and customary harvesters of these fish should be a last resort for managers, yet they are currently the only real conservation efforts in place. Salmon originating in the Kuskokwim drainage migrate through many other jurisdictional boundaries during their lifetimes, but instead of approaching salmon conservation from a cross-boundary, ecosystem-centered perspective, agencies maintain management divisions and restrict the fishing communities who depend on salmon to thrive – and who continue to steward the spawning grounds as they have since time immemorial.

“

I'm worried about the farther-up people, those upriver, who wait around to catch their fish. They don't meet their needs, and sometimes I think, How can we help the upper river people get fish?

*Ralph Nelson, Napakiak  
(Native Village of Napakiak)*

Some people still get fish and hang them, but it seems like the subsistence way of life is dying. There used to be a lot of fish camps, but now they're run-down, hardly anybody there. Some families sold their property. It's sad. These people gave up their fish camps. The new generations fish less.

*Paul Cleveland, Quinhagak  
(Native Village of Kwinhagak)*

We can't give up. We've got to work together, remember where we came from, help each other, and help our people to work together.

*James Nicori, Kwethluk  
(Organized Village of Kwethluk)*

Rebuilding and carefully stewarding our salmon runs throughout their lifecycle through co-management, conservation, and community-based monitoring remains our goal. This is critical as the effects of this crisis are not isolated to the Kuskokwim Region. The sustainability, health, and productivity of Alaska's fisheries, like Area M and the Bering Sea, depend on the careful management of populations elsewhere. It is imperative for all harvesters, managers, executives, and agencies, whether in or out of the Kuskokwim region, to contribute to Western Alaska salmon restoration efforts. Only our collective efforts can halt the decline of our subsistence fisheries that are critical to the wellbeing of this ecosystem and our way of life.

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