In-Season Chum Salmon Assessment in the Shoreside B-Season Bering Sea Pollock Trawl Fishery

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Alaska State Legislature - House Fisheries Committee
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Roadmap

Who Are We
&
What Do We Do

Fishery & Chum Bycatch Background

Inseason Genetics Results 2024&2025

Other BBSRI Initiatives

Introduction – Who is BBSRI

Non-Profit, 501.C3 Research Institute established in 1998.

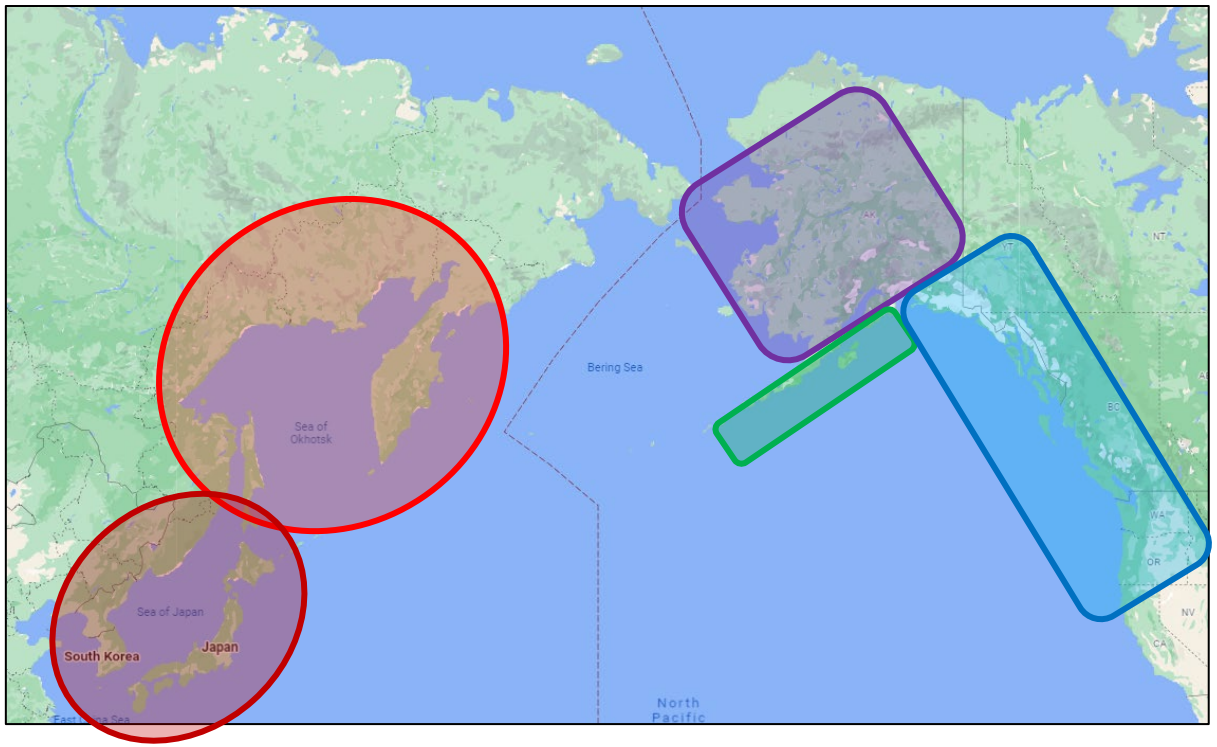
Board of directors – 7 Bristol Bay watershed community leaders.

Work closely with resource managers, fishing industry, municipalities, and communities to improve the management of area fish stocks.

Chum Bycatch

In the Federally Managed Bering Sea Pollock Fishery

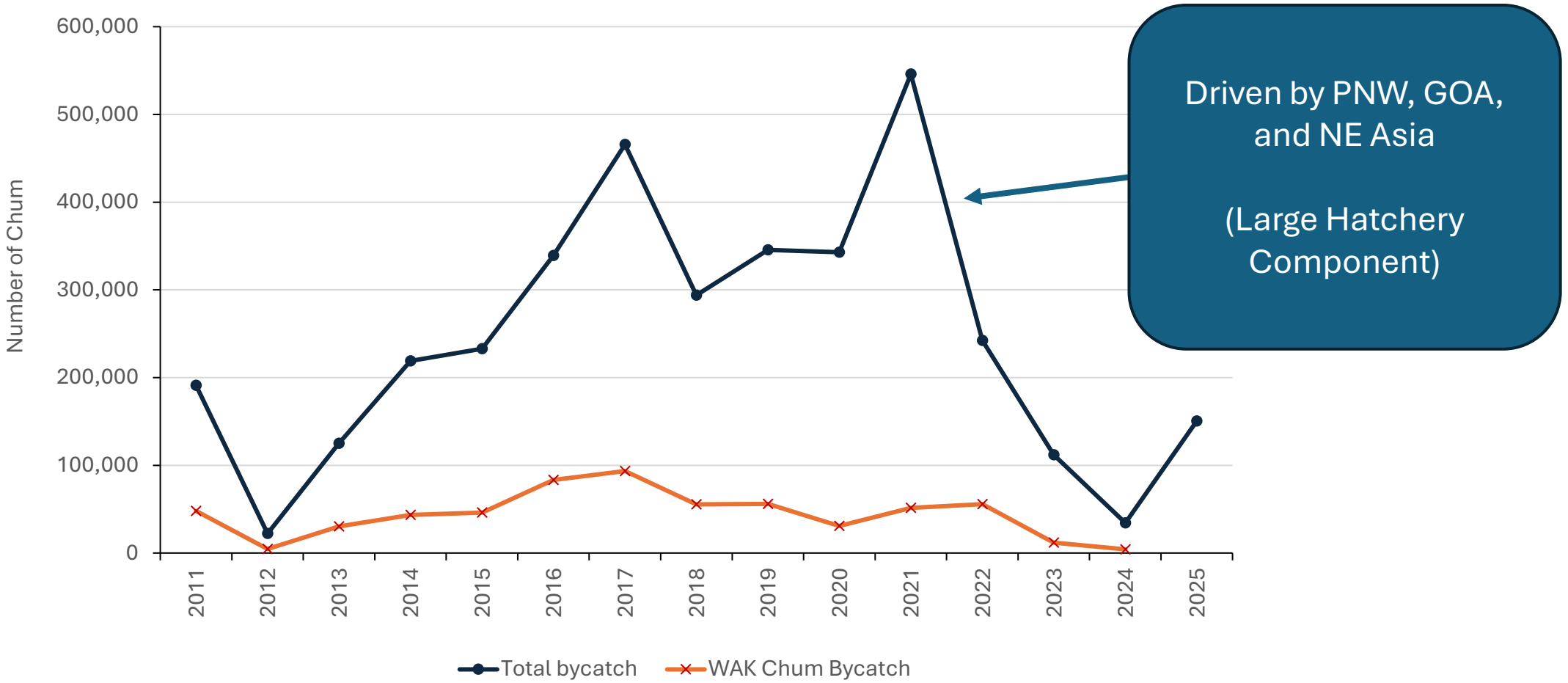
What Chum are Being Caught in the Pollock Fishery? (2011-2023)



- Asian – 52% Range (27-68%)
  - SE Asia – 15% Range (9-20%)
    All Hatchery
  - NE Asia – 37% Range (17-55%)
    **Large Hatchery Component*
- SW Alaska – 2% Range (1-4%)
- E GOA/PNW – 27% Range (12-51%)
  **Large Hatchery Component*
- Coastal Western Alaska – 19% Range (9-25%)
  - W Alaska – 15% Range (8-21%)
  - Up/Mid Yukon – 4% Range (0.2-9%)

Chum Bycatch

In the Federally Managed Bering Sea Pollock Fishery



Challenges to reducing Western Alaska Chum Bycatch

- Proportion of Western Alaska stocks varies year-over-year
- High proportion of Asian, Gulf of Alaska, and PNW hatchery chum
- Genetic analysis of bycatch occurs 8-10 months after catch
- In-season avoidance efforts by fishery focus on total chum

Does Reducing Total Chum Catch Help Western Alaska?

- The percentage of Western Alaska chum catch is not well correlated to overall chum catch.

2021 Chum Catch

Total: 546,000

WAK: 51,315

10% WAK

Ongoing Avoidance Efforts

2022 Chum Catch

Total: 242,901

WAK: 55,731

23% WAK

Simply Reducing Total Chum Harvest does not necessarily Reduce WAK Chum Catch

Introduction – BBSRI Inseason Genetics

Project started in 2024 – feasibility year – Will inseason genetics work?

Successfully executed in-season genetic project in 2024.

2025 – Full project operations and live data releases.

Goals for 2025:

1) Provide weekly stock composition estimates of chum bycatch publicly.

2) Develop tools to aid in avoidance of WAK chum salmon for shoreside sector.

Project Steps – From Landing to Stock Comps.

High-Rate Port Sampling

Port Sampling

- Vessel Offloads & NOAA Enumerates and Samples bycatch
- BBSRI Port Samplers collect tissue samples
- Samples are delivered to BBSRI Lab

Occurs throughout the week

Rapid Genotyping in Dutch Harbor

Genotyping

- BBSRI PM Randomly selects for a genetics sample
- BBSRI Lab Processes samples
- Genotypes and Metadata sent to NOAA

Takes roughly 3 days

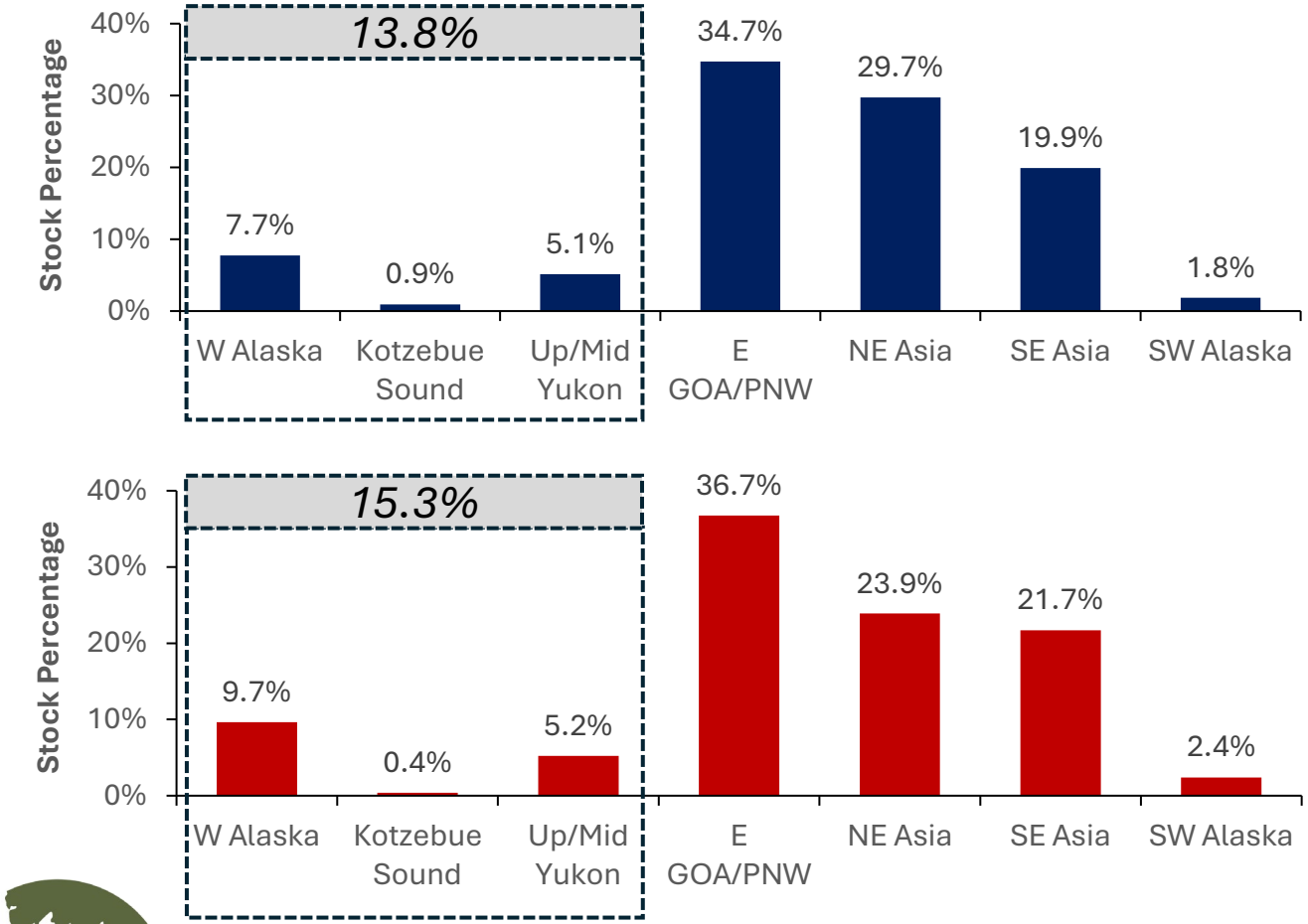
NOAA Mixture Modeling

Stock Composition

- NOAA Runs Mixture model and produces stock comp.
- NOAA Generates stock comp report.
- ***BBSRI Posts Stock comp report.

Occurs in Hours

Results – Overall 2024 Season Proportions



Weighted Average of BBSRI In-season Estimates

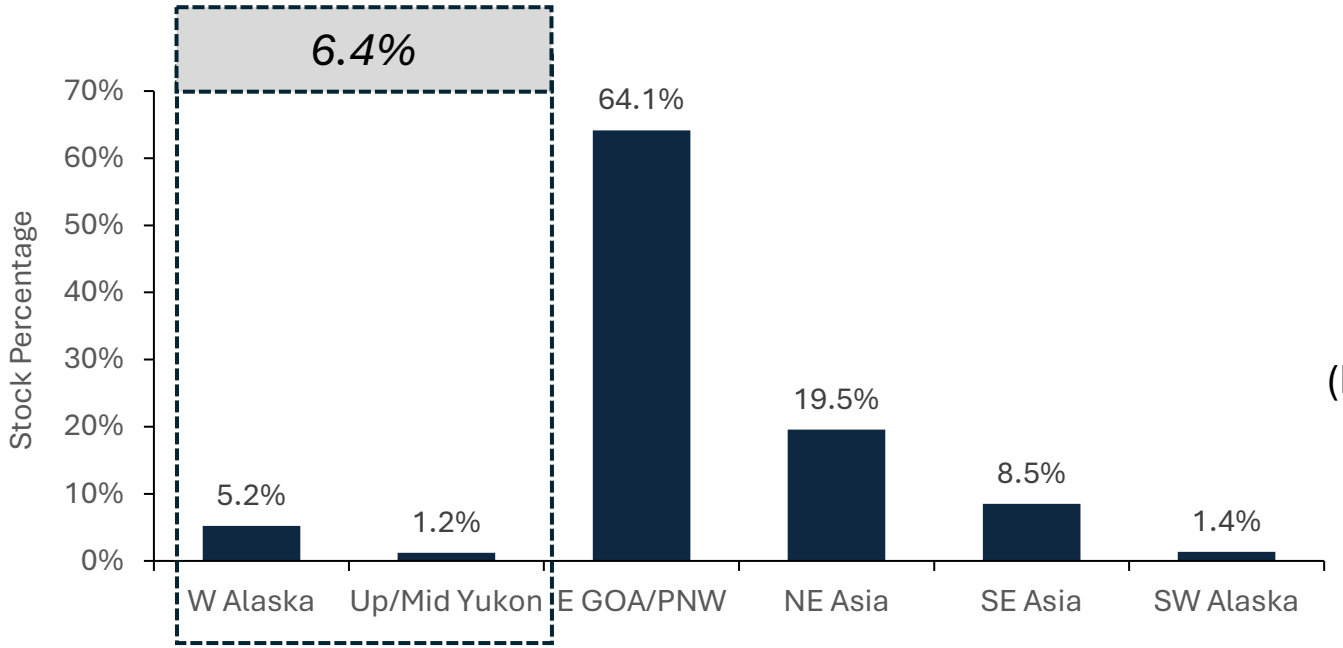
(Based on ~3000 samples, 15 Temporal Strata)

NOAA Post Season Estimate

(Based on ~700 samples, 1 Strata)

Results – 2025 Overall Season Proportions

Stock Comp



Weighted Average of BBSRI In-season Estimates

(Based on ~6269 samples, 18 Temporal Strata)

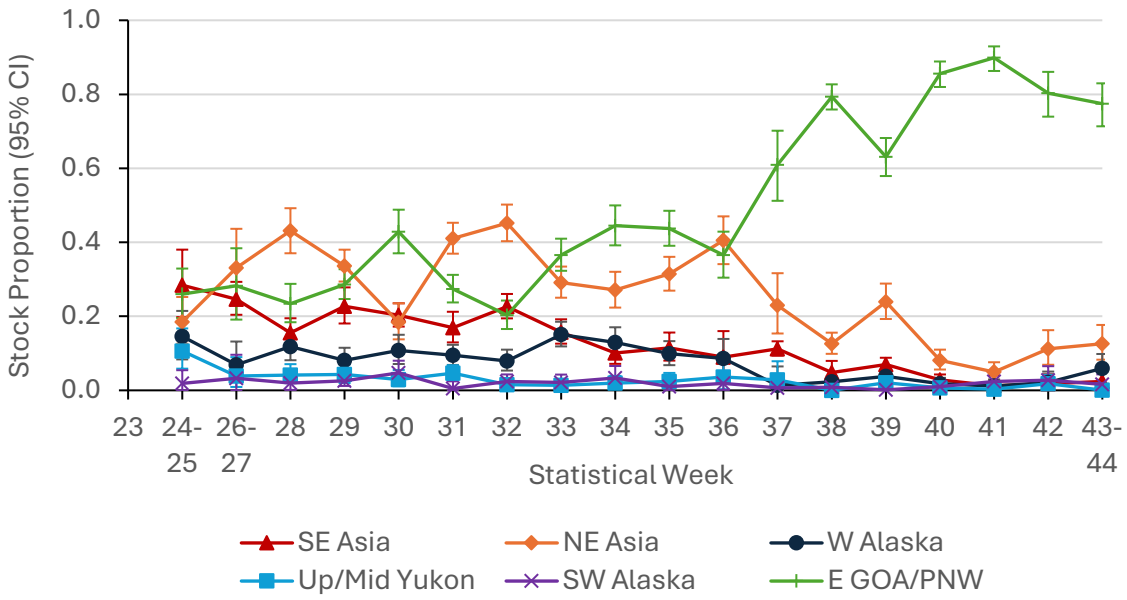
NOAA postseason results pending validation

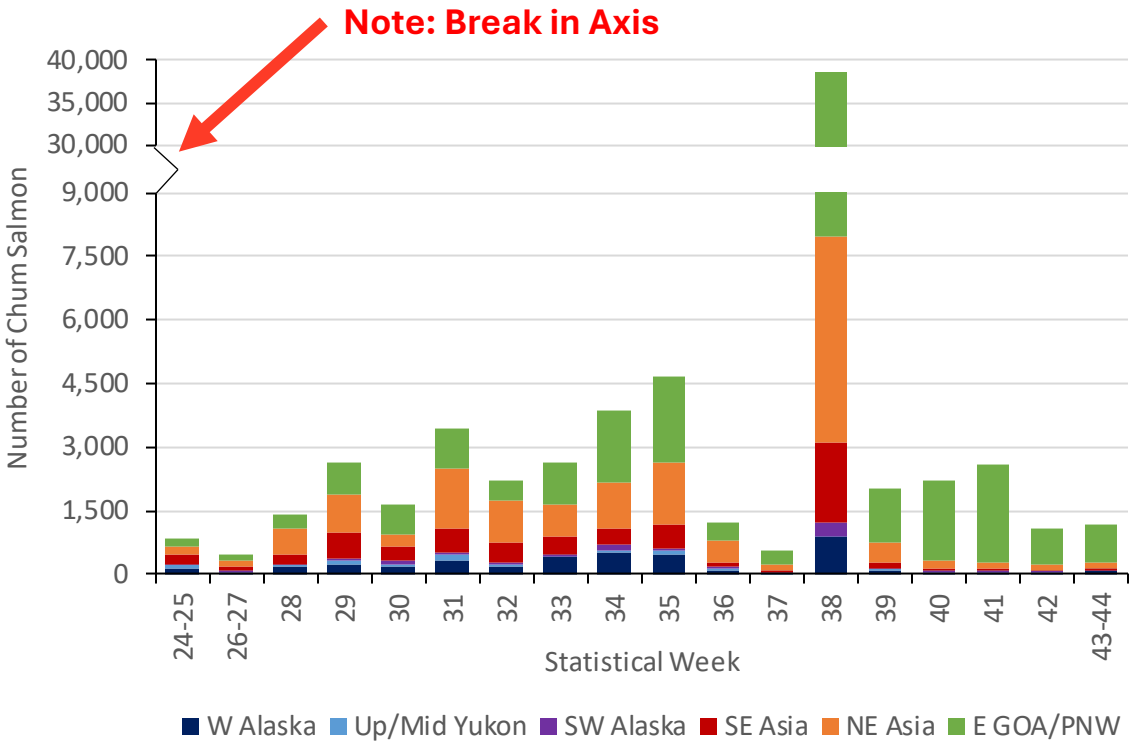
NOAA Post-Season Estimate

(Based on an estimated ~2400 samples, 1 Strata)

Results – 2025 Weekly Stock Composition

Stock Comp

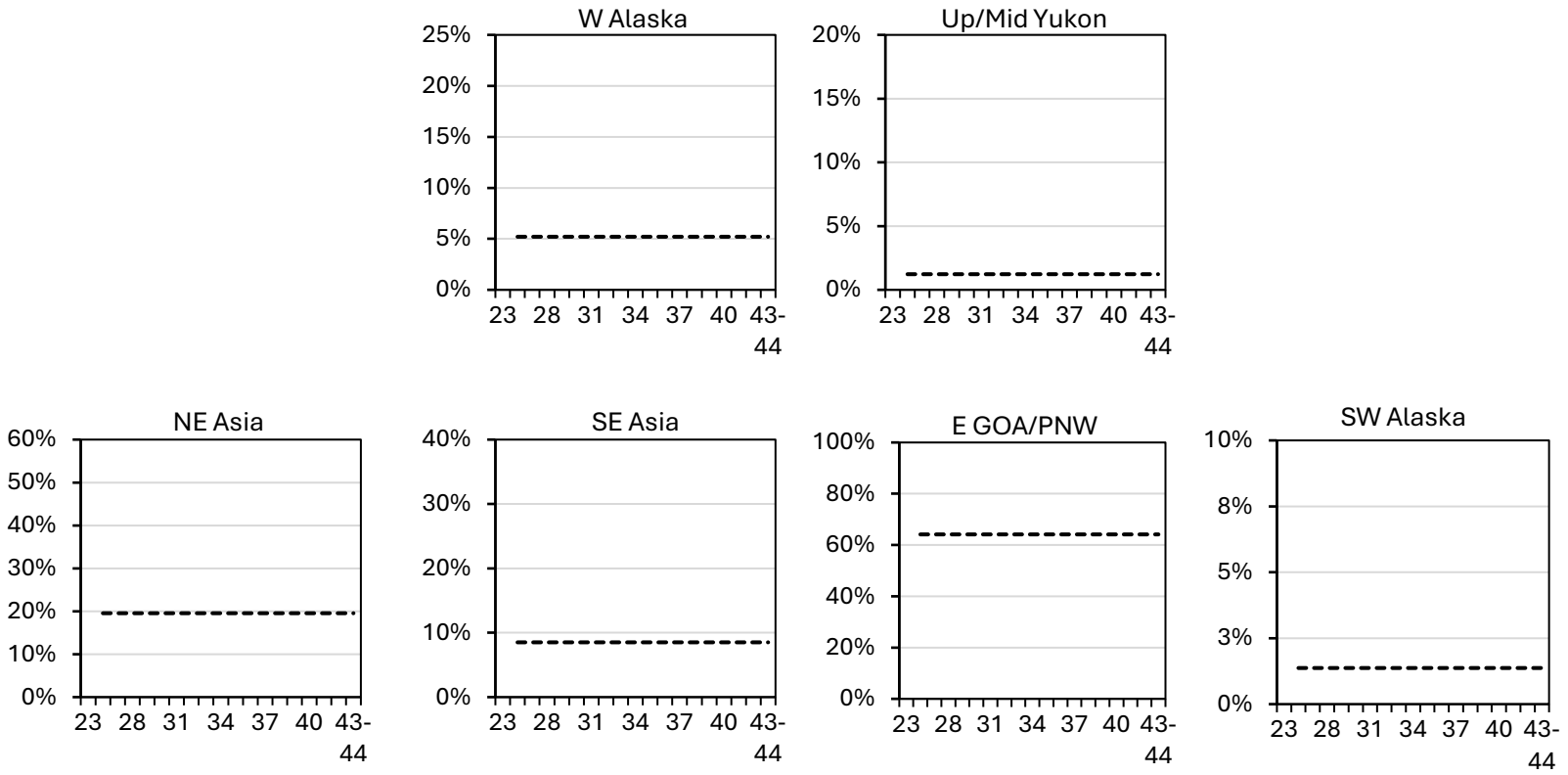




Results – Comparison to Post-Season

Stock Comp

2025 Weighted Average Stock Proportions (i.e. calculated post-season)

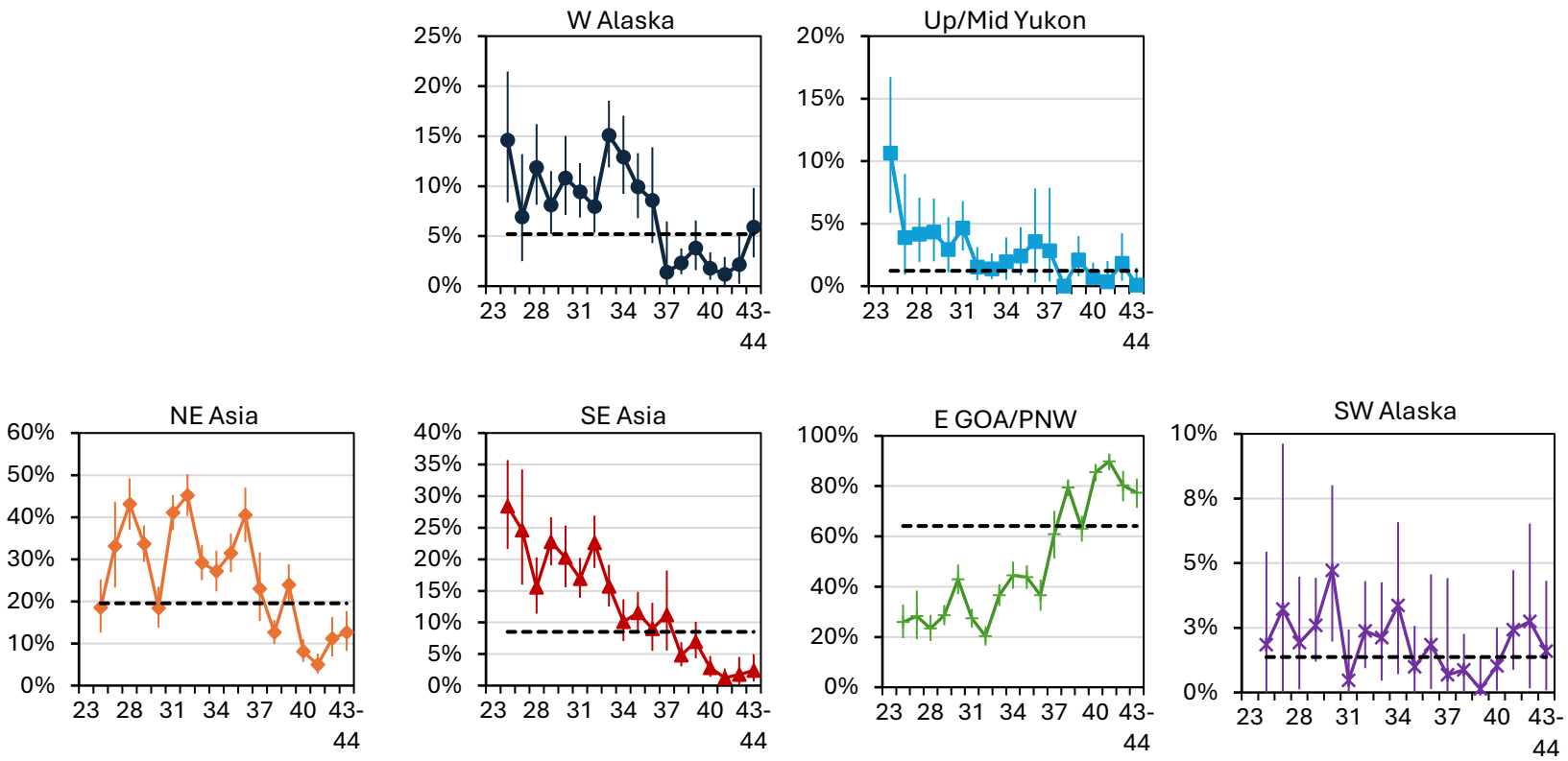


Note: Y-Axis is different for each figure to better show variability over the season

Results – Comparison to Post-Season

Stock Comp

2025 Weekly Inseason Estimates & Post-season Averages



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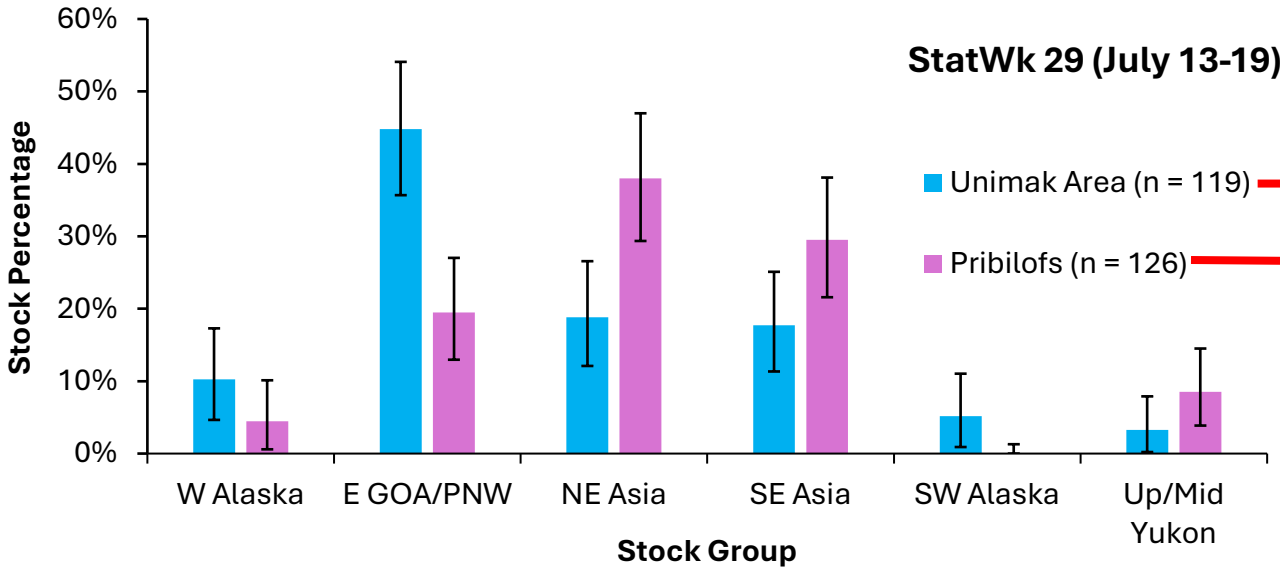
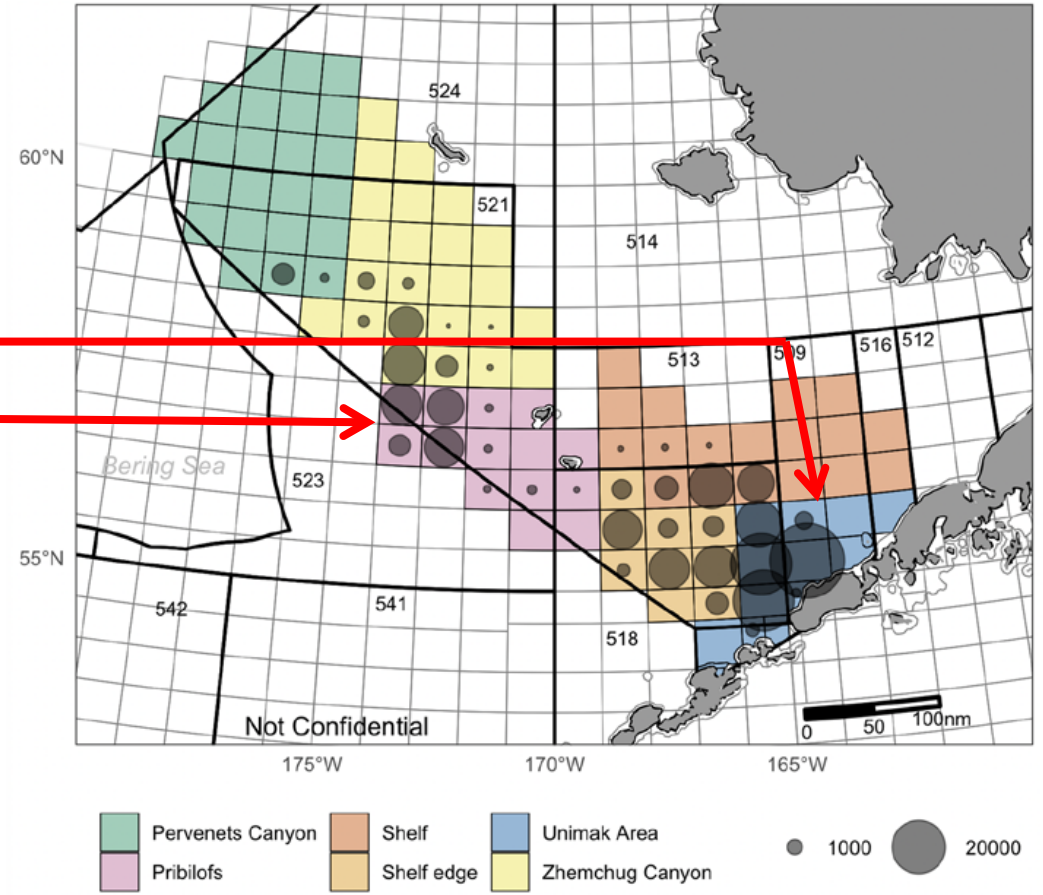
Additions to the Project in 2025
“Increasing Utility of the Project for Management”

Additional 2025 Analyses

Stock Comp

Stock Composition by Fishing Grounds





Lightning Strike Analysis

Looking at individual vessels or groups of vessels fishing in an area.

Adaptable to answer management questions quickly.

In 2025, several lightning strike events were analyzed.

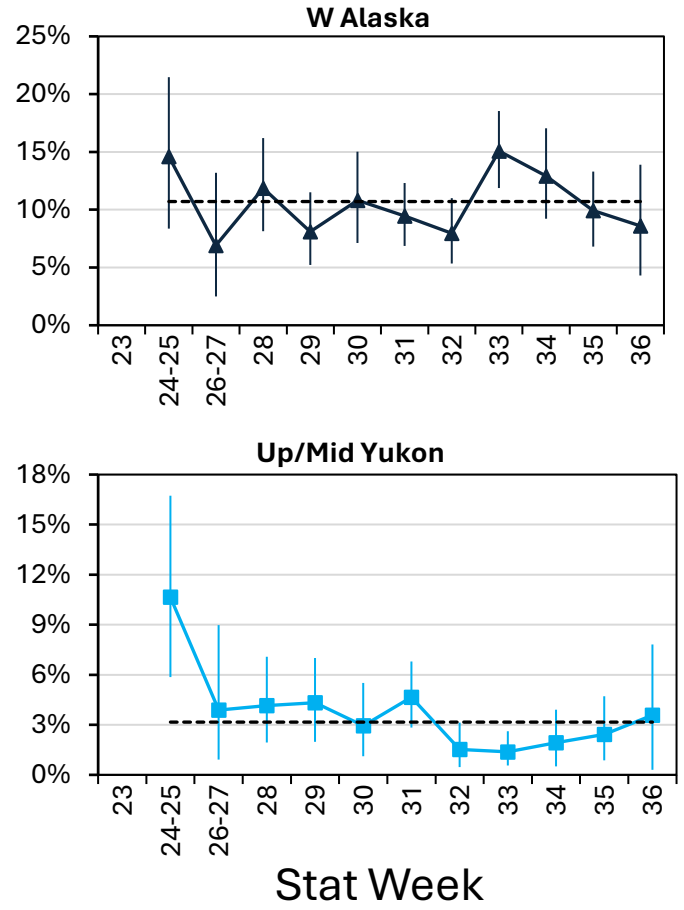
Case Study – Stat Week 38

Stat Week 38 Background

Stock Comp

<u>Bycatch through Stat Week 36</u>

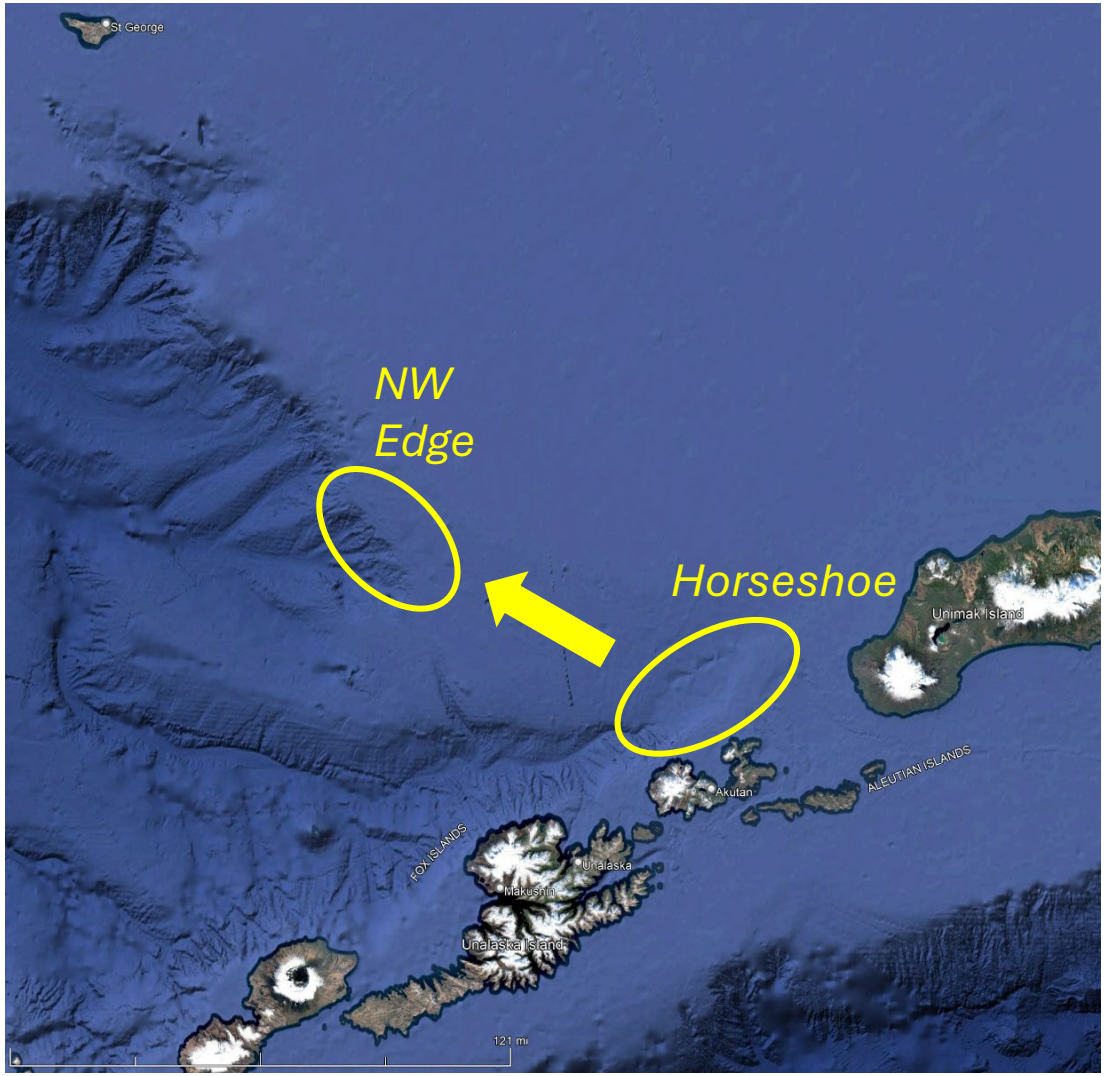
- Chum bycatch = 24,983
- WAK & Yukon bycatch = 3,465
- WAK & Yukon percentage = 13.9%
  - Range (9.5% - 25.2%)



Stat Week 38 Causes

Stock Comp

- Majority of effort leading up to SW 38 = in the horseshoe.
- Herring bycatch in that area was becoming an issue, and vessels were actively avoiding herring.
- Fleet was pushed to a small area of good fishing.
- To avoid herring and crowding some vessels began exploring NW Edge where good signs had been seen.
- These vessels ran into high levels of chum bycatch which caused concern.



Stat Week 38 Analysis Timeline

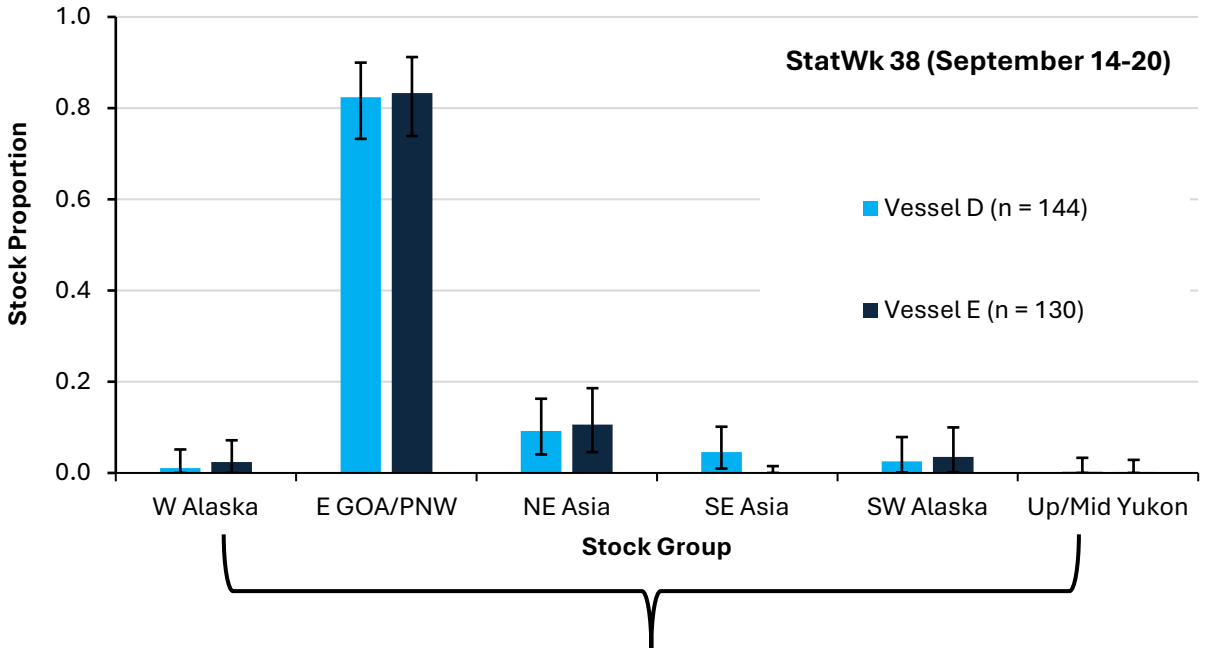
Stock Comp

September 12 (21:24)	BBSRI was notified by the Inshore IPA manager that several vessels still on the fishing grounds (Northwest Edge) had encountered significant chum salmon bycatch.
September 14	First two lightning-strike deliveries began offloading in Dutch Harbor.
September 15 (10:25)	Sea State Inc. requested BBSRI analyze samples from the first two lightning-strike deliveries as soon as possible.
September 15 (03:55–16:15)	BBSRI port samplers collected fin tissue from the first two lightning-strike deliveries and delivered them to BBSRI's remote lab in Dutch Harbor.
September 16 (19:08)	BBSRI's lab finished genotyping the samples and sent the results to NOAA.
September 17 (10:56)	NOAA produced stock-composition estimates for each of the deliveries.
September 17 (11:33)	Stock-composition results were shared with Sea State Inc. and Inshore IPA manager.

Stat Week 38 - Results

Stock Comp

- StatWk 38 (Sep 14-20) – 12 vessels in NMFS Area 517 landed over 36,000 chum bycatch
- At request of Sea State, BBSRI/NOAA produced stock comp estimates of chum sampled from first two “lightning strike” deliveries (48-hr turnaround)
- Non-WAK was dominant (97-98%); WAK proportions were small (1.35-2.60%)
- These real-time genetic results provided Sea State the confidence to implement management actions without displacing fishing effort into areas of higher risk to WAK stocks.



WAK & Yukon = 1.35-2.60%
Non-WAK= 97-98%

Conclusions from 2025

- Demonstrated the ability to produce in-season stock-composition estimates.
- Results released to the public in “real time” inseason.
- Project can track the number of WAK chum caught in-season.
- Project can indicate if it is a high or low WAK chum year.
    - Inform fleet whether larger-scale efforts should be made to avoid chum.
- Adaptable inseason analyses can have a direct impact on managing to avoid WAK stocks.

NPFMC Final Action on Chum Bycatch

- Two years ago, a Western Alaska (WAK) **chum cap was rejected as infeasible**.
- In-season genetics now provides stock-specific accountability.
- Council **adopted first-ever WAK-specific chum PSC limit**.
- Mandatory in-season corridor closures if exceeded.
- Motion **explicitly incorporates** in-season genetic monitoring.

NORTH PACIFIC
FISHERY MANAGEMENT COUNCIL

Future Operations & Funding Outlook

- We have built capacity in its personnel and infrastructure over the last two years and will continue to improve on this project in 2026.
- Funding has been secured from the CDQ Sector for 2026.
- We have secured a $3.5 million federal grant to operate the project from 2027-2030.

State Investment → Operational Tool → Federal Policy Adoption → $5M Leveraged Funding

The Bristol Bay Fisheries Collaborative (BBFC)

Providing resources for a world-class fishery management system

Who

Alaska Department of Fish and Game (ADF&G), BBSRI, drift and setnet fishermen, processors, municipalities, villages, support industries, and other stakeholders.

What

A simple agreement between ADF&G and BBSRI to work together with stakeholders to restore a world-class fishery management system and raise funding to support and maintain it.

When

The BBFC began in 2016, as a response to a 30%+ cut to ADF&G's budget over several years.

Why

To ensure that State fishery managers have sufficient resources to intensively manage the Bristol Bay salmon fisheries for the benefit of all users (subsistence, sport and commercial).

~$ 5M contributed since 2017

~750k/yr (2017-2021)

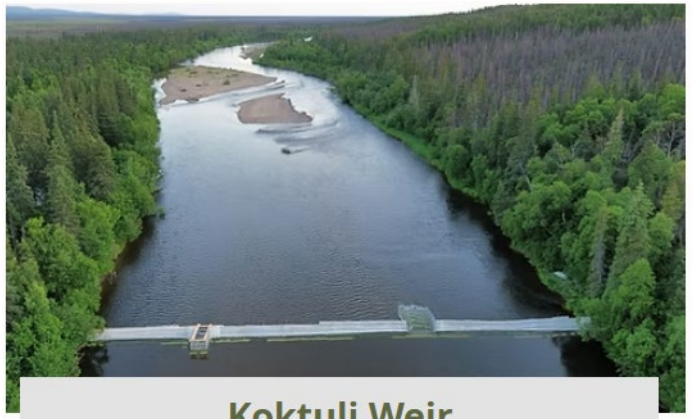
~$400k/yr currently supporting Port Moller Test Fishery

Nushagak Chinook Assessment

- Stock of concern designation in 2022.
- Nushagak Chinook salmon identified as highest priority assessment gap in Bristol Bay.
- Limited sonar-independent abundance estimates.
- BBSRI & ADF&G have a structured multi year research plan.
- Focused on improving abundance estimations, stock-specific monitoring, and run reconstruction.
- Structured assessment framework now underway.

Upper Nushagak Weir

The Upper Nushagak weir site is on the upper reaches of the Nushagak mainstem, almost 200 river miles upriver from Dillingham, AK and just above the confluence with the Chichitnok River.



Koktuli Weir

The Koktuli weir site is on the lower section of the Koktuli River, downstream from where the river splits into its north and south forks and just below the outlet of the Swan River. It is approximately 160 river miles from Dillingham.

Final Comments

- Strong fisheries depend on strong science.
- Durable management requires partnerships.
- Collaboration accelerates innovation and accountability.
- When ADF&G has aligned technical partners, management capacity expands.
- Investing in collaborative research strengthens long-term sustainability.

Our Goal Moving Forward

Continue collaborative effort between BBSRI, NOAA, ADF&G, Industry, and Stakeholders to work towards meaningful in-season, data-driven tools, to ensure world class managed fisheries.

Questions?