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

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The Bristol Bay Science and Research Institute

North Pacific Fisheries Management Council
February 2026

Roadmap

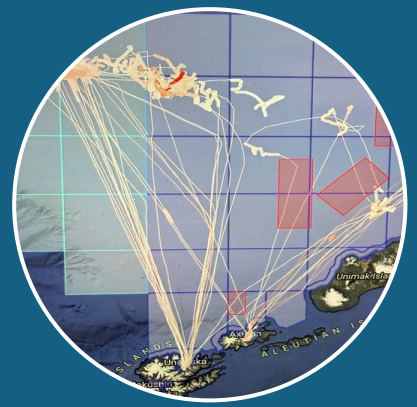
Who are we

&

What do we do

Fishery & Chum Bycatch Background

Inseason Genetics Results 2024&2025



Moving Forward

Introduction – Who is BBSRI

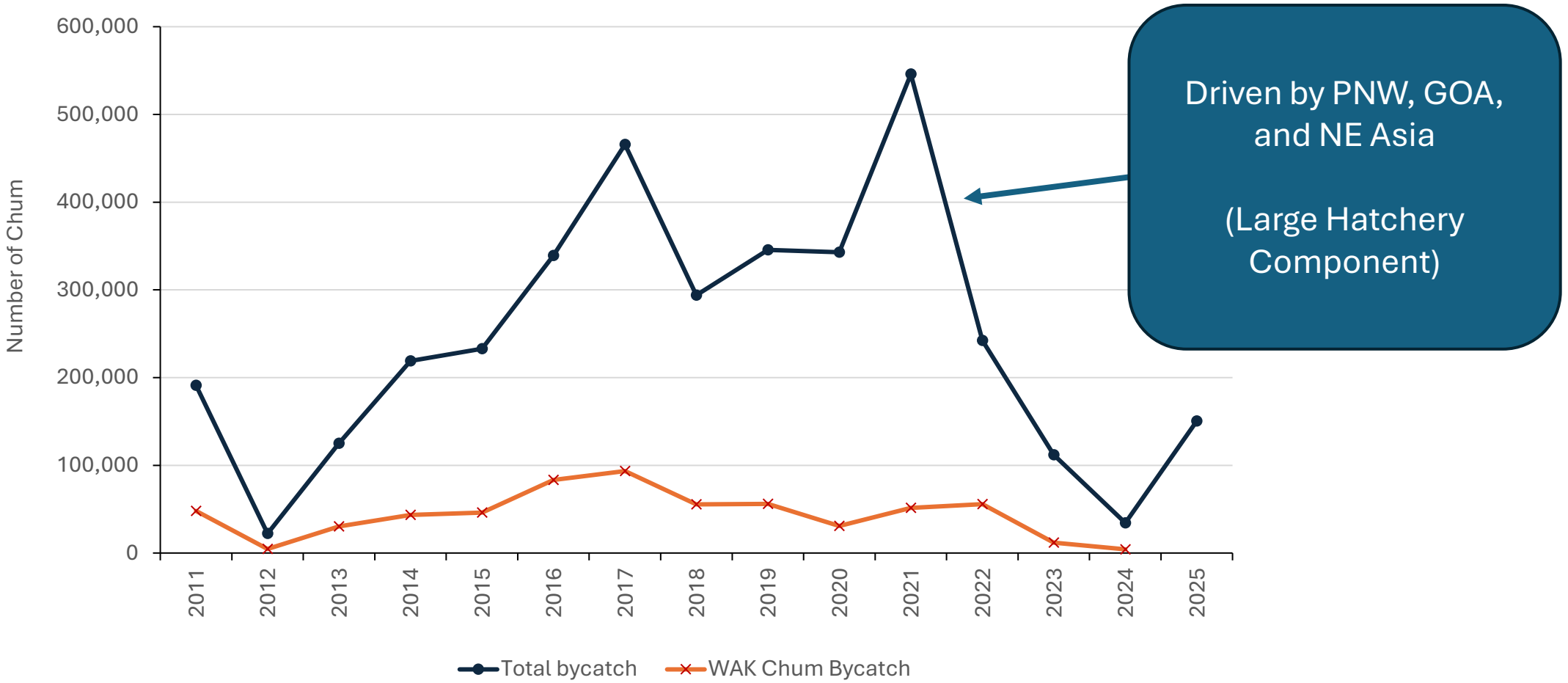
Non-Profit, 501.C3 Research Institute established in 1998

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 Pollock Fishery

Chum Bycatch in The 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

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:

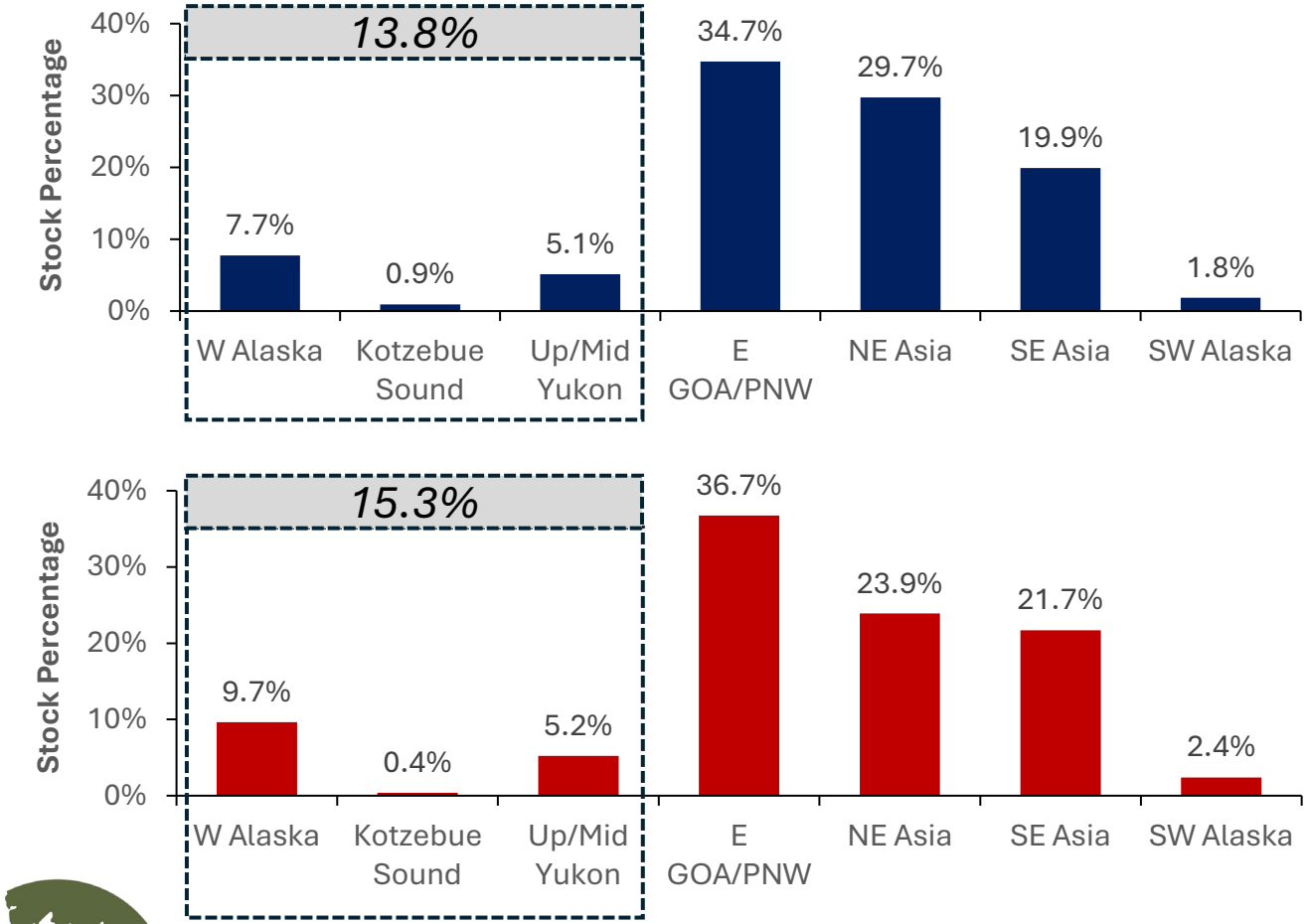
1) Provide weekly stock composition estimates of chum bycatch publicly.

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

Project steps – from landing to stock comps.

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
Genotyping	BBSRI PM Randomly selects for a genetics sample	BBSRI Lab Processes samples	Genotypes and Metadata sent to NOAA	Takes roughly 3 days
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

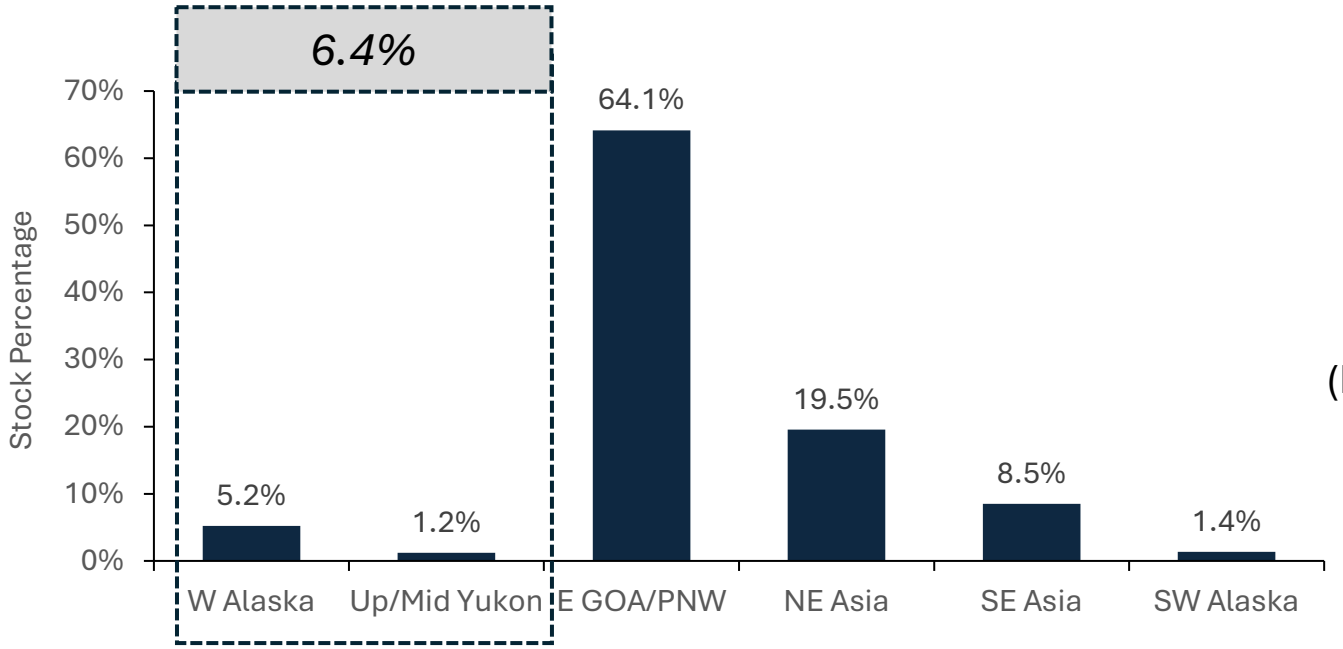
(Based on ~3000 samples, 15 Temporal Strata)

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)

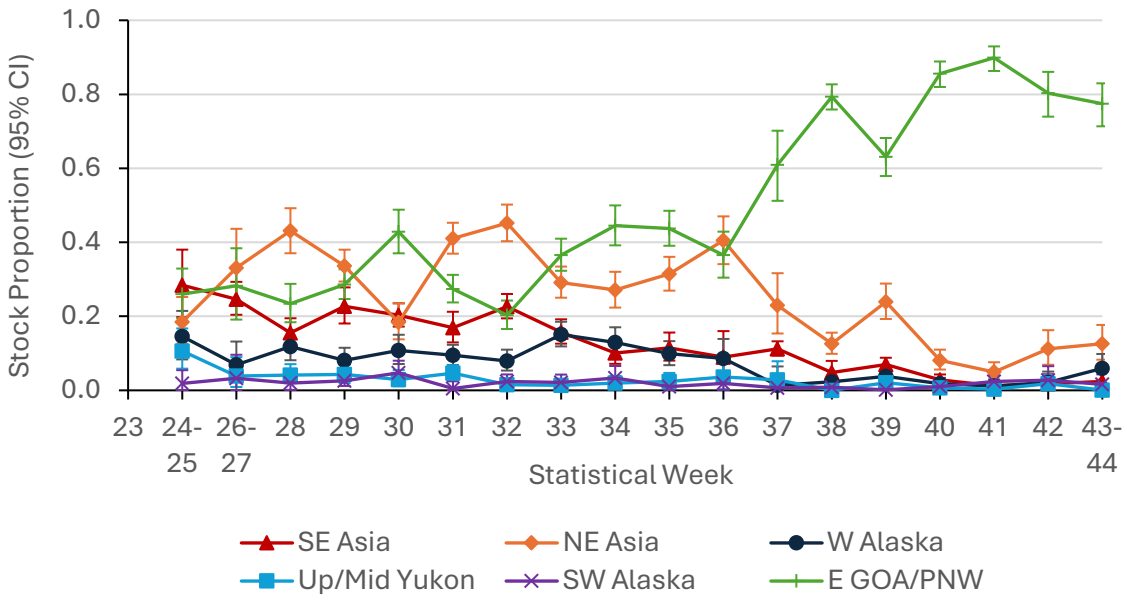
NOAA data not currently available

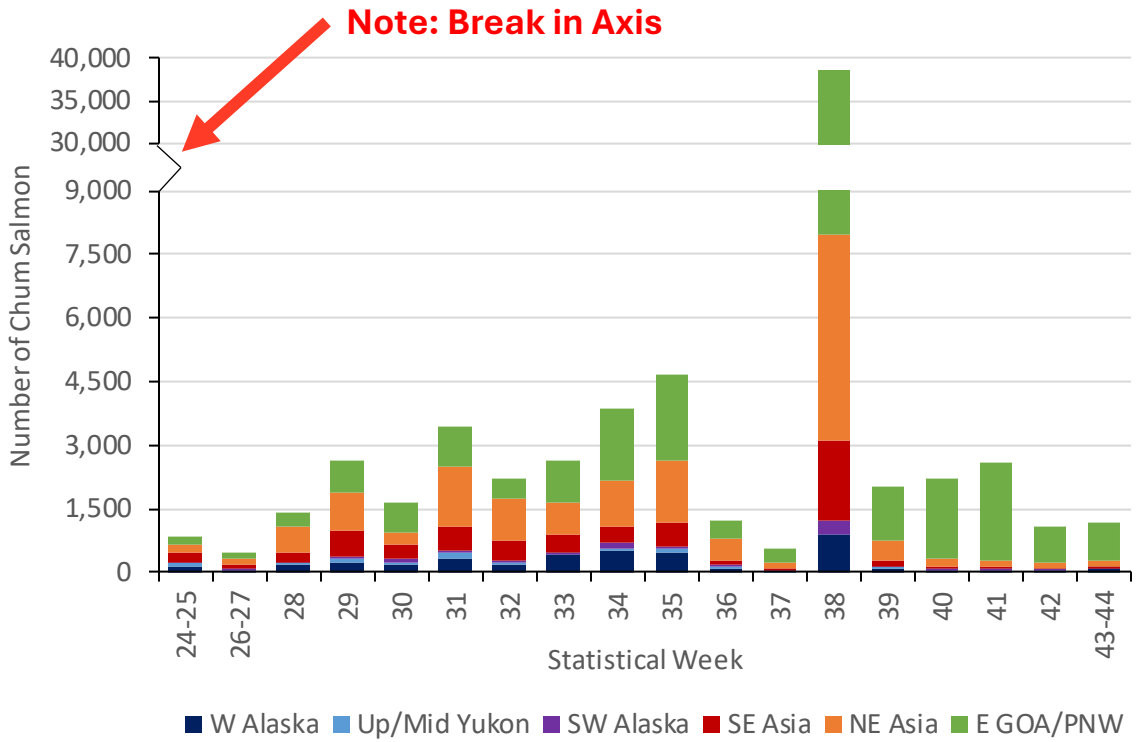
NOAA Post-Season Estimate

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

Results – 2025 Weekly Stock Composition

Stock Comp

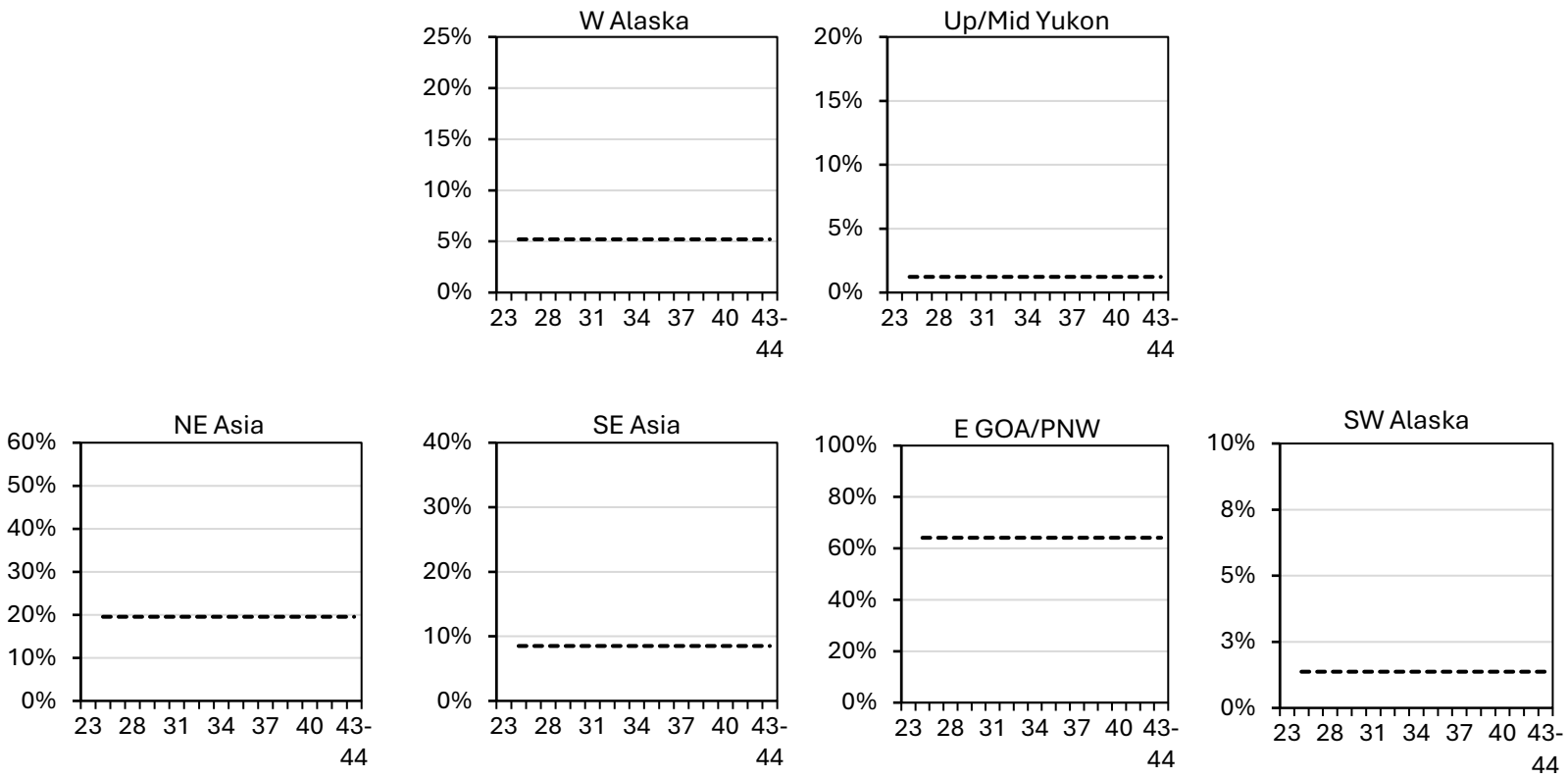




Results – Comparison to Post-Season

Stock Comp

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

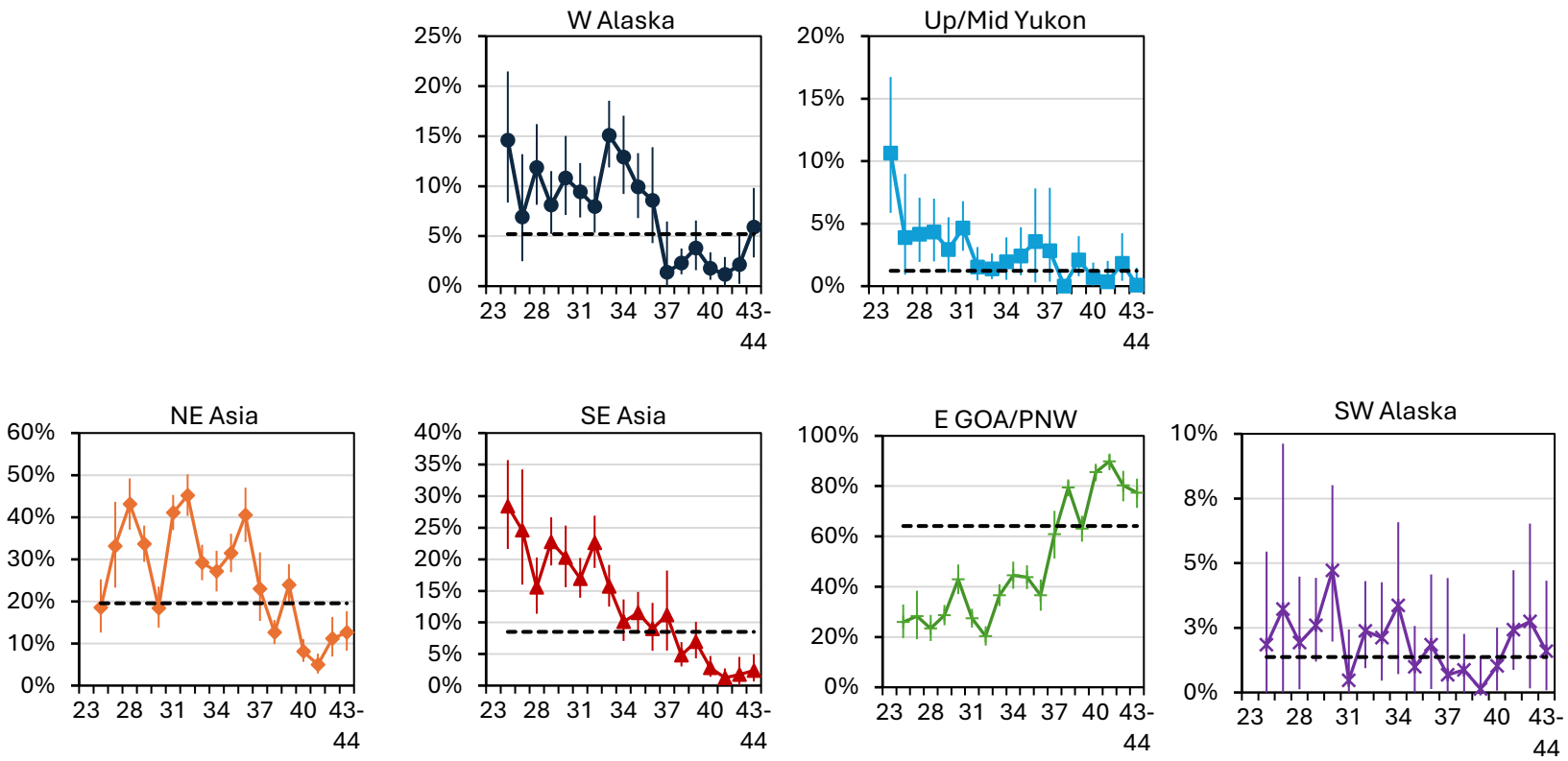


Note: Y-Axis is different for each figure to better show variability over the season

Results – Comparison to Post-Season

Stock Comp

2025 Weekly Inseason Estimates & Post-season Averages



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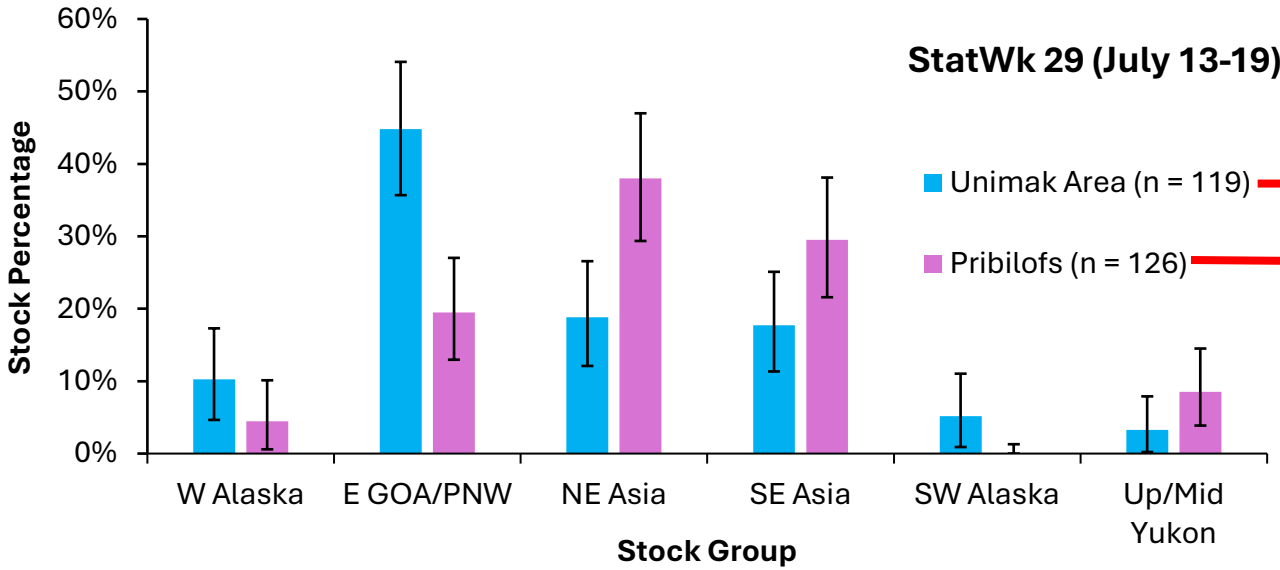
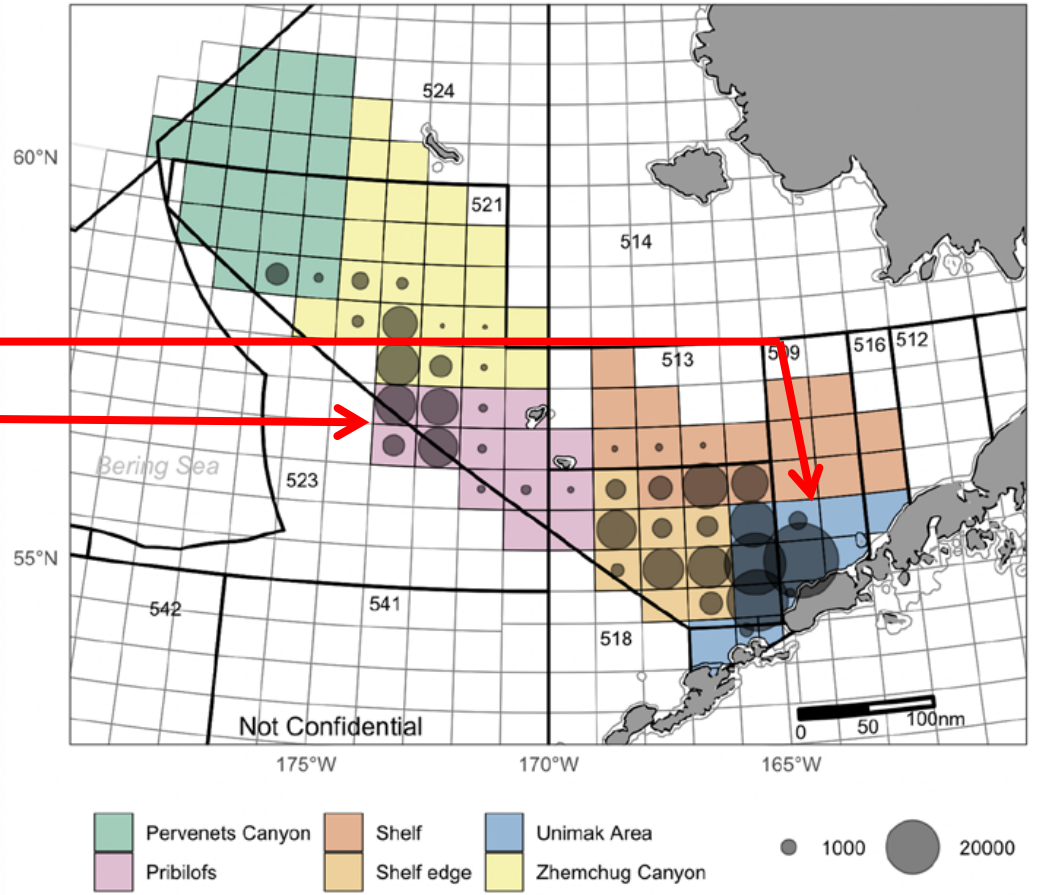
Additions to the Project in 2025
“Increasing Utility of the Project for Management”

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.

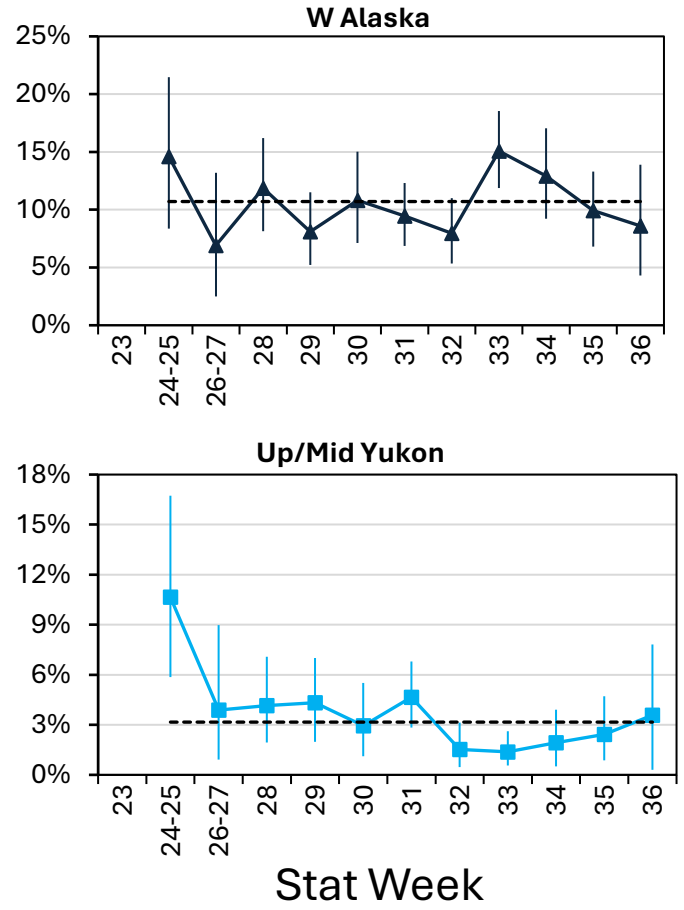
Case Study – Stat Week 38

Stat Week 38 Background

Stock Comp

Bycatch Through Stat Week 36

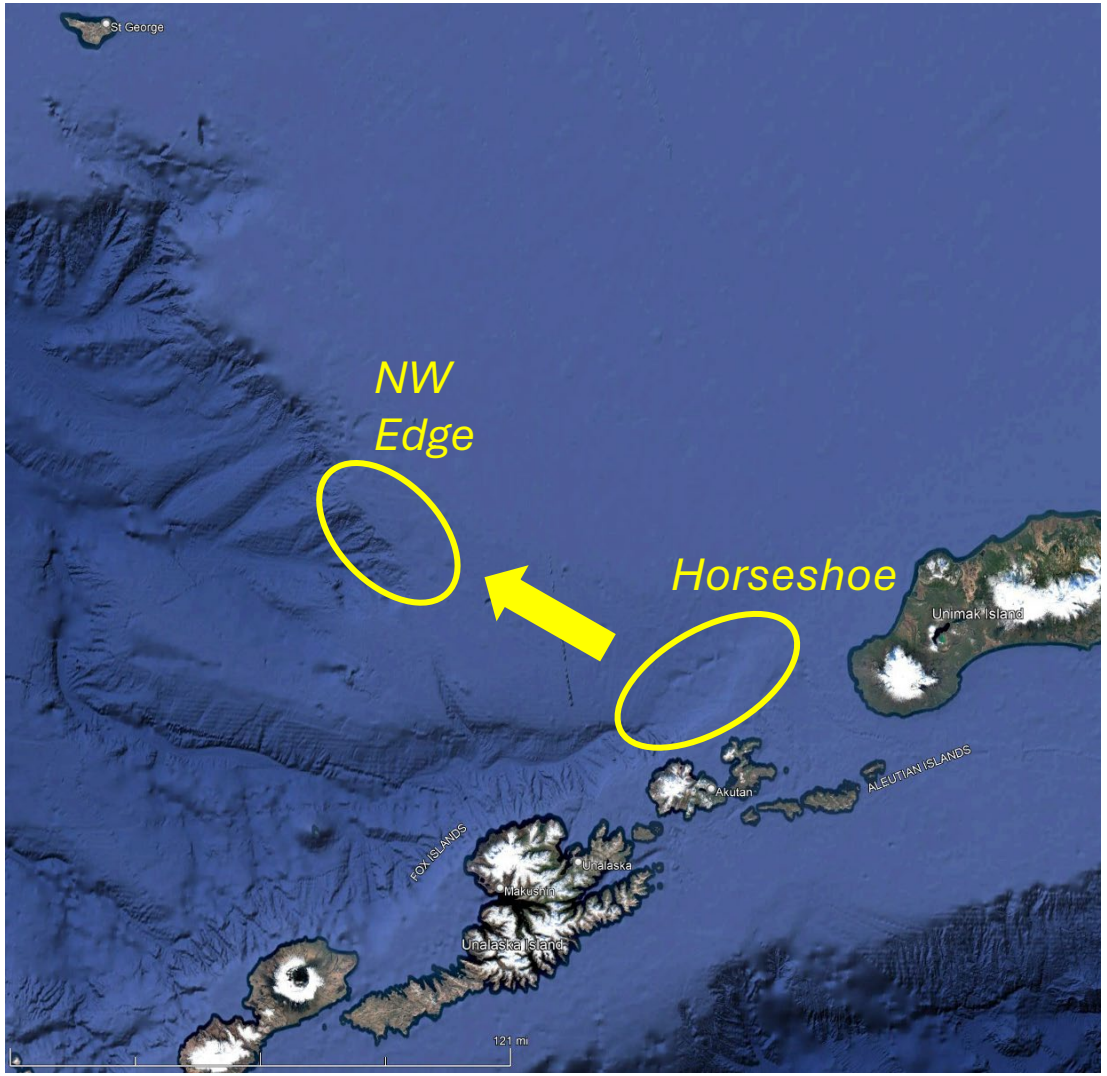
- Chum Bycatch = 24,983
- WAK & Yukon Bycatch = 3,465
- WAK & Yukon Percentage = 13.9%
  - Range (9.5% - 25.2%)



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

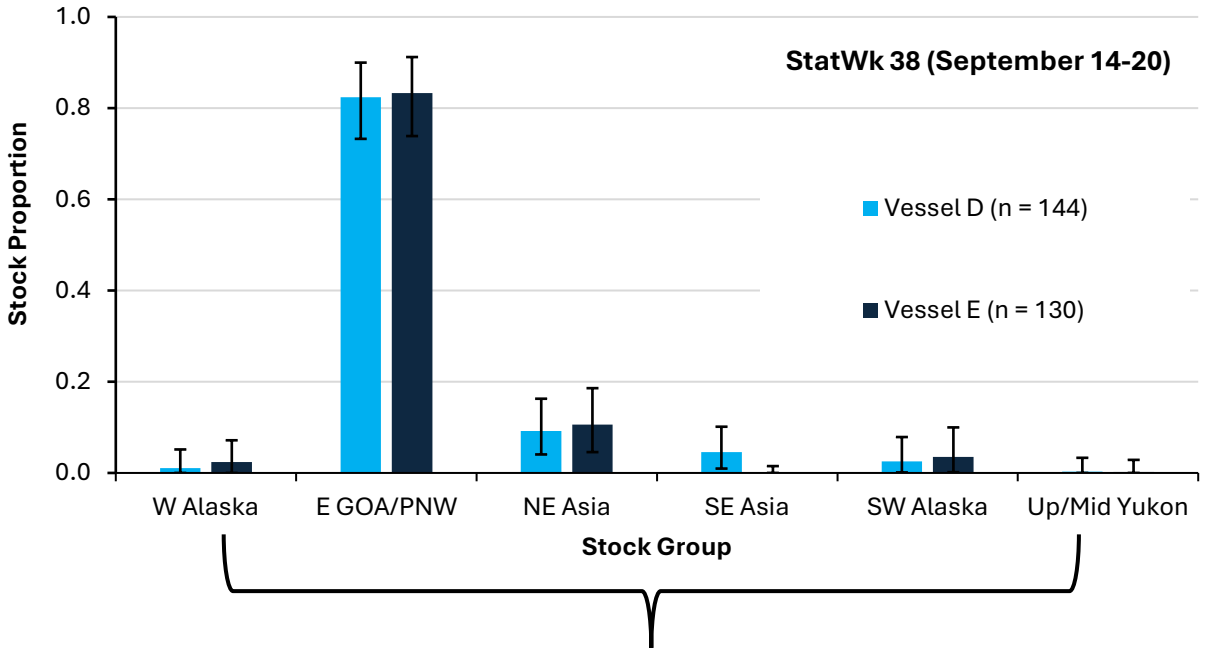
Stock Comp

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)
- E GOA/PNW was dominant (82-83%); 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%
EGOA/PNW = 82-83%

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.

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 to fully fund implementation of this project during the 2026 B-season fishery.
- We have secured a $3.5 million federal grant to operate the project from 2027-2030.

Questions?