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Alaska Fisheries  
Science Center

# B4 State of the Center Report

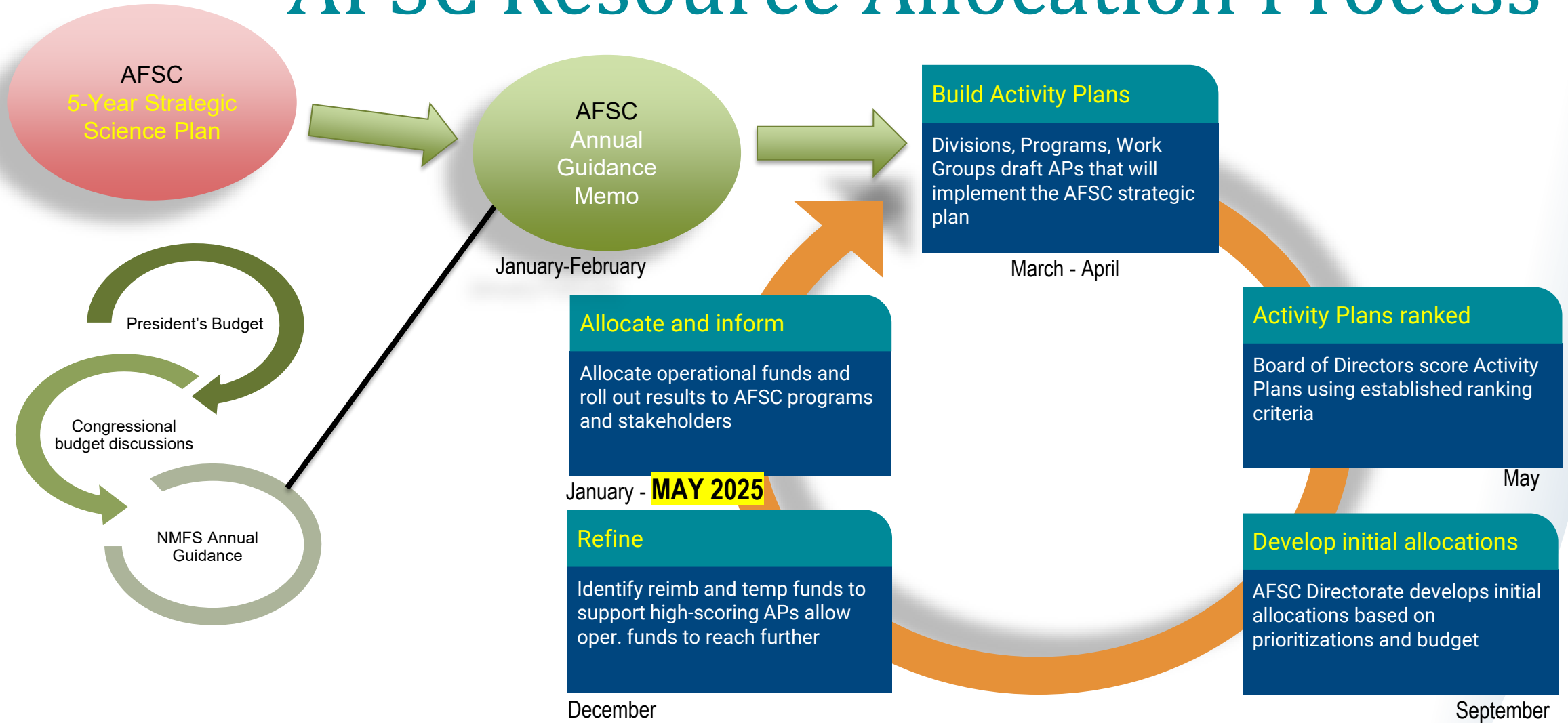
*Robert Foy, Alaska Fisheries Science Center Director  
North Pacific Fishery Management Council Meeting  
April 2025*



# Alaska Fisheries Science Center Locations



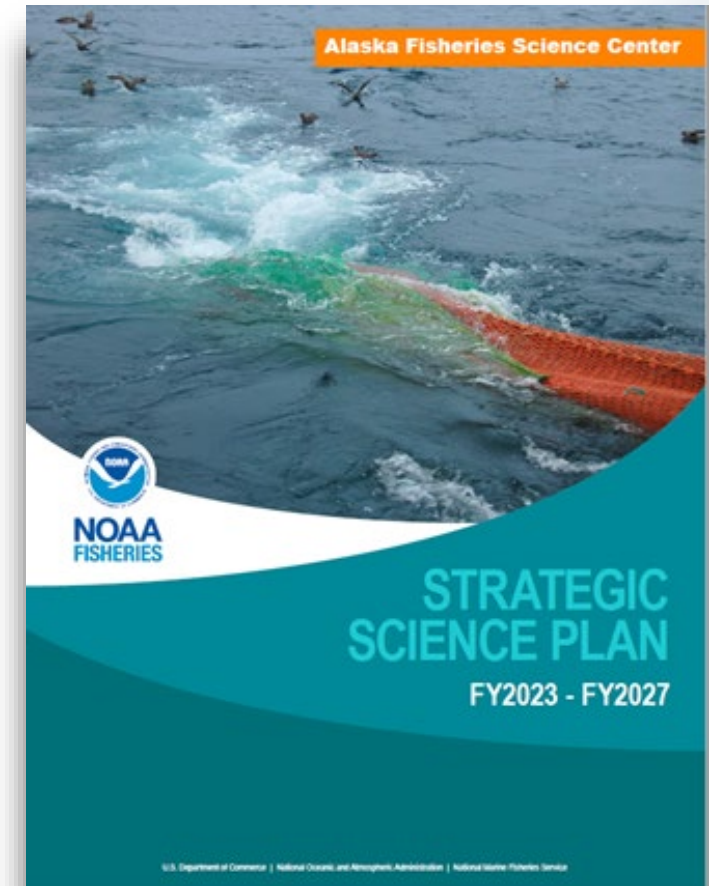
# AFSC Resource Allocation Process



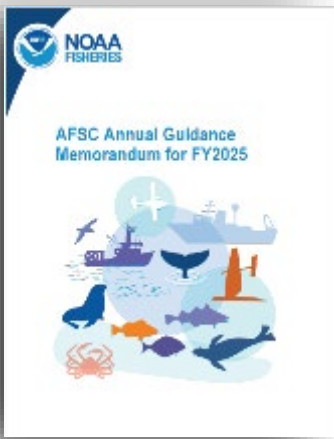
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# AFSC Strategic Science Plan (SSP)

- Identifies our priorities for across five years
- Aligned to advance NOAA mission and NMFS Strategic Plan
- **Goal 1:** monitor and assess fish, crab, and marine mammal populations, fisheries and marine ecosystems.
- **Goal 2:** Monitor and predict climate impacts on living marine resources.
- **Goal 3:** Advance new initiatives and innovations.







# 2025-26 AFSC Annual Guidance Memo (AGM)

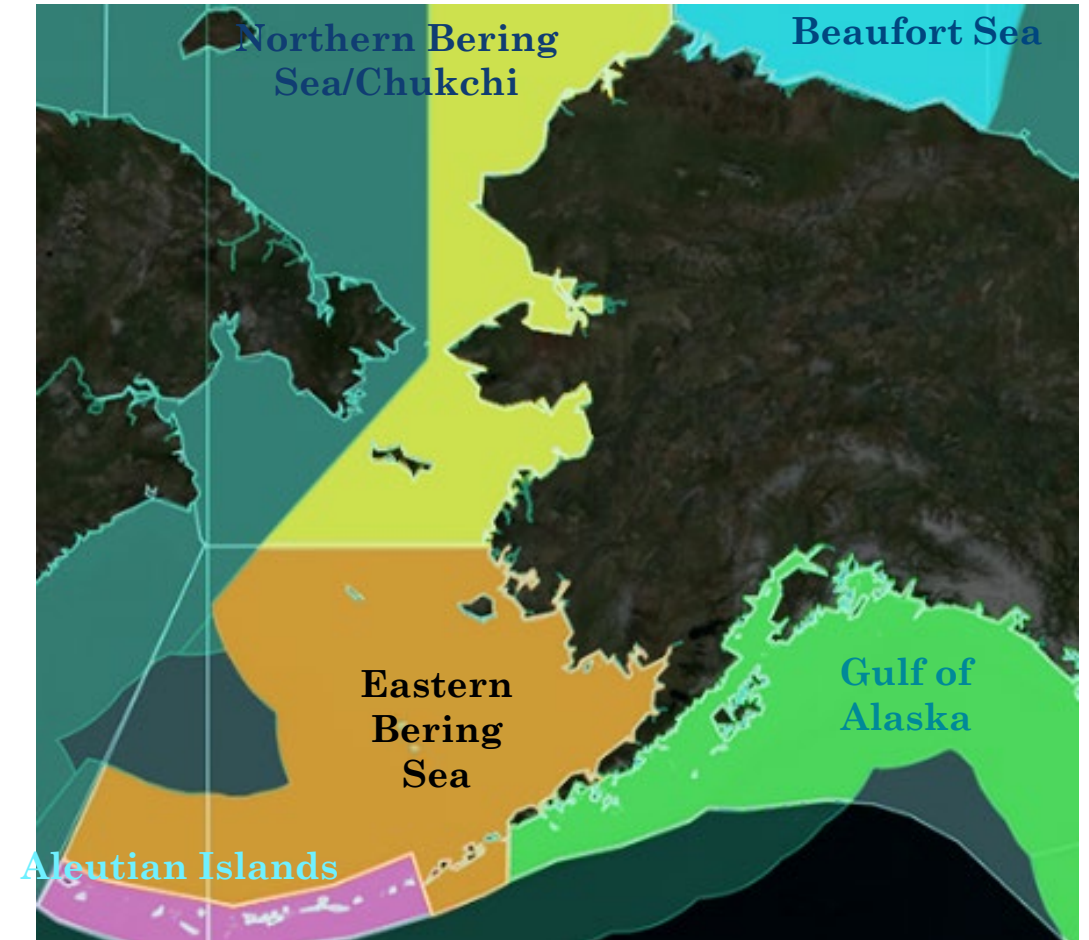
- Research that improves our understanding of environmental and climate forcing of ecosystem processes... that have been identified as critical uncertainties or production bottlenecks for informing specific management decisions. (e.g. salmon marine survival, response to heat waves)
- stock assessment model parameters needed to support significant changes in fishery prosecution (e.g., selectivity change of hook-and-line to pot gear).
- Research that supports transition between historical fishery-independent index tools to new statistical survey design (e.g., systematic to stratified random), new gear types (e.g., different net, UXS), or multispecies/multipurpose surveys.
- Analysis and use of fishery dependent data in stock assessments and/or ESPs (e.g. CPUE) as an additional tool for early warnings of population change.
- Research that addresses the limitations, constraints, and gaps in annual deployment plans for fishery dependent data to provide adequate collections for stock assessment, and if not, the ability to characterize uncertainty for use in risk tables.



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# 2025 Research Plans

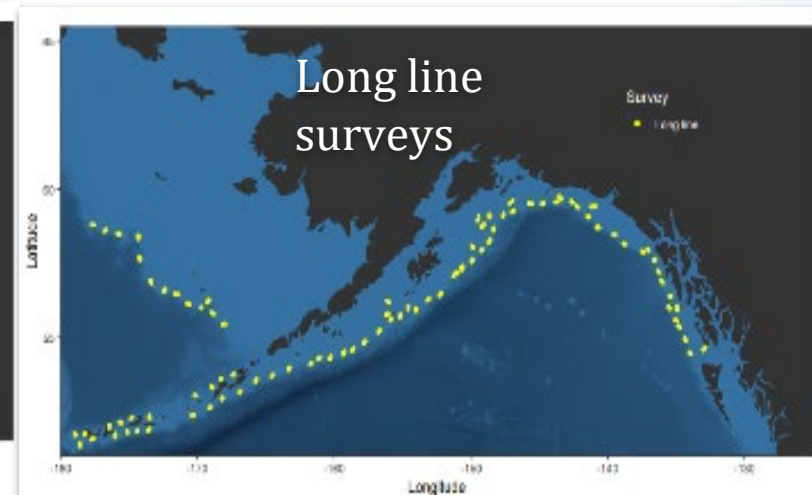
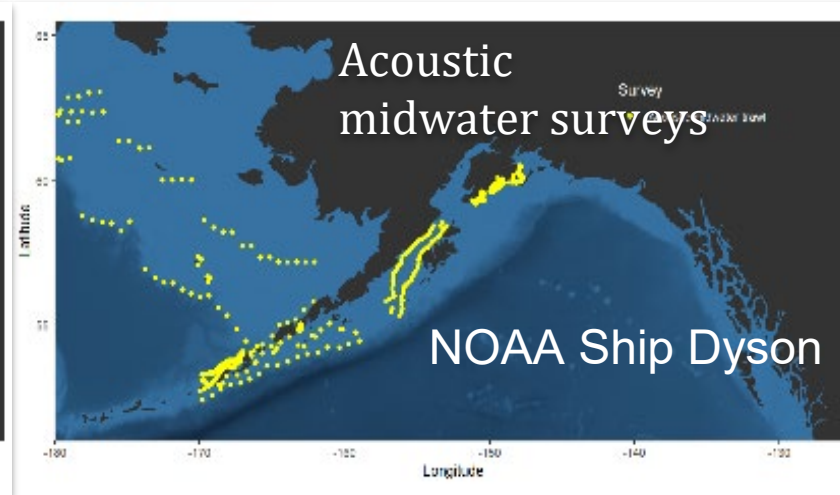
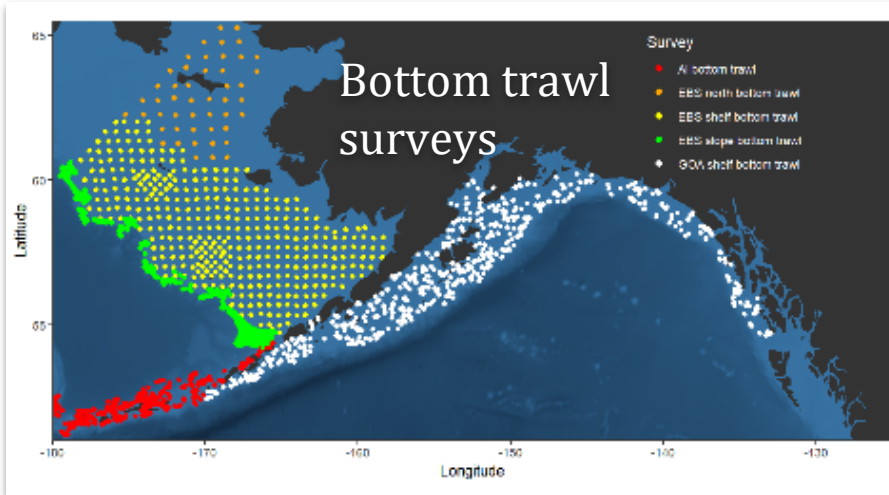
- Still assessing impacts of staffing losses and budget uncertainty
  - **Shelikof Pollock Acoustic Survey** Completed
  - Planning for scheduled surveys but prioritizing and contingency planning if we can't fully execute all surveys
- Planning **Survey Modernization** efforts
- Planning **other mission critical research**



● **Alaska EEZ = 1.5 million nm<sup>2</sup>**

● **5 Large Marine Ecosystems**

# AFSC stock assessment surveys

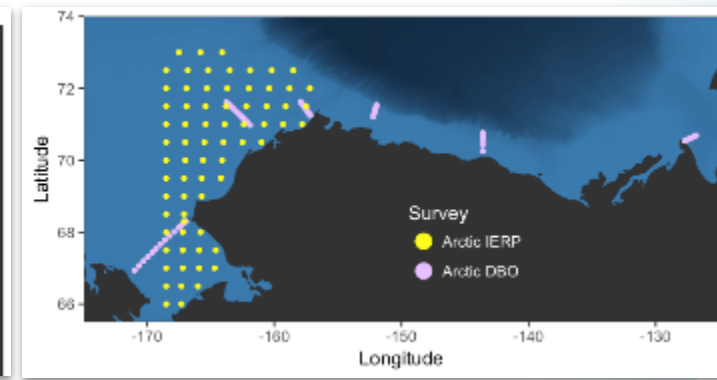
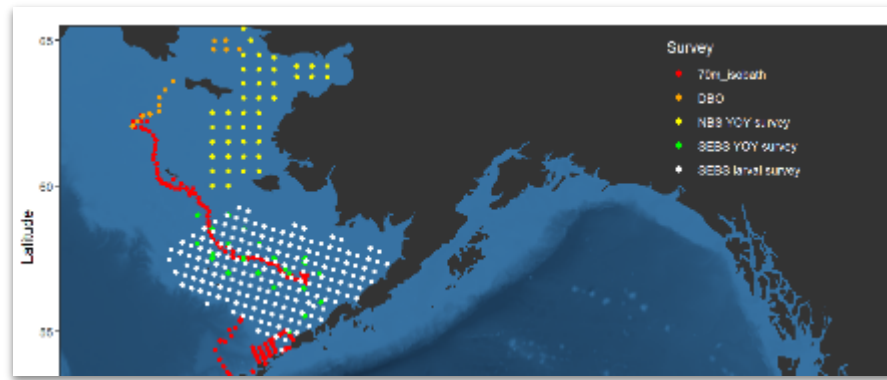


- Gulf of Alaska Shelf/Aleutian Islands Bottom Trawl (**Biennial** May-Aug)
- Eastern Bering Sea Shelf Bottom Trawl Survey (May-Aug)
- Northern Bering Sea Shelf Bottom Trawl Survey (August)

- Winter Acoustic Trawl Survey (Gulf of Alaska, March)
- Summer Acoustic-Trawl Survey EBS (**Biennial** May-Aug)
- ~~Summer Acoustic-Trawl Survey GOA (**Biennial** May-Aug)~~
- Northern Bering Sea Mid-Water Acoustic Survey (Northern Bering Sea to Southern Chukchi, **periodic**)

- Longline Survey (Gulf of Alaska, Bering Sea, May-June)

# AFSC ecosystem/process surveys



- Spring Ichthyoplankton Surveys (Shelikof Strait, Sea Valley, Gulf of Alaska, May, FSV Dyson)
- Southeast Alaska Coastal Monitoring (Gulf of Alaska and inside state waters of SE Alaska, June-Sept) (ADF&G vessel R/V Medeia)
- Fall Juvenile Fish Survey (Coastal Gulf of Alaska, odd years, Aug-Sept, FSV Dyson)

- Spring/Fall Mooring and Ecosystem Observation Survey (70m isobath, Apr-May/PMEL, FSV Dyson)
- Multiple projects (uplooking sounders, etc.)

- Arctic Ecosystem Observations -- DBO (Chukchi, August, USCGC Healy); **periodic**
- Arctic Integrated Ecosystem Survey (completed in 2019)



# AFSC Fisheries Surveys Prioritized (1-11)

Priority	LME	Platform	Survey	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1	Bering Sea	Charter	GAP-SAP Eastern Bering Sea Bottom Trawl Summer																
2	Gulf of Alaska	Charter	GAP Gulf of Alaska Bottom Trawl Summer																
3	Aleutian Islands	Charter	GAP Aleutian Islands Bottom Trawl Summer																
4	Gulf of Alaska	NOAA Ship	MACE Shelikof Strait Pollock Acoustic-Trawl Winter																
5	Bering Sea	NOAA Ship	MACE Eastern Bering Sea Pollock Acoustic-Trawl Summer											Drone					
6	Gulf of Alaska	Charter	MESA Gulf of Alaska & Eastern Bering Sea & Aleutian Islands Longline Summer																
7	Bering Sea	Charter	MESA Gulf of Alaska & Eastern Bering Sea & Aleutian Islands Longline Summer																
8	Aleutian Islands	Charter	MESA Gulf of Alaska & Eastern Bering Sea & Aleutian Islands Longline Summer																
9	Bering Sea	Charter	GAP-SAP Northern Bering Sea Bottom Trawl Summer																
10	Bering Sea	Charter	EMA Northern Bering Sea Ecosystem Surface Trawl Fall																
11	Gulf of Alaska	NOAA Ship	MACE Shumagin/Sanak Pollock Acoustic-Trawl Winter																

# AFSC Fisheries Surveys Prioritized (12-24)

<b>Priority</b>	<b>LME</b>	<b>Platform</b>	<b>Survey</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
12	Bering Sea	NOAA Ship	MACE Bogoslof Pollock Acoustic-Trawl_Winter																
13	Bering Sea	NOAA Ship	EMA Eastern Bering Sea Juvenile Fish_Fall																
14	Gulf of Alaska	NOAA Ship	EcoFOCI Gulf of Alaska Ichthyoplankton_Spring																
15	Bering Sea	NOAA Ship	EcoFOCI Eastern Bering Sea Ichthyoplankton_Spring																
16	Bering Sea	NOAA Ship	EcoFOCI Eastern Bering Sea & Gulf of Alaska Moorings_Spring																
17	Bering Sea	NOAA Ship	EcoFOCI Eastern Bering Sea & Gulf of Alaska Moorings_Fall																
18	Gulf of Alaska	State Ship	EMA Southeast Alaska Coastal Monitoring_Summer																
19	Gulf of Alaska	NOAA Ship	EcoFOCI Western Gulf of Alaska Juvenile Fish_Fall																
20	Gulf of Alaska	Charter	GulfWatch oceanography&forage fish/humpback																
21	Gulf of Alaska	NOAA Ship	MACE Gulf of Alaska Pollock Acoustic-Trawl_Summer																
22	Gulf of Alaska	Charter	GAP Gulf of Alaska Bottom Trawl_Slope		x		x		x		x		x		x		x		x
23	Bering Sea	NOAA Ship	GAP-SAP Eastern Bering Sea Slope Bottom Trawl_Summer									x		x		x		x	
24	Aleutian Islands	NOAA Ship	EcoFOCI Alaska Movement of Key Fishes_Summer											x	x	x	x	x	x

# 2025 SSC Survey Prioritization Discussion

- History of SSC survey meetings, discussions, and recommendations
- Questions for SSC discussion
  - Criteria for moving to biennial surveys (EBS, NBS)?
  - Biomass index vs ecosystem surveys?
  - Thresholds for remote data vs biological data?
  - ABC/TAC index for prioritization?
  - Stock trend and temporal variance for prioritization?
- Further SSC considerations for metric of uncertainty?
  - What analyses should stock assessment authors consider to help prioritize data sources



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# Survey Priorities



- As part of our **survey modernization** effort, AFSC has prioritized surveys
- We are interested in hearing the Council's perspective on the following questions
  - What information and data are needed for Council management decisions?
  - What data collection efforts are a priority to meet these requirements?
  - How do we link these data to communities/industry?

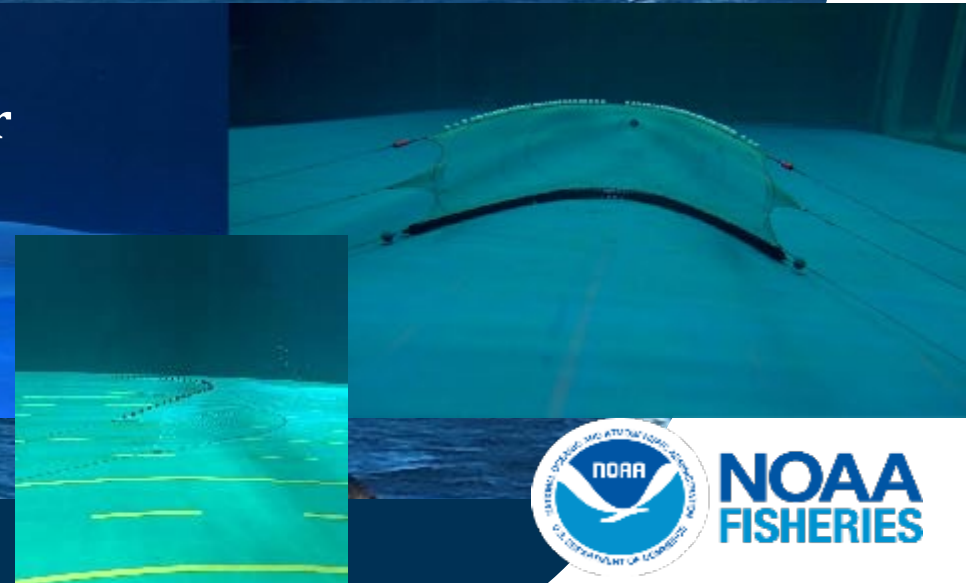
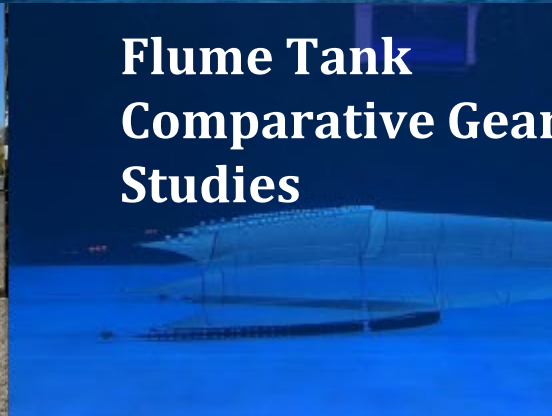


# Planned Survey Modernization Efforts in 2025

## Bottom Trawl Surveys



### Flume Tank Comparative Gear Studies



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# Planned Survey Modernization Efforts in 2025

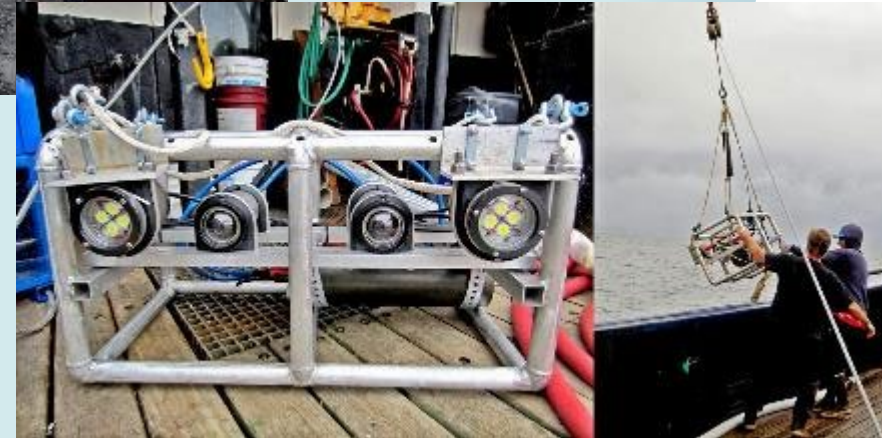
Cross-Center Effort to Improve Efficiencies and Respond to Changing Ocean Conditions



**Low-Cost Echosounder Moorings to track fish movements**



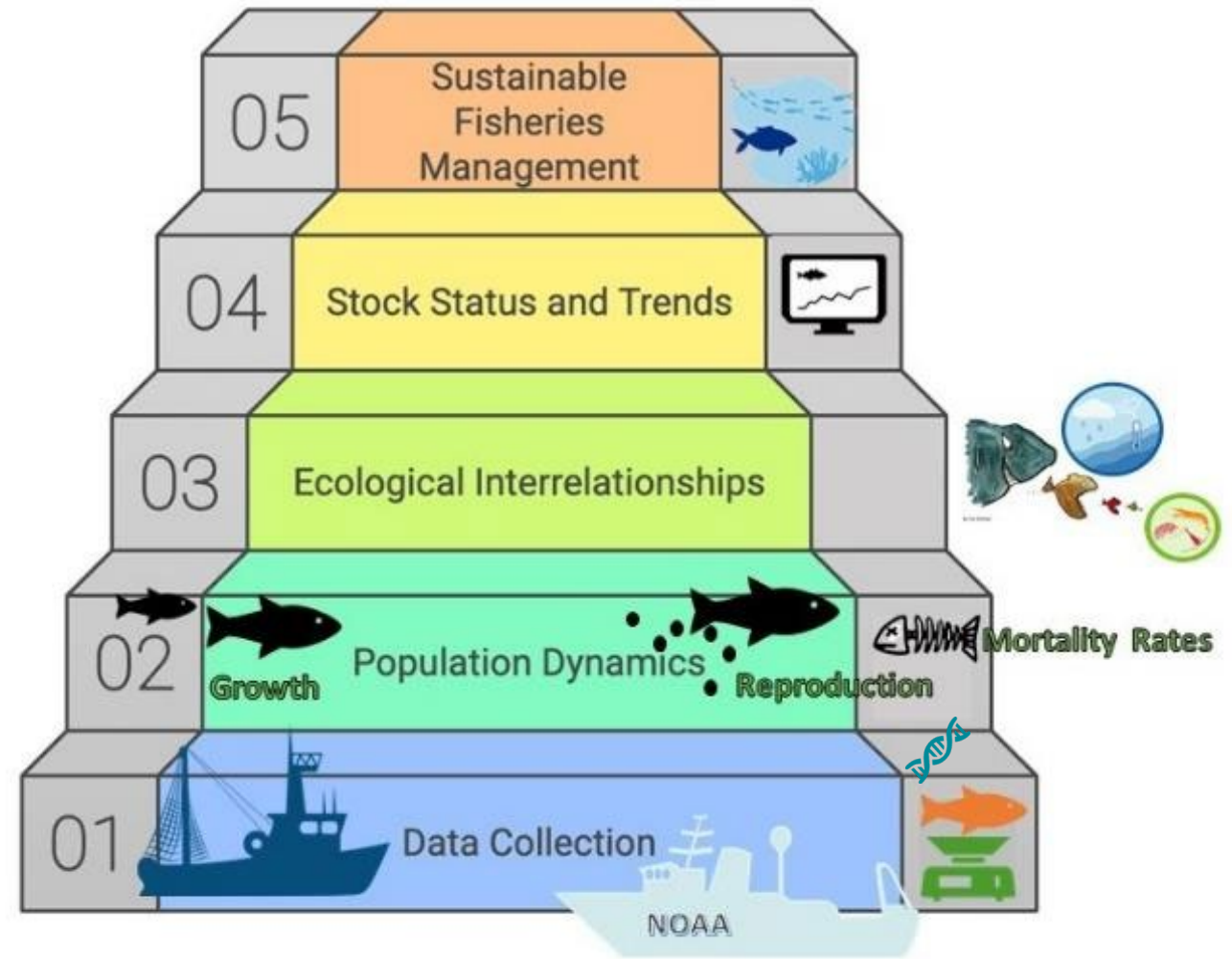
**Towed Camera Systems for Fish Estimation**



**Enhanced Acoustics for Species ID  
Cloud-Computing and Acoustics Data Management**

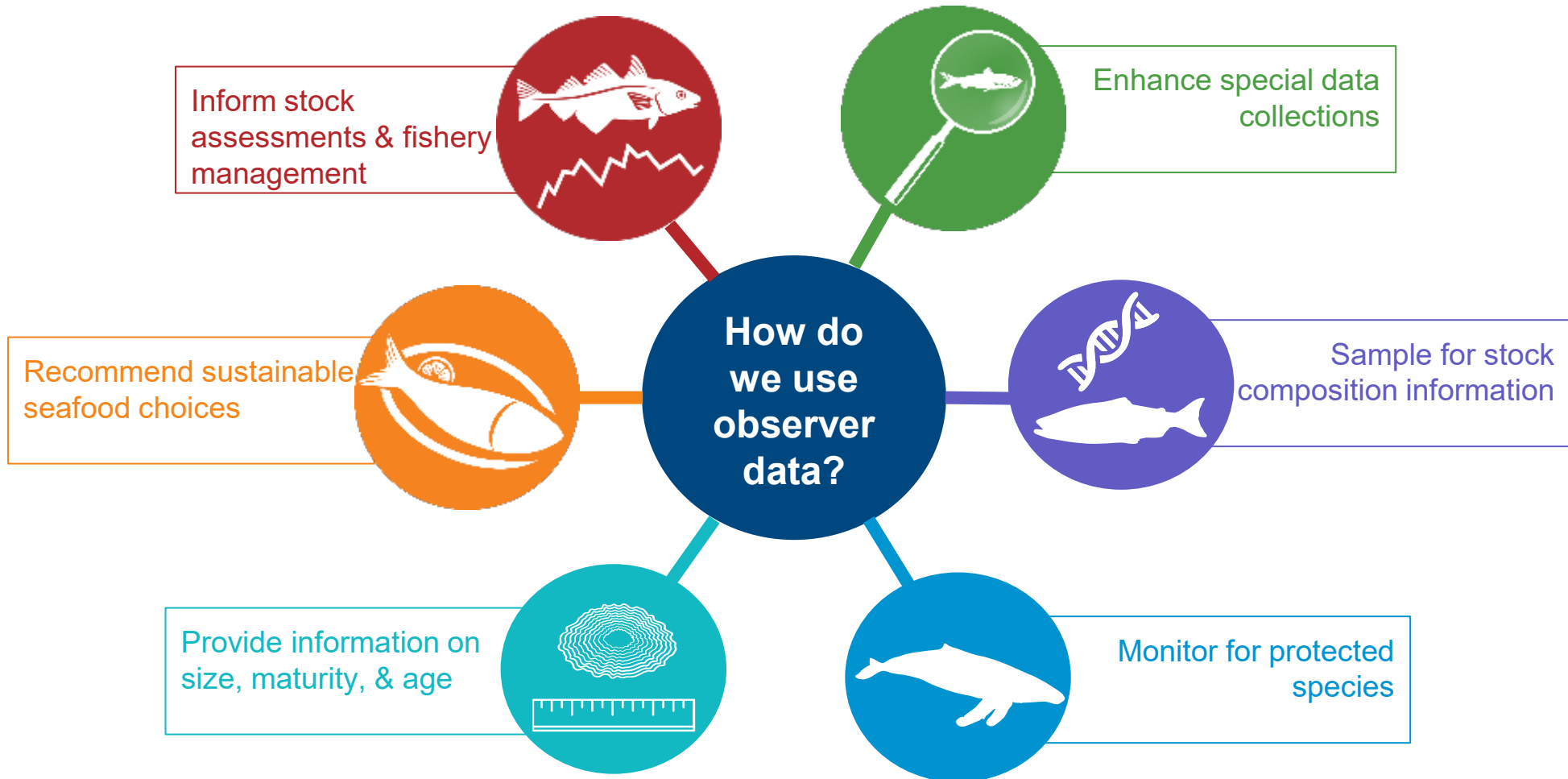


Other continuing research to support sustainable fisheries resource management . . .



# Planned Research in 2025

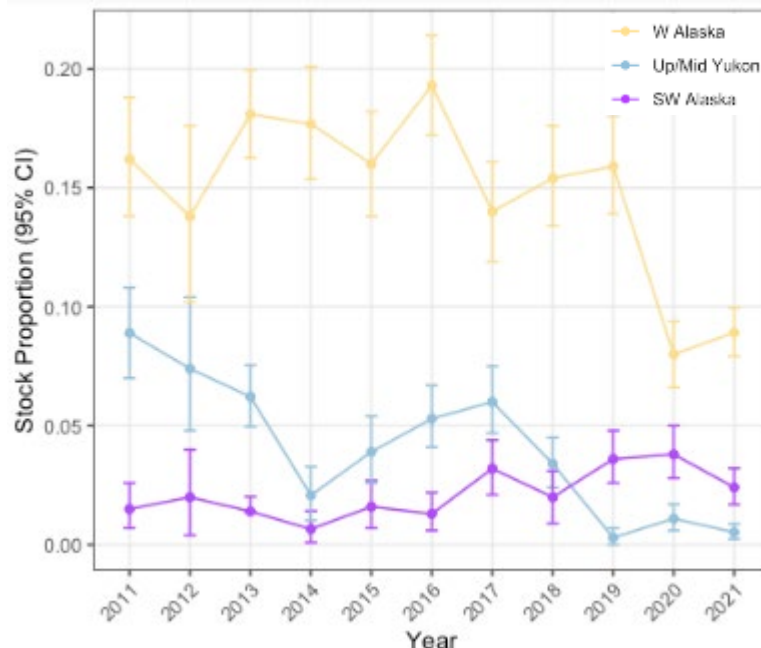
## Fishery-Dependent Data Collection



**Observer & Electronic Monitoring (EM) data** provide unique & independent information Collected at sea & at shoreside processors Critical to the effective management of our marine resources Data **support sustainable fisheries & protected species recovery.**

# Planned Research in 2025

## 'Omics Research



**Genetic stock  
identification of salmon  
caught as bycatch**



**eDNA to improve estimates of  
diversity and distribution in a  
changing ecosystem**

**Population structure  
of assessed species**

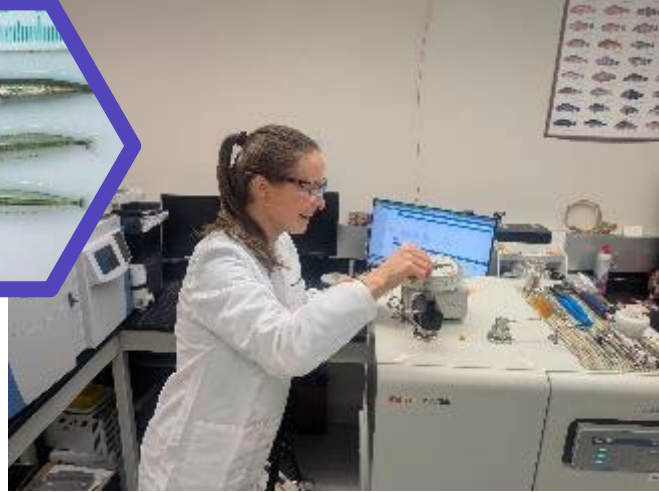


# Planned Research in 2025

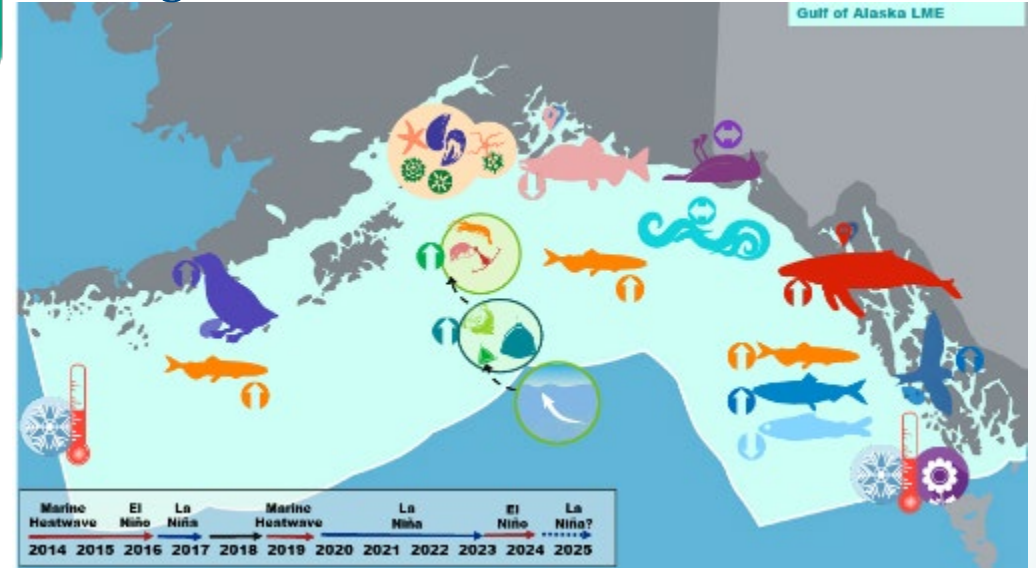
## Data Processing and Analysis



**AI for Diet Data collection and New Software** to more quickly process survey data



**Rapid Lipid Analysis** in fish to provide data more quickly for fish stock management



**Ecosystem-Status Reports (ESRs) & Ecosystem and Socio-Economic Profiles (ESPs)**

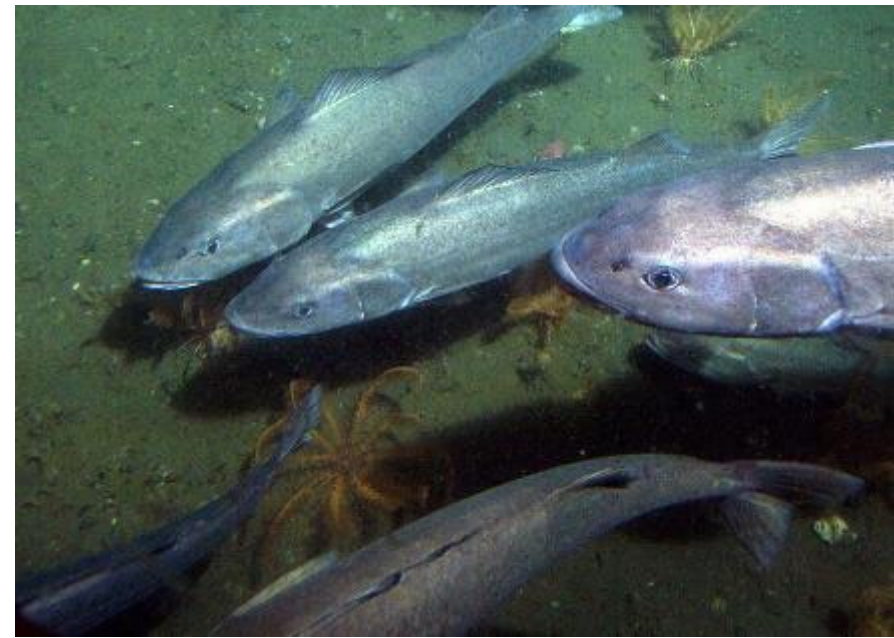


**Crab Risk Table Development**

# Planned Research in 2025

## Field and Lab Studies

- **Genetically Distinct Ecotypes Study of GOA Pacific Cod** to understand population stability from environmental stressors
- **Juvenile Sablefish Capture/Release Studies** to assess stressors
- **Energy Use Study on Sub-Adult Snow Crab** to better understand risks to Bering Sea crab population due to marine heatwaves
- **Integrated Distribution and Movement Model Presentation** for crab to provide insights into crab distribution, movement, and unobserved fishing mortality



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# Planned Research in 2025

## Salmon Research

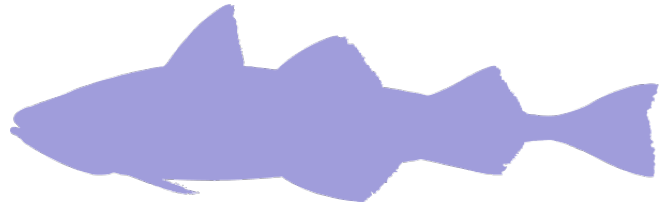
- **New Program Manager**
- **Chinook Salmon Smolt Release** to support local fisheries (largest in 50yr History)
- **Study to ID Drivers of Yukon River Chinook Marine Survival and Fitness**
- **Scientific Advice and Analyses:** U.S./Canada Pacific Salmon Treaty, N. Pacific Anadromous Fish Commission and NPFMC





# Planned Research in 2025

## Socio-Economic Research (cont'd)



- **Community-Led Resilience Initiatives** focused on
  - workforce development, energy innovation, fisheries access and sustainability, environmental stewardship, and localized science
- **Bioeconomic Models** to forecast effects of OA on Alaska crab and groundfish
- **Global Markets and U.S. Trade Balance Monitoring** for Alaska seafood products (i.e., Alaska pollock, flatfish, rockfish, king crab, snow crab)





# Planned Research in 2025

## Stock Assessments

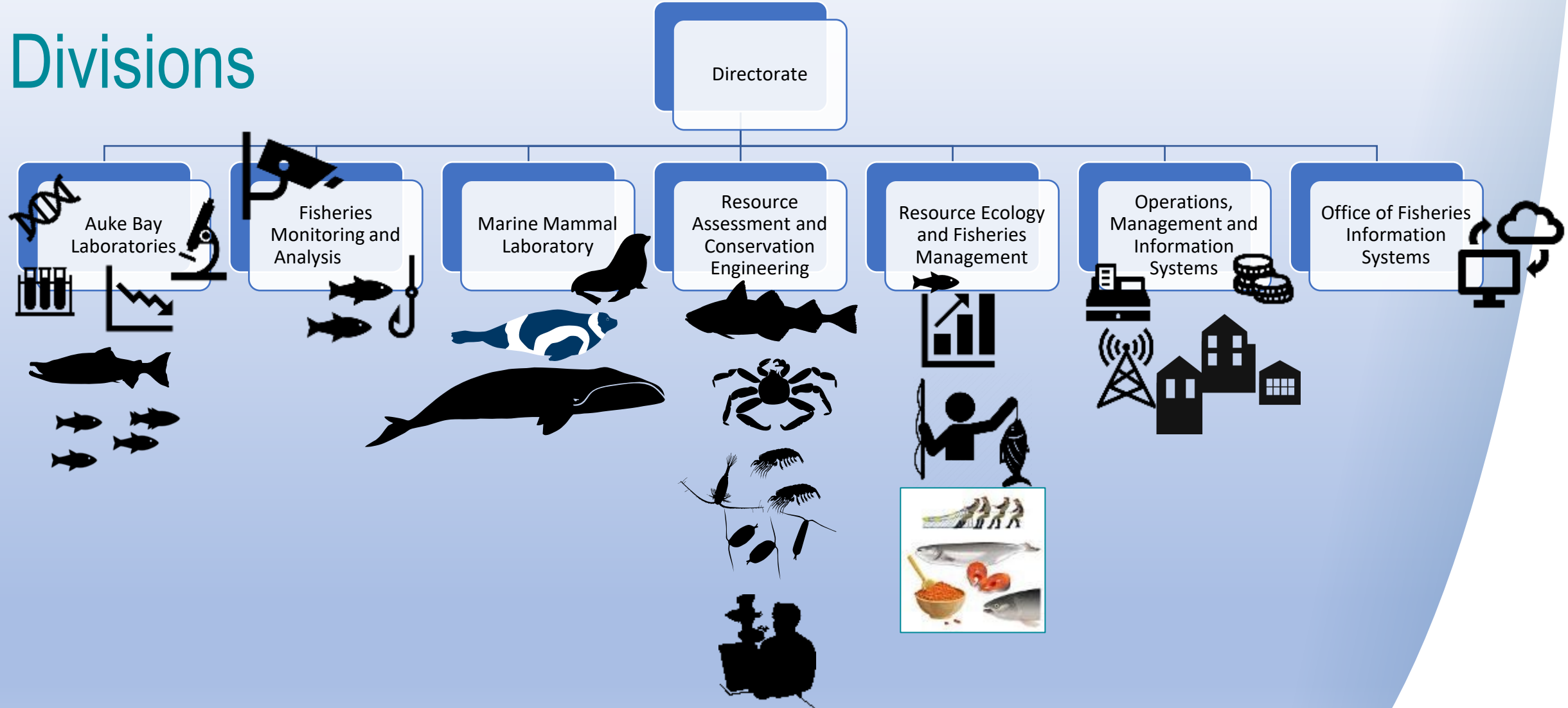
- **Stock Assessments:** North Pacific fish & crab populations, **Scientific Advice** on catch levels for 2026 & 2027
- [NOAA Fisheries Center for Independent Experts](#) for Eastern Bering Sea walleye pollock & Gulf of Alaska Rex sole fisheries stock assessments
- **Machine Learning/AI** to improve statistical models, increase forecasting accuracy, & understand fisheries spatial & temporal trends
- **Streamline Stock Assessment Process** using open data science tools
- **Next-Generation Stock Assessment Software Development** for Alaskan crab & groundfish to improve efficiencies & provide for consistent modeling platforms

# Thank You!





# AFSC Divisions



# Bering Sea

[illegible]

# Gulf of Alaska

[illegible]



# Aleutian Islands

Platform	Survey	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Charter	GAP Aleutian Islands Bottom Trawl Summer																
Charter	MESA Gulf of Alaska & Eastern Bering Sea & Aleutian Islands Longline Summer																
NOAA Ship	EcoFOCI Alaska Movement of Key Fishes Summer																

