

# Alaska Fisheries Science Center

–October Updates

–AFSC Ecosystem Research Portfolio



Robert Foy  
AFSC Director



# AFSC: October Updates

- **2020 survey funding expectations**
  - **Funded bottom trawl: 2 AI vessels; 2 EBS vessels → includes NBS**
  - **No Slope Survey in 2020**
- **Council request for scale analysis**
  - **June 24, 2019 Council request to process back log of scales from Chinook salmon bycatch samples → length at age key, estimate age-specific stock composition, estimate age-specific bycatch, parameterize the adult equivalency (AEQ) model for Chinook in the Bering Sea pollock fishery.**
  - **2018 Chinook BSAI and GOA prepped**
    - **30% have been read.**
    - **Completion by October 2019.**
  - **2018 chum salmon prepped for analysis**



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# AFSC: October Updates

- **Alaska Geographic Strategic Plan**

Describe the landscape unique to Alaska

- *Issues we face*
- *Challenges we must address*
- *Risks we foresee*

Describe how AFSC, AKR, and NPFMC work together to accomplish NOAA Fisheries strategic goals:

- *Amplify the economic value of sustainable commercial and recreational fisheries*
- *Conserve and recover protected species while supporting responsible fishing and resource development*
- *Improve organizational excellence and regulatory efficiency*



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# AFSC: October Updates

- **Alaska Geographic Strategic Plan**

## Timeline

- *June: draft shared with AKRO and Council staff (Chair, ED)*
- *July: consolidate AKRO and Council staff edits*
- *September: revised draft shared with AKRO and Council staff*
- *October 15: submit to NMFS HQ*
- *Spring 2020: official roll-out, presentation to Council*



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# Alaska Fisheries Science Center

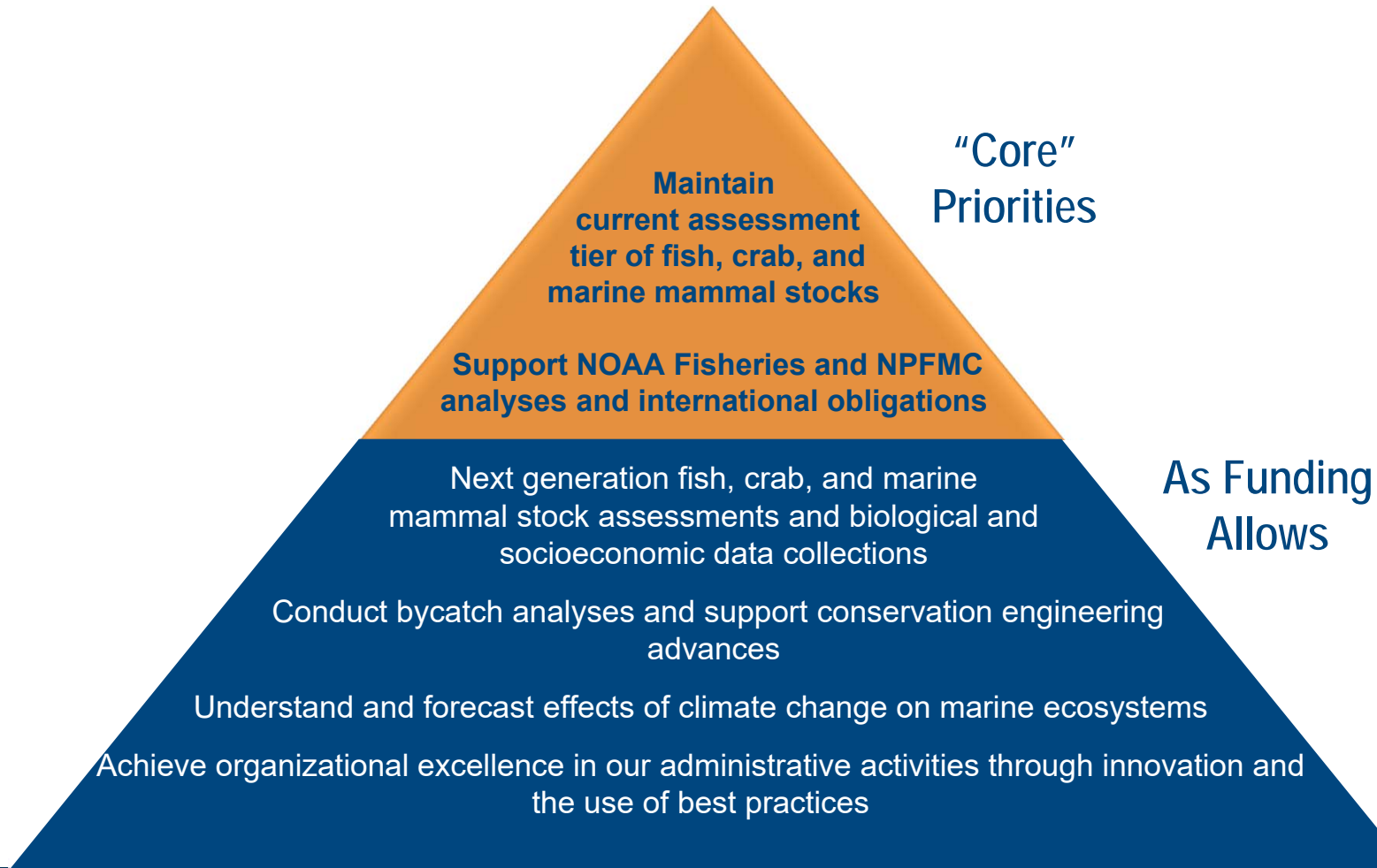
## Balancing the AFSC survey & research portfolio

Principal Investigators: Kerim Aydin, Kalei Shotwell, Elizabeth Siddon, Ellen Yasumiishi, Stephani Zador



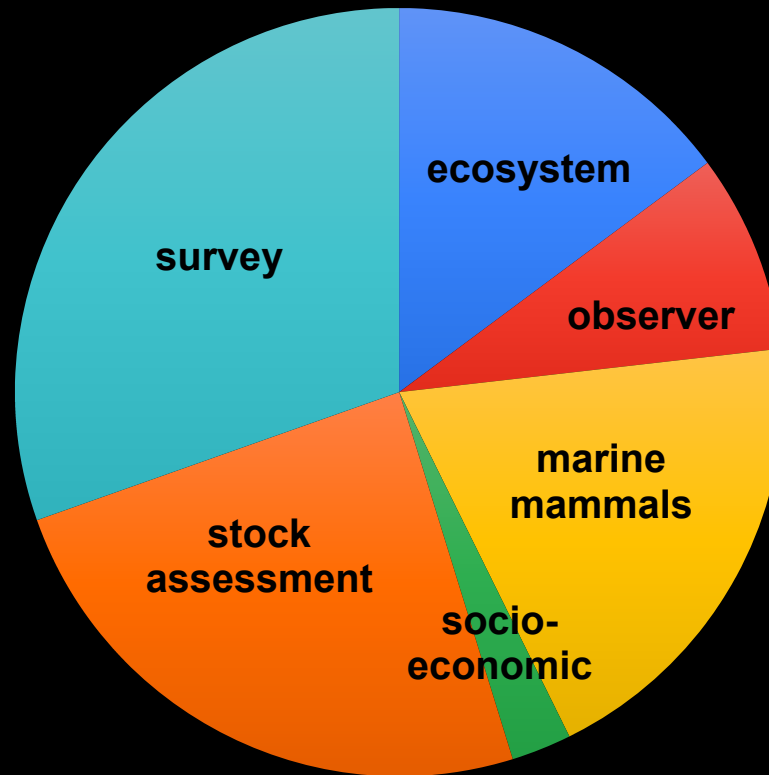
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# AFSC Science Prioritization



# Balancing the AFSC survey & research portfolio

- Do we have the proper balance?
- Funding depends on topic-specific appropriation
- Must maintain balance as size of the pie shrinks



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# Balancing the AFSC survey & research portfolio

## Why?

- **Building resilience in shifting states**
- Environmental variability & climate change
- Static management tools
- **Cannot wait for the change to happen**

## How?

- Identify an appropriate balance of data collection
- Develop indicators and predictive capacity

## What?

- Stock assessment monitoring
- Biological and ecosystem process data and modeling
- Model predictions based on survey data



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# Stock assessment monitoring

(must balance assessment and process data collection)

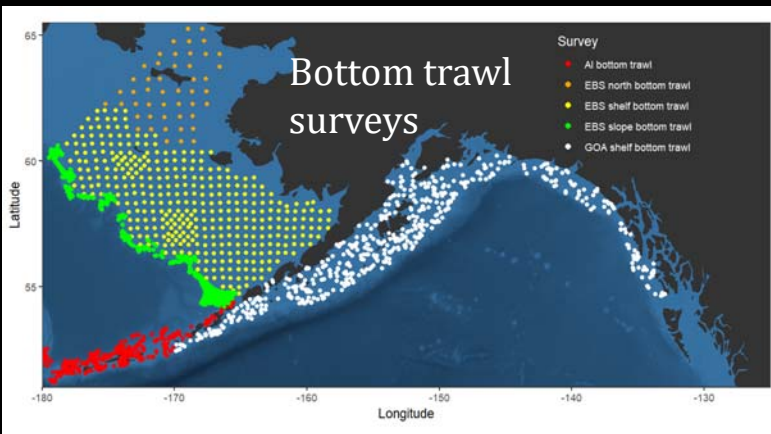
## Stock assessment surveys (7 surveys...10 vessels)

- Distribution, abundance
- Biological data (life history, size and age based)

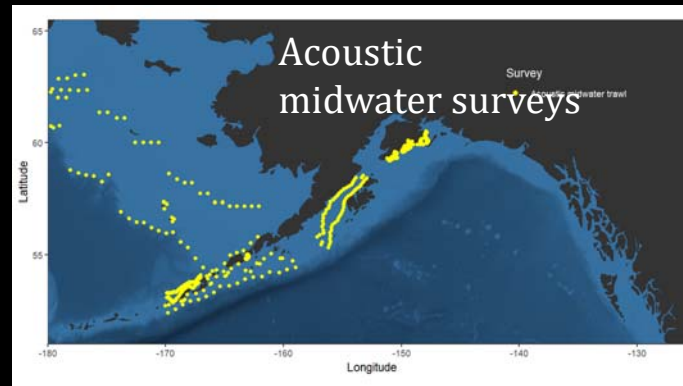


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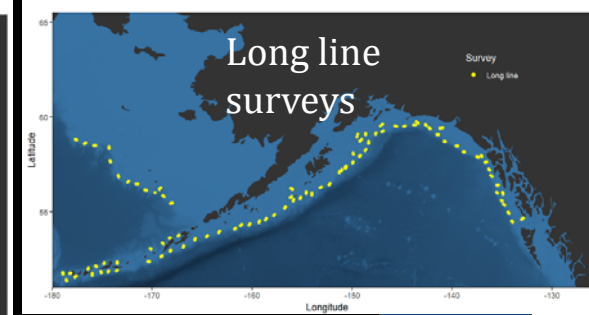
# AFSC stock assessment surveys



Gulf of Alaska Continental Shelf Bottom Trawl (May-Aug, F/Vs Ocean Explorer and Sea Storm)  
 Eastern Bering Sea Continental Shelf Bottom Trawl Survey (May-Aug, F/Vs Alaska Knight and Vesteraalen)  
 Northern Bering Sea Continental Shelf Bottom Trawl Survey (August, F/Vs Alaska Knight and Vesteraalen)



Winter Acoustic Trawl Survey (Gulf of Alaska, March, FSV Shimada)  
 Summer Acoustic-Trawl Survey EBS (Island of Four Mountains to Yakutat Bay May-Aug, FSV Oscar Dyson)  
 Northern Bering Sea Mid-Water Acoustic Survey (Northern Bering Sea to Southern Chukchi Sea 60 N to 69.5 N, Aug-Sept, F/V Northern Explorer)



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



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# Stock assessment monitoring

(must balance assessment and process data collection)

## Stock assessment surveys (7 surveys...10 vessels)

- Distribution, abundance
- Biological data (life history, size and age based)

## Integrated ecosystem/process surveys

- Oceanography and ecology
- Early life history stages
- Lower trophic levels
- Forage species
- Recruitment indices
- Condition



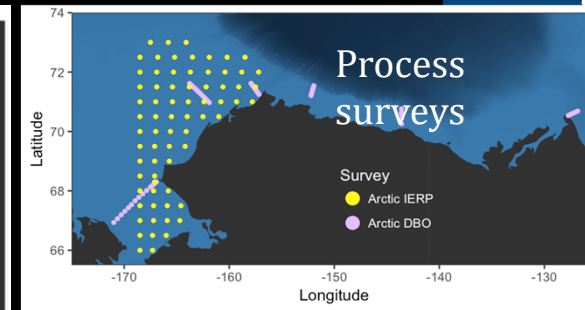
Ecosystem and  
Socio-economic  
Profile **(ESP)**

Ecosystem Status  
Report **(ESR)**



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# AFSC ecosystem/process surveys (includes partnerships!)



- Spring Ichthyoplankton Surveys (Shelikof Strait, Sea Valley, Gulf of Alaska, May, FSV Oscar Dyson)
- Southeast Alaska Coastal Monitoring (Gulf of Alaska and inside state waters of SE Alaska, June-Sept) (ADF&G survey we provide staff, R/V Medeia)
- Fall Juvenile Fish Survey (Coastal Gulf of Alaska, odd years, Aug-Sept, FSV Oscar Dyson)
- St. John Baptist Bay Juvenile Sablefish Tagging (July 15-19, Southeast Alaska)

- Spring/Fall Mooring and Ecosystem Observation Survey (Eastern Bering Sea, 70m isobath, Apr-May/PMEL, FSV Oscar Dyson)
- RWP Moorings Project (estimating pollock flux across the U.S./Russia Border)
- Salmon Excluder Work (Bering Sea, June-Sept, F/V Pacific Explorer)
- Red King Crab Tagging/Saildrone Research (Bristol Bay, June/Oct)
- Pacific Cod Tagging (Aleutians, Feb-Mar, RV Ocean Explorer/Sept TBD) Gulf of Alaska, March, FSV Shimada)

Arctic Ecosystem Observations (Chukchi, August, USCGC Healy)

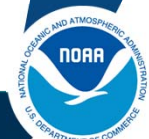
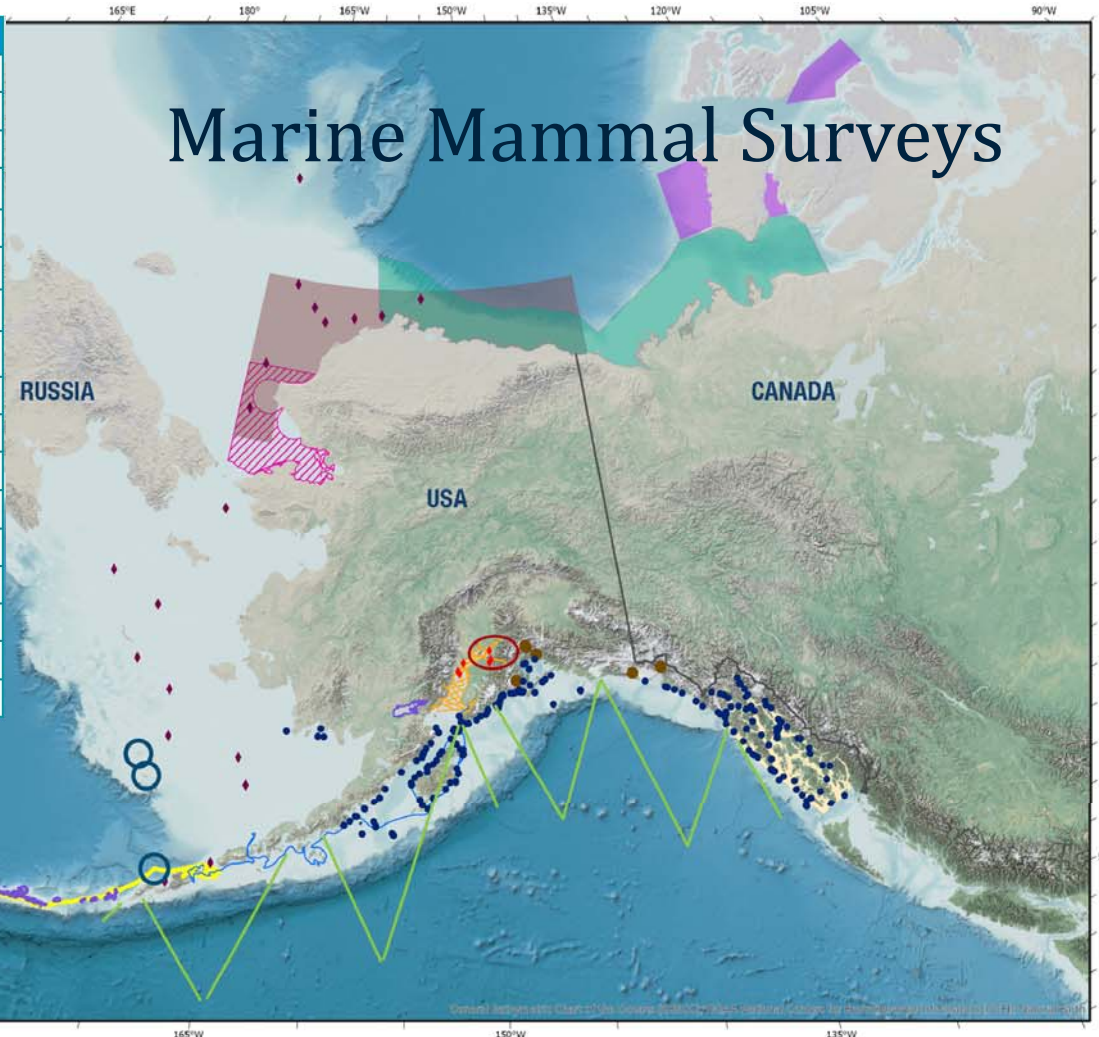
Arctic Integrated Ecosystem Survey (U.S. Chukchi Sea 65 N to 73 N, western Beaufort Sea Shelf & Shelf Break from 145 W to 165 W Aug-Oct, F/V Ocean Starr)



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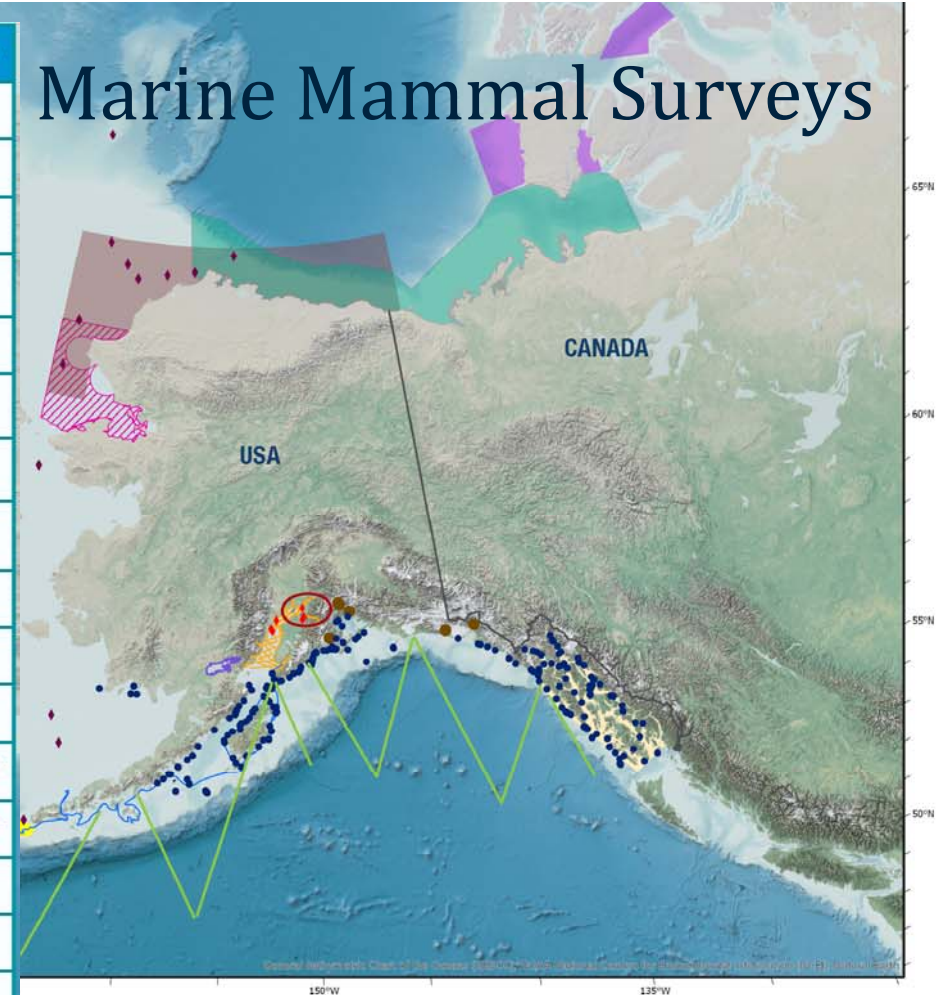
Months in which field work will occur (2019)		M	A	M	J	J	A	S	O	
	Harbor Seal Aerial Surveys					✓	✓	✓		
	Steller Sea Lion Vessel-based Studies - GOA					✓				
	Testing Equipment for Surveying Ice-associated Seals and Polar Bears	✓								
	Testing Equipment for Surveying Harbor Seals in Glacial Fjords						✓			
	Steller Sea Lion Vessel-based Studies				✓	✓				
	Steller Sea Lion Aerial Surveys				✓	✓				
	Steller Sea Lion Unmanned Aerial Surveys (UAS)				✓	✓				
	Northern Fur Seal Demographic and Foraging Studies				✓	✓	✓			
	Marine Mammal Passive Acoustic Recorders	✓					✓	✓		
	Cook Inlet Beluga Aerial Surveys	<i>November 2018, March 2019</i>								
	Cook Inlet Beluga Biopsy and Photogrammetry Study						✓	✓		
	Cook Inlet Beluga Acoustic Monitoring			✓	✓			✓	✓	
	Aerial Surveys of Arctic Marine Mammals				✓	✓	✓	✓		
	Primary Bering Chuckchi Beaufort Bowhead Whale Abundance Study						✓			
	Secondary Bering Chuckchi Beaufort Bowhead Whale Abundance Study						✓			
	Southeast Alaska Harbor Porpoise Vessel Study				✓					
	IWC Pacific Ocean Whale and Ecosystem Research Survey				✓	✓	✓			

# Marine Mammal Surveys



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# Marine Mammal Surveys



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	Southeast Alaska Harbor Porpoise Vessel Study					✓				
	IWC Pacific Ocean Whale and Ecosystem Research Survey					✓	✓	✓		



# Model Predictions (climate and management scenarios)

## Management Strategy evaluations (MSE)

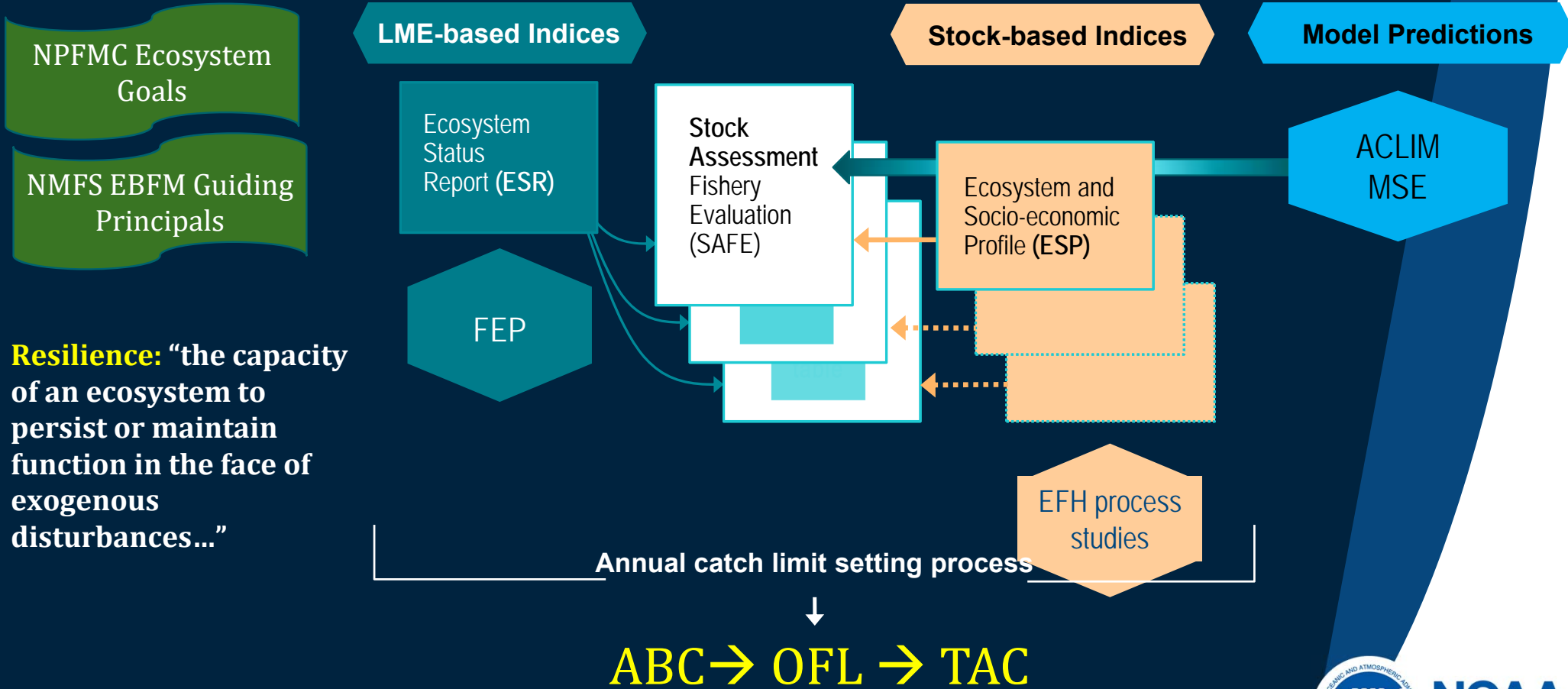
### ACLIM

- **Oceanography and ecology**
- **Early life history stages**
- **Lower trophic levels**
- **Forage species**
- **Recruitment indices**
- **Condition**



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# Ecosystem Based Fishery Management Processes



**Resilience:** “the capacity of an ecosystem to persist or maintain function in the face of exogenous disturbances...”



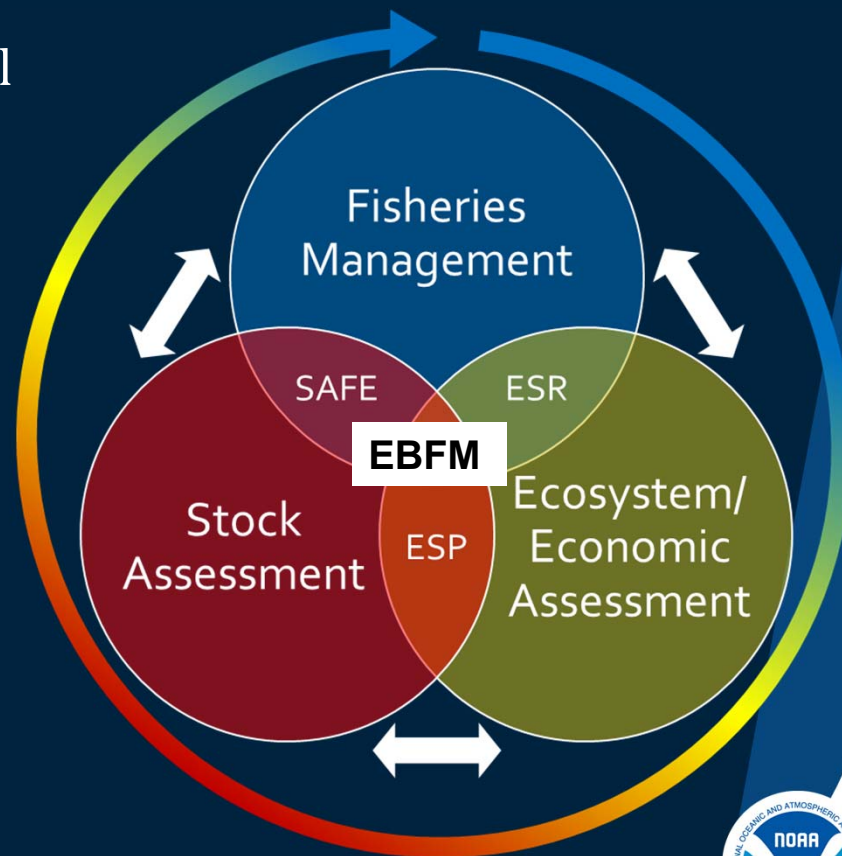
# Ecosystem-Based Fisheries Management (EBFM) : how are indicators used?

**Category 1:** Informs stock assessment model

**Category 2:** Used to inform the Allowable Biological Catches

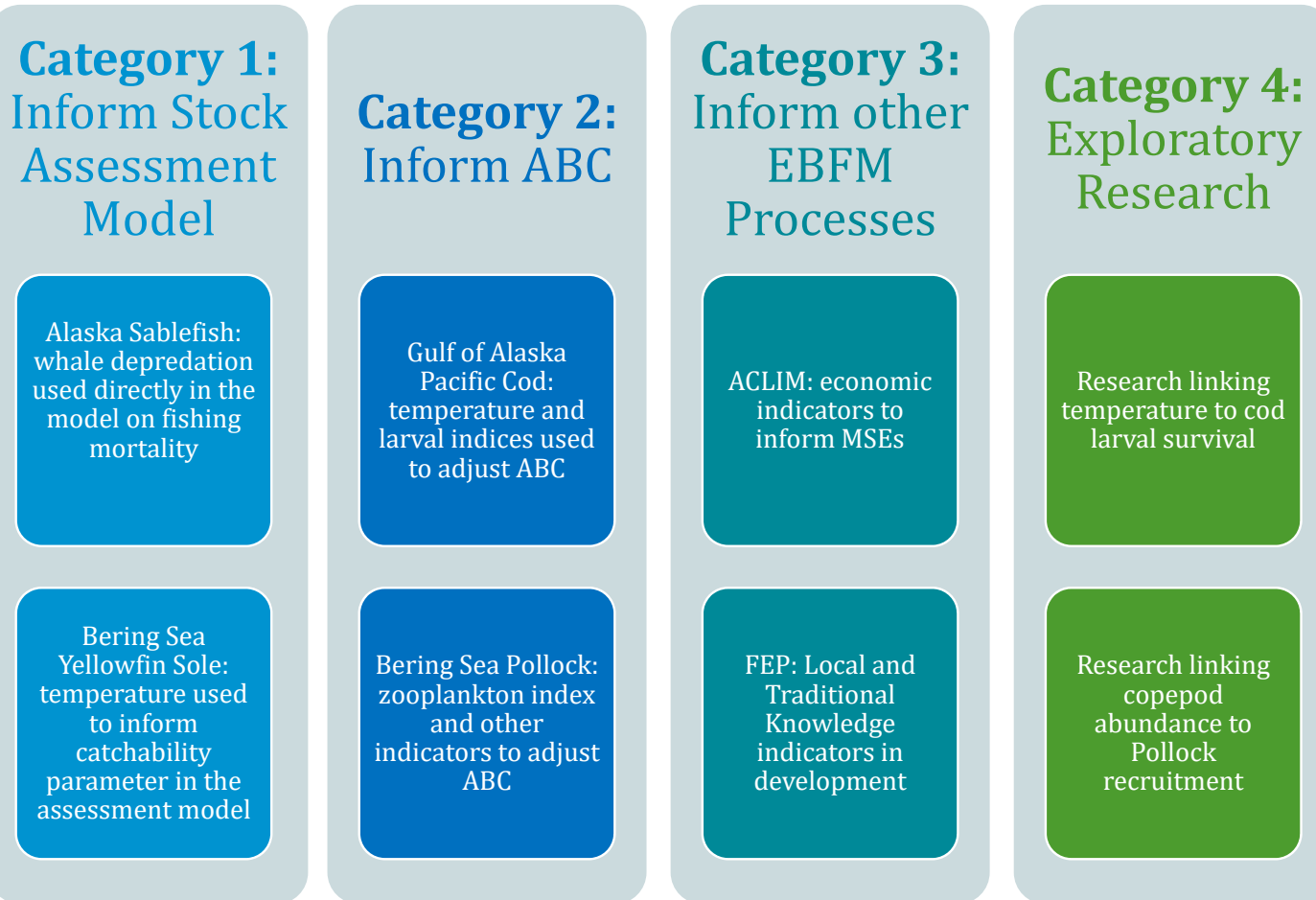
**Category 3:** Indicators inform other Ecosystem-Based Management Processes

**Category 4:** Exploratory



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# Examples of Ecosystem Information Use



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