EVOS Trustee Council & Agencies

NOAA FISHERIES

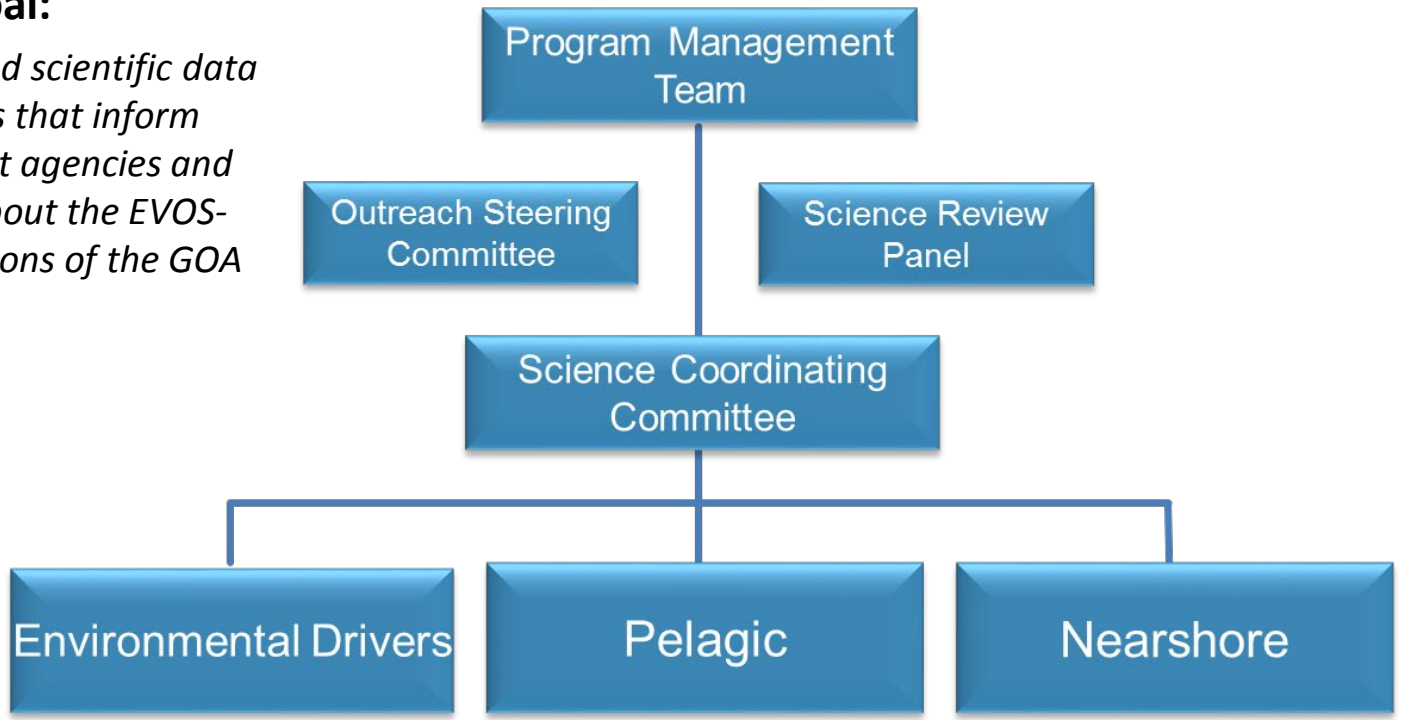
Gulf Watch Alaska
A Long-term Monitoring Program
of the *Exxon Valdez* Oil Spill Trustee Council

Mandy Lindeberg, Rob Suryan – AFSC Auke Bay Laboratories

GWA: An Integrated Ecosystem Approach

Overall Goal:

Provide sound scientific data and products that inform management agencies and the public about the EVOS-affected regions of the GOA








GWA Ecosystem Components & Scientists

Environmental Drivers

- **GAK-1** - Danielson
- **Seward Line –** Hopcroft, Coyle
- **PWS Oceanography –** Campbell
- **Kachemak Bay –** Holderied, Baird
- **Cont. Plankton Recorder** - Batten

Pelagic Ecosystem

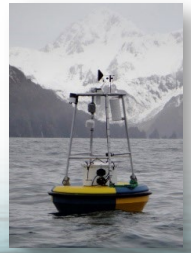
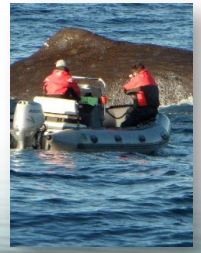
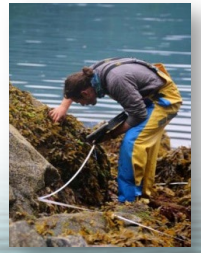
- **Killer Whales –** Matkin, Olson
- **Summer Marine Birds –** Kuletz, Kaler
- **Forage Fish –** Arimitsu, Piatt
- **Humpback Whales –** Moran, Straley
- **Winter/Fall Seabirds** - Bishop

Nearshore Ecosystem

- **Primary Producers – marine vegetation**
- **Prey – invertebrates**
- **Predators – sea stars/otters/birds**
- Coletti**,** Esler, Kloecker, Monson, Weitzman, Konar, Iken, Bodkin, Ballachey, Dean, Robinson, Lindeberg

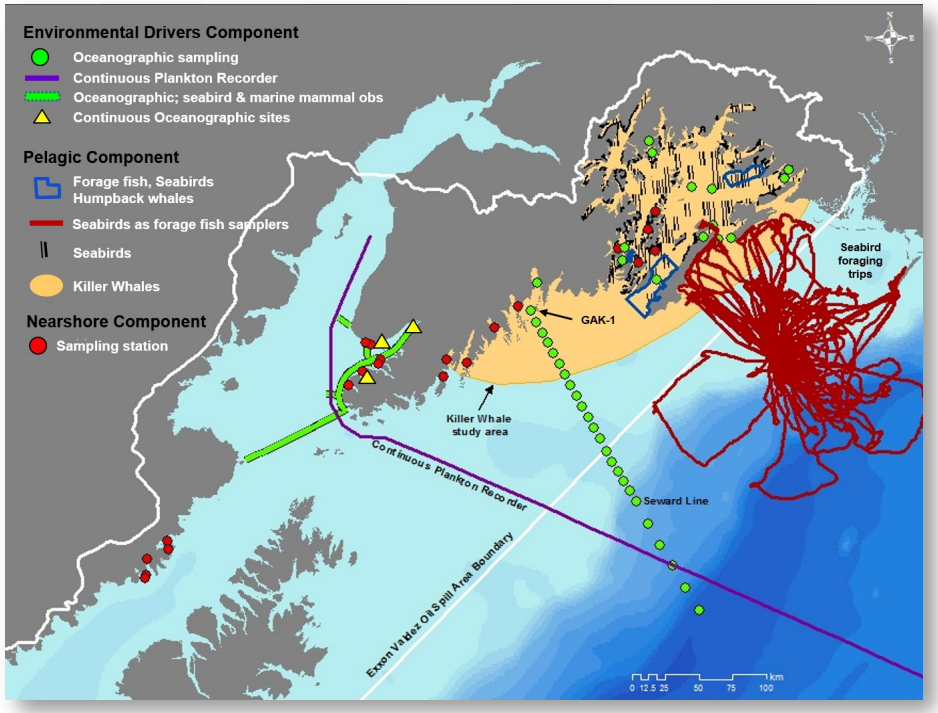




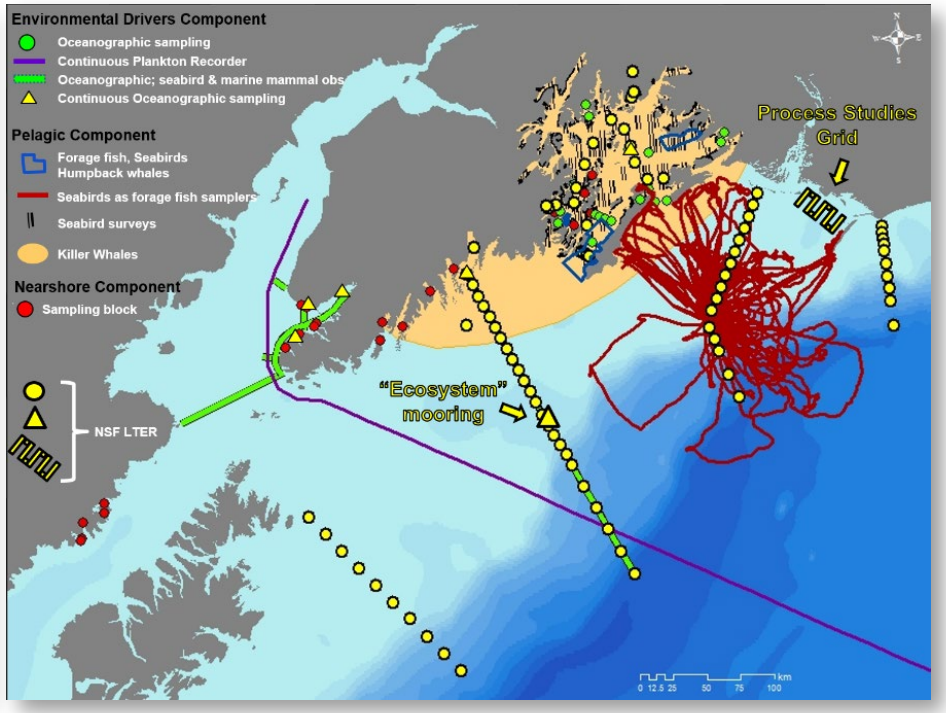





Monitoring "Footprint" for the Northern Gulf of Alaska

Gulf Watch Alaska



Combined GWA and LTER (NSF)



Northern GOA Long-Term Ecological Research (LTER)

GWA Datasets are Publicly Available Online

- Scientists have shared Research Workspace
- Datasets updated every year
  - through AOOS GOA Data Portal
  - within year of collection
- Datasets published to DataONE.org
  - doi copyright
  - globally discoverable
  - currently GWA has 45

Herring Research & Monitoring Long-Term Program

EVOSTC Sponsored Program

Scott Pegau
Program Lead

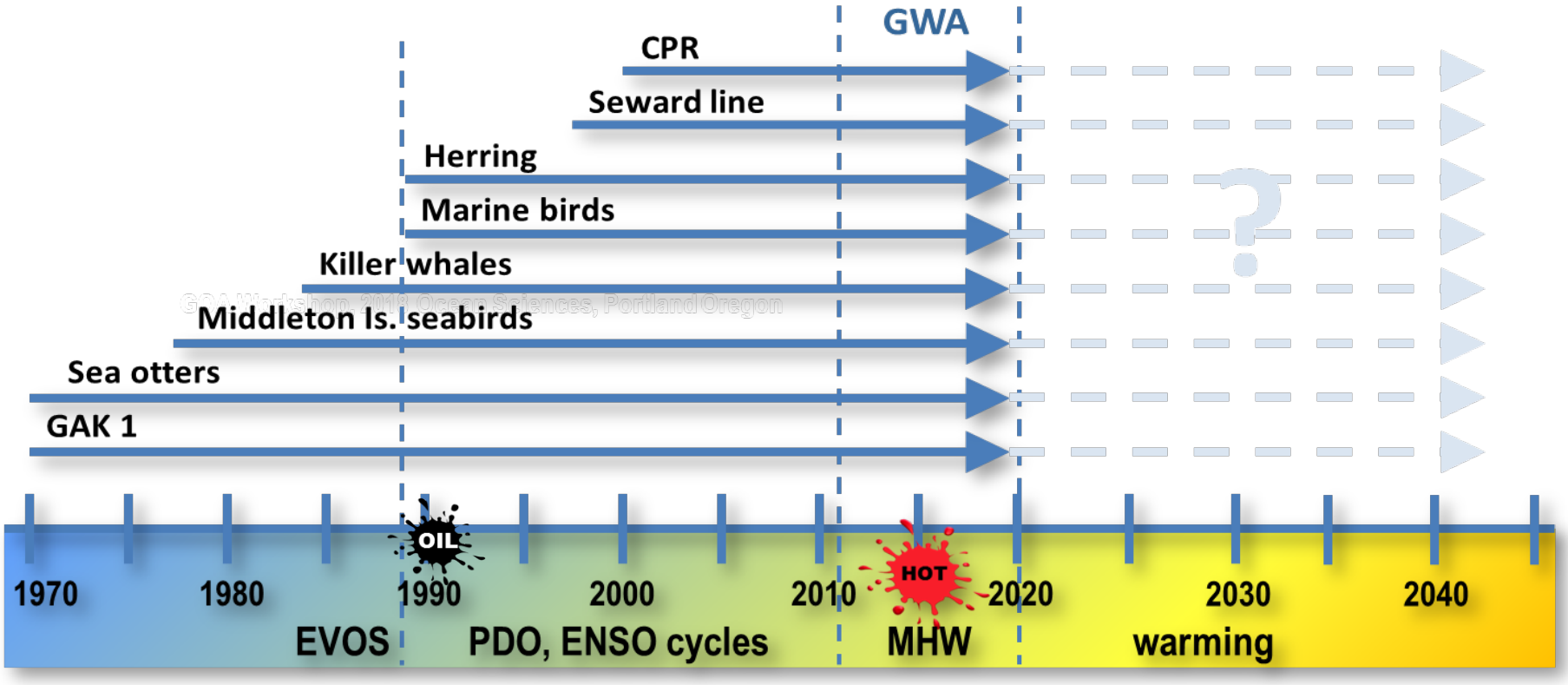
Program Projects

- Modeling (BASA)
- Aerial and age surveys
- Acoustic surveys
- Disease research
- Reproductive maturity
- Herring migration

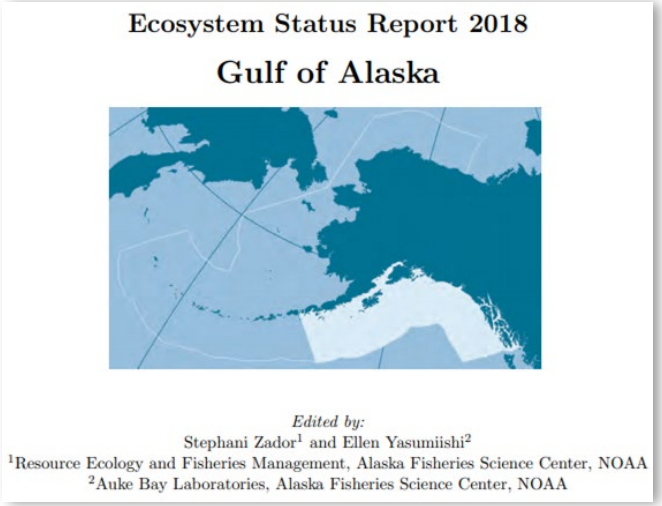
Humpback whale foraging on school of herring
Photo by Rich Brenner

Long-Term Big Picture: Legacy Datasets in NGOA

WE ARE SITUATED TO BETTER UNDERSTAND ECOSYSTEM CHANGE



Contributions to ESR & NPFMC



Ecosystem Status Report 2018

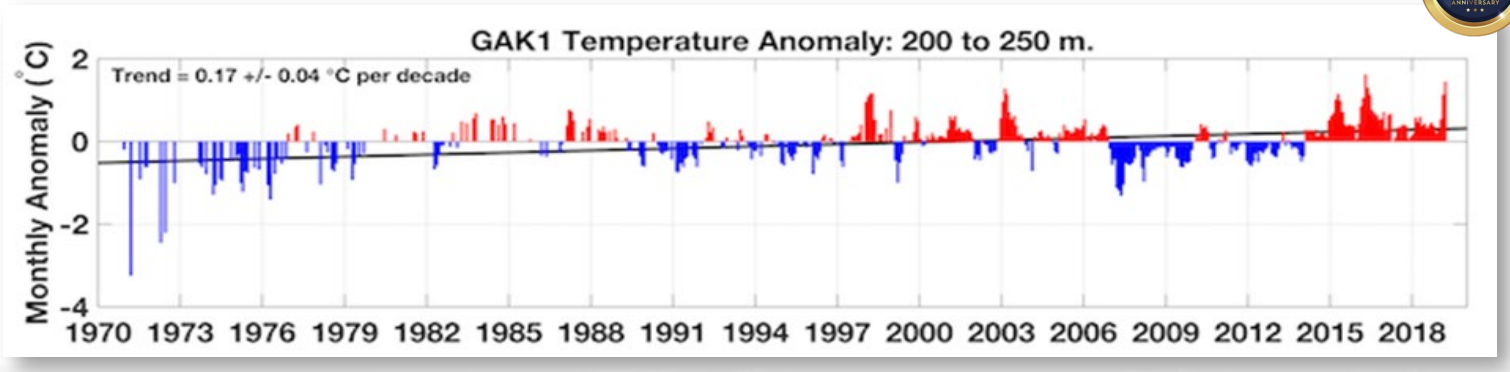
Gulf of Alaska

Edited by:

Stephani Zador[1] and Ellen Yasumiishi[2]
[1]Resource Ecology and Fisheries Management, Alaska Fisheries Science Center, NOAA
[2]Auke Bay Laboratories, Alaska Fisheries Science Center, NOAA

Annual Time Series

Environmental Drivers	11
Pelagic (Prey & Predators)	4
Nearshore Communities	4
Herring Research & Monitoring	3
Total	22



2019 GOA Indicators - what are we seeing?

HOT OFF THE PRESS

"2019 looks a lot like the onset of the blob in 2014"

Environmental Drivers:

- **Water temps** = through August 2019 upper 250 m very warm
- **Plankton** = diatom abundance & copepod size index increased

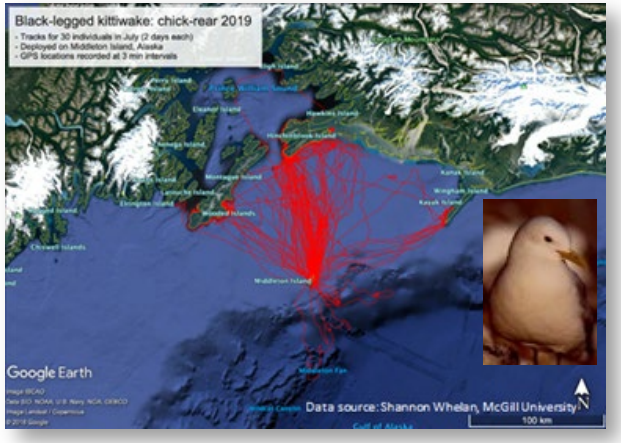
Pelagic Ecosystem:

- **Key prey =** capelin, sand lance, herring are still low (since 2014)
- **Predators** = offshore species foraging in the nearshore e.g., fin whales, shearwaters (like 2014)
- Whales in PWS targeted elevated krill abundance lack of primary prey (adult herring)

Nearshore Ecosystem:

- **Predators** = some populations still low - since 2015 e.g. sea stars
- **Prey** = some prey populations have increased e.g. mussels

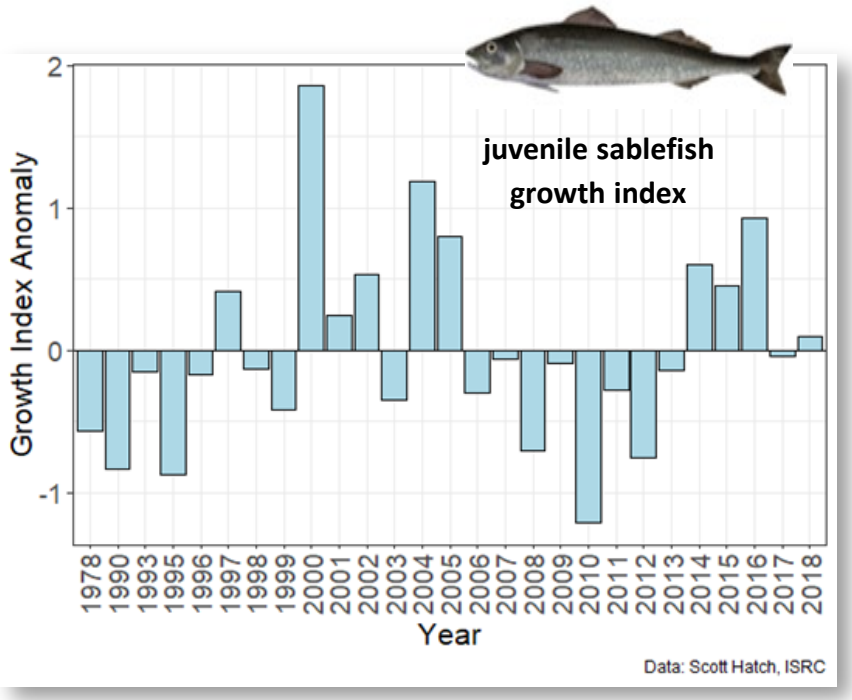
Seabirds from Middleton Is. foraging in the nearshore, July 2019



Abundant young sablefish eating juvenile herring in PWS, Sept. 2019

Potential Contributions to NPFMC: Stock Assessments & ESPs

Early Life Stages of Commercially Important Species



Additional metrics for Pollock & Pacific Cod

- Pre-winter condition index (e.g., size & energy density)
- Abundance in coastal habitats

Currently evaluating for contributions to:

3. Assessment of the Sablefish stock in Alaska

by

Dana H. Hanselman, Cara J. Rodgveller, Kari H. Fenske,
S. Kalei Shotwell, Katy B. Echave, Patrick W. Malecha, and Chris R. Lunsford

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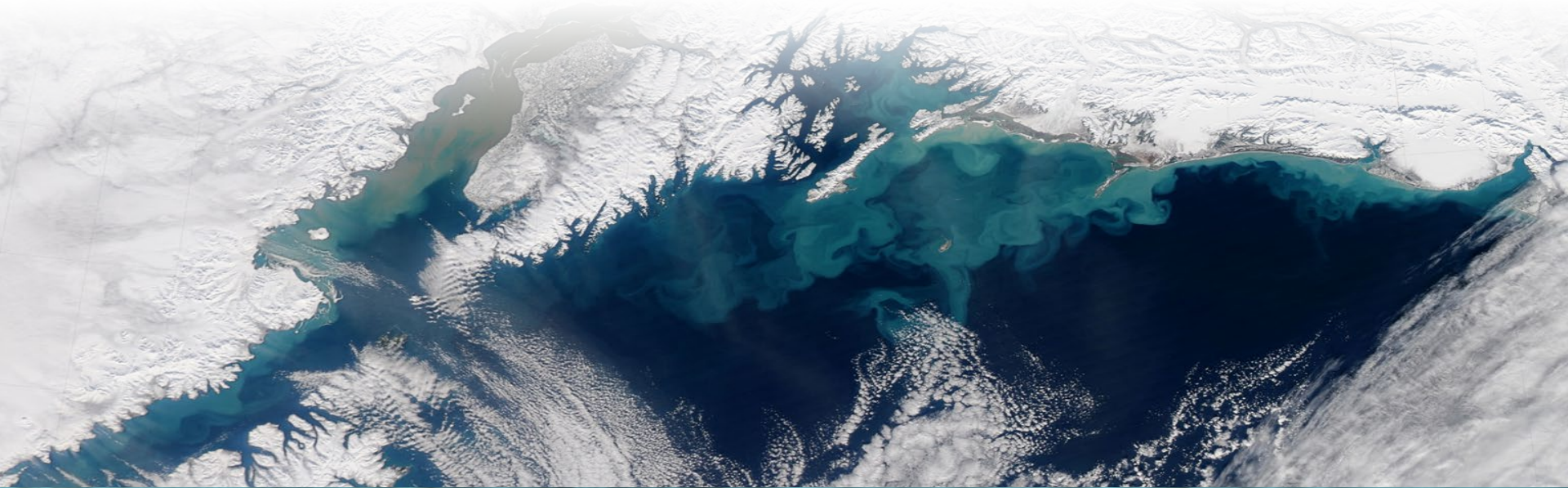
Appendix 3C. Ecosystem and Socioeconomic Profile of the Sablefish stock in Alaska

S. Kalei Shotwell, Ben Fissel, and Dana H. Hanselman

November 2018

Looking Forward

- ***Platforms of opportunity*** **-** for sampling all trophic levels from intertidal to offshore annually
- ***Highly Integrated*** **-** with other research programs in GOA for long-term monitoring and process studies
- ***Collaborative & Adaptive*** **-** currently developing work plans and seeking input for FY22-FY26



Thank You