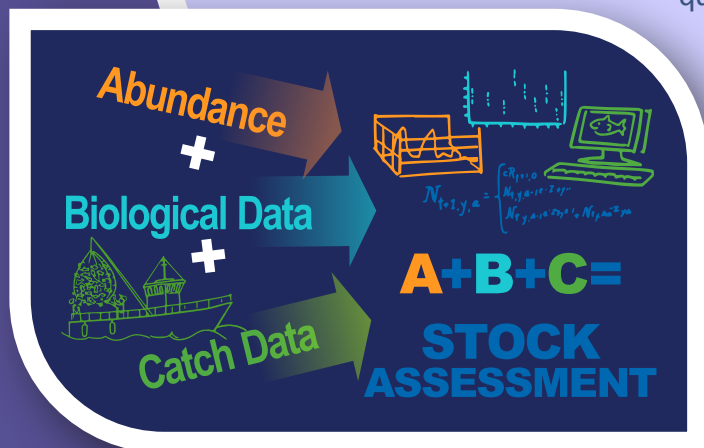


The [Alaska Fisheries Science Center's Resource Ecology and Fisheries Management Division](#) produces groundfish and crab stock assessments annually. These assessments are

used by resource managers at the North Pacific Fishery Management Council to set catch

quotas and other management measures for commercial and recreational fisheries in Alaska. We also

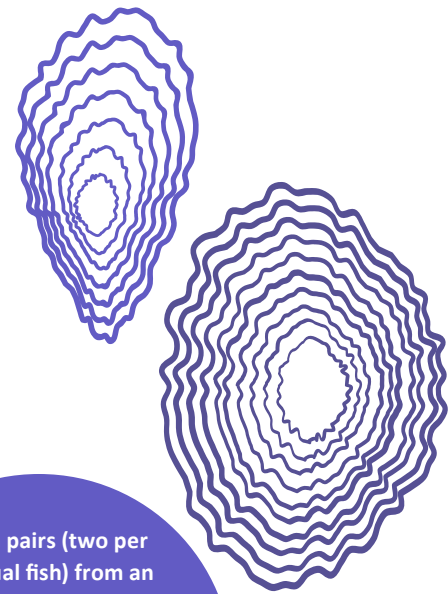
produce economic and ecosystem assessments used to inform fisheries management decisions.



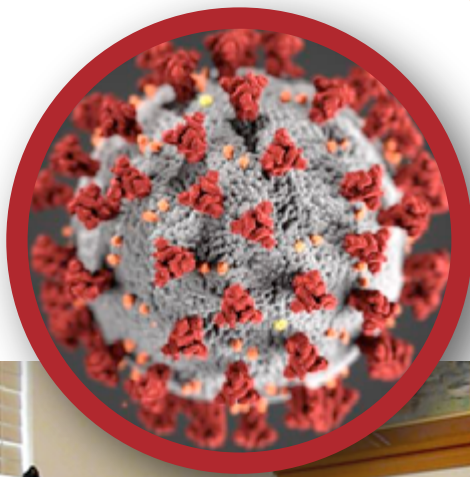
2020 Highlights



Near-infrared spectrometer, an otolith (ear bone) ready for analysis is positioned and a gold-coated reflector stamp covers the sample during scanning.



Otolith pairs (two per individual fish) from an assortment of Bering Sea fish species. Walleye pollock (top left) and Pacific cod (top right) are among the species analyzed with NIRS as part of the current study. Note: otolith sizes are not on a relative scale.

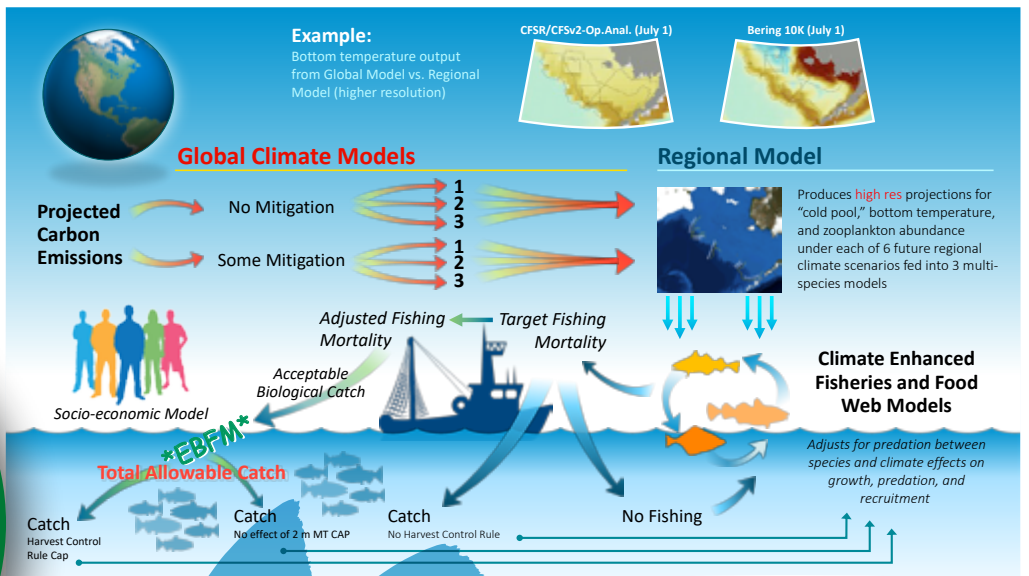


Mobilizing Home-Based Age and Growth Mini-Labs

In response to the difficulties imposed by the 2020 pandemic, the [Age and Growth Program](#) mobilized [home-based mini-labs](#) to age fish. The team was able to generate 32,000 age estimates for stock assessments, comparable to what they are able to each year in the laboratory.

Developing the Use of Fourier Transform Near-Infrared Spectroscopy to Rapidly Estimate Fish Age from Otoliths

Program Manager Thomas Helser, together with Age and Growth Program scientists, are leading a 5-year NOAA Fisheries Strategic Initiative to advance NOAA Fisheries' use of [Fourier transform near-infrared spectroscopy](#) (NIRS). This innovative technology allows scientists to rapidly estimate fish age from otoliths, saving valuable time and resources. In 2020 the team published three more journal articles on the use of this technology.

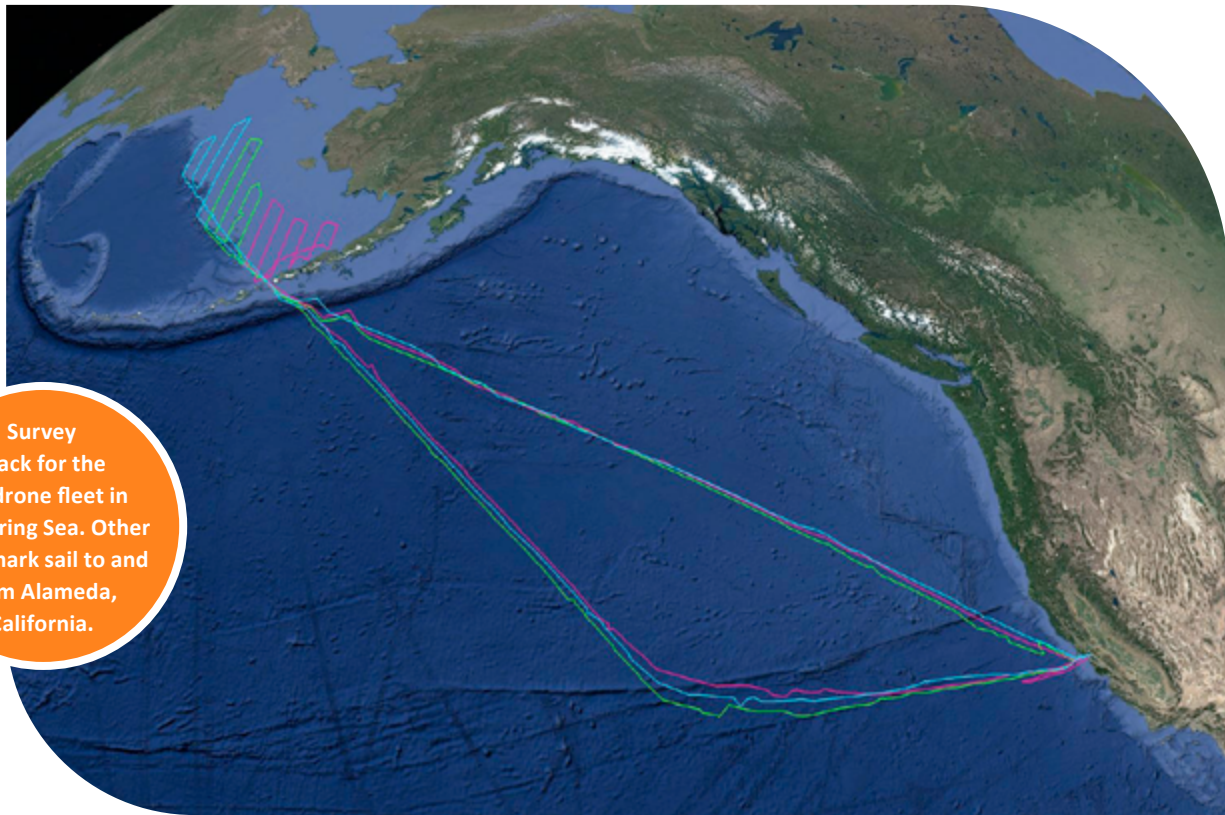


Assessing Major Impacts of COVID-19 on Our Stakeholders in the North Pacific Fishing Industry and Fishing Communities

[Economic and Social Sciences Research Program](#) staff met with the seafood industry to develop several rounds of COVID-19 fisheries impact snapshots for NOAA Fisheries leadership. We also assisted in the distribution of \$50 million in CARES Act funding for Alaska fishers, and developed new methods to increase more near-real time revenue estimates for 2020 to the [North Pacific Fishery Management Council](#) and fisheries participants. Additionally, Ben Fissel co-led the NOAA Fisheries Seafood Trade Working Group. This group was instrumental in understanding international trade flows of seafood during a period of massive uncertainty in the markets. It was also fundamental in supporting the USDA's Seafood Tariff Relief Program from which Alaska is expected to receive nearly \$350 million of the total \$530 million in funds available.

Completing the First Phase of the Alaska Climate Integrated Modeling (ACLIM) project

Our [Resource Ecology and Ecosystem Modeling](#), [Status of Stocks Multispecies Assessment](#), and [Economic and Social Science](#) programs worked in partnership with NOAA's Pacific Marine Environmental Laboratory and the University of Washington are advancing climate modeling regionally. The goal of [ACLIM](#) is to evaluate how effective different fisheries management approaches may be for building resilience in fisheries and fishing communities in the face of potential climate-driven change. In Phase 1 of the project, climate projections from three global earth system models were used to simulate different climate-mitigation scenarios. These projections were downscaled to drive a regional oceanographic/plankton model for the Bering Sea through the year 2080. Results were then used through multiple stock assessment, multispecies, and ecosystem models to [evaluate management response to future climate scenarios](#). The results of Phase one have been published in multiple peer-reviewed publications and summarized in our article, [Ecosystem-based fisheries management forestalls climate-driven collapse](#).



Survey track for the saildrone fleet in the Bering Sea. Other lines mark sail to and from Alameda, California.

Accomplishing 29 Groundfish Stock Assessments and 2 Crab Assessments in a Year of Unprecedented Challenges

The [Status of Stocks and Multispecies Assessment Program](#) successfully produced critical data for fisheries management while working remotely and dealing with the cancellation of several key research surveys in 2020. Scientist Grant Thompson set a new bar for stock assessment excellence. He produced a multi-model ensemble that addressed spatial movement of Pacific cod, time-varying catchability, and fishery catch per unit effort. This broke new ground technically and analytically, and provided comprehensive decision support information for the [North Pacific Fishery Management Council](#). Scientist Jim Ianelli, in partnership with the Alaska Fisheries Science Center's [Midwater Assessment and Conservation Engineering Program](#), was able to propose, deploy, and incorporate acoustic biomass estimates derived from an [unmanned surface vehicle into the Eastern Bering Sea pollock assessment](#). This provided critical information that would have otherwise been lost due to cancellation of the Midwater Assessment and Conservation Engineering Program acoustic surveys.



The saildrone fleet leaving Alameda, California in May, 2020, headed for the Eastern Bering Sea.



Gina Raimondo
Acting Head of Agency
for Commerce

Benjamin Friedman
Deputy Under Secretary for Operations,
performing the duties of Under Secretary of
Commerce for Oceans and Atmosphere

Paul Doremus
Assistant Administrator
for Fisheries (Acting)

National Marine Fisheries Service
Alaska Fisheries Science Center
7600 Sand Point Way N.E., Seattle, WA 98115-6349

www.fisheries.noaa.gov