



NOAA FISHERIES

Alaska Fisheries Science Center

Resource Assessment and Conservation Engineering

Alaska Fisheries Science Center: Recruitment Processes Program

What We Do

The [Recruitment Processes Program](#) studies marine ecosystems in the [Bering Sea](#), [Gulf of Alaska](#), and Chukchi Sea. We monitor abundances and distributions of fish larvae and their [zooplankton](#) prey to understand environmental influences on fish growth and development. We also look at what influences [larval fish](#) survival to the age of "[recruitment](#)." Recruitment for commercially fished species occurs when they grow to the size retained by nets used in commercial fishing. For each species or [ecosystem](#) that we study, we try to understand factors that cause, or contribute to, population fluctuations and fisheries catches.



Top: Scientists retrieving bongo nets used to gather specimens.

Middle: Closeup view of zooplankton.

Bottom: Scientist using a microscope to examine specimens.



Scientists sort and measure fish and jellyfish.



2024 Accomplishments

- Spent >100 days at sea to conduct five surveys between May and September that assessed ecosystem conditions in the Bering and Chukchi Seas in support of NOAA's Ecosystem Based Fisheries Management.
 - Measured ocean conditions (temperature, salinity, oxygen, nutrients) and biomass of phytoplankton, zooplankton, and fish larvae; several surveys also measured abundances of juvenile fish, crabs, and clams.
 - Data adds to long time series used to understand environmental change on Alaska Marine Ecosystems and their effects on commercially fished species.
 - Provided a first look at abundances of pollock larvae in spring and the conditions they experienced during their early life cycle important for informing understanding of future fishable stock size.
 - In spring FY24 unusually high numbers of larvae were collected in the southeastern Bering Sea compared to previous years.
 - Juvenile fish abundances and their physiological condition at the end of summer provided information on how well they grew through summer and their potential survival through the winter.
- Contributed to numerous publications and presentations at national and international meetings, with several winning awards. A significant finding by staff scientists was that water temperatures paired with larval fish data can be used to improve pollock stock assessments (Rogers et al. 2024 "Climate-driven changes in the timing of spawning and the availability of walleye pollock to assessment surveys in the Gulf of Alaska").
- A postdoc working in the Northern Bering and Chukchi Seas found shifts towards smaller planktonic organisms during warmer years compared to colder years, which could decrease the efficiency of the food chain and impact fisheries.
- Scientists completed experiments that assessed the effect of increasing water temperatures on survival of sablefish (black cod) larvae.
 - Found that when prey abundances are low, higher temperatures increase the likelihood of starvation in very young fish. This has important implications for this species as water temperatures and zooplankton abundances change in the Bering Sea.



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2025 Preview

- Five surveys are planned for May to September 2025 to assess ecosystem conditions in the Gulf of Alaska, Bering and Chukchi Seas.
 - Data will be included in annual Ecosystem Status Reports from each region to describe the environment and its capacity to support strong growth and survival of commercial fishes.
- Field trials are planned to test advanced acoustic and imaging technologies being designed to improve the efficiency of plankton and fisheries surveys.
- Several studies are underway that use field-collected fish larvae to determine the influence of temperature and prey availability on spawn timing and growth.
- Data will support fish stock assessments and fisheries management.