



*The Kasitsna Bay Laboratory's mission is to improve our understanding of how subarctic coastal ecosystems respond to changing conditions, in support of coastal management*



## Overview

The Kasitsna Bay Laboratory is the Alaska field station of the Center for Coastal Fisheries and Habitat Research, part of the National Centers for Coastal Ocean Science (NCCOS) of NOAA's National Ocean Service. NCCOS partners with the University of Alaska Fairbanks to conduct research and education activities at the laboratory, working with the UAF School of Fisheries and Ocean Sciences and the UAF-NOAA West Coast and Polar Regions Undersea Research Center. As part of this partnership, UAF operates a cold water scientific dive training program, runs graduate and undergraduate field science classes, and supports graduate and faculty research at the laboratory.

Laboratory research and education activities are coordinated with regional partners, including the Kachemak Bay National Estuarine Research Reserve and the Kachemak Bay Campus of the Kenai Peninsula College of the University of Alaska Anchorage. The Kasitsna Bay Laboratory is committed to research, education and outreach collaborations with local tribal and community organizations, as well as the public schools. The laboratory also supports visiting researchers from other NOAA offices, federal and state agencies and universities.

## Location

The Kasitsna Bay Laboratory is located on the Kenai Peninsula in southcentral Alaska, 200 miles southwest of Anchorage, on the south side of Kachemak Bay in lower Cook Inlet. The laboratory is off the main Alaska highway system, but is accessible by both water and air taxi from the city of Homer, and is connected by road to the city of Seldovia, located 9 miles away.



The Cook Inlet region has one of the highest tidal ranges in North America, and is surrounded by mountains, glaciers and active volcanoes. The diverse intertidal and marine habitats of Kachemak Bay, from kelp forests and rocky fjord substrates to seagrass beds on extensive mudflats, provide a natural laboratory for subarctic marine research and education.

Coastal Alaska ecosystems face accelerating climate change, increasing coastal development and resource use, and ever-present threats from extreme events such as severe storms, tsunamis and harmful algal blooms. It is increasingly important to understand and predict the impact of these changes on coastal environments and communities.

## Facilities

- \$12.5 million in new construction and renovations, including a new pier and dock
- New wet/dry laboratory building with a 1,400 ft<sup>2</sup> flowing seawater laboratory, classroom, and walk-in cold storage area
- Seven dry laboratory areas, with hoods, chemical storage and refrigerators
- Year-round cold water diving supported by a new SCUBA dive locker and air compression system
- Housing for up to 48 people, with kitchens, laundry, and internet access
- New machine shop capability, to support research and facility operations.





## Education

The Kasitsna Bay Laboratory has a long tradition of hosting marine science classes for graduate, undergraduate, and K-12 students, as well as for teacher training. Some courses held at the laboratory include:

- **Scientific Diving**, Spring Break
- **Cold Water Diving**, August
- **Marine Invertebrates, Vertebrates of Kachemak Bay, Climate Change in Alaska Estuaries**, June

## Research

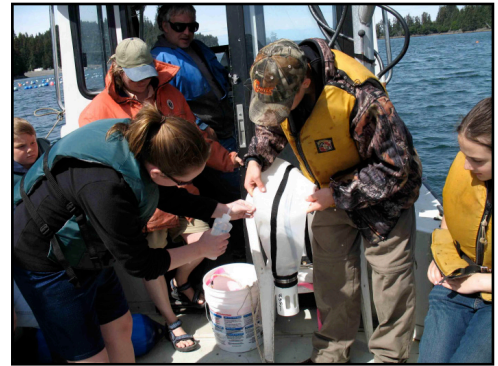
KBL facilitates coastal field studies with close proximity to diverse intertidal and subtidal estuarine habitats, as well as access to Cook Inlet and the Gulf of Alaska. Field studies are complemented by the

capacity to conduct experiments under controlled conditions in the flowing seawater and dry laboratory facilities.

The laboratory hosts visiting researchers for laboratory and field studies ranging from days to months in duration, and serves as a testbed for applications of emerging underwater technology to ecosystem assessment.

The overall research focus is on understanding the response of subarctic coastal and estuarine ecosystems to change – particularly climate variability, human impacts and extreme events. The ultimate goal is to provide federal, state, local and tribal agencies with the information, tools and training needed for scientifically-based resource management, using an integrated approach to understanding the ecosystem.

Recent laboratory research topics have included fisheries, mariculture, coastal monitoring, marine biodiversity, trophic dynamics, cold water diving, and oil spill response. Some current projects at the lab include:



- Role of grazers in the recolonization of hard bottom communities
- Essential larval and juvenile fish habitat in nearshore waters
- Habitat use by kelp associated crab populations
- Dynamics of chemical defenses in four Kachemak Bay kelp species as a response to gastropod grazing patterns
- Characterization and modeling of seagrass resources
- Environmental contamination, sediment toxicity, and associated adverse biological effects

## For more information:

For more information on the Kasitsna Bay Laboratory, please contact Kris Holderied, NOAA Kasitsna Bay Laboratory director ([kris.holderied@noaa.gov](mailto:kris.holderied@noaa.gov)) or David Christie, the UAF Kasitsna Bay Laboratory director and director of the West Coast and Polar Regions Undersea Research Center ([dchristie@guru.uaf.edu](mailto:dchristie@guru.uaf.edu)).

On the web: [www.westnurc.uaf.edu/kbay.html](http://www.westnurc.uaf.edu/kbay.html)

National Centers for Coastal Ocean Science  
Kasitsna Bay Laboratory  
2181 Kachemak Drive, Homer, AK 99603  
Phone: (907) 235-2400  
E-mail: [kris.holderied@noaa.gov](mailto:kris.holderied@noaa.gov)



University of Alaska Fairbanks  
West Coast & Polar Regions Undersea Research Center  
P.O. Box 757220, Fairbanks, AK 99775  
Phone: (907) 474-5870  
E-mail: [westnurc@guru.uaf.edu](mailto:westnurc@guru.uaf.edu)