ALASKA COASTAL RAINFOREST CENTER

Linking LAND, SEA, and SOCIETY

THROUGH INTEGRATIVE COASTAL RESEARCH

The Alaska Coastal Rainforest Center builds partnerships and catalyzes collaborative ecological, economic, and social research in the north Pacific coastal temperate rainforest to support vibrant and resilient communities and ecosystems.

The Alaska Coastal Rainforest Center...

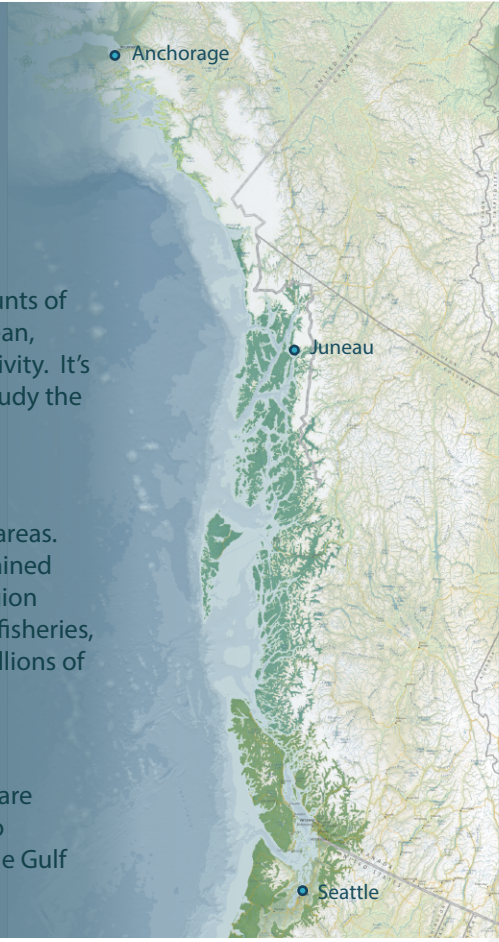
THRIVES ON INTERDISCIPLINARY RESEARCH. Our network of scientists collaborates across ecological, social, and political boundaries to answer wide-ranging questions about ecosystem function, climate adaptation, and resource management for coastal communities.

SUPPORTS AND INSPIRES YOUNG SCIENTISTS. Through our unique agency-university partnership, we provide research and training opportunities for undergraduate, graduate, and postdoctoral scholars to learn and work in one of the most diverse and fascinating ecoregions in the world.

MAKES CONNECTIONS FROM LAND TO SEA. Water, carbon, and nutrients move between marine and terrestrial ecosystems in the north Pacific coastal temperate rainforest at astounding rates. We study those interactions and the impact of a warming climate on ecosystems and sustainable economies in southeast Alaska.

CREATES ACTIONABLE SCIENCE PRODUCTS. By working with communities, resource managers, tribal organizations, and NGOs, we create usable science products that aid in decision making around resource management, climate adaptation, and infrastructure.

THE NORTH PACIFIC COASTAL TEMPERATE RAINFOREST



TEMPERATE RAINFOREST

Spanning 4,000 kilometers in a narrow coastal corridor from southcentral Alaska to northern California, the Pacific coastal temperate rainforest (PCTR) represents the largest remaining area of coastal temperate rainforest in the world.

LAND TO OCEAN

The streams of the PCTR carry massive amounts of freshwater and nutrients into the Pacific Ocean, driving coastal currents and marine productivity. It's an incredible living laboratory in which to study the connections between land to sea.

RAINFOREST CLIMATE

Annual rain and snowfall in this region rival the wettest places on Earth. Some areas of the PCTR receive nearly 6.5 meters each year. Combined with a coastal climate, this fuels one of the richest carbon forests on the planet.

COASTAL COMMUNITIES

In Alaska, over 80% of people live in coastal areas. The natural resources of the PCTR have sustained people for thousands of years. Today this region supports some of the world's most valuable fisheries, and unparalleled natural beauty draws in millions of tourists each year.

ECOSYSTEM CHANGE

Climate change is pushing the PCTR ecosystem across a temperature threshold—from snow to rain-dominated winters—that impacts everything from forest health to recreation. Already, changes are taking hold: the rates of glacial melt in the PCTR are among the highest on Earth and are projected to increase; yellow-cedar trees are dying across hundreds of thousands of hectares; and the waters of the Gulf of Alaska are becoming more acidic.

ACRC Research

Photo: Mark Rainery

COASTAL LINKAGES

ACRC is part of a network of scientists working across borders and disciplines to understand the processes that connect land and the highly productive coastal oceans along the PCTR, and how they are changing.

- **Glacial Landscapes:** We are part of a 5-year regional effort to study the impacts of glacier runoff on nearshore marine ecosystems.

LAND ECOSYSTEMS

- **Yellow-cedar Decline:** We are investigating the ecological effects of yellow-cedar decline, and the market potential of dead tree stands to provide needed economic opportunities to local timber mills.
- **Alpine Monitoring:** ACRC installed the first long-term alpine vegetation monitoring station in southeast Alaska as part of the Global Observation Research Initiative in Alpine Environments.

GLACIER DYNAMICS

- **Outburst Floods:** ACRC supports ongoing work in Suicide Basin near Juneau to develop new methods to understand and predict glacial outburst floods.

Photo: Fritz Hoffman

STREAM DYNAMICS

- **Stream Flow:** ACRC monitors stream flow and develops storm event models to aid in infrastructure planning such as culvert design and hydropower development.
- **Stream Ecology:** We study stream chemistry and food web dynamics to assess water quality and inform fisheries management.

OCEAN RESOURCES

- **Ocean Acidification:** ACRC is part of a collaborative effort with the Alaska Marine Highway System to monitor ocean acidification in southeast Alaska and British Columbia.
- **Shellfish Toxicity:** ACRC is working with tribal partners to understand the drivers of the harmful algal blooms that result in paralytic shellfish toxin events.

AK CASC Alaska Climate Adaptation Science Center

UAF University of Alaska Fairbanks

ACRC.ALASKA.EDU
@AK_COASTRAINCTR

Juneau Forestry Sciences Lab
11175 Auke Lake Way, Juneau AK 99801

Allison Bidlack, PhD, Director
albidlack@alaska.edu

UNIVERSITY of ALASKA SOUTHEAST