Our state faces major challenges. Declining resource revenues. Shifting state priorities and populations. A rapidly changing Northern environment and ecosystems as Earth’s climate wars. There’s no road map for these issues before us. Knowledge will point the way forward.

To address our challenges, we need big ideas, complex & collaborative thinking, and brave imagination. Alaskans working with Alaskans to move all of us towards a better future — that’s UNIVERSITY OF ALASKA RESEARCH.

What’s ahead for

**SOUTHEAST**

**WHAT’S AHEAD IN ...**

**Food Security**
For centuries, Alaskans have relied on subsistence activities to obtain food. Natural and economic conditions for Alaska’s nearly $6 billion a year fisheries industry are changing dramatically. We help ensure Alaskans’ access to food that will meet their dietary needs, and that Alaska remains the nation’s best and most sustainable source of seafood. We’re also developing new agricultural crops and practices for here in Alaska, to help feed Alaskans.

**Health and Safety**
The University of Alaska coordinates health research, information and training by providing support for addressing the health needs of Alaskans. UA represents researchers, providers and educators dedicated to our population’s safe and healthy lives.

**Jobs**
UA researchers directly provide jobs and essential resources to thousands of Alaskans across the state and have been at the forefront of public policy research in Alaska for 50 years. We study virtually all the major public policy issues Alaska faces in order to help Alaskans better understand the state’s changing economy and population — and the challenges and opportunities that come with change.

**Lands and Waterways**
UA researchers monitor change in Alaska’s ecosystems and experiment to understand, predict and respond to the effects of environmental change on Alaska and Arctic landscapes.

**Quality of Life**
We provide natural and cultural resource managers with the tools they need to develop and apply management strategies that address the impacts of rapid Northern change.

**Resource Development**
Much of our research centers on topics associated with smart and continued development of Alaska’s natural resources. Partnerships leverage UA scientific expertise to collect and disseminate environmental information needed for oil, gas and marine mineral decisions. We strengthen relationships between government and industry by addressing information needs and studying environmental and resource issues of broad mutual interest.

**Roads, Bridges and the Built Environment**
Thawing permafrost, flooding and coastal erosion are worsening and damaging Alaska’s infrastructure. Alaska’s roads, bridges, airports, harbors, schools, military bases, post offices, fire stations, sanitation systems and power grid need attention and improvement. We help establish environmentally sustainable infrastructures while considering the life cycle of planning, design, construction, maintenance and preservation in a changing climate.

**Tourism**
From visitor use assessments for Alaska’s 24 national parks to efficiency improvements, weatherization and least-cost energy analyses, UA research works to identify the most urgent priorities and needs for the tourism industry and its benefits to the state. Analyzing public spending and revenues associated with continued expansion of the tourism industry in Alaska requires substantial public investments in infrastructure, marketing and other services.
Greater access — technologically and geographically — to Alaska and the North. Increasing interest in our stunning natural landscapes and marine environments. Best of all, our population’s bold outlooks and flexible personalities.

**University of Alaska Research** is the one entity best positioned to identify, understand, predict and communicate the circumstances faced by our state’s economy, industries and natural environment. Alaskans doing research at UA contribute to a better, more sustainable future for all of us.

**UA research generates over FOUR DOLLARS for every $1 in state university funding.**

This money stays in Alaska, multiplies across our economy and serves to develop smart, direct, inclusive solutions to Alaska’s complex short- and long-term challenges. **AK AHEAD** aims to showcase the widespread, positive and practical impacts that UA’s research work has on our state’s path forward.

**We are here to help.**

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**SOUTHEAST**

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**Climate Adaptation Planning in Southeast Alaska**

UA partners with NOAA’s Alaska Sea Grant, the Tlingit Haida I National Association to support ongoing adaptation approaches, including the Southeast Alaska Climate Adaptation Planning Summit in September 2016 (Ketchikan). Tribes have learned from each other about overcoming barriers to adaptation, impacts on subsistence and cultural resources, identifying climate adaptation strategies and drafting work plans for short-term adaptations.

**Addressing Yellow Cedar Decline**

We are informing forest managers and mill operators on the extent of the decline of this commercially and culturally valuable species. This includes future risk assessment, regeneration potential, and opportunities for salvage logging.

**Glacial Outburst Flood Monitoring**

UA researchers closely monitor the region’s Skaidee Basin and Mendenhall River, which have experienced dramatic outburst floods (or jökulhlaups) from the Mendenhall Glacier, affecting valley populations and infrastructure in Juneau. These monitoring efforts provide essential information to communities and partner agencies, and aid prediction, mitigation and preparation efforts.

**Where and When Do Landslides Occur?**

After the fatal 2015 Sitka landslide, researchers have been assessing risk from landslides that arise from changing Pacific storm patterns. As with wildfire, landslides represent a widespread disturbance pattern that’s experiencing shifts due to climate. UA is examining how these large-scale changes can affect capacities for ecosystem and community resilience.

**Making Knowledge Matter**

Local and traditional knowledge is being combined with scientific data to provide information for managing Alaska’s nearshore fisheries. Through interviews with resource users, UA is documenting knowledge from fishers in Southeast and Southcentral Alaska to assess long-term trends in abundance and body size for groundfish, salmon and crab species.

**What Are the Economic Effects of Alaska’s New Climate Conditions?**

UA is forecasting and assessing the nature and scope of climate change impacts on the Alaska economy into the next 30–50 years. We’re tackling these tough questions: What is known and unknown about the economic effects of Alaska’s changing climate? What additional research, data collection and information gathering are necessary to fill these information gaps?

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**Monitoring Ocean Acidification with Our Ferry Boats**

Nearshore ecosystems are often overlooked in acidification studies, even though these habitats are crucial in planning for mariculture operation, fisheries monitoring, harmful algal blooms and paralytic shellfish poisoning. In this new extensive ferry-based ocean chemistry monitoring project in North America, UA is providing unparalleled, broad, and long-term coverage of nearshore marine habitats from Bellingham, WA to Skeneye, AK.

**Responding to Big Shifts in Recreational Halibut Fishing**

Recreational fishing contributes approximately $1.4 billion per year to coastal communities in Alaska. UA is studying patterns of responses to regulatory, environmental, and socioeconomic changes in Alaska halibut and salmon fisheries over the last three decades. This will help managers and stakeholders better understand how future changes will affect the welfare of fishing communities in Southeast and Southcentral Alaska.

**Safer Mining Through Robotics**

UA promotes safe and effective mine rescue operations by developing unmanned ground vehicles and aircraft systems for mine rescue operations and safety training to improve Alaska’s underground mining operations.

**Building Better Marine Energy**

Our researchers at UAF are developing and supporting the Advanced Laboratory and Field Arrays for Marine Energy project to address critical needs for lowering the cost of river and ocean energy converters, and to advance hydrosatonic energy’s role in global renewable energy.

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**Lands and Waterways**

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**Energy’s role in global renewable energy.**

**Kimberly Strong. (UAF photo by Todd Paris)**

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