

*It takes a village....* The time-honored African proverb speaks of the importance of community. Some say it originated from the Nigerian Igbo culture and proverb "Ora na azu nwa," which means "it takes the community/village to raise a child."

Thousands of miles away in America's Arctic state, communities large and small make up the core of COSEE Alaska. The ocean science community, together with educators, Alaska Natives, rural coastal communities and informal educators all work together to raise children steeped in traditional knowledge and western ocean science during a time of dynamic climate change.

COSEE Alaska is settled in downtown Anchorage, the state's economic hub and one of Alaska's largest villages, with more than 23,000 Alaska Natives representing nearly a quarter of the statewide Alaska Native population. Satellite offices nestle in Seward and Fairbanks.

Even Alaska itself, more than twice the size of Texas, is in many ways a village of little more than half-a-million people in a state that touches more sea than all of the rest of this country's states combined.



Coastal communities here have existed for eons and harbor deep knowledge of human interactions with arctic environments. Five indigenous groups of Alaska Natives bring collectively thousands of years of place-based knowledge to an understanding of our planet's changes. Western "modern" science however, has only begun in the last 100 years to quantify the interactions of humans and the environment in Alaska.

COSEE Alaska seeks out elders and youth in these communities and rural school districts to bring this vast historical knowledge to the forefront of scientific awareness and to the broader public.

### **Why create a COSEE in Alaska given its relatively small and remote population of 660,000?**

Maps too often depict Alaska in the center of the Gulf of Mexico, far from its wild and remote marine ecosystems rich with undersea communities that are vitally important to this nation. Few outside Alaska know that Bering Sea fisheries provide nearly half of the wild-caught seafood consumed in this country. And these seas are some of the most sensitive ecosystems to a warming climate regime. Indeed, the polar bear – a major predator in Alaska – may soon be listed as an endangered species because of shrinking ice habitat in the Beaufort and Chukchi Seas. New Arctic maritime transportation corridors could become accessible within several decades as seasonal sea ice coverage declines. Alaskan glaciers and ice sheets are melting at an unparalleled rate. Fish populations are shifting their geographic distribution patterns in response to increased ocean temperatures, potentially driving fishing fleets to new and sensitive areas. Alaskan coastal communities are directly experiencing the impact of a warming climate with more intense fall storms, increased coastal erosion, and instability from melting permafrost, all of which are beginning to shift community behavior patterns.

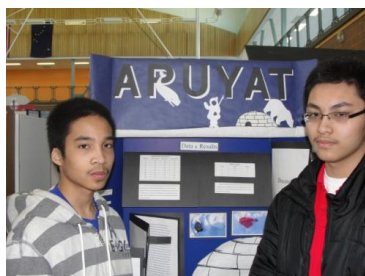
Unique to Alaska is the level of interaction with and dependence upon coastal fish, seabirds, marine mammals, and marine vegetation experienced by residents of coastal and river communities. Eighty percent of Alaskans live on the coast and in some communities in Western Alaska, more than 600 pounds per person of subsistence-harvested animals and plants are consumed annually. Daily lives of Alaskans are impacted by weather, and as a result, traditional and local knowledge of natural cycles are strong in rural Alaskans.



COSEE Alaska joined the broader national COSEE community in August 2008 as a regional and thematic center, forging a partnership among the Alaska Ocean Observing System, University of Alaska Fairbanks School of Fisheries and Ocean Sciences, Alaska Sea Grant, Alaska SeaLife Center, the University of Alaska Fairbanks Center for Cross Cultural Studies and the Anchorage School District. Leaders in the business community, government agencies, nonprofits and coastal communities embraced the new COSEE and became a COSEE Alaska Advisory Council to guide and strategize partnerships with other communities. Dr. George Matsumoto of COSEE's National Advisory Council took the fledgling center under his wing, engaging in signature programs and facilitating workshops.

Through coastal ocean science fairs and communicating ocean science workshops at Alaska's major science symposia, COSEE Alaska not only provides to the public the awareness of how climate change is already impacting the U.S. Arctic, but also brings back to coastal communities information on the global attempts to study and mitigate the impacts of change.

In villages throughout coastal Alaska, COSEE Alaska brings together elders and scientists, who work side-by-side in mentoring students and judging ocean science fair projects, weighing both cultural relevance and scientific merit.



A community of teachers who've gone to sea with researchers joined forces with the ocean scientists in a Bering Sea professional development workshop co-hosted by COSEE, the North Pacific Research Board, the EARTH Workshop and the Arctic Research Consortium of Alaska's PolarTREC program. They created, a rich and diverse Bering Sea Ecosystem Collection for a national educational audiences that lives online at the website of the ARCUS program at <http://www.polar-trec.com/collections/bering-sea-ecosystem>.

At the graduate student level, COSEE Alaska piloted the COSIA course developed by COSEE California at the University of Alaska Fairbanks, adding traditional knowledge. As part of the course, instructors shared videos from the *Faces of Climate Change* collection, produced by COSEE Alaska with the Alaska Sea Grant Program, Alaska Ocean Observing System and Alaska Marine Conservation Council. These compelling short videos showcase the dramatic changes in Alaska's marine ecosystems through interviews with scientists and Alaska Natives, and live on the virtual community of the COSEE Alaska website.



A greater community gathering occurs each January at the week-long Alaska Marine Science Symposium, where more than 1,000 scientists share their research in Alaska's seas with educators, community members and media. During the event, COSEE Alaska co-sponsors a Communicating Ocean Science Workshop, linking ocean scientists with educators and journalists to showcase best practices in outreach and in communicating science with diverse audiences. Growing out of these annual workshops, a virtual community sprang to life, known as SEANET, or Scientists and Educators of Alaska Network, found at <http://oceanseanet.ning.com>.

### **Significant Contributions – For documents, websites and evidence of COSEE-Alaska impact**

**Alaska Marine Science Symposium—Communicating Ocean Science Workshop** is a forum at the Alaska Marine Sciences Symposium for ocean scientists, educators, journalists and members of coastal

Alaska communities to share education and outreach strategies and practices.

**Link:** <http://www.coseealaska.net/resources/coseepublications/>

**Ocean Science Fairs for Coastal Communities** help students focus on integrating traditional ecological knowledge with western ocean science understandings with posters that are judged by both ocean scientists and by Alaska Native elders for both scientific rigor and cultural relevance.

**Links:**

<http://www.ankn.uaf.edu/publications/> (see "Alaska Native Education: Views From Within" and "Sharing Our Pathways: Native Perspectives on Education in Alaska," both edited by Ray Barnhardt and Angayuqaq Oscar Kawagley)

<http://www.coseealaska.net/files/alaska/COSEE Manual for Ocean Science Fairs, Science Projects, and Camps.pdf> (Use Firefox or Internet Explorer Browsers)

**SEANET**, organized by COSEE Alaska, is a self-governed, informal network of scientists, educators and other people involved in communicating about research in Alaska's seas.

**Links:** <http://www.coseealaska.net/seanet/> and <http://oceanseanet.ning.com>

### **Faces of Climate Change Videos**

COSEE Alaska partnered with Alaska Sea Grant and Alaska Marine Conservation Council to develop a series of videos weaving together interviews with Alaska Natives and western scientists to help educators and the general public better understand climate change and the corresponding impact on the peoples of Alaska. Current titles include: 1) Introduction to Climate Change in Alaska's Seas; 2) Disappearing Sea Ice; and 3) Life on the Ice. **Website:**<http://vimeo.com/19581877>

**Sound Predictions 2009 Collaboration** was a multi-agency field experiment in Prince William Sound led by the Alaska Ocean Observing System (AOOS), and served as the perfect opportunity for COSEE-Alaska to increase public and K-12 audiences' awareness about ocean science research. Outcomes included podcasts, lesson plans for educators and videos.

**Links:**

<http://coseenow.net/podcast/2009/09/prince1/>  
<http://coseenow.net/podcast/2009/10/prince2/>  
<http://www.youtube.com/watch?v=OpQngP9HmKo>  
<http://www.youtube.com/watch?v=RkGs4GQMW7Y>  
<http://www.youtube.com/watch?v=tVFwxca2Xlk>  
<http://www.youtube.com/watch?v=e4CRGHRErFs>  
<http://www.youtube.com/watch?v=Q3n4gPwFQ9A>  
<http://www.youtube.com/watch?v=nIsAPd118pw>  
<http://www.youtube.com/watch?v=tVFwxca2Xlk>  
<http://www.youtube.com/watch?v=S1PjROxsQ4c>  
<http://www.youtube.com/watch?v=8-Jqk9bSgw4>  
<http://www.aos.org/>