

Brought to you by



# Coastal Communities Forum

## November 3-5, 2021

### Conference Program

Produced in partnership with:



and funding support from the BIA Tribal Climate Resilience Program.



## About the Conference

**Welcome to the 2021 Coastal Communities Forum!** This event will facilitate knowledge sharing among local, regional, statewide and national partners working on climate change research and action plans, and climate adaptation planning. Presentations and discussions will support tribes to integrate local and traditional knowledge and western science in developing and maintaining Climate Adaptation Plans, as well as to synthesize available climate impact and ecological data to identify priority areas for future data collection. We are pleased that you are joining us to work collaboratively with other Tribal programs to support Unangan values in our work, and recognize that culture, wellness, and the environment are integral parts of resilience in the face of rapid change.

Conference themes over the next three days include:



**Nov 3 - Observing, Quantifying, and Predicting Change:** Focus on using climate models and data, community-based monitoring and how our ways of living are changing due to climate impacts.



**Nov 4 - Climate Impacts to Fisheries:** Focus on fisheries research, climate impacts to commercial fishing, local small fishers and subsistence users, the regulatory process and how to be part of future regulatory changes.



**Nov 5 - Social and Ecological Impact to Significant Species:** Focus on climate impacts to significant species, vessel traffic changes, and social cultural impacts.

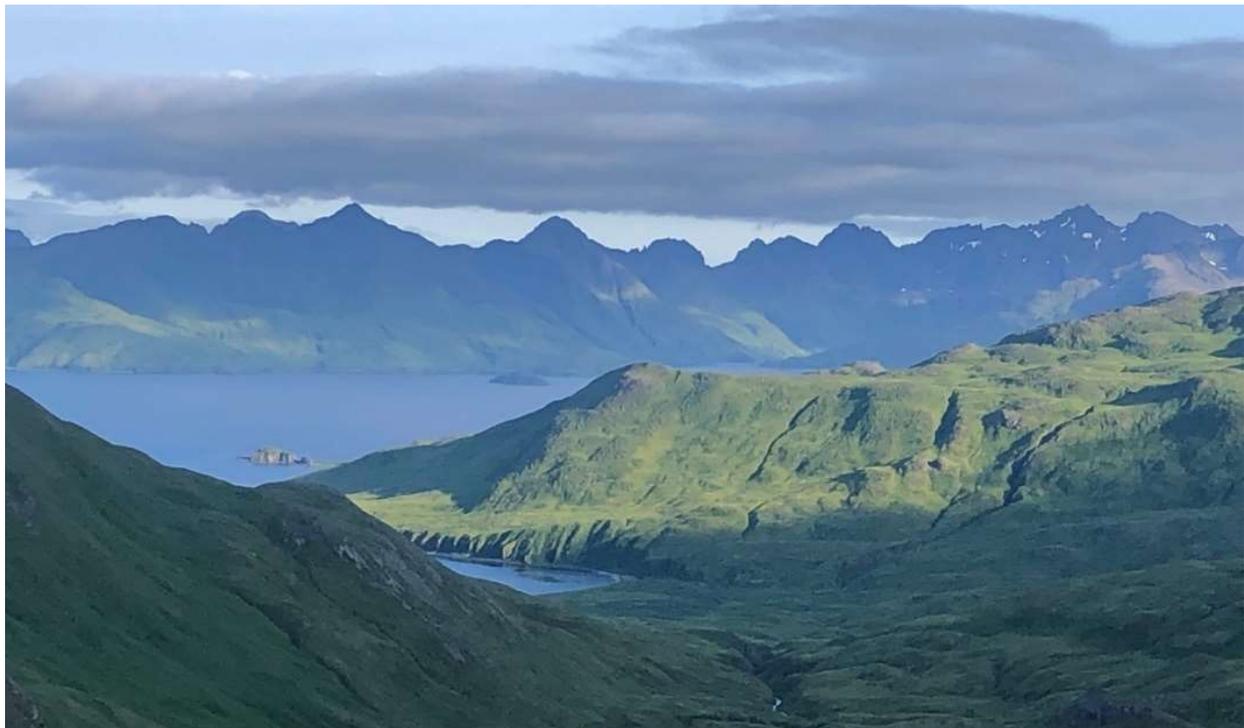


Photo Credit: Chandra Poe

## Presentation Schedule



### **Wednesday, November 3: Observing, Quantifying, and Predicting Change**

**Phone:** Dial toll-free **1-888-475-4499**.

At prompt, enter Meeting ID: **813 5198 9556#**

At prompt, enter Passcode: **2222#**

**Online:** Click the link below.

<https://agnewbeck.zoom.us/j/81351989556?pwd=cEVyL2RHNEk2IzZM2dVWHhOYXNQUT09>

*Need help connecting? Contact Heather Stewart at 907-277-5523 or [hstewart@agnewbeck.com](mailto:hstewart@agnewbeck.com)*

#### **9:00 am Welcome from the Qawalangin Tribe President**

Following the President's remarks, review the agenda and participation guidelines.

#### **9:10 am Climate Adapted Lifestyles and Community-Based Monitoring Presentations**

##### ***Unangax' Subsistence Cosmologies: Perspectives on Food Sovereignty, Environmental Justice, and Climate Change***

Unangax' cosmologies are shaped by constellations of kin- and place-based relationships unique to the North Pacific region, which are now changing in climate crisis contexts. Unangax' survivance depends on lifeways rooted in subsistence practices -- including cyclical preparing, hunting, gathering, and sharing -- shaped by patterns of weather and cultural protocols. These processes remain widely disconnected from global capitalist structures of commoditized food production. Subsistence is vital for rural and remote Unangax' villages whose limited infrastructure, namely a lack of reliable internet access and exorbitant travel and shipping costs, render commodity foods scarce or unaffordable. My research critically engages Unangax' subsistence cosmologies and sustainability protocols as a means to expand the scope of ongoing discussions in Native American and Indigenous studies with particular attention to food sovereignty and environmental justice. **Presenter:** Haliehana Stepetin, PhD Candidate in Native American Studies at the University of California Davis.

##### ***Indigenous Sentinels Network: Ecological Monitoring Framework in Support of Indigenous-led Stewardship***

The Indigenous Sentinel Network (ISN), an internet-based system that was designed and refined over 20 years by Tribal employees, contractors, and local volunteers; this effort was principally led by the Aleut Community of St. Paul Island (ACSPI). ISN is an online database tool for non-scientists in remote communities to record and communicate environmental and ecological information. ISN fills a distinct niche; the focus is on effective real-time ecological monitoring by community members with local and traditional knowledge (rather than

retrospective interviews) and the program is taxonomically broad in scope. ISN has been increasingly recognized for its flexibility and adaptability and is currently expanding its geographical focus from the Bering Sea region to tribal communities in mainland Alaska and beyond. This case study highlights the importance of rigorous, standardized data collected at a local level and informed by local and traditional knowledge to provide valuable information that informs conservation and management decisions that impact food security for Indigenous communities. **Presenter:** Lauren Divine, Ecosystem Conservation Office Director, Aleut Community of St. Paul Island.

***Community Observation Network for Adaptation and Security (CONAS) and the Circumpolar Local Environmental Observer program (CLEO)***

Aleut International Association has two closed-network monitoring programs, CONAS and CLEO. CONAS logs species specific subsistence data identified by individual Tribes participating in the program. Maps are created that show subsistence use areas over time as well as other relevant data. Data is owned by each Tribe that participates. AIA is seeking more Aleut Tribes to participate in the program. Website: The CONAS Project | Community Observation Network for Adaptation and Security ([conas-ak.org](http://conas-ak.org)). CLEO is set to launch in a few Far East Russian communities as well as a few Alaskan communities to log environmental observations in closed-network settings. Data is owned by the community and/or organization participating and is used for their own monitoring purposes and records. This program will have a youth component and an exchange is planned between Russian and Alaskan youth. **Presenter:** Liza Mack, Executive Director, Aleut International Association.

**9:40 am Q&A and Discussions**

**10:00 am Climate Data and Modeling Presentations**

***Changing Climate of the Bering Sea***

The rapidly changing environment is already having a profound effect on the Bering Sea region, from ocean ecosystems to the lives and livelihoods of people. This presentation provides an overview of some long-term climate, ocean and sea ice changes that are impacting people in the Bering Sea region. **Presenter:** Rick Thoman, Climate Specialist, Alaska Center for Climate Assessment and Policy at the International Arctic Research Center.

***Climate Projections for the Aleutian and Pribilof Islands Region: Future Climate and Downscaling Challenges***

Developing climate projections of historical and future climate in Alaska for planning and adaptation purposes is more challenging than in other regions of the U.S. due to the sparse network of long-term climate monitoring stations. It is even more difficult for island archipelagos in an otherwise marine environment because the resolution of most climate models is too coarse to capture the physical dynamics of small islands. In this presentation I will summarize some existing projections of future climate, the factors contributing to uncertainty in all such projections as well as those unique to the Aleutian and Pribilof region.

**Presenter:** Jeremy Littell, Research Ecologist on Climate Impacts, U.S. Geological Survey (USGS) Alaska Climate Adaptation Science Center (ACASC).

***SNAP's Climate Data Tools: Easy Access to Cutting Edge Climate Data***

In this brief presentation we will walk participants through a variety of Scenarios Network for Alaska and Arctic Planning (SNAP) data tools which might be of particular interest to coastal communities in the process of developing climate adaptation plans, or for other purposes where past and future climate data might prove useful. The SNAP tools provide a unique window into high-quality climate data presented in a user-friendly way. Variables available include historical sea-ice measurements, temperature and precipitation projections over the coming decades, winds, and more. Data accessed through the tools can be output in several ways to support grant proposals and community planning efforts.

**Presenter:** Michael DeLue, Science Communicator for the Alaska Climate Adaptation Science Center (ACASC) and the Scenarios Network for Alaska and Arctic Planning (SNAP), International Arctic Research Center (IARC) at the University of Alaska, Fairbanks (UAF).

**10:30 am Q&A and Discussions**

**10:50 am Break**

**11:00 am Speaker Panel and Discussion**

Attendees are invited to ask questions of today's presenters, share and explore themes from breakout group discussions with the larger group of attendees.

**11:30 am Closing**



Photo Credit: Chandra Poe



## Thursday, November 4: Climate Impacts to Fisheries

**Phone:** Dial toll-free **1-888-475-4499**.

At prompt, enter Meeting ID: **893 2943 8128#**

At prompt, enter Passcode: **2222#**

**Online:** Click the link below.

<https://agnewbeck.zoom.us/j/89329438128?pwd=bDVtVGZHaGR6Ym4zWFhxU01tTDUyQT09>

**Need help connecting? Contact Heather Stewart at 907-277-5523 or [hstewart@agnewbeck.com](mailto:hstewart@agnewbeck.com)**

**9:00 am Welcome, Agenda and Participation Guidelines**

**9:10 am Climate Change Research Presentations: Traditional and Western Science**

***Can a collapsed crab stock rebuild under current climate conditions in the Bering Sea? New assessments and thoughts on Pribilof Island blue king crab.***

Pribilof Island blue king crab (*P. platypus*) has been designated overfished and collapsed for over 20 years. Continuous suppression of this stock remains unexplained. We assessed current settlement of juvenile blue king crab in nearshore St. Paul Island nursery areas to inform recruitment potential and infer long term viability of this stock. Concurrently, we assess juvenile red king crab recruitment. These two sister-species contrast significantly in recruitment potential in the Pribilof's. This likely reflects post-fishery impacts of differing biological traits and response to changing habitats due to climate change. Recruitment mechanisms appear to be stable for very small king crabs, however warming conditions could be too extreme for cold-adapted blues. In the future, adaptive management and continued human collaboration are necessary to address blue king crab status relative to opportunities in red king crab and other fishery resources. **Presenter:** Jared Weems, Fishery Biologist, Alaska Department of Fish and Game (ADF&G) and Ph.D. candidate in the College of Fisheries and Ocean Sciences at the University of Alaska, Fairbanks (UAF).

***NOAA's Ecosystem Status Reports***

NOAA's Alaska Fisheries Science Center produces Ecosystem Status Reports each year for the Eastern Bering Sea, the Aleutian Islands, and the Gulf of Alaska. These reports compile and summarize current ecosystem information for use by fisheries management, the scientific communities, and coastal communities. This presentation will describe the Ecosystem Status Reports and how communities may want to contribute information to the Reports. We will present current oceanographic conditions, like marine heatwaves, and discuss noteworthy ecosystem conditions in each of the regions. **Presenters:** Elizabeth Siddon, Fisheries Biologist, Alaska Fisheries Science Center (NOAA Fisheries), Ivonne Ortiz, Fisheries Biologist and Associate Director, Cooperative Institute for Climate,

Ocean, and Ecosystem Studies (CICOES) at the University of Washington, and Bridget Ferriss, Marine Ecologist, Alaska Fisheries Science Center (NOAA Fisheries).

**ACLIM - The Alaska Climate Integrated Modeling Project**

The Alaska Climate Integrated Modeling project (ACLIM) is an ongoing collaboration of over 40 scientists at the Alaska Fisheries Science Center, the University of Washington, and the University of Alaska, to provide regional long-term ocean projections for the



Photo Credit: Elizabeth Mears

Bering Sea using a regional oceanographic model, and couple those results to biological models in order to develop climate-mitigating fisheries management strategies. A parallel effort (GOACLIM) is ongoing for the Gulf of Alaska. Preliminary results indicate that ecosystem-based management measures, such as the Bering Sea's total ecosystem removal cap for groundfish, can forestall or mitigate climate-driven declines projected for fisheries catches in the region over the next 80 years. Future work will focus on spatial shifts of stocks (e.g., into the northern Bering Sea) as well as the simulation of a broader range of socio-economic pathways for the region. **Presenter:** Kerim Aydin, Supervisory Fishery Research Biologist, Alaska Fisheries Science Center.

**An Indigenous Fisherman's Perspective on Climate and Salmon**

Melanie Brown, an Unangax, Sugpiaq, Yup'ik and Inupiaq fisherman, will share what she has seen over the 40 plus years that she has been salmon fishing Bristol Bay. In combination with her SalmonState work Melanie tries to have eyes on the management frameworks that affect salmon abundance in State and Federal waters. She serves on the United Fisherman of Alaska Board as an At Large member, on the Alaska Marine Conservation Council Board as well as on the Salmon Species Committee for the Alaska Seafood Marketing Institute. **Presenter:** Melanie Brown, Organizer, SalmonState.

**9:55 am Q&A and Discussions**

**10:15 am Species and Ecosystem Management in a Changing Climate Presentations**

**Interacting with State of Alaska Fisheries Management**

The Alaska Department of Fish and Game manages fisheries in state and federal waters through partnerships with National Marine Fisheries as well as other state, federal, and industry groups. Regional fisheries managers are tasked with evaluating stocks, setting, and monitoring sustainable harvest limits, overseeing fisheries participation, and collecting biological information. The State of Alaska is unique in the way that citizen participation is encouraged in the create of

regulations and management practices for its natural resources. There are many avenues and opportunities for Alaskans to participate in fisheries management in their communities by volunteering on local advisory committees, communicating with local management biologists, and communicating with the Board of Fisheries and the Board of Game. Regional office staff are available and can help facilitate public participation with the Board of Fisheries and the Board of Game process. **Presenter:** Miranda Westphal, Fishery Biologist, Alaska Department of Fish and Game (ADF&G).

#### **Federal Management of Fisheries Off Alaska**

The North Pacific Fishery Management Council (NPFMC) is responsible for developing fishery plans and regulations for federal fisheries off the Coast of Alaska. The National Marine Fisheries Service approves and implements these plans and regulations on behalf of the Secretary of Commerce. This presentation will outline how the Council process works and will provide an introduction on management of the federal fisheries off Alaska. **Presenter:** Krista Milani, Fisheries Resource Management Specialist at NOAA Fisheries.

#### **Management of Sockeye Salmon at McLees Lake**

McLees Lake sockeye salmon are typically the most important source of subsistence fish for residents of Unalaska Island. Documented use of this resource goes back to the 1750's, and undocumented harvest goes back hundreds of years prior to that. Notoriously dangerous and challenging aerial surveys of the region's salmon were first performed in 1974. Since 2001, the US Fish and Wildlife Service (USFWS), the Qawalangin Tribe, and the Alaska Department of Fish and Game (ADF&G) have utilized different working agreements and funding sources to establish a salmon enumeration weir at the outlet of McLees Lake. From 2001-2021 the escapement at McLees Lake ranged from 5,037 to 101,793 sockeye salmon. This presentation will provide an overview of management techniques used by ADF&G to promote the sustainable harvest of McLees Lake sockeye salmon. **Presenter:** Tyler Lawson, Fishery Biologist for the Alaska Department of Fish and Game.

**10:45 am Q&A and Discussions**

**11:05 am Break**

**11:15 am Speaker Panel and Discussion**

Attendees are invited to ask questions of today's presenters, share and explore themes from breakout group discussions with the larger group of attendees.

**11:45 am Closing**



## Friday, November 5: Social and Ecological Impact to Significant Species

**Phone:** Dial toll-free **1-888-475-4499**.

At prompt, enter Meeting ID: **810 3903 7251#**

At prompt, enter Passcode: **2222#**

**Online:** Click the link below.

<https://agnewbeck.zoom.us/j/81039037251?pwd=bDVtVGZHaGR6Ym4zWFhxU01tDUyQT09>

*Need help connecting? Contact Heather Stewart at 907-277-5523 or [hstewart@agnewbeck.com](mailto:hstewart@agnewbeck.com)*

**9:00 am**      **Welcome, Agenda and Participation Guidelines.**

**9:10 am**      **Sea Mammals in a Changing Climate Presentations**

### ***Alaska Coastal Communities and Marine Mammal Strandings***

The Alaska Marine Mammal Stranding Network collects reports of marine mammal strandings including species, location, age or size. Coastal community members are often the only ones to see a stranded marine mammal and these sightings can be reported to NOAA Fisheries (877-925-7773) or a local stranding network member (e.g., Sun'aq Tribe of Kodiak, Aleut Community of St. Paul). Over the last five years, we have received over 1,600 reports of stranded marine mammals within Alaska. The causes of marine mammal strandings is often unknown but some causes are disease, exposure to contaminants or harmful algal blooms, ship strikes, entanglement in fishing gear, or ingestion of marine debris. We will give an overview of marine mammal strandings in Southwestern Alaska and an update on the ice seal and gray whale unusual mortality events.

**Presenter:** Mandy Keogh, Ph.D. (Marine Mammal Stranding Coordinator, NOAA) shares the latest on marine mammal stranding.

### ***Sea Otter Population Status and Benthic Surveys in the Western Aleutians***

The southwest stock of northern sea otters were listed as 'Threatened' under the Endangered Species Act (ESA) following a drastic population decline in the 1990's. As part of the Species Recovery Plan (2013), sea otter population surveys are to be conducted regularly to monitor population status and trends. The Recovery Plan also includes ecological function criteria, whereby sea otters must rebound to such an extent that they are able to restore the nearshore ecosystem from a sea urchin barren state to a kelp forest state. A long history of sea otter population survey data and scuba-based benthic data revealed the ecological linkages between sea otter and sea urchin populations and the indirect effects on kelp forests. In August 2021, scientists from the U.S. Fish and Wildlife Service and U.S. Geological Survey conducted sea otter population surveys and scuba-based benthic surveys to provide current information on the status of sea otters and associated benthic communities in the Western Aleutians. **Presenter:** Paul Schuette, Ph.D., Wildlife Biologist, U.S. Fish and Wildlife Service (USFWS) Marine Mammals Management Program.

***The Pribilof Islands Marine Ecosystem (PRIME) Initiative***

To showcase the development and status of the designation of a co-managed marine protected area by the Unangax' (Aleut) communities on St. Paul and St. George. The PRIME area is defined as 100nm around the Pribilof Islands. The PRIME initiative addresses the urgent need for innovative and adaptable local solutions that will provide for environmental, social, and economic successes of our communities. Presented will be our vision of tribal government-led co management and the shared goals of our communities. The PRIME conservation management will be dynamic and guided by an all-inclusive holistic scientific understanding that is grounded in traditional (Indigenous) and local knowledge.

**Presenter:** Christopher Tran, Pribilof Island Science Technician, Aleut Community of St. Paul Island, Ecosystem Conservation Office.

**9:40 am Q&A and Discussions**

**10:00 am Social, Cultural and Economic Impacts of Climate Change Presentations**

***Youth Perspectives***

St. Paul Island youth prepared a video compilation from their Summer 2021 camp. **Contributors:** Macy Kenworth and others.

***Helping Tribes Document Vessel Traffic in Increasingly Ice-Free Alaska Marine Waters***

As maritime activity in Alaska increases, so does the potential for adverse environmental and safety impacts. The relatively recent introduction and application of Automatic Identification System (AIS) technology for tracking large ships has enhanced the ability to assess, monitor, and take action to improve vessel traffic management and maritime safety. We created a Marine Geofence tool that allows users to establish a virtual fence around any sensitive areas to monitor vessel activity using AIS data 24 hours a day. Your geofence can be programmed to send you an alert through email or text message when vessels enter the area that you created. Using grant funding this tool is free for Alaska Native tribes and all government agencies to pilot through 2022. **Presenter:** Aaron Poe, Coordinator, Aleutian Bering Sea Initiative, Alaska Conservation Foundation.

***Sharing Community Observations***

**10:30 am Q&A and Discussions**

**10:50 am Break**

**11:00 am Speaker Panel and Discussion**

Attendees are invited to ask questions of today's presenters, share and explore themes from breakout group discussions with the larger group of attendees.

**11:30 am Closing**

## **Acknowledgements**

Many thanks to all those who contributed to the 2021 Coastal Communities Forum!

## **Organizers**

The 2021 Coastal Communities Forum was made possible by the Qawalangin Tribe of Unalaska in partnership with: The Aleut Community of St. Paul, the Aleutian Pribilof Islands Association (APIA), Aleut International Association (AIA), the Aleutian and Bering Sea Initiative (ABSI), Alaska Conservation Foundation, the Alaska Native Tribal Health Consortium (ANTHC), and Sea Grant Alaska. Funding support for the 2021 Coastal Communities Forum was provided by the BIA Tribal Climate Resilience Program. Agnew::Beck Consulting provided additional conference facilitation and organizational support.



Photo Credit: Kate Arduser

## **Presenters**

**Kerim Aydin, Ph.D** is the supervisory fishery research biologist for the Alaska Fisheries Science Center (AFSC)'s Resource Ecology and Ecosystem Modeling Program, with research work focusing on the monitoring and modeling of food webs in Alaska's large marine ecosystems, and the development of statistical tools for simulating predator-prey interactions in marine environments. He is currently co-chair of the North Pacific Fishery Management Council's Bering Sea Fishery Ecosystem Plan Team. He received a PhD in 2000 from the University of Washington's School of Aquatic and Fishery Sciences before beginning work with the AFSC in 2001. Kerim grew up in Long Beach, California and currently lives in Seattle.

**Melanie Brown** has been fishing the site that her Unangan Great Grandfather, Paul Chukan, staked out in the Naknek River District of Bristol Bay with her family since 1979. She now fishes the same site with her children. Over time she has witnessed ups and downs in sockeye salmon abundance as well as environmental changes that she attributes to climate shift. In the winter Melanie advocates for salmon and their habitat in various realms with her colleagues at SalmonState.

**Mike DeLue** is the Science Communicator for the Alaska Climate Adaptation Science Center and the Scenarios Network for Alaska and Arctic Planning. Both are part of the International Arctic Research Center at the University of Alaska, Fairbanks (UAF).

**Lauren Divine, Ph.D** is the Ecosystem Conservation Office Director for the Aleut Community of St. Paul Island. She has a Doctor of Philosophy (Ph.D.) in Marine Biology from the University of Alaska Fairbanks (UAF), Master of Science (M.S.) in Biology from Georgia Southern University, and a Bachelor of Science (B.S.) in Wildlife and Fisheries Sciences from Texas A&M University. Her

education and experiences in Alaska brought her to a unique position with the Tribal Government where she spans the boundaries across western sciences; local and traditional knowledges; tribal, federal and state management; and stakeholder engagement through community-based and citizen science program management. Lauren seeks to strengthen relationships across these boundaries in order to better serve her community, wildlife, and the overall marine and terrestrial ecosystems of St. Paul, the Pribilof Islands, and the broader Arctic.

**Bridget Ferriss, Ph.D** is a Marine Ecologist at the Alaska Fisheries Science Center, NOAA Fisheries, in Seattle, Washington. She is the Lead Editor for the Gulf of Alaska Ecosystem Status Report and conducts research on food web ecology.

**Mandy Keogh, Ph.D** is the Alaska marine mammal Stranding Coordinator for NOAA Fisheries and lives in Juneau Alaska. She works with state, local, and tribal partners as well as community members and volunteer stranding network organizations to record and respond to marine mammal stranding events such as unusual mortality event investigations.

**Tyler Lawson** has a Bachelor of Science degree in Biology from Baldwin-Wallace University and a Master of Science degree in Environmental Studies from the College of Charleston. He works for the Alaska Department of Fish and Game Commercial Fisheries Division as the Assistant Area Management Biologist for the South Alaska Peninsula and Aleutian Islands, where his work revolves around salmon and herring. Prior to this position, he performed fisheries research on the Great Lakes, Gulf of Alaska, and in Lake Clark National Park. Part of Tyler's current job duties include overseeing the McLees Lake sockeye salmon enumeration weir and managing subsistence harvest on Unalaska Island.

**Jeremy Littell, Ph.D** is a Research Ecologist on Climate Impacts with the U.S. Geological Survey (USGS) Alaska Climate Adaptation Science Center (ACASC). He does climate impacts research and works with Alaska stakeholders to increase access to and use of climate change information in agency planning, vulnerability and impacts assessment, and adaptation. He has a broad background in environmental science and climatology and has worked on state and national Climate Assessments for almost 15 years.

**Liza Mack, Ph.D** is the Executive Director at Aleut International Association (AIA). AIA represents the Aleut people in the United States and the Russian Federation at the Arctic Council. AIA is one of the Permanent Participants at the Arctic Council, a high-level intergovernmental forum that works on environmental and sustainable development issues. Liza has a Ph.D. in Indigenous Studies from the University of Alaska Fairbanks, and she serves on the King Cove Corporation Board of Directors and is a member of the Science Panel for the North Pacific Research Board.

**Krista Milani** started her career in fisheries working for the Alaska Department of Fish and Game (ADF&G) in Unalaska in 2002. While working for ADF&G she helped manage both Bering Sea and Aleutian Islands crab fisheries and State groundfish fisheries. She has also gone out to sea on both research cruises and as an observer in Bering Sea and Aleutian Islands crab fisheries. In 2009, Krista began working for the National Marine Fisheries Service in Unalaska, where she manages federal groundfish fisheries in the Bering Sea, Aleutian Islands and Gulf of Alaska. She is involved in the North Pacific Fisheries Management Council process and is a member of the Crab Plan Team.

**Ivonne Ortiz, Ph.D** is a Fisheries Biologist and Associate Director at the Cooperative Institute for Climate, Ocean and Ecosystem Studies, University of Washington, in Seattle, Washington. Ivonne is the lead editor for the Aleutian Islands Ecosystem Status Report.

**Aaron Poe** has worked in Alaska for 23 years. He builds partnerships between agency managers, tribes, researchers, industry, and communities to address large scale issues like climate change, vessel traffic, contaminants, and invasive species. He is the Coordinator for the Aleutian Bering Sea Initiative and works for the Alaska Conservation Foundation. He has B.S. degrees in Fisheries and Wildlife Management and Geography, from Utah State University and a Masters in Natural Resource Management from the University of Arizona. He is grateful to be able to live and work on the lands of the Dena'ina people in Anchorage with his wife and two children.

**Paul Schuette, Ph.D.** is a Fisheries Biologist and Associate Director at the Cooperative Institute for Climate, Ocean and Ecosystem Studies, University of Washington, in Seattle, Washington. Ivonne is the Lead Editor for the Aleutian Islands Ecosystem Status Report.

**Elizabeth Siddon, Ph.D** is a Fisheries Biologist at the Alaska Fisheries Science Center, NOAA Fisheries, in Juneau, Alaska. She leads the Eastern Bering Sea Ecosystem Assessment for the Ecosystem Monitoring and Assessment Program and is also the lead for the Eastern Bering Sea Ecosystem Status Report.



Photo Credit: Elizabeth Mears

**Haliehana Alaġum Ayagaa Stepetin** is Unangax̄ from the Qigiiġun Tribe and was born and raised in her homelands/waters in the village of Akutan, Alaska. She weaves together her transdisciplinary experience deeply shaped by the Unangax̄ subsistence cosmology she was raised within as an artist and scholar, Unangax̄ dancer, choreographer, performance artist, poet, and activist. Haliehana is a PhD Candidate in Native American Studies at the University of California Davis with a designated emphasis in Studies in Performance and Practice. She has a Master of Arts in Cultural Studies from the University of Washington Bothell (2018) and a Bachelor of Arts in International Studies – Russia Track (2016) from the University of Alaska Anchorage, where she serves as Instructor of Alaska Native Studies. Her research engages Native North Pacific perspectives on food sovereignty and environmental justice in dialogue with Unangax̄ subsistence performance(s) and sustainability protocols as interventions to the ongoing climate crisis.

**Christopher Tran** is the Pribilof Island Science Technician for the Aleut Community of St. Paul Island, Ecosystem Conservation Office. His work primary focuses on the Marine conservation issues of the Pribilof Islands. He currently lives and works out of Anchorage, on the ancestral lands of the Dena'ina.

**Rick Thoman, Ph.D** works as a climate specialist with the Alaska Center for Climate Assessment and Policy at the University of Alaska Fairbanks, where he focuses on providing relevant and timely climate information for Alaskans with a focus on rural Alaska. He has worked as a weather and climate professional for 38 years in both the public and private sectors, including a 30-year career with the National Weather Service Alaska Region as a meteorologist and Climate Sciences and Services Program Manager.

**Jared Weems** is a marine invertebrate ecologist with a focus on early life history development of commercial crab species and their response to environmental conditions in the eastern Bering and Chukchi Seas. He is currently a Fisheries Ph.D. graduate student in the College of Fisheries and Ocean Sciences at UAF while newly working for the Alaska Department of Fish and Game as a crab research biologist out of Kodiak. He grew up landlocked on a small farm in the upper Midwest and found his way to Alaska over 15 years ago to commercial and sport fish in Yakutat Bay. He's conducted and aided research efforts across Alaska waters, from Utqiagvik to Adak and Ketchikan to Shemya. During that time, he's also enjoyed scuba diving, fishing, hiking, picking berries, and sharing stories and experiences with friendly Alaskans.

**Miranda Westphal** works for the Department of Fish and Game in Dutch Harbor, Alaska as the Area Management Biologist for the Bering Sea and Aleutian Islands. Miranda first came to Alaska in 2008 to attend graduate school at the University of Alaska Fairbanks, School of Fisheries and Ocean Sciences in Juneau. After completing her thesis, she started her career with the ADF&G as the assistant statewide mariculture coordinator in Juneau. Before transitioning to her current position, she worked on the crab assessment pot survey based out of the Kodiak ADF&G office. In her spare time, she enjoys hiking, camping, fishing, and gardening with her family. Miranda firmly believes the fishery management process should be transparent and accessible for all users.



Photo Credit: Chandra Poe