

Posters and Demonstrations



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The NPS Arctic Network: Ecological Monitoring in the U.S. Arctic National Parks

CONTACT

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One of the largest of these networks, the Arctic Network, consists of five nearly contiguous NPS units. Bering Land Bridge National Preserve, Cape Krusenstern National Monument, Noatak National Preserve, Kobuk Valley National Park and Gates of the Arctic National Park and Preserve. The Arctic Vital Signs Network encompasses roughly 19 million acres in Northern Alaska, or roughly 25 percent of the NPS administered acreage in the United States. The Arctic Network has chosen and started monitoring a set of 18 ecological “vital signs.” This set of vital signs includes four related to air and climate, two related to geology and soils, three related to water, two related to ecosystem pattern and processes and seven related to biological integrity.

ABSTRACT

The U.S. National Park Service’s (NPS) Inventory and Monitoring Program established 32 long-term ecological monitoring networks nationwide. The goals of these networks are to:

1. determine status and trends in selected indicators of the condition of park ecosystems to allow managers to make better-informed decisions and to work more effectively with other agencies and individuals for the benefit of park resources;
2. provide early warning of abnormal conditions and impairment of selected resources to help develop effective mitigation measures and reduce the costs of management;
3. provide data to improve understanding of the dynamic nature and condition of park ecosystems and to provide reference points for comparison with other, altered environments;
4. provide data to meet certain legal mandates related to natural resource protection and visitor enjoyment; and,
5. provide a means of measuring progress toward conservation performance goals.

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Beringia Youth Exchange as a Medium for Collaborative Research

CONTACT

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Presentation in Loving Memory of Larisa Gennadievna Eryomina of Novoe Chaplino, Chukotka

ABSTRACT

This exhibit reflects on the experience of the Cultural and Environmental Youth Exchange project in order to discuss the social and educational merits of involving Beringian youth in the cultural heritage research. Over the course of their stay in Novoe Chaplino, Chukotka, students from Nome, Savoonga and Gambell had a chance to practice language and cross-cultural communication skills, learn about local food and subsistence practices, share lots of teatime with their host families, participate in sports and dance performances, take part in a carving workshop, present their own research to the community and visit the prehistoric settlement of Avan, the ancestral home to many people living on both sides of the Bering Strait. Such experiences foster a live, dynamic forum for raising and addressing questions about the past and present ways of life in Chukotka and Alaska. They also help illuminate directions for collaborative research where local youth groups work with scientists and community members to investigate issues of common interest. This presentation honors the memory of Larisa Gennadievna Eryomina, a Novoe Chaplino elder who contributed generously to our learning during the exchange, and takes the opportunity to thank all host families and organizers who helped make this project a success.

Developing the Parsley Ferns (*Cryptogramma*) as a System for Studying Rapid Climate Change in Seed Free Plants

CONTACT

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ABSTRACT

The parsley ferns (*Cryptogramma*) make an excellent candidate for testing hypotheses of colonization following the Last Glacial Maximum (LGM) in Beringia and adjacent regions. Thanks to their minute and easily dispersed spores, these rock-loving ferns could have utilized refugia to rapidly and repeatedly colonize deglaciated landscapes, or they could have survived in situ on nunataks. Herbarium specimens indicate that *Cryptogramma* survives today on nunataks, but cannot answer whether this was the sole recolonization source used following the LGM or if recolonization from refugia also played a complementary or dominant role. By first generating well-resolved and robustly supported hypotheses of species relationships of the genus, we place the North American taxa in a phylogenetic context and answer lingering questions regarding (1) the origin of allopolyploid taxa and (2) if these taxa were formed when previous climate conditions forced currently allopatric parental taxa into close proximity. Fieldwork throughout northwestern North America sampled numerous populations and haplotype network analyses of these specimens will reveal the contributions and locations of glacial refugia for *Cryptogramma* during the LGM. Ecological niche modeling will allow us to project these future range shifts under a variety of climate scenarios and determine if polyploid species possess a lower extinction probability than diploid species. These data will provide a fuller picture of vascular plant responses to the LGM in Beringia by incorporating a seed free fern lineage for the first time.

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Expedition Anadyr 2011

CONTACT

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ABSTRACT

From May 25 to June 6, 2011, 8 high school students from Anchorage, Alaska, and 10 from the Russian city of Anadyr came together in the Chukotka capital for a cultural exchange and shared learning experiences, under the auspices of the Shared Beringian Heritage Program of the U.S. National Park Service. One purpose of the science aspect of the program was to investigate climate change effects in this subarctic community. By collecting oral histories from local Chukotka elders, we learned that winters in Anadyr are warmer than in the past and that plants and animals are changing their patterns. To support the evidence from traditional knowledge, we surveyed plant and bird populations and created a data set that could possibly be used as reference points for future climate change studies. We documented the total number of species of birds seen during the 10-day period and recorded population size in town, river and tundra study areas. We also selected tundra vegetation plots in which we identified plant species and measured height, percent cover, depth to permafrost and number and height of hummocks. We referenced all locations with a GPS unit. In addition, we collected CO₂ (carbon dioxide) measurements from different tundra types. While collecting this data, we learned about tundra habitat and its susceptibility to warming trends. From the Native Chukotkans, we learned how important tundra plants are as a food source and as a habitat for the birds and mammals on which they depend.

Haulout Keepers

CONTACT

Pacific Environment (www.pacificenvironment.org) and/or Chukotka Branch of the Pacific Fisheries Scientific Research Center (ChukotTINRO); email: tinro@piton-asc.ru

ABSTRACT

The main goal of this project is a partnership of biologists and the Native inhabitants on the monitoring of coastal walrus haulouts in Chukotka. The coastal haulouts have always been a very important part of the Pacific walrus summer and fall habitat, and during the last two decades, their importance increased due to the long ice-free periods. The important data can be collected with the help of hunters and other Native inhabitants. In 2009 six Pacific walrus haulouts in Anadyr Bay were included in the monitoring network. The data received during the 2009 observation season indicates the decrease in the numbers of animals and reduction of male-female ratio toward an increase of the male population. The walrus population has become smaller due to the increase of miscarriages and death of newborns.

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Indigenous Language Learning and Documentation in the Bering Strait Region

CONTACT

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ABSTRACT

One of the most effective ways to document indigenous languages and disseminate information is through digital media, which also provides much needed resources to instructors and students for language revitalization programs such as Second Language Acquisition and Teaching (SLAT). The use of digital technology enables reaching audiences near and far and, given its popularity with youth, reaches a key target audience for participation. This media/poster presentation provides examples of programs at the Alaska office of the Arctic Studies Center (ASC) that utilize digital media and that the Shared Beringia Heritage Program (SBHP) supported. In the past SBHP supported the research behind the current ASC exhibition *Living Our Cultures, Sharing Our Heritage: The First Peoples of Alaska* at the Anchorage Museum, which incorporates orientation films, interactive computer kiosks and a companion exhibition website *Sharing Knowledge*. In the present, SBHP supports language workshops, which will be featured in the session presentation by Aron Crowell. In the future, ASC hopes to collaborate with SBHP to provide cultural heritage workshops. We will show three short films that demonstrate these programs, along with a slideshow of images.

James Kivetoruk Moses, Inupiaq Folk Artist

CONTACT

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ABSTRACT

James Kivetoruk Moses was born at Cape Espenberg in 1902 and was raised in Shishmaref and later again on the Cape. He worked as a hunter, fisherman, fur trapper and trader and reindeer herder. At 52 injuries he received in a plane crash turned him toward making artwork to earn a living after moving to Nome. He rapidly became the premier Alaska Eskimo artist of his time. This project is to gather biographical and art historical information for a book and exhibit on this important artist who, though well known for his works, has been little studied for the human side of his story. The University of Alaska Museum and Alaska State Museum will host a large exhibit of Moses' works in 2013. The book about Moses will serve as a catalog for the exhibition.

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The Lichens of Alaska's Arctic Parks: Applied Research for a Changing Environment

CONTACT

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ABSTRACT

Lichens are a conspicuous and abundant component of the vegetation of the arctic parklands, representing approximately 40% of the plant species and a substantial quantity of biomass. Lichens are fragile, slow growing and sensitive to air pollutants. Forage lichens — i.e., the dominant lichens of the low shrub and alpine tundra — form the bulk of the winter diet for caribou and domesticated reindeer and are also consumed by muskox. Tundra lichen communities are predicted to decline in Northwest Alaska due to shrub expansion. Impacts to lichen communities have been documented from heavy metal pollution along the Red Dog Mine haul road, and future pollution-related impacts to lichens from proposed regional development (e.g., mining, oil and gas development) are possible. Over the past 15 years, the National Park Service has conducted numerous research projects on the lichen ecology and flora of the arctic parks. Projects have addressed several key natural resource areas for these parks:

- The condition of permitted reindeer and wild caribou lichen winter range
- Comprehensive lichen inventory and community classification for the arctic parks, including description of several new taxa
- Long-term monitoring of lichen community composition and structure for detection of changes related to climate, pollution and ungulate grazing
- Effects of heavy metal pollution from the Red Dog Mine on lichen communities
- Detection of long-range pollutants using moss tissue

This poster highlights the NPS Western Arctic National Parklands' program areas, findings and publications in lichen ecology.

Arctic Teens Speak Out: *The Lost Dances*

CONTACT

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ABSTRACT

Executive Producer D'Anne Hamilton, an Inupiaq from Kotzebue, discusses the process of discovery of *The Lost Dances* (4 minutes). Director/Trainer Norman Jayo presents the layers of the dance revealed over the course of the filming (4 minutes). Videographer/Dancer Richard Atoruk (4 minutes) discusses the collaboration with the dancers of Provideniya and New Chaplino. Videographer/Dancer Frank Ferguson introduces a video clip from the opening segment of the video (3 minutes). The video segment is 3 minutes.

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Creating a Modern Map of Submerged Beringia ... the Bridge That Endures Time

CONTACT

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ABSTRACT

A vast expanse of submerged Beringia is indeed, "uncharted waters." Yet the United States and international explorers, scientists and survey teams have mapped undersea features of Beringia in some areas. We are compiling bathymetric survey data from government and scientific research teams to develop a database that provides the highest resolution, multibeam sonar, sea floor data available. A backdrop exhibits coarser data, such as early singlebeam and leadline survey depth data.

Areas of multibeam sonar coverage reveal fine features of the Beringian margin canyons, slopes and pinnacles. This fine-scale, seabed imagery is a powerful tool for planning biological, geological and archaeological research in subsea Beringia. We are able to examine ancient river mouths, submerged coastlines and other landscape features of Beringia now lying 100-200 meters below sea level.

We will exhibit our geospatial database and selected products resulting from progress in development of the undersea Beringia map. Come take an undersea flight tour at our exhibit to explore regions of the Land Bridge lying just beneath the waves.

Indigenous Knowledge and Use of Bering Strait Region Ocean Currents

CONTACT

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ABSTRACT

This project is documenting the traditional and contemporary use of and knowledge about ocean currents in collaboration with six communities in the Bering Strait region, in both the United States and Russia. The Alaska communities that are part of this project are Diomedea, Wales and Shishmaref. The Chukotka communities are Lorino, Lavrentiya and Inchoun. This project also involves collaboration between an Alaska Native non-profit (Kawerak) and Russian researchers. Historically, and in contemporary times, the indigenous people of the Bering Strait have had an intimate relationship with and knowledge of the Bering Sea. While many social science projects (or components of projects) have focused on indigenous knowledge of sea ice, weather patterns and climate change and have documented some information regarding ocean currents, this project will focus specifically on the topic of currents. Indigenous knowledge of ocean currents relates to sea mammal hunting, collection of and access to other marine resources, travel, weather forecasting and other purposes. Local residents of the collaborating communities will assist in gathering historical and current information from experts in their communities, regarding ocean currents (in digital recordings, photos, maps and written field notes). This poster reviews what has been accomplished in year one of the project in both Alaska and Chukotka and outlines the plans for the remaining two years of the project.

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Pacific Environment: Russian and Alaska Programs in Brief

CONTACT

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ABSTRACT

Pacific Environment is an international organization that protects the living environment of the Pacific Rim by promoting grassroots activism, strengthening communities and reforming international policies. For more than two decades, we have collaborated with local communities around the Pacific Rim to protect and preserve the ecological treasures of this vital region. Together with partners in Russia, China, Japan, Alaska, California and other regions, we've shielded tens of thousands of acres of old growth forest; we've won protections for endangered species; we've forced oil, gas and mining companies to heed local concerns; and we've changed the way some of the world's most powerful financial institutions work. Pacific Environment is a catalyst in a community of individuals and organizations working to protect the Pacific Rim's wild places and wild life.

Pacific Environment Russia Program

Siberia and the Russian Far East are home to extremely beautiful and globally significant wilderness areas left on earth. Russia possesses one-fifth of the world's forests; and endangered species such as the Amur leopard, Siberian tiger and western Pacific gray whale call the region home. Lake Baikal is the world's oldest and deepest lake, holding one-fifth of the world's freshwater. The Kamchatka Peninsula is home to the world's densest population of brown bears and boasts spawning rivers for one-fifth of the northern Pacific's wild salmon. Responding to the country's economic crisis in the late 1990s, the Russian government approved large-scale natural resource extraction (oil, gas, mineral, timber and marine resources) projects across previously untouched areas of the Russian Far East and Siberia. Thankfully, Siberia and the Russian Far East are

also home to effective grassroots environmental advocates and strong, vibrant communities, including hundreds of indigenous communities that retain traditional subsistence lifestyles. Pacific Environment believes that local communities are the best stewards of natural resources, and to that end provides direct support, engages in joint advocacy and builds local, national and international coalitions.

Pacific Environment Alaska Program

Alaska conjures images of vast open spaces, plentiful wildlife and abundant oceans. But America's last frontier — the crown jewel of our country's wild lands and marine habitats — faces profound environmental challenges. The negative environmental and social impacts of oil drilling, mining and industrial fishing are all on the rise. Coupled with the profound threat global warming poses to the Arctic, these increased pressures on Alaska's wilds could spell disaster for the environment and for fishermen, indigenous peoples and other Alaskans.

Pacific Environment works to protect the Arctic Ocean, Bering Sea and Aleutian island flora and fauna. It collaborates with the Alaska Native, fishing, environmental and scientific communities to safeguard critical habitat - the feeding grounds of the endangered northeastern Pacific right whale, old-growth sea floor habitat and areas essential to community subsistence.

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Polar Bear: Collection of Chukotka People's Traditional Knowledge of Polar Bear as a Part of Umka-Nanuuq Program (1999-2002)

CONTACT

Alaska Nanuuq Commission and Polar Bear Commission of the Association of Traditional Marine Mammal Hunters of Chukotka

ABSTRACT

The main goal of the project was to collect traditional knowledge of the polar bear, to document cultural traditions related to this species and to assess nutritional needs of the Native people from five regions in Chukotka. The project also aimed to document, map and describe the migration routes, feeding grounds and denning areas. The work took place in the Provideniskiy, Chukotkskiy, Iul'tinskiy, Shmidtovskiy and Chaunskiy regions of Chukotka.

Spiritual Component in the Traditional Costume of the Chukchi

CONTACT

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For a detailed description of this project, please read Vukvukay's presentation on page 111.

Steller Sea Lions near Gambell, Alaska, during November-December 2010

CONTACT

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ABSTRACT

The University of Alaska Fairbanks (UAF) Marine Advisory Program in Nome and the Alaska Department of Fish and Game (ADF&G) Steller Sea Lion Program in Juneau worked together during 2009-2011 to document the total number of sea lions using the Sivuonok area in the late fall. They photographed branded sea lions and documented sea lions entangled in human trash.

Steller sea lions are currently viewed as two distinct groups – those that are born west of Longitude 144' (western distinct population segment) and those that are born east of Longitude 144' (eastern distinct population segment). Sea lions from the western region declined in large numbers over the past 30 years and are listed as an endangered species. Currently, the scientific community does not fully understand why the western population continues to decline while the eastern population is increasing.

Due to the vigilance of Gambell residents, it became understood that Steller sea lions were beginning to come on shore in a relatively new area in the northwest corner of the island, at Sivuonok, in larger numbers in late fall as weather and sea ice conditions permitted. Our effort is part of a larger project to better understand Steller sea lion presence in the Bering Sea and is in response to Saint Lawrence Island residents sharing valuable information on sea lions.

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Documentation primarily involves counting the number of sea lions on shore and photographing branded sea lions. Working with the Sivuqaq Native Corporation, local residents checked the Sivuonok area during the late fall for sea lions. Sea lions were reported in the Sivuonok area late November.

Sea lions were hauled out at Sivuonok as well as swimming in the water during each survey we conducted. Most sea lions seen on shore were adult and sub-adult males; we did not see any adult females. No sea lions were seen entangled in human trash, and there was no evidence that any had swallowed fishing gear (i.e., hooks and line). No flipper tags were seen.

We observed 11 individual branded sea lions from 5 different birth sites, spanning the North Pacific Ocean from Medny Island (western Aleutians) to Lowrie Island (southeastern Gulf of Alaska; Figure 1). All branded sea lions observed were males between 4 and 10 years old. One animal "F1124" set a new long distance travel record for a Steller sea lion born in Alaska. This sea lion was born on Lowrie Island (near Forrester Island) in the southeastern Gulf of Alaska – more than 2,000 miles from Saint Lawrence Island (Figure 1).

Acknowledgments: Funding for this project was provided by a Coastal Impact Assistance Program grant and ADF&G. All sea lion work was conducted under NOAA Permit 14325. We would like to thank the Sivuqaq Native Corporation for the opportunity to travel to Sivuonok this fall. With the timely local reports of Steller sea lion activity near Gambell, we were able to conduct productive sea lion surveys at Sivuonok. George Koozaata and Aaron Iworriagan provided valuable assistance with transportation, with the surveys and especially by locating several branded animals. Additionally, we are grateful for the information regarding the dead sea lion, which allowed for the collection of important tissue samples. The documentation of sea lions at Sivuonok was very successful, and we are looking forward to returning this fall (2011) to continue this project.



Figure 1. The birth locations, indicated by red stars, for all branded Steller sea lions documented at Saint Lawrence Island during November-December 2010.

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Telling Our Stories: Vodcasts of the Cape Alitak Petroglyphs

CONTACT

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ABSTRACT

The “Telling Our Stories” vodcast (a video podcast [sometimes shortened to vodcast] includes video clips) series documents a comprehensive archaeological survey of the Cape Alitak petroglyphs, Alaska’s most extensive cluster of stationary rock art. Through a series of vodcasts done by *Wondervisions*, the Alutiiq Museum in Kodiak highlights the *Cape Alitak Petroglyph Survey*. Funded by the National Park Service Tribal Historic Preservation program and the Shared Beringian Heritage Program, these vodcasts document the largest known cluster of rock art in Alaska - ca. 800 images - and associated settlements. Located at the remote southern tip of Kodiak Island, the petroglyphs rest in the landscape where Russian explorers first encountered Sugpiaq societies. By creating a video narrative of each project, the vodcasts record the Sugpiaq community’s efforts to re-awaken ancestral knowledge, the importance of this process to Sugpiaq community and ties to Kodiak’s Russian history – all in Sugpiaq words. The Sugpiaq people archive copies of the vodcasts in the Alutiiq Museum’s permanent collection as a source of cultural information, a record of a major heritage project and documentation of the 21st century heritage movement. These film resources provide Sugpiaq people, Alaskans, Russians and a broad global audience access to little known pieces of Alaska history. They illustrate aspects of traditional Sugpiaq life and show how contemporary peoples can develop positive collaborations around a shared but difficult history, reawaken aspects of Sugpiaq culture and heal wounds of colonialism through knowledge. The opportunity to record these projects on film is particularly important to contemporary Sugpiaq people. The vodcasts will allow Sugpiaq leaders, artists and anthropologists to speak directly to multiple audiences sharing their views on local history, cultural revitalization and the links between the two. In addition to English vodcasts, the museum will create a Russian language version, so Sugpiaq heritage can be shared with colleagues and audiences in Russia.

Arctic Program: World Wildlife Fund

CONTACT

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ABSTRACT

Human communities and unique ecosystems have long coexisted in the region we call Beringia. In addition to supporting rich cultural diversity and playing an important role in cooling the globe, the Arctic is home to an array of marine life, including some of the world’s most iconic wildlife species.

Many of these species migrate throughout the region, without regard to international boundaries. The World Wildlife Fund’s offices in Alaska and the Russian Far East collaborate closely to protect our shared ecosystems and cultural history. Our Arctic Field Program Office in Anchorage is part of the WWF Global Arctic Program, which is represented by offices in countries throughout the Arctic circumpolar region.

In particular, WWF works to protect species such as polar bears, walrus, salmon and seabirds and the communities that rely on those species for subsistence use. We collaborate with scientists, managers and local experts to create programs that protect the ecosystem and support local cultural traditions.

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Yellow-Billed Loon Monitoring in Western Arctic Parklands

CONTACT

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ABSTRACT

The yellow-billed loon is a species of concern with a global population estimate of 16, 650-21,000 (Fair 2002, Earnst 2004). In 2009, the Arctic Network of the National Park Service Inventory and Monitoring Program in cooperation with the U.S. Fish and Wildlife Service implemented a pilot study to test methods for aerial surveys of yellow-billed loons (*Gavia adamsii*) in Bering Land Bridge National Preserve (BELA) and Cape Krusenstern National Monument (CAKR). The breeding range of yellow-billed loons is restricted to large lakes (>7 hectares) (North and Ryan 1989) in the Arctic Coastal Plain of Alaska and in Western Alaska on the Seward Peninsula, an area that includes these park units. Population estimates for these loons in BELA and CAKR represent about 20% of the U.S. population (Schmutz pers. comm. 2008). We conducted the surveys in accordance with protocols designed specifically for these loons by U.S. Fish and Wildlife Service (Mallek et al. 2005, Bollinger et al. 2007). Using tandem Aviat Husky aircraft, we flew an occupancy survey in June to count adults and nests and a productivity survey in late August to count members of family groups. Each survey covered the same 24 plots distributed among the 2 park units. In 2009, a total of 186 adults (BELA n=178, CAKR n=3) and 14 (BELA n=13, CAKR n=1) nests were counted during the occupancy survey. The productivity survey documented 88 adults (BELA n=83, CAKR n=5), 15 juveniles (BELA) and 49 individuals in mixed-aged flocks (BELA).

