



From the Director

Peter Schweitzer

By the time you read this newsletter, the last winter of EPSCoR Phase III will be well upon us. A little more than half a year is left before our grant cycle ends on June 30, 2010, and with that knowledge we are making a final push to complete our research goals.

Some of this is coming in the form of concrete research funding. In order to involve more young researchers in our activities, we are increasing the number of undergraduate grantees this year. We anticipate more than a dozen promising UAF researchers will receive funding for next spring and/or summer to pursue their scientific interests.

We're also in the process of approving a round of Integrative Faculty Development Awards. These one-time grants of up to \$30,000 will be given to groups of two to four faculty members and up to two graduate students who are undertaking projects that integrate perspectives from multiple disciplines. The grants are designed to spur on projects that cross disciplinary lines, in keeping with the integrative focus of EPSCoR Phase III.

The integrative development awards, by the way, came about in

Research at the Edge of a Continent EPSCoR scientist brings new dimension to Nome campus

In terms of landscape, Nome's arctic tundra is about as different from Claudia Ihl's native Germany as it's possible to be. But that didn't stop her from getting captivated by it.

"I grew up in a forest, I love forests still, but there was something about the wide-open tundra landscape that just hooked me, that just had me from day one," said Ihl, Assistant Professor of Biology at the University of Alaska Fairbanks Northwest Campus in Nome. "There's no landscape in Germany that is anything like that."



photo by Tom Moran

UAF Northwest Campus Assistant Professor of Biology Claudia Ihl. Ihl has received a pair of EPSCoR grants to further her musk oxen research.

Ihl first visited Alaska in 1989 on a bicycle, traveling to Deadhorse on the tail end of a bike trip that began in San Francisco. Entranced by the land and the wildlife, she moved to Fairbanks five years later.

"I rolled into UAF and I pitched a tent on the ski trails and I walked into (the Institute of Arctic Biology) and said 'Hi, I'd like to be a grad student,'" she related. "I had absolutely no idea about the American university system and how to get into it and what to do, and I don't think they took me all that seriously."

But Ihl was persistent. She finagled a position as a live-in intern at UAF's Large Animal Research Station, where she was first exposed to the animals which

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Educating the Educators

Rural teachers gather for EPSCoR biogeography course

Plants don't function in a vacuum. And neither do teachers.

With those two facts in mind, Alaska EPSCoR brought secondary and primary school teachers from throughout the state to Fairbanks this summer for a new class in biogeography – basically, the relation of plants to their

get excited about it.”

The four-credit University of Alaska course, entitled “Alaska Biogeography: Plants and their Symbionts,” was held in June and July and consisted of two weeks of distance education followed by two weeks of hands-on learning on and around the Fairbanks campus. The six teachers who took the class came literally from across the state: one each from King Cove, Juneau, Wasilla, Wainwright, Point Hope, and White Mountain. With the exception of a \$100 fee each, their participation in the course was entirely funded by Alaska EPSCoR. They received continuing education credits and, more importantly, the chance to expose their students to science rooted in their local environments.



photo by Tom Moran

UAF Professor of Biology Roger Ruess (l) lectures to biogeography students on alders and other local flora during a field trip to the banks of the Tanana River in Fairbanks in July.

environment, with a special emphasis on the symbiotic nitrogen fixers and mycorrhizae which make plant roots their home. The idea was to train the teachers in the subject - which is a major research focus at UAF - so they could in turn create related lesson plans for their classes.

“We thought that maybe the best way to get at this was to educate teachers more about what is happening with plants,” said UAF Associate Professor of Ecology Christa Mulder, lead instructor on the project. “It’s not something that is usually covered very well in most introductory biology courses, or for that matter in schools in general, and we thought the best way to do that would be for people to actually come on campus and look at stuff and

“We have pretty limited resources, so this is a chance to get hands-on science to engage the students,” said participant Dave Green, who teaches middle school in Point Hope. “Most of the science they get, it doesn’t connect to them at all.”

The teachers received instruction in Fairbanks from a number of biology faculty members, including Mulder, associate professors Lee Taylor and Matt Olson and Professor Roger Ruess. The teachers learned how to locate and identify n-fixers and mycorrhizae on different Alaskan plants through field sampling and lab examination and also studied related plant topics, such as an invasive species and some examination of alders. After a week of on-site study, the teachers were tasked with translating their new knowledge into lesson plans for their home districts.

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One major project that emerged from the class was a common garden experiment: teachers from each of the six schools have sent local low-bush cranberry clippings to all of the other schools for cultivation. Students at the schools will keep detailed information on their own plants and share them with the other schools, and lessons



UAF Associate Professor of Ecology Christa Mulder examines a bearberry plant with Wainwright teacher Frank Pickett in the UAF Institute of Arctic Biology greenhouse in July. Bearberries were the initial focus of the course before switching to low-bush cranberries.

will grow out of the differences between the plant sets. “Those are questions that make people think about why things happen,” Mulder noted. “Which is part of the idea behind science, of course.”

EPSCoR is providing continuing funding for the project, meaning faculty and staff members will be available for site visits. “We have a budget written that would allow someone to travel out to these sites, just for whatever help or support they need,” said Alina Cushing, an EPSCoR-funded science outreach professional who helped run the course. “Whatever is most useful to them.” There are also plans to offer the class again in June 2010.

Teachers gave the course high marks, noting the subject matter would offer their students a chance to study their local environments instead of relying on standard textbooks. “Whatever we do (here at UAF), I’ll try to be able to reproduce it with my students,” said Jack Adams, who teaches high school science in White Mountain. “If my students could, they would have lab-type activities every day of the year.” ♦

EPSCoR People

Alaska EPSCoR Director **Peter Schweitzer** was the only North American speaker at the European Polar Summit in Brussels, Belgium on June 24. Schweitzer spoke about BOREAS, an international program for northern humanities and social science research administered by the European Science Foundation and partially funded by the NSF.

Alaska EPSCoR graduate fellow **Robin Bronen** has been selected to participate in the Marie Curie Ph.D Winter School on Adaptive Governance in the Netherlands in November. The two-week program includes classes, presentations and lectures as well as participation in the 2009 Amsterdam Conference on the Human Dimensions of Global Environmental Change.

Former Alaska EPSCoR graduate fellow **Jordan Lewis** has been awarded the 2009 Aging and Rural Health Research Award by the American Public Health Association. Lewis was awarded on the basis of his paper, “Successful aging through the eyes of Alaska Natives.”

Alaska EPSCoR graduate fellow **Ryan Cooper** is the 2009 winner of the Robert I. Larus Award, given to the outstanding presenter at the annual AAAS Arctic Science Conference. Cooper, who is studying for his M.S. at UAF, gave a presentation on “Morphometric and Genetic Delimitation of the St. Matthew and Singing Vole” at the conference, which was held in mid-September in Juneau.

Alaska EPSCoR graduate fellow **Rebecca Hewitt** was awarded an honorable mention for her poster at the 2009 Long-Term Ecological Research All Scientists Meeting in Colorado in September. Hewitt’s poster, “Going Underground: The Role of Mycorrhizal Fungi in Promoting or Inhibiting Post-Fire Seedling Establishment Across Treeline in Alaska,” came in second overall out of 175 entries.

Mat. Edgcombe High School student **La Tia Jackson**, who participated in an EPSCoR-supported Alaska Rural Research Partnership, is the recipient of a prestigious Gates Millennium Scholarship Award. The scholarships pay for tuition and a living stipend for the entirety of the students’ college educations, all the way up to a Ph.D.

Shageluk high school students who participated in the EPSCoR-supported GLOBE Seasons and Biomes program have been awarded an Alaska Spirit of Youth Award in the “science and environment” category. The award was given by Spirit of Youth, an organization dedicated to “creating, promoting and recognizing youth involvement in communities across Alaska.” ♦



photo by Tom Moran

University of Alaska Anchorage Assistant Professor of Biology Andy Kliskey leads the immersion activity at Westchester Lagoon in Anchorage during Alaska EPSCoR's "Living on Earth" social-ecological systems workshop in May.

A Workshop With a View

The concept of a social-ecological system – broadly defined, a system with interconnected human and natural components – can be hard to explain. But, as attendees at Alaska EPSCoR's "Living on Earth" workshop learned, it's easy to demonstrate.

The centerpiece of the May workshop was an "immersion activity" in which the 50-odd attendees spent the day exploring three different sites in the Anchorage area, each of which represents a different social-ecological system. From the mostly undisturbed natural beauty of the Eagle River Nature Center to the heavily-used downtown waterway of Ship Creek, participants were encouraged to supplement theoretical discussions with experience on the ground.



photo by Tom Moran

University of Alaska Anchorage Ph.D. graduate Meagan Krupa (r) leads the immersion activity on the Ship Creek dam in Anchorage.

"To name the activity Living on Earth was to make it clear that this is not only an academic enterprise," said Alaska EPSCoR Executive Director Peter Schweitzer. "We wanted to confront the participants with a very hands-on understanding of how we are all part of social-ecological systems."

The four-day workshop drew attendees from 10 states in a variety of disciplines who wanted to concentrate on SES study, a burgeoning field which combines social and hard sciences to unravel the myriad relationships and feedbacks between people and their environments. Alaska is in many ways an ideal natural laboratory for SES study, and the workshop was designed as a chance for interested people from other EPSCoR jurisdictions to learn about Alaskan researchers' progress in the field and vice versa.

"This is a chance for Alaska to bring EPSCoR states together to share some of the things we've been working on for the past several years on social-ecological systems and how they function," said Alaska EPSCoR co-Principal Investigator Terry Chapin.

While the workshop featured the usual speakers, presentations and networking time, the immersion activity was clearly most people's highlight. Attendees were split into three groups and asked to analyze the sites – Eagle River, Ship Creek and a man-made lake, Westchester Lagoon – and to give reports on how

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they function as social-ecological systems.

For Steve Fifield of the University of Delaware, the activity was memorable for a couple of reasons: first, because of the nature of Anchorage itself, a major urban center perched on the edge of wilderness. “The thing about Anchorage is, along a line from Cook Inlet [near downtown] to the mountains of, say, 30 miles, you go from a very urban setting to wilderness,” he said. “For most of us in the lower 48, that’s a very small space.”

But Fifield also touched on another advantage of the activity, one many other attendees mentioned:



LIVING ON EARTH
Alaska NSF EPSCoR Social-Ecological
Systems Workshop • Anchorage 2009

it forced researchers in disparate disciplines to work together for a common goal. It was something of an object lesson in the ins and outs of interdisciplinary research, noted attendee Jennifer Rohrs-Richey.

“I have gained a lot from coming to the conference, I think mostly from the immersion activity, and working with planners and economists and anthropologists, and seeing how each of them has a

different approach to the problems that we were looking at,” said Rohrs-Richey, an EPSCoR-funded Ph.D. candidate at the University of Alaska Fairbanks. “One question was posed to our entire group - and because of the focus we have in our disciplines, we each approached that question in very different ways.”◆

EPSCoR Hires New Social Scientists



Chanda Meek

Alaska EPSCoR’s social science faculty hires now stretch across the state.

Fall 2009 marks the first semester of work for new EPSCoR hires Chanda Meek and Shannon Donovan. Based in Fairbanks and Anchorage, respectively, they join University of Alaska Southeast anthropology professor Erica Hill, who was hired by EPSCoR in 2007.

Meek, who received her Ph.D in Natural Resources and Sustainability from UAF this year, accepted a position as an Assistant Professor with UAF’s Political Science Department. In addition to her doctorate, Meek holds a Bachelor’s in Marine Biology from Western Washington University and a Master’s in Environmental Studies from York University in Toronto. She was an EPSCoR graduate fellow in the spring of 2008.

Meek’s expertise lies in understanding the human dimensions of wildlife management as well as the extent to which public policies foster the resilience of social-ecological systems. Her Ph.D thesis was a study of the local, regional, federal and international resource management strategies for the Barrow area’s polar bear and walrus populations.



Shannon Donovan

Donovan, who has been hired as an Assistant Professor in the Geography and Environmental Studies Department at UAA, received her Ph.D in Environmental Science from the University of Idaho in 2007. Previously she received a B.S. in Wildlife Management from the University of New Hampshire and an M.S. in Recreation, Parks and Tourism Resources from West Virginia University.

At Idaho, she worked on two interdisciplinary projects designed to craft conservation strategies for the Volcánica Central de Talamanca Biological Corridor of Costa Rica and the Palouse region of the Inland Northwest. Her primary areas of expertise include sense of place, bioregional planning and resource conservation.

Donovan, Meek and Hill were all hired under a partnership between EPSCoR and the University of Alaska, which jointly pay their salaries and benefits.◆

Alaska EPSCoR Announces

Alaska EPSCoR is funding 25 graduate fellows for 2009-10, all but one of whom work in the fields of physical science, biology and social science. Fellows receive tuition and stipends, which allow them to focus their efforts on research.

Biology Fellows

Matthew Campbell, M.S. candidate, UAF
Advisor: Andres Lopez
Focus: Genetic diversity within and among populations of the Alaska blackfish.

Ryan Cooper, M.S. candidate, UAF
Advisor: Link Olson
Focus: The relative prevalence of historic genetic changes versus recent ones in Alaskan mammals.

Daniel Glass, M.S. candidate, UAF
Advisor: Lee Taylor
Focus: Cataloging Alaskan fungi through DNA analysis and connecting newly discovered fungal types to documented ones.

Rebecca Hewitt, Ph.D candidate, UAF
Advisor: Terry Chapin
Focus: The role of ectomycorrhizal fungi in the potential advance of the arctic tree line.

Karen Hibbard-Rode, Ph.D candidate, UAF
Advisor: Kris Hundertmark
Focus: A genetic and historical examination of the Teshekpuk Lake caribou herd.

Ryan Kovach, Ph.D candidate, UAS
Advisor: David Tallmon
Focus: The adaptability of the coastrange sculpin to changes in habitat characteristics.

Mary-Cathrine Lewis, Ph.D candidate, UAF
Advisor: Mary Beth Leigh
Focus: A genetic study and statistical analysis of microorganisms in Interior Alaskan soils.



photo courtesy Rebecca Hewitt

Biology Graduate Fellow Rebecca Hewitt working on a study of tundra shrubs near Finger Mountain on the Dalton Highway.

Keri Lestyk, Ph.D candidate, UAA
Advisor: Jennifer Burns
Focus: Muscle development in harp and hooded seals and its effect on foraging and juvenile survival.

Amanda Robertson, Ph.D. candidate, UAF
Advisor: Matt Olson
Focus: The historic and potential geographic distribution of balsam poplars in northern latitudes.

Jennifer Rohrs-Richey, Ph.D. candidate, UAF
Advisor: Christa Mulder
Focus: The vulnerability and resilience of green alders to drought stress and disease.

Social Science Fellows

Robin Bronen, Ph.D candidate, UAF
Advisor: Terry Chapin
Focus: A human rights framework for Alaskans forced to relocate or leave their communities due to climate change.

Stacey Fritz, M.S. candidate, UAF
Advisor: David Koester
Focus: The cultural and economic legacy of the Distant Early Warning line radar system.

Neva Hickman, Ph.D candidate, UAF
Advisor: Terrence Cole
Focus: The historic adaptation processes of residents of Alaska's Western Arctic.

Davin Holen, Ph.D candidate, UAF
Advisor: Peter Schweitzer
Focus: The resilience and sustainability of Southwest Alaska subsistence economies.

2009-10 Graduate Fellows

Kimberley Maher, Ph.D candidate, UAF
Advisor: Glenn Juday
Focus: The harvest of non-timber forest products in the Tanana Valley.

Jill Maynard, M.S. candidate, UAF
Advisor: Julie Joly
Focus: Wind energy development in rural Alaskan communities.

Marcy Okada, M.S. candidate, UAF
Advisor: Gary Kofinas
Focus: The potential social-ecological effects of oil and gas development on subsistence livelihoods.

Julie Raymond-Yakoubian, Ph.D candidate, UAF
Advisor: Peter Schweitzer
Focus: The connections between fish resources and the cultural identity of Northwest Alaska Natives.

Emilie Springer, Ph.D candidate, UAF
Advisors: Maribeth Murray and Keith Criddle
Focus: The sustainability of commercial fishing in small Alaskan communities.



photo courtesy Davin Holen

Social Science Graduate Fellow Davin Holen during an ethnographic study of fish camps on Sixmile Lake, near Lake Clark.

Rebecca Warren, M.S. candidate, UAF
Advisor: Joshua Greenberg
Focus: Institutional and community responses to the energy needs of rural Alaska communities.

Physical Science Fellows

Matthew Dillon, M.S. candidate, UAF
Advisor: Yuri Shur
Focus: Designing a 3-dimensional frost heave cell.

Megan Leach, M.S. candidate, UAF
Advisor: Vladimir Romanovsky
Focus: The effects of snow cover and vegetation on the thermal characteristics of discontinuous permafrost.



photo courtesy Misha Kanevskiy

Physical Science Graduate Fellow Matt Dillon at a coastal exposure near Kaktovik.

Qiang Li, M.S. candidate, UAA
Advisor: Zhaohui Yang
Focus: The effect of seismic activity on infrastructure in areas of permafrost and seasonally frozen soils.

Amanda Rinehart, Ph.D candidate, UAF
Advisor: Jeremy Jones
Focus: Organic nitrogen released by melting permafrost and its relation to nitrogen fluxes in headwater streams.

Outreach Fellow

Tom Moran, MFA candidate, UAF
Advisor: Alaska EPSCoR
Focus: EPSCoR publicity and community outreach efforts. ♦

Alaska EPSCoR well-represented at Arctic AAAS Conference

The city of Juneau is a good 600 miles south of the Arctic Circle. But that didn't stop Alaska's capital from hosting the annual AAAS Arctic Science Conference in mid-September. Nor did it keep more than a dozen Alaska EPSCoR-supported undergrads, grad students, faculty and staff, most of them from Fairbanks, from participating in the three-day event.

EPSCoR attendees came from a number of different disciplines, and their presentations ran the gamut: from UAF grad student Ryan Cooper's exploration of vole genetics; to UAS faculty Erica Hill's discussion of walrus archeology; to UAF undergrad Michael Golub's talk on electric cars. EPSCoR presentations made up a substantial portion of the conference's events, a fact not lost on Larry Duffy in his closing remarks to the assembled students.



EPSCoR Graduate Fellow Daniel Glass, an M.S. candidate at UAF, presents on his research at the 2009 AAAS Arctic Science Conference.

the way.”

The conference offered a variety of presentations and activities for participants. Highlights included remarks by Juneau Mayor Bruce Botelho and University of Alaska Southeast Chancellor John Pugh; a plenary speech by Bill Streever, author of the New York Times bestseller *Cold*; and a tour of sparkling new UAF and NOAA facilities in Lena Point north of the city center.

The conference also offered an opportunity for attendees to mingle with other students and scientists, who came from all three main UA campuses and from out-of-state. Cooper said he found the opportunities to interact with fellow researchers to be the most useful part of the event.

“There are a lot of people doing really interesting genetic research down in Southeast Alaska,” he noted, “and we don't ever get to see what they're doing because they're isolated. And as good as telecommunications are, it's better to see what people are doing face-to-face.”◆



Attendees at the 2009 AAAS Arctic Science Conference are given a tour of NOAA's new Ted Stevens Marine Research Institute, located 'out the road' from downtown Juneau at Lena Point.

“EPSCoR has been a big boon to arctic science and the Arctic Science Conference over its history,” said Duffy, Interim Dean of the UAF Graduate School and Executive Secretary of the AAAS Arctic Division. “One of those big contributions has been, mainly, you, as future polar scientists, hopefully learning and leading

12 Tips for Giving Public Science Presentations

by Heidi Herter

Editor's note: The ability to give lucid and involving research presentations to general audiences is an important and often overlooked skill. These useful tips for structuring public presentations were compiled by Heidi Herter, an extension agent for the UAF Alaska Sea Grant Marine Advisory Program in Nome as well as a member of the UAF-Northwest Campus faculty.

- 1. Introduce yourself.** Share details which will help the audience to relate to you.
- 2. Establish a “need to know.”** Show how your presentation relates to the everyday life of the attendees or why it should be of interest to them.
- 3. Have clear objectives.** Can you give a one- to two-sentence summary of what you want your audience to absorb from your talk? Stick with the big picture and avoid pointing out anomalies or exceptions to rules.
- 4. Use clear language.** Be aware of jargon and either take the time to explain new vocabulary or don't use it at all. Avoid abbreviations, especially on graphs or in other places where they are out of context.
- 5. Provide context.** The framework of your project is as vital to explain as the research itself. Don't assume any background knowledge, and encourage the audience to ask for clarification of key points.
- 6. Make visually appealing slides.** Slides should provide visual examples, context, or humor. Text should summarize the main point of a section or give you cues, but should not be a written copy of your speech. Use large text – size 24 point or higher.
- 7. Minimize graphs and numbers.** There is no reason to mention statistical tests or p-values for community audiences. If you use graphs, present as little information as is necessary to illustrate the big ideas, and take time to explain them thoroughly.
- 8. Involve your audience.** Community perspective can provide valuable insight to your work. After you've introduced the first new concept, ask if anyone has any questions or comments. If the audience is engaged, discussion should roll from that point forward.
- 9. Know your background.** Be prepared to answer basic questions about your subject matter. What seems like a no-brainer to you isn't necessarily self-evident for a general audience.
- 10. Make slides that can stand alone.** Your audience may drift in and out of attention. Each slide should present a clear idea which may be written at the top of the slide so that anyone can tune in at any point and take something away from that moment.
- 11. Pay attention to feedback.** Communication works in two directions and isn't always verbal. Body language and facial expressions (and also checking the clock) will tell you if the audience is alert, excited, confused, hostile, or in need of a break.
- 12. Summarize the big conclusions.** The last slide of a presentation should cover the main points you want the audience to take away. Offer complete ideas so that someone who only sees that one slide will still get something interesting out of it. Leave this slide up while you take questions at the end. ♦



Herter answers questions following a presentation at the Arctic AAAS Conference in Juneau in September.

SKEETER AMBASSADORS

EPSCoR OUTREACH WORKERS LEARN AND TEACH IN SOUTHEAST ASIA

One hardly need leave Alaska to find mosquitoes. But in November 2008, three Fairbanks outreach workers traveled halfway across the world to help students in Thailand make a connection between skeeters and global climate change.



photo courtesy Martha Kopplin

Leslie Gordon and Dr. Mullica Jaroensutasinee instruct students at Walailak University in Thailand, November 2008.

UAF International Arctic Research Center Education Outreach Director Elena Sparrow, IARC Education Outreach Specialist Martha Kopplin and former UAF instructor Leslie Gordon made the week-long trip to the Southeast Asian country as part of the International Polar Year GLOBE Seasons and Biomes program. Seasons and Biomes is a National Science Foundation-funded, UAF-based and Alaska EPSCoR-supported project which teaches students in Alaska and worldwide how to use scientific methods to study climate change and specifically the progression of the seasons.

“What we’re most interested in with this grant is what sorts of seasonal variations over many years, as far as timing, duration, type, are people seeing that could give us a better understanding of how the climate is changing,” Kopplin said.

The trip to Thailand came about thanks to Sparrow’s professional relationship with a pair of scientists at Walailak University on the east side of the country’s southern peninsula. The scientists had been developing a mosquito “protocol,” a set of guidelines through which K-12 students can gather information about mosquitoes to learn about scientific methodology and to provide

valuable data to scientists.

The Alaska group traveled to a high school north of the university for a student presentation on the protocol. Students had been studying the distribution of four local mosquito species by examining larvae found in standing water near their homes. Students learned how to use microscopes, to identify species, and to use scientific sampling practices in the study. Kopplin noted that all four species are typical vectors for disease, and climate change may be affecting their distribution and life cycles, making widespread sampling important.

“The emergence of mosquitoes, the time that they’re out, the different species or genera that are out at different times of the year have a lot of implications for health,” she said.

The mosquito protocol is in the process of being adapted for students in Alaska, Kopplin said, noting that Alaskan students are more likely to be asked to document the timing of mosquitoes’ spring emergence. “The mosquito protocol as we see it is going to be a suite of different procedures, based on what biome you’re in.”



photo courtesy Martha Kopplin

Martha Kopplin teaches plant protocols at Queen Sikirit Botanic Garden outside of Chiang Mai, Thailand, in November 2008.

The Alaskan group also met with Walailak University personnel to discuss possible collaboration, while Sparrow delivered a lecture on the global ramifications of arctic climate change. This collaboration set the stage for the remainder of the trip, during which the Alaskans gave presentations at a pair of conferences and conducted workshops for Thai educators. ♦

Claudia Ihl

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would eventually become her research focus: musk oxen. She won acceptance to a Master's program in Biology at UAF, and received a grant to study competition between musk oxen and reindeer on the Seward Peninsula.

Ihl continued studying musk oxen on the peninsula while earning her biology Ph.D. at UAF. She said she has been intrigued throughout her career by the behavior of the ruminants. "I'd sit on the tundra and I would watch them while they were milling around, foraging, and then they'd lie down and rest and ruminate for a while, and I'd essentially do the same, so I was living their life in a sense, and their rhythm, and you get an appreciation for how complex their lives are," she said. "There's a social life, there's a whole soap opera, there are relationships, there are likes and dislikes, there are



An adult female musk ox with her calf, observed by Ihl on the northern Seward Peninsula.

little dramas that play out every day."

Ihl's job at the UAF Northwest Campus, which she accepted upon graduation, keeps her close to her woolly research foci. But working at a community campus, she admits, has its challenges: As Ihl is effectively the entire biology faculty, she is primarily a teaching professor. Ihl said the hardest part of the job is generally teaching distance-education science labs, which involve ordering components for lab kits, mailing them out to students across the region and state, and collecting them for grading, in addition to coordinating classes by phone, fax and e-mail. "It's just an enormous amount of work," she said. "It's not a complaint, it's just a fact of life."

But Ihl still carves out time for research, especially in the summers. In 2008, she was awarded a \$30,000 Early-Career Grant by Alaska EPSCoR to pursue a pair of musk ox-related research projects. In one project, she scouted areas around Nome for musk ox wintering sites, to identify spots where their grazing habits could be directly studied. The other half of the grant was used for an expedition to the village of Deering, where Ihl had done her master's research 12 years prior, to see if and

how the vegetation had changed at her old study plots. "I revisited as many sites as I could get to and resampled vegetation, and the analysis of that shows that on about half of the (musk ox and reindeer) feeding sites shrubs have increased significantly," she said. The data will go toward painting a picture of some of the challenges the musk oxen may face in the light of climate change, which could leave them with diminished winter forage.

Ihl also received an Alaska Native Engagement Mini-Grant from Alaska EPSCoR in 2008, which she has used to run a program of surveying hunters in Alaska and in the Canadian Arctic about their experiences with musk oxen. While musk oxen have been hunted continuously in the Canadian Arctic for centuries, they went extinct in Alaska in the 1800s before being reintroduced in the 1960s - '80s. Ihl hopes to document how the two areas' hunting traditions, practices and lore differ as a result.

"People in Alaska are developing new traditions, new ways of hunting musk oxen," Ihl said. "I'd like to draw a comparison between people here, in our region, and other places of Alaska, and other places around the Arctic."

Professors at Alaska's rural campuses have not traditionally focused on research, but Ihl is part of a burgeoning trend in that direction. Ihl notes that the research has allowed her to hire four assistants over the past couple of years, offering them a job experience not normally available in Nome. The projects also give Ihl a chance to whet her own scientific curiosity.

"Anybody who's a scientist likes to do research - it's kind of our elixir," she said. "Teaching is great, but it can't be the only nourishment." ♦

Director's Letter

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response to comments by our external evaluators, Julia Melkers and Eric Welch. Their report on our activities during the past fiscal year was full of helpful suggestions for building on our successes. Copies of the report are available for anyone interested.

Integration is an important word in EPSCoR these days. With more than two years of research findings under our belts, this is an appropriate time to begin taking what we have learned, synthesizing it, and finding ways it can be integrated into the work of others. We only have until June 30 to complete our Phase III mission, so please get in touch with the main office if you will need any sort of help in wrapping up your projects by then. ♦

EPSCoR Highlights on the Web



photo by Tom Moran

EPSCoR videographer Kaleb Yates films on location on Ship Creek in Anchorage.

We've expanded the Alaska EPSCoR Web site to include short video clips focusing on some of Alaska EPSCoR's most exciting research and outreach efforts. The clips were filmed by Kaleb Yates, a UAF film student who traveled to Anchorage in May for our All-Hands Meeting and our "Living on Earth" workshop with the specific task of documenting EPSCoR students and scientists.

Currently up on the site are a profile of undergrad grantee Michael Golub and an overview of the Living on Earth workshop, both of which can be accessed from the Alaska EPSCoR home page at www.alaska.edu/epscor. More videos will be posted in the future.

The website also contains an expanded section of written highlights on EPSCoR people and programs. To access them click the 'Highlights' tab. Also look for a rotating selection of highlights on the main page. In addition, all of Alaska EPSCoR's Phase III newsletters are available on the site in PDF form and can be found under the 'About Us' tab.

Alaska EPSCoR is also making nationwide news: The story of the discovery of a glacial remnant outside Kaktovik by a team of EPSCoR researchers has been placed on the NSF web site. See it for yourself at <http://www.nsf.gov/od/oia/highlights/highlights.jsp>. ♦

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