

Studying Student Stewards

UAF class charts young children's environmental engagement

How do children act as stewards of their environment?

That question was at the core of a recent UAF graduate course, "Children as Cultural Change Agents," which received support from an Alaska NSF EPSCoR Education and Outreach Seed Grant. Taught by UAF Associate Professor of Graduate Education and EPSCoR affiliate Dr. Carrie Green, the class centered on participatory research projects engaging preschool, kindergarten, and high school students in the communities of Fairbanks, Kenai and Scammon Bay.

"The project is geared towards equipping educators to engage children in environmental stewardship," explained Green. "At each site they facilitated participatory research methods that honor children's voices and



Scammon Bay kindergarten students take part in a playacting exercise as part of the "Children as Cultural Change Agents" course project.

photo courtesy Holly Williams

perspectives in order to understand children and youth's views on environmental stewardship within the context of their place and community."

Two of the class' six students are schoolteachers in Scammon Bay and Kenai, which led to the involvement of local schools in those areas. A third teaches in Fairbanks, and the other three are non-traditional educators and researchers. Their research consisted of collecting data from the students in the forms of spoken-word surveys, drawing exercises, photos and videos, and playacting, and observing the students outside



From the PI

Pips Veazey,
Principal Investigator

Many of you know how excited I am about our collaboration with [Axiom Data Science](#). The Fire and Ice project is generating huge amounts of data, and thanks to our public-private partnership with Axiom (and with [Research Computing Systems](#) at UAF) we're able to organize, analyze and safeguard this mass of information. Vanessa Raymond, who serves in a shared position with EPSCoR and Axiom, is doing a great job spearheading this effort. We're also committed to making our data available to researchers and the public: if you haven't yet, please check out our new [data portal](#), which provides straightforward access to our current and historic data sets as well as other data relevant to the project.

As we're working with Axiom to meet our cyberinfrastructure (CI) needs here at home, I'm also collaborating on a proposal to increase CI access across NSF EPSCoR's 28 states and territories. I'm part of a group of EPSCoR Project Directors planning a nationwide workshop on the topic

Education Research

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interacting with their local environment. The activities were all recorded and analyzed through qualitative and quantitative methods such as word counts.

In Kenai, several topics came to the fore among graduate student Sara Boersma's kindergarteners at the Kaleidoscope School of Arts and Sciences, including animals, picking up trash, imbuing the landscape with imaginary elements, and caring for each other. During a snowy walk outside, graduate student Emma Heslop observed thoughtful practices such as one child protecting a sapling from footfalls, and another pushing snow off stumps so classmates could sit down. "What really surprised me and touched me was stewardship for the environment but also caring for each other, which is part of environmental stewardship, thinking of the needs of other people," Heslop said.

In Scammon Bay, kindergarten students answered questions, drew, took photos, and acted out scenes of themselves interacting with the environment. While the site was overseen by graduate students Kyle Farris and Holly Williams, the actual research was conducted by a set of five high-school seniors as a project for their capstone class. The students also made a public presentation of the results via videoconference to an audience in Fairbanks.

"It was my first time doing research, but then I was also trying to teach the seniors how to do research," noted Williams, who is the seniors' teacher. "It was really cool to see them step up and really take ownership of it."

In Fairbanks, graduate students Maggie Blake and Kelly Kealy didn't have the luxury of an embedded



Kelly Kealy and her teaching assistant, "Mr. Tree." Kealy and fellow UAF graduate student Maggie Blake worked with children at UAF's Bunnell House.

photo courtesy Kelly Kealy

instructor for their project at UAF's Bunnell House, so they invented their own. "We did have a co-researcher come in and help us: Mister Tree," explained Kealy, referring to a hand puppet. "It just got them interested and excited, a fun thing." They also observed the young students being respectful and helpful of the environment, including spontaneously shoveling snow to clear their play area. "They showed a deep sense of agency around stewardship of their local environment and community," Kealy noted.

The class was supported through one of three EPSCoR Education and Outreach seed grants awarded in December (EPSCoR plans to award two more; see page 4 for more information). The award provided

travel funds so that Green, Heslop and Farris could participate in the local research projects firsthand.

"It was awesome," said Heslop of her journey to Kenai. "I got to actually meet her kids so that when I'm looking at the videos, I know the whole story and the whole perspective and what was going on and what we said and what prompted them."

Green and the students plan to meet again in March for an academic writing workshop, geared toward producing a research article based on the class project. "It's one thing to teach graduate students about research methods, and about the importance of engaging children as agents and as active stewards of culture and change," Green noted. "But there's an additional level of actually providing them with that hands-on experience of doing it. And I think it's really empowering for the teachers to be able to facilitate these methods, not only in a research context but also in their educational practices."•

Alaska EPSCoR Awards Seed Grants

In December, Alaska NSF EPSCoR awarded six Faculty Research Grants of up to \$20,000 each, six Student Research Grants of up to \$4,000 each, and three Research and Education grants of up to \$10,000 each. The recipients are conducting projects aligned with Fire and Ice goals and objectives. The grantees are:

Coastal Margins faculty

- Benjamin Barst, a postdoctoral researcher at the UAF Water and Environmental Research Center, for “Investigation of mercury contamination of stream water and nearshore biota collected along a gradient of glacial influence.”
- William Burt, a UAF Assistant Professor of Oceanography, for “Characterizing groundwater input across a glacial gradient in Kachemak Bay using naturally-occurring radium isotopes: A proof-of-concept study.”
- Gwenn Hennon, a UAF Assistant Professor of Oceanography, and Jason Fellman, a Research Assistant Professor at the UAS Alaska Coastal Rainforest Center, for “Investigating microbial productivity at the terrestrial-marine interface in Lynn Canal.”
- Eric Klein, a UAA Assistant Professor of Geological Sciences, for “Understanding glacier precipitation sources and meltwater contributions to intertidal systems in Kachemak Bay, Alaska.”

Boreal Fires faculty

- Micah Hahn, a UAA Assistant Professor of Environmental Health, for “Modeling the association between cardiorespiratory hospitalizations and particulate matter from wildfire smoke in Anchorage and Fairbanks to support adaptation and resilience planning.”
- Sveta Yamin-Pasternak, a Term Assistant Professor in the UAF Department of Anthropology, for “Morel trends in Alaska Boreal Forest, perspectives from local foragers.”

Coastal Margins students

- Amy Dowling, a UAF master’s student in marine biology, for “Variability in Pacific blue mussel (*Mytilus trossulus*) demographics in a glacially influenced estuary.”
- Carolyn Hammam, a UAF master’s student in fisheries, for “A regional comparison of thermotolerance in

saffron cod *Eleginus gracilis* based on HSP70 concentrations at the critical thermal maximum.”



UAS Research Assistant Professor Jason Fellman gathers samples in the Herbert River near Juneau. Fellman and UAF Assistant Professor of Oceanography Gwenn Hennon share a Faculty Seed Grant.

- Jordan Jenckes, a UAA master’s student in geology, for “Groundwater contributions to streams and intertidal waters of Kachemak Bay.”
- James Schloemer, a UAF master’s student in marine biology, for “Watershed influence on terrestrial resource use in nearshore marine consumers.”

Boreal Fires students

- Elizabeth Hinkle, a UAF Ph.D student in Fisheries, for “Post-wildfire response of stream habitat and aquatic macroinvertebrate assemblages in the boreal forest.”
- Chris Smith, a UAF master’s student in Geography, for “MaD BoV (Mapping Detection of Boreal Vegetation).”

Education and Outreach faculty

- Alison Gardell, an Assistant Professor of Biology at UAA Kenai Peninsula College, for “Student-centered leadership for a newly established citizen science beluga monitoring project in Cook Inlet, Alaska.”
- Carie Green, a UAF Associate Professor of Graduate Education, for “Equipping educators to empower children as environmental stewards” (see page 1).
- Shannon Atkinson DeMaster, a Juneau-based Professor of Fisheries at the UAF College of Fisheries and Ocean Sciences, for “Engaging pedagogies for STEM students studying ecological change in Alaska.”

Opportunities and Announcements

Borland is new EPSCoR PA

We're pleased to announce the hire of Tara Borland as EPSCoR's new Project Administrator. Borland comes to us from Alaska Sea Grant, where she served since 2016 as Program Director. In her new position, Borland oversees day-to-day operations of Alaska NSF EPSCoR, including supervision and management of administrative, human resources and financial activities.

Borland holds a bachelor's degree in marine science from Richard Stockton College of New Jersey and a master's in chemical oceanography from UAF. She has worked at student and professional positions at UAF since 1999, including positions at both the UAF School (now College) of Fisheries and Ocean Sciences and the UAF College of Rural and Community Development.



Tara Borland

The program will distribute up to 2 awards of up to \$10,000 each. Proposals are due March 27 and awards will be announced by April 15. The grant period is April 15-Sept. 30, 2020.

For more information and to apply, visit the [Internal Awards](#) page on the Alaska EPSCoR website.

Fish Genomics faculty recruitment

The UAF Fisheries Department is seeking applicants for a tenure-track Assistant Professor in Fisheries Genomics. The position will be located in Fairbanks. The successful applicant will have expertise in functional genomics, with a focus on non-model aquatic organisms. The department is seeking individuals with the ability to use genomic tools to solve questions related to fisheries management and/or aquaculture, and to understand the genetics of adaptation in response to stressors such as climate change, ocean acidification, disease/pathogens, parasites, or selective harvest.

The faculty position is one of five planned for the Fire and Ice project. The first hire was Gwenn Hennon, who began work as a UAF Oceanography faculty member in fall 2019.

Education and Outreach Seed Grants

The Fire and Ice project is soliciting proposals for seed grant projects from early- and mid-career, full-time University of Alaska faculty and staff to carry out innovative education and outreach projects that support project diversity, education and workforce development goals.


From the PI

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of employing the Research Computing and Data Capabilities Model (RCDCM), an assessment tool that can generate baseline data about a state's cyberinfrastructure capabilities and deficiencies and hopefully fuel discussions on how to increase CI access. There's an increasingly uneven distribution of CI capability across the nation that is challenging for many EPSCoR jurisdictions seeking to undertake data-intensive research projects, and we're hoping the workshop can help shift that dynamic. If the proposal is funded, we would seek to hold the event concurrent with the Practice and Experience in Advanced Research Computing 2021 (PEARC21) conference next July.

Data comes in a million different forms – look no further than this newsletter's lead story for evidence of that. I'm thankful for our solid and productive collaboration with Axiom, and I hope our effort with the workshop will help advance the discussion about CI resource allocation on a national level in the right direction as well.

Sincerely,


Pips Veazey



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If you wish to be added to (or removed from) the EPSCoR listserv, please contact Tom Moran at tmoran3@alaska.edu or (907)474-5581.