



BRISTOL BAY ENVIRONMENTAL SCIENCE NEWS

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HOME GROWN SCIENCE

Summer time in Dillingham is a time of subsistence. The fish are running, berries are ripening and moose season is just around the corner.



Maybe this year you'll catch a few *D. pectoralis* (see NOTES below) for the freezer; I hear that battered and fried they are delicious!

This summer at Bristol Bay Environmental Science Laboratory (BBESL) we have a lot of projects underway that are homegrown Dillingham science. In an effort to in-

vestigate the health of potato plants around Alaska, neighbors in your community are growing research potatoes in their home gardens (see POTATO p.2).

UAF BBC is also 'growing' local renewable energy. Keep an eye on us; we are installing 24 solar panels to the building (see SOLAR p.3).

In addition to sampling around Nushagak Bay, this summer BBESL will set up camp in Port Heiden for a 7-day field intensive sampling trip of nearby Meshik Bay. For more information or to join us as a student, see HEIDEN p.2.

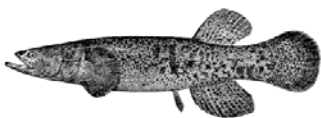
UAF BBC is working dili-

gently to establish the Environmental Studies Certificate, an educational pathway that takes students through the process of investigating an environmental problem (see ENVI p.2). At Bristol Bay Environmental Science Lab we think local people should be investigating local environmental issues.



None of the work that we do during this field season would be possible without our dedicated staff. You can learn more around them on page 3.

FIELD NOTES



Dallia pectoralis

Alaska blackfish are found in Alaska and eastern Siberia, living in densely vegetated areas, such as lowland

swamps, streams and lakes. Alaska blackfish are seldom longer than 8 inches and are distinguished by their large paddle-like pectoral fins and tail. These fish have the ability to breathe atmospheric air using a modified esophagus. This adaptation allow them to survive in

water with very little oxygen, such as tundra pools and seasonal ponds. Alaska blackfish have been used as subsistence food, because of their ease of capture in water. Traditionally AK blackfish are dried, smoked, or frozen and eaten raw. Maybe this year dinners will include Alaska blackfish.

READING LIST:

- *The Canneries, Cabins and Caches of Bristol Bay, Alaska* by: John Branson. *Lake Clark National Park and Preserve, Resource Management* 2007.
- *The Natural Step for Communities, How Cities and Towns can Change to Sustainable Practices* by: Sarah James and Torbjorn Lahti. *New Society Publishers, B.C. Canada* 2004
- *Selected Invasive Plants of Alaska* by: USDA and Forest Service, available online at: http://www.fs.fed.us/r10/spf/fhp/weed_book/weedbooklet.pdf

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CALLING ALL POTATO GARDENERS



Potatoes are one crop that residents of Dillingham can grow with relative ease in their home gardens.

Researchers from UAF's Palmer Research Center (PRC) are working with residents around Alaska, including some of your neighbors in Dillingham, to investigate virus load on local potatoes. "Anecdotaly, Alaska has clean potatoes," says Jodie Anderson, Director of Alaska Community Horticulture Program, "We have the vectors present (aphids) that can transmit viruses. If viruses are present in areas that are not in commercial potato

production, the viruses would move into those areas via the vectors. We want to prove we have clean potatoes."

To the participants of the program, all the potato seed is provided as well as necessary soil amendments. In order to participate in this study, residents needed a space to grow the plants (approximately 20' by 30') and a willingness to plant and take care of the plants, write observations, and at harvest

send a sample of the tubers back to the PRC for testing. The rest of the tubers are theirs to eat or share with friends.

Don't worry if you missed out on the potatoes this year. This project is ongoing, Spring 2010 will start another year of potato research.

For more information about potato virus research or to learn about agriculturally related courses, contact Bristol Bay Campus.



Natural History of Alaska students, learning about intertidal organisms. Photo: S. Wingert

ENVIRONMENTAL STUDIES CERTIFICATE

UAF BBC is working diligently to establish an Environmental Studies Certificate program which will provide the preparation needed for students to enter into a science-related associate or baccalaureate degree while gaining the basic academic preparation and sought after skills necessary for entry-level careers in the environmental studies. The mission of our

program is to provide local students with quality academic instruction and training responsive to community needs.

The certificate is a 34-36 credit program, which can be completed in 1-2 years. In this short time, students will be exposed to every phase of scientific investigation, from hypothesis development, through data collection and

analysis, to presenting finding at a scientific conference. This programs can be completed entirely from the Bristol Bay region, no need to travel to Fairbanks or Anchorage to take necessary courses.

To learn more about this program and about the courses that will be offered Fall 2009, contact UAF BBC.

That sounds really fun! What should I do if I want to sign up for some of these classes???



Well, that's easy. Just call or stop by UAF Bristol Bay Campus. Student advisors are available to help!

PORT HEIDEN FIELD METHODS CLASS

For one week in August (16th -22nd) BBESL will travel to Port Heiden and conduct an intensive assessment of coastal habitats. Taking along student, interns and BBESL staff to investigate the Port Heiden Critical Habitat Area (PHCHA). The PHCHA was established in 2005 to conserve the region's important estuarine and marine habitats to help protect the regional fishery. The benthic habitats

of Port Heiden coastal waters and estuaries are a mix of mudflats, eelgrass meadows, clam beds, algal fields, and sandy to gravel channels. Of particular interest are the eelgrass meadows and clam beds as they provide primary aquatic habitat for commercially important species. During the week of August 16-22nd, students, staff and faculty from BBESL will conduct intensive field sampling in the

intertidal, sub-tidal and coastal vegetation zones around Meshik Bay. These data will help fill a gap in our knowledge of the near-shore communities around Bristol Bay. If your community is interested in participating in the Bristol Bay Coastal Habitat Assessment, or if you are interested in learning more about the Port Heiden course, please contact BBESL.

BRISTOL BAY CAMPUS IS GOING SOLAR

At UAF Bristol Bay Campus we are trying to do our part by cutting back on fossil fuel use. Keep an eye out on campus — we are installing 24 BP 170 Watt photovoltaic panels (solar panels) on the exterior of the building to capture the energy from the sun, to produce electricity.

The electricity generated by these panels will be wired into the grid, and will reduce the amount of diesel-produced electricity that Bristol Bay Campus uses. A special meter, supplied by Nushagak Cooperative, will be installed that records both the amount of energy supplied from the grid to cam-

pus, and also the amount of electricity supplied from campus to the grid. Sustainable Energy professor Tomas Marsik estimates that the panels will supply about 3000 kilowatt-hours of electricity annually.

Once they are installed, Marsik will be collecting data on their energy output throughout the year, to see how seasonal light intensity and local weather affect the solar panel performance. The panels will be functional during both summer and winter, due to their vertical orientation.

These panels are the first in a number of demonstration

systems UAF BBC is planning, each should assist community members in installing renewable energy systems in their homes or businesses. Once the panels are installed and functioning, we will provide opportunities for interested individuals to come and see the connection of our system and how it is tied into the grid, as well as explain the procedure for getting renewable energy systems approved by Nushagak Cooperative.

This is the first of many steps that Bristol Bay Campus is making to become a more sustainable campus.



Tom Eveslage and Tom Marsik with a solar panel that will be installed on Bristol Bay Campus Photo: E. Reed

MEET THE STAFF



Deven Lisac is a graduate from Dillingham

High School and is currently attending the University of Alaska Fairbanks. I am going for my Bachelors of Art in Biological Sciences, to become a Marine Biologist. I love to spend time outside doing anything, from fishing, to snow-machining. This eleven week internship with UAF Bristol Bay Campus, mainly focused on water quality and water sampling for bacteria in the Nushagak Bay, and Squaw Creek.



Sidney Nelson is back at the campus as an environmental research aide!

Sidney is an 18 year old high school graduate who is shooting to become an engineer. This year, he will mainly be working on his "isopod" project. The project's purpose is to shed more light on how sensitive isopods are to temperature change. Also, he will be collecting water quality data from some of the local creeks, and transect data near the creeks in the Dillingham area, along with analyzing any sediment samples brought into the lab.



Dan Dunaway joined BBESL in January 2009 as a research technician. He helps

with equipment logistics, field data collection and is especially interested in the fresh new ideas the Lab is generating. He encourages students to pursue education in fisheries and environmental sciences. He says "the Nushagak Bay research studies are exciting and I'm really looking forward to participating in the Port Heiden class this fall." A lifelong Alaskan, Dan spent 24 years as a biologist with the AK Dept Fish & Game researching and managing commercial and sport fisheries in southwestern Alaska.



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SOON WE'LL BE ON THE
WEB!

Many of these projects are funded by



Bristol Bay Environmental Science Laboratory was established in 2007 to serve the biology and environmental science needs for the Bristol Bay region. Our mission is to increase science literacy and to provide the knowledge and skills necessary for individuals to take an active role in the management of the natural resources in and around Bristol Bay. We are your neighborhood science lab!

NEXT TIME

- Temperature and the Isopod, *Mesidotea entomon*, Is it cold enough?
- Are you up for it? Campus Climate Challenge 2009
- Power bills too high? Rural Alaska Energy Conservation



A local isopod has been the subject of temperature tolerance experiments.

Climate Challenge is a movement aimed to increase renewable energy on college campuses.

Energy Conservation: Learn how to reduce you energy consumption.

LETTERS FROM THE PROFESSORS



Dr. Tomas Marsik
Assistant Professor
Sustainable Energy

I am really excited to be finally here in Dillingham. I arrived on July 1 and started to work full-time with agencies, businesses and residents of the Bristol Bay region on the "local" energy issues. "Local" is not really local anymore, though. In today's world, energy practices involving big amounts of fossil fuels have a tremendous impact reaching far beyond the local level. Due to the association of fossil fuels with not just national, but also global political and environmental issues, the Bristol Bay Environmental Science Lab and its Sustainable Energy Initiative are on a very important mission. We need everyone's help, though. Actions of every individual matter and make a difference. It's the decisions of every single one of us what can help make this world more sustainable. Via networking and working together, we can

secure affordable energy solutions for us and future generations.

Many energy projects are currently happening at the Environmental Science Lab. Among other projects, we are collecting data using an Acoustic Doppler Current Profiler (ADCP) for potential tidal power generation, installing photovoltaic panels on the Bristol Bay Campus building, compiling fossil fuel use inventory, compiling weather data for renewable energy sources, preparing a lighting workshop, helping prepare an energy summit for this fall in collaboration with other local agencies, preparing classes on energy efficiency and renewable energy.

All this is happening thanks to our staff, interns, and many others involved in our activities. We encourage everyone interested in being involved or simply just sharing new ideas to contact us. We are listening. Thanks to everyone.



Dr. Todd Radenbaugh
Assistant Professor
Environmental Science

Bristol Bay has what the rest of the nation is looking for—healthy ecosystems, safe communities, good schools, and abundant wildlife. It is not by accident that Bristol Bay has such a bountiful nature, yes it is partly due to the lack of 'development,' but is more due to the attitudes and culture of its residents. Where most ecosystems in the US have suffered severe degradation, Bristol Bay systems support one of the last great sustainable salmon fisheries on Earth. Often we focus on what we will never have (urban areas and shopping districts) or on what is wrong (limited jobs and difficult energy issues) but we should remind ourselves that we don't have many of the ills of other regions such as impaired waters, loss of subsistence foods, and congestion. So we are doing many things correctly to maintain the health of our environment. We

have made tremendous strides such as developing Critical Habitat Areas and passing laws that protect estuaries and wetlands, watersheds and streams. However, we need to continue our stewardship to maintain our sustainable track record.

Now is the time to identify the things we do that work, and where there is room for improvement. We can make the Bristol Bay region a national conservation model that other regions would like to emulate. Bristol Bay residents, public officials, universities, and industry should be proud of what the region has and could become. The BBESL wishes to be a part of our successes in pursuit of a world-class excellence for living in a landscape where society and nature are in equilibrium. By doing this Bristol Bay residents can continue to develop and maintain a high quality of life and perhaps become a truly sustainable society. But it will take all of us cooperating to take this next step.