



UNIVERSITY OF ALASKA FAIRBANKS BRISTOL BAY CAMPUS

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BRISTOL BAY ENVIRONMENTAL SCIENCE NEWS BRISTOL BAY ENVIRONMENTAL SCIENCE LABORATORY

VOLUME 5 , ISSUE 3 FALL, 2012

ENGAGING BRISTOL BAY RESIDENTS IN ENVIRONMENTAL STUDIES

By Todd Radenbaugh

The BBESL is involved in many community education projects that span both land and sea. Let's take a look at some of the activities held over the past few months...

First looking to the sea, in cooperation with the Dillingham High School, 9 students are training for the annual NOAA Tsunami Bowl, a marine science competition (p. 2).



DLG High School students seining on Kakanak Beach

Now for a land based project, with the Sustainable Energy Program and the Construction Trades Technology (CTT) program. During summer classes (p. 2), 17 students learned construction basics. Not just framing buildings though, more importantly students learned how to make buildings more energy efficient.

In April 2012 on both land and



Highly energy efficient cabin built by Dillingham CTT Students.

sea the lab intensive for BIOL 104, Natural History of Alaska, was taught for the 5th year at the NOAA Ted Stevens Marine Research Institute (p. 2) in Juneau. Five Students studied intertidal and coastal forest habitats of Southeast Alaska.



Students in Juneau taking the lab intensive for BIOL 104 Natural History of Alaska.

In July 2012, we once again partnered with BBEDC, USFWS Togiak Wildlife Refuge, and NOAA for Salmon Camp. This summer, 9 students from across Alaska came to Bristol Bay to study salmon habitats of the Aleknagik

Lake ecosystem.

In both estuary and river, a field intensive (ENVI 260) class was held in Aug. 2012 to teach students field techniques in Environmental Studies. This class is



Bear Creek Salmon round-up

taught each year as part of a capstone research project for the ENVI Certificate. Students learn what it takes to do environmental field work – from logistics to data collection (p. 2).

Finally, digging in the dirt, the UAF BBC partnered with BBNA and its TANF Program to host the 3rd annual Sustainable Living Symposium. The class focused on how we can live more sustainably in Bristol Bay through increased local food production combined with effective harvest and storage techniques. Students learned how to improve their quality of life in the region both economically and environmentally. (p. 3)

READING LIST:

Energy Savers Tips for Alaska, Second Edition (available free at UAF BBC)

Tiny Homes, Simple Shelter by Lloyd Kahn

Folks, This Ain't Normal: A Farmer's Advice for Happier Hens, Healthier People, and a Better World by Joel Saladin

King of Fish: The Thousand-Year Run of Salmon by David Montgomery

Overfishing: What Everyone Needs to Know by Ray Hilborn and Ulrike Hilborn

Check out page 2 for more information



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FIELD NOTES

By Dan Dunaway



Liparidae
Snailfish

An unusual fish caught in Nushagak Bay estuary is the dark little gelatinous bottom-

living Snailfish. Usually 2 to 5 inches length these Jello-like fish have a blunt head and a body tapering to a small tail. Their skin is very smooth and slippery. Colors generally range from blackish to mottled pinkish brown. The fins are indistinct except for their pectoral fins. The pelvic fins form a small belly sucker. Snailfish are assigned the family name Lipari-

dae. They are common in polar regions of the world with about 56 known species in Alaska. Those caught on research missions in Nushagak Bay haven't been identified, however, its likely there are more than one species in the genus *Liparis*. While Snail fish aren't typically eaten in Alaska, salted dried Snailfish are available for sale in Asian markets.

TSUNAMI BOWL By Clint Reigh

Students at Dillingham High School will once again be able to earn college credit through the UAF Bristol Bay Campus while participating in the Alaska regional National Ocean Sciences Bowl (Tsunami Bowl) competition. Nine students are enrolled in a Bristol Bay Campus class designed to provide students an introduction to scientific research.

In preparation for the event, which will be held in Seward February 8-10, students are conducting research projects related to this year's theme: Estuarine Systems and the Importance of Freshwater in Marine Science. One team is investigating the role of fish waste in Nushagak Bay and how it may be better used locally. The second team is investigating the possibility of PCB contamina-



Students Kenneth Ramsey, Connor Ito, Ladonya George, Amelia Giordano looking at a Starry Flounder

tion in Nushagak Bay and the role of state and federal regulations.

As part of their research, students recently spent an afternoon gathering data at two locations in Dillingham. Beach seining was conducted at Snag Point and Kakanak Beach to determine which organisms could be found. Water quality measurements were

also taken at both locations to determine some of the chemical properties of the estuary. Sediment samples were also obtained from both locations to be analyzed for levels of PCB. While the trip was fun for all, the data gathered will provide valuable information to the research effort.

In addition to a research project, students will present their research at Tsunami Bowl and participate in an academic competition based upon their ocean science knowledge. The Dillingham teams have been working hard to learn the strategies of quiz bowl competition as well as on building their ocean science knowledge.

STUDENTS LEARN CONSTRUCTION TRADE AT BBC By Chet Chambers

The Sustainable Energy Program has coordinated and offered a Construction Trades Technology (CTT) certificate program since 2010.



CTT Students ready to work.
Photo by Chet Chambers

Students earn college credits and construction industry certifications. The hands on experience helps students to develop their carpentry skills while learning basic building science for energy efficient and cold climate building techniques.

In August, another successful building season culminated with the completion of a student-constructed 17'x13' cabin, a collaboration project with the Dillingham City School District. The engineered structure was built using the REMOTE wall system or Outside Insulation Technique, which in-

cludes 6" of foam insulation attached to the exterior wall. This technique improves moisture control and air tightness. The building has additional energy efficient features including heavy insulation (R-63 in the attic), triple-paned, high performance windows and limited thermal bridging.

The cabin can be used as a residence or a recreational cabin and is being auctioned off by the Dillingham City School District. Proceeds of the auction will be used to fund future CTT building projects with the Dillingham High School.

Nunaput Stewardship Scholarship

Applications Now Being Accepted

Students interested in environmental studies, sustainable energy or rural development have the opportunity to apply for a scholarship through the UAF Bristol Bay Campus that will allow them to become better stewards of their region. Full time scholars can earn as much as \$2400 per semester, which combined with other financial aid, could be used for anything the scholar needs. Students can apply for full time or part time scholarships. The deadline for the next round of applications is November 16, 2012. **Call 907-842-5109 for more information.**

Recent Field Courses

ENVI 260

In August, five students completed an intensive field course studying the distribution of isopods in the Wood River system. In addition to searching for isopods, students investigated sediment and water quality using the latest field techniques. It was hard but rewarding work as students not only collected data but also learned about field logistics and data analysis.

BIOL 104

For 5 years, the lab intensive for the Natural History of Alaska class was conducted in Juneau. Students studied habitats ranging from rainforest to intertidal. An evening symposium was held where students made project presentations.



The Bristol Bay Science Sleuths are now looking for myths, mysteries and mistruths to debunk during Dilly Cappers at Beaver Round-Up 2013. The Science Sleuths are a group of underground tinkers, scientists and searchers of truth that work tirelessly to debunk myths and find the answers to the strangest questions ever asked in Bristol Bay. If you think you might have what it takes to be a BB Science Sleuth or you have a question that just needs some answering, check us out www.uaf.edu/bbes/events/science-sleuths or call the Bristol Bay Campus at 842-5109.

SALMON CAMP By Adam Kane

In July, 9 high school students from across Alaska met on the shores of Lake Aleknagik for Salmon Camp 2012. The 6 day natural history camp taught students about the pristine nature of Bristol Bay and the life cycle of a salmon while having fun fishing, boating and hiking. Salmon



2012 Salmon Camp Participants at Lake Aleknagik

Camp 2012 was again a partnership led by the Bristol Bay Economic Development Corporation (BBEDC), USFWS Togiak Wildlife Refuge and UAF Bristol Bay Campus. Local students were funded by BBEDC while those from outside the region came with the assistance of a NOAA grant.

The camp started with safety training in wilderness skills, boats and bears. Next was Dr. Marsik's instruction of renewable energy system installation. Because the camp is off the electrical grid, alternative

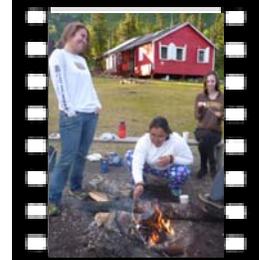
energy generation was needed to power computers and lab equipment.

The salmon ecology and field research are really the main focus of Salmon Camp so the rest of the week, students donned float coats and armed themselves with dip nets, water quality instruments, GPS's, stream gauges and more. They headed out in skiffs to measure a number creeks full of spawning salmon and other fish, insects, and vegetation. A few fish were brought back to camp to be dissect-

ed and internal organs compared. The information found at the creeks was recorded into the student's invaluable field notebooks and later used to prepare their final presentations.

On the final day of camp, everyone packed up and headed to BBEDC's Boardroom in Dillingham where the students presented their data to the community. The guests were amazed at the breadth and depth of knowledge learned by the students during the camp.

Overall, Salmon Camp 2012 was another success. Students persevered inclement weather, biting insects and curious bears. Yet all had lots of fun outside while learning more about salmon, salmon habitat, sustainable energy, and how to be better stewards in their region.



Pictures from: Salmon Camp 2012, Lake Aleknagik 2012 Home Energy Basics, King Salmon 2012 Summer CTT program, Dillingham

Sustainable Living Symposium By Adam Kane

This was the UAF BBC and BBNA Tribal TANF program's 3rd year hosting the annual gardening course titled, Sustainable Living Symposium. Coordinated by BBNA's Rae Belle Whitcomb, Marlene Andrews, and Tish Luckhurst along with BBC's Adam Kane and instructor Jeff Smeenk, there were more than 30 students from throughout the Bristol Bay region in attendance as well as expert gardeners and presenters from around the state.

Students at the symposium learned a variety of gardening techniques to make their home or community gardens more bountiful. They also learned how to manage wild patches of berries to be more productive.

Many other sessions were held at the 3 day Symposium including: edible and medicinal plants of Alaska, gourmet cooking with local produce, canning and preserving fish and vegetables, pH-lime and fertility, gardening for profit. The same as in past symposiums, students visited several local gardens around Dillingham to see first hand what works best here in Bristol Bay.



Symposium Students tour the Belleque Family Farm. Photo by Pat Holloway



MEET THE NEW BBESL STAFF



Clint Reigh joined the UAF Bristol Bay Campus in July of 2012 as a Research Technician. Clint has a Bachelor's degree in Biochemistry and Biology from Case Western Reserve University in Cleveland, Ohio. Clint worked as a biomedical researcher for ten years prior to moving to Alaska in 2003. He also holds a teaching certificate from UAF and taught science at the Dillingham City School District for three years prior to joining to the Bristol Bay Campus. He is looking forward to getting the new and improved Bristol Bay Environmental Science Laboratory up and running this fall and working with Bristol Bay communities and students on exciting citizen science projects.

Bristol Bay Environmental Science Laboratory

University of Alaska Fairbanks

Bristol Bay Campus

P.O. Box 1070

Dillingham, AK 99576

Phone: 907-842-5109

Toll Free: 1-800-478-5109

Email: bb-esl@alaska.edu

WWW.UAF.EDU/BBESL



Upcoming Science Courses

- ENVI 101: Intro to Environmental Science (3 credits)
- ENVI 120: Home Energy Basics (1 credit) (Dillingham, November 9-11)
- ENVI 120: Home Energy Basics (1 credit) (Location TBD, November 16-18)
- ENVI 193: Residential Solar Photovoltaic (PV)(1 credit) (Dillingham)
- BIOL 104: Natural History of Alaska (4 credits)
- PHYS 102x: Energy and Society(4 credits)

Spring 2013 Registration begins November 12th, 2012 for degree seeking students and November 19th for everyone else.

Call The Bristol Bay Campus To Register Now!
842-5109
1-800-478-5109

Stories For Our Next Issue....



LETTERS FROM THE PROFESSORS



Dr. Tomas Marsik
Assistant Professor
Sustainable Energy

It's October, another year has passed and it's Alaska's Energy Efficiency Awareness Month again. What does it really mean? Does it mean that we can be lazy 11 months of a year and only think about energy efficiency in October? That would be one interpretation, but not a very productive one. This is how I like to think about it: Keep trying all year, but if there are things you have been putting on a back burner and need a little push to get them done, take the Energy Efficiency Awareness Month as that push. Also, many communities celebrate this month by organizing special educational events on energy. Look around and I am pretty sure you will find some. If not in your community directly, you will find statewide

events available through webinars and other media.

October is a great choice for the Energy Efficiency Awareness Month because it is before the winter. For example, have you put plastic over your single-pane and double-pane windows yet? Both plastic and tape come as a part of the window insulation kit, which is cheap, easy to use, can prevent mold and save a lot of energy. It's only easy to use though, if you do it early. If you wait too long and your windows and frames start sweating from the cold, it will be difficult to install. So, don't wait to winterize your home, do it now! If you don't know how, contact us. That is why we are here. And if the practical reasons are not strong enough and you need an extra push – let me remind you that it's October, Alaska's Energy Efficiency Awareness Month.



Dr. Todd Radenbaugh
Assistant Professor
Environmental Science

As Bristol Bay residents, we understand the importance of the connections between the environment, economy and culture. The commercial and subsistence fishery has not only been profitable but sustainable as well. Even though Bristol Bay is currently healthy, we must be vigilant to keep it resilient. Despite its remote geography and low human population, the Bristol Bay ecosystem IS changing. This change is NOT entirely due to local human influences but rather influences at regional and global scales.

Such broad level changes are causing an uncertain future, where managing natural resources use is becoming more difficult. More variability in geographical and ecological processes makes planning more difficult. Further, it has become clear that this increased variability is caused by more than the popularly touted changes in weather and climate. It also includes loss of

ecosystem biocomplexity (both on land on in the sea), increases in ocean acidification, and changes in nutrient cycling. As a society so dependent on healthy ecosystems, we must re-define and evaluate our relationship with our social and ecological systems. We can now envision once farfetched scenarios that threaten how we do things such as collect subsistence foods, move between villages, and connect with global markets. We need to think more about current and future threats to our region and expand on our natural resource management strategies. For example, in Alaska the majority of the many management strategies focus only on a single-species for human uses.

If we wish for a more secure and truly sustainable future, management of natural resources needs to emphasize ecosystem health concepts such as the functions and roles of key species and their interactions with physical processes. Such models are more realistic and responsive to the environmental variability and ecosystem level change we have been witnessing.

Bristol Bay Environmental Science Laboratory was established in 2007 to serve the sustainable energy 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!