The bright belly sculpin generally live in marine and estuarine waters 50m deep or less. It is found from the Aleutian Islands to Sea of Japan and the Bering to the Chukchi Sea. Body shape is classic sculpin with a large mouth, a wide blunt head with flared gillplates and body that tapers to a small rounded tail. Length is less than 125 mm. Their backs are mottled dark browns, greens, even purplish, sometimes showing thin black bands bordering lighter bands. Most distinctive is their namesake bright yellow to orange belly patch. They are important ecologically but not to commercial, sport or subsistence users. Knowledge of their life history is minimal. Like several sculpin species, *M. sellaris* may buzz vigorously when threatened.

**FIELD NOTES** By Dan Dunaway

Bright Belly Sculpin *Microcottus sellaris*

The bright belly sculpin generally live in marine and estuarine waters 50m deep or less. It is found from the Aleutian Islands to Sea of Japan and the Bering to the Chukchi Sea. Body shape is classic sculpin with a large mouth, a wide blunt head with flared gillplates and body that tapers to a small rounded tail. Length is less than 125 mm. Their backs are mottled dark browns, greens, even purplish, sometimes showing thin black bands bordering lighter bands. Most distinctive is their namesake bright yellow to orange belly patch. They are important ecologically but not to commercial, sport or subsistence users. Knowledge of their life history is minimal. Like several sculpin species, *M. sellaris* may buzz vigorously when threatened.
BBESL contributes to world record

By Tom Marsik

Tom Marsik and Kristin Donaldson designed and built an extremely energy efficient house with the air-tightness of 0.05 Air Changes per Hour (ACH) at the differential pressure of 50 Pascal’s – setting the new world record for the Tightest Residential Building. The official blower door test was performed on March 6, 2013 and few days later the record was made official by the World Record Academy. Despite its airtightness, the house maintains good indoor air quality thanks to a heat recovery ventilation (HRV) system.

The extreme air tightness, superinsulation (28” thick walls), small size, and other energy efficiency features result in very low energy use. The main purpose of this world record is to help bring more attention to energy efficient buildings and efficiency in general. The world’s tightest known residential building was modeled after the Passive Office, a student-built experimental structure developed by the UAF Bristol Bay Campus Sustainable Energy Program.

To learn more, visit [http://www.uaf.edu/bbesl/sustainable-energy/record/](http://www.uaf.edu/bbesl/sustainable-energy/record/)

WAISC 2013 & SAGE at northwest campus

By Adam Kane and Todd Radenbaugh

WAISC

Faculty and staff from the BBESL contributed significantly to the 2013 Western Alaska Interdisciplinary Science Conference: Rural Science in Action. This year WAISC was hosted by the UAF Northwest Campus in Nome. BBESL was represented in a number of sessions including Energy and Conservation led by Chet Chambers and Tom Marsik. Dan Dunaway and Todd Radenbaugh shared new data about Nushagak Bay. Clint Reigh discussed the distribution of Isopods (Saduria entomon) in Wood River. Adam Kane discussed Dillingham dendrochronology.

BBESL students who also presented include Triena Slatter, Charlene Dubay and Jennifer Robinette. Led by Summer Graber and Clint Reigh, Dillingham High School Tsunami Bowl students Connor Ito, Kenneth Ramsey and Brian Venua also presented at WAISC.

At the keynote address and awards dinner, BBESL was awarded for its work regarding sustainable communities, the environment and sustainable energies.

Web link: [seagrant.uaf.edu/conferences/waisc/](http://seagrant.uaf.edu/conferences/waisc/)

Western Alaska SAGE 2YC

New to WAISC was the Western Alaska Engagement in Geoscience for Two Year Colleges (SAGE 2YC) Workshop. The workshop brought together educators, scientists, rural leaders, students, and community members to discuss regional science and math educational issues.

This one-day workshop focused on how the Science Department at UAF’s College of Rural and Community Development can improve integration of curriculum and programs.

Some of the key discussion points at the workshop included the role of non-degree one credit classes, how to promote cooperation between urban and rural faculty, how to hold more science core courses, and cost of tuition. The workshop was a good start in addressing the many science educational issues faced by rural community campuses.

Web link: [https://serc.carleton.edu/sage2yc/workforce/local2013alaska/index.html](https://serc.carleton.edu/sage2yc/workforce/local2013alaska/index.html)

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 August 15, 2013.

For more information call: 907-842-5109.

Spring 2013 science lab intensives

Three lab intensives were conducted through the BBESL in Spring 2013:

- Instructor: Todd Radenbaugh
  Biology 104x: Natural History of Alaska
  Location: Juneau
  April 6-10, 2013

- Instructor: Brian Rasley
  Chemistry 103x: Basic General Chemistry
  Location: Dillingham
  April 9-12, 2013

- Instructor: Tom Marsik
  Physics 102x: Energy and Society
  Location: Fairbanks
  April 27-30, 2013
**Proposed Occupational Endorsement in Environmental Studies**

*By Todd Radenbaugh*

UAF BBC is proposing an Environmental Studies Occupational Endorsement (ENVI OE). OEs are entry level educational pathways designed to provide specific workforce skills. They require between 9 and 30 credit hours. These hours may also be applied to other undergraduate degree programs. Currently UAF BBC offers an OE in Sustainable Energy.

The proposed ENVI OE will be taught entirely through distance education techniques using many eLearning models and appropriate technologies. The ENVI OE has many partners across Alaska and currently include Alaska Forum on the Environment (AFE), Bristol Bay Native Association (BBNA), the Kuskokwim Watershed Council (KWC), Rural Alaska Community Action Program (RurAL CAP), and Southwest Alaska Municipal Conference (SWAMC).

Using survey data and consultation with partners, ENVI OE goals include: 1) a distance delivered curriculum in environmental issues and ethics that promotes behaviors that benefit the environment, 2) engage students in environmental stewardship by emphasizing the importance of the ecosystem services that to protect human health, support economic and recreational activities and provide healthy habitat for biota, and 3) develop environmental workforce that are employed in rural Alaska.

**Skeletal Puzzles**

*By Adam Kane*

In preparation for articulating the Orca mother with fetus that swam up the Nushagak in 2011, UAF BBC has been holding Small Mammal Skeleton Articulation classes.

During fall semester, instructor Lee Post held two classes. Many students attended the weekend long classes and successfully re-assembled a fox and an otter skeleton. The Orca fetus was thawed out and the bones were cleaned in April. The next step for the students is to re-assemble the skeleton, which is thought to be the only (soon to be) articulated Orca fetus in the world.

**Meet the 2013 BBESL Interns**

*By Adam Kane*

BBESL interns actively work with local and statewide organizations that focus on environmental and energy issues.

The Spring 2013 interns are:

**Katrina Lockuk**

Title: Collaborative Research: Building Capacity for Community-Based Marine Mammals Conservation in Bristol Bay

Sponsor Agency: Bristol Bay Native Association

**Triena Slatter**

Title: Community Outreach with Alaska Center for the Environment

Sponsor Agency: Alaska Center for the Environment

**Michael Golub**

Title: Environmental Film Production

Sponsor Agency: UAF Dept. of Theatre and Film

**Spotlight Intern:**

Charlene Dubay is the Environmental Director for Telida Native Village and has worked with the EPA Indian General Assistance Program for 11 years. She has a B.S. in Wildlife Biology from the University of Massachusetts. The Environmental Department is doing a 2-year water quality assessment in the Upper Kuskokwim River. Through the BBESL Charlene is learning to help her tribe build capacity for water quality testing and analysis. She is re-teaching the tribal members what she learns in her classes.

**Student of the Year, Kristina Ramirez**

*By Adam Kane*

Kristina Ramirez, an NSF Nunaput Scholar, is the UAF BBC 2012-13 Student of the Year. She is graduated with an Associate of Arts degree and still working to complete a Rural Development Bachelor degree. She states “one of the biggest challenges towards obtaining her AA degree was trying not to go out snow machining every weekend because she had to stay home and work on homework.”

Kristina is from Dillingham and would like to work for one of the Bristol Bay region corporations or organizations.
Upcoming Science Courses

- **ENVI 260**: Field Techniques for Environmental Technicians (2 credits) (Summer 2013)
- **ENVI 265**: Intro to Methods in Environmental Studies Reporting (2 credit) (Fall 2013)
- **ENVI 220**: Intro to Sustainable Energy (3 credits) (Fall 2013)
- **GEOG 111X**: Earth & Environment (4 credits) (Fall 2013)
- **CHEM 103X**: Basic General Chemistry (4 credits) (Fall 2013)
- **BIOL 103X**: Biology and Society (4 credits) (Fall 2013)

It is another busy spring at the Bristol Bay Environmental Science Lab. One thing we definitely cannot complain about is a shortage of things to do. Looking at our sustainable energy projects, here is a brief summary of what we have been up to since the last newsletter: Besides teaching classes, we have continued our sustainability movie series, given tours of our energy tools (Passive Office, etc.), hosted an energy workshop for high school students, presented at numerous conferences, meetings, and workshops (AISES, AFE, ACAT, SWIM, WAISC, Beaver Roundup), performed energy demonstrations at schools, participated in career fairs, made significant updates to our website (check it out: [http://www.uaf.edu/bbesl/](http://www.uaf.edu/bbesl/)), and collected a lot of data. The data collection and analysis was done for two ultra-efficient buildings, a solar hot water system, air-source heat pump, photovoltaic system, wind turbine, and local weather.

One thing that I am very excited about is that the revisions to our Occupational Endorsement in Sustainable Energy were approved. The revised version has electives that allow students to specialize in specific areas of sustainable energy. Now there are also options for 100% distance delivery, which means anyone with internet access can complete this occupational endorsement regardless of location. As always, we are interested to hear from you. If you have suggestions, want to get involved, or simply just seek more information, let us know!

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

**Fall 2013 Registration is now open!**
Register at the Bristol Bay Campus or Online at [UAonline.alaska.edu](http://UAonline.alaska.edu)

**Stories For Our Next Issue...**

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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!**