# MARCH 2024 QUARTERLY REPORT

*Our Mission: To enhance understanding and appreciation of the Kachemak Bay estuary and adjacent waters to ensure that these ecosystems remain healthy and productive.*

Kachemak Bay
National Estuarine
Research Reserve

# ADMINISTRATIVE / MANAGER UPDATE

## STAFF (03/01/2024)

Katherine Schake, Reserve Manager
Syverine Bentz, Coastal Training Program Coordinator (on parental leave through March)
Ingrid Harrald, Education Coordinator
Lauren Sutton, Research Coordinator
Chris Guo, Research Professional, SWMP Coordinator
Rosie Masui, CTP Specialist
Jasmine Maurer, Harmful Species Coordinator
Kim Schuster, Harmful Species Research Professional

### Staff Transitions

Jacob Argueta and Ben Peters have moved on to other positions as of Jan/Feb 2024, and Conrad Field's temporary position ended in November 2023.

**Recruitment is underway for three positions:** Administrative Specialist (9 applicants); Ecology Technician (20+ applicants); and Education Specialist (applications due March 22nd)

## FACILITIES

Extensive time and money has been invested in the KBNERR Field Station office and bunkhouse this winter. The heating system has been repaired three different times and is in dire need of upgrades, several plumbing issues were addressed, and re-caulking and attic squirrels in the bunkhouse will be addressed in the next month. The bunkhouse was mostly closed to students this spring semester while Katherine Schake, Reserve Manager, worked with staff to upgrade bunkhouse agreements, address minor and major repairs, and establish clear protocols for keeping visitors and students warm and safe.

## COMMUNICATIONS

Roca Communications is working with Katherine to wrap up final tasks for the soft launch of the new website: kachemakbayreserve.org. The Community Council and staff will be requested to review the website and offer feedback this spring, prior to the full launch this summer. Katherine, as Reserve Manager, met with Council Committee Chairs in January to discuss expectations for Council support from the new Administrative Specialist. The Reserve Manager will remain as the liaison between the Council and staff. A new Council Outreach Committee was convened in February to discuss Reserve community outreach activities.

## FISCAL REPORT

The final progress report for NOAA Operations Award FY22/23 was submitted in February, 2024. The current NOAA Ops Award for FY24 is open, an interim progress report was submitted in February, 2024. The Award Period of Performance is: July 1, 2023 – December 31, 2024
Total Federal Award: $867,113

## INCOMING AWARDS

**Schake, K**., Bentz, S., $400,000. Increasing Capacity of KBNERR to Steward Coastal Resources and Resilient Communities. 2024. NOAA Inflation Reduction Act NERRs Capacity Building. Funded.

## FUNDING OPPORTUNITIES

The draft NOAA Operations FY25 Application has been submitted to NOAA for review. KBNERR still does not have a NOAA Liaison, but there is a new liaison scheduled to start in mid-March.

Proposals submitted by the Reserve Manager in January and February, 2024 include:

**NOAA Land Acquisition and Construction Program (PAC), requires 30% nonfederal match**

- **$500,000 for KBNERR and Kachemak Bay Campus Shared Facilities Planning & Design Project** ($214,297 in nonfederal match from Kenai Peninsula College cash match and waived indirect)
- **$85,312 for KBNERR Truck and Boat Engines Acquisition** ($36,567 in nonfederal match from KBNERR Fund 7 cash and waived indirect)

**NOAA Climate Regional Resilience Challenge Track 1 and Track 2**

**~ $30 million for *Kenai Peninsula Borough Resilience and Adaptation Initiative*, The Conservation Fund**

- $8 million for KBNERR and subawards to science team (Univ. South Florida, Cook Inletkeeper, Kenai Watershed Forum)

**~ $1.8 million for *Project WATER, Working Around Tikahtnu to Empower Resilience*, Cook Inletkeeper**

- $291,631 for KBNERR Coastal Training Program support

**~ $2 million for *We are People of the Sea: Planning and Capacity Building for Community and Environmental Health in the Chugach Region, Alaska*, Chugach Regional Resources Commission**

- KBNERR provided a letter of support, and is on standby to apply for NOAA Technical Assistance Funding to support the project, should it get awarded

## ORAL AND POSTER PRESENTATIONS

The Reserve Manager presented an overview of KBNERR at the Kenai Peninsula Fish Habitat Partnership Membership meeting on February 5th in Homer, AK.

## PROGRAM UDPATES

Katherine has been joining the monthly NOAA Alaska Regional Team meetings, and the Alaska Geospatial Council meetings to explore further partnership and project opportunities. She will be traveling to Washington D.C. in late March for the National Estuarine Research Reserve Association (NERRA) and NERRs Program Manager meetings. This will include a visit to Capitol Hill with Alaska's Congressional Delegation.

# RESERVE MONITORING

## PROGRAM UPDATE

### System Wide Monitoring Program (SWMP):

KBNERR maintains four real-time telemetered sites: Homer Deep WQ (kachdwq), Seldovia Deep WQ (kacsdwq), Homer Spit MET (kachomet), and Anchor Point MET (kacapmet)

Meteorology (MET)

- Regular monthly sampling/maintenance occurred for December, January, and February
    - Primary QAQC was completed by KBNERR and accepted by the CDMO
- KBNERR is working with City of Homer Port & Harbor to relocate station KACHOMET
    - The new location will be near the Deep Water Dock, but location change is still under review with the CDMO
    - New tower was erected in December before weather halted installation
- Secondary QAQC was completed for MET 2023 fourth quarter (October 1 – December 31, 2023) and submitted to the CDMO on January 16, 2024

Water Quality (WQ)

- Regular monthly sampling/maintenance occurred for December, January, and February
    - Primary QAQC was completed by KBNERR and accepted by the CDMO
- Secondary QAQC was completed for WQ 2023 fourth quarter (October 1 – December 31, 2023) and submitted to the CDMO on February 8, 2024

Nutrients (NUT)

- Regular monthly sampling/maintenance occurred for December, January, and February

## Funding Opportunities or Proposals Submitted

SWMP is funded by KBNERR's NOAA Operations Award and renewed annually

## Oral / Poster Presentations

A talk using Seldovia Deep WQ data will be presented at the Kachemak Bay Science Conference 2024

# RESEARCH PROGRAM

## PROGRAM UPDATE

The research program is in full swing for summer planning. Sumner activities include long-term weather and water quality monitoring, invasive species monitoring, near shore fish monitoring via beach seining, and salt marsh monitoring. Additionally, the research team will continue to partner with university and federal partners for field work this summer, including the construction of a Motus Tower. The KBNERR was approached by the Cape Fear Bird Observatory and offered the installation and equipment for a Motus Tower as part of a NERR science collaborative grant. Motus Towers are "an international collaborative research network that uses coordinated automated radio telemetry to facilitate research and education on the ecology and conservation of migratory animals. Motus is a program of Birds Canada in partnership with collaborating researchers and organizations (Motus.org)." The research reserve is particularly excited about pairing Motus Tower data collection with birding observations. The tower will be constructed during the shorebird festival and attached to the KBNERR office building.

KBNERR continues to grow existing partnerships and make connections with new partners. For example, the KBNERR is currently mid-way through a project exploring the applications of environmental DNA (eDNA) in collaboration with the University of Alaska Anchorage (via Doug Causey and Debbie Tobin), the Hei'ea NERR, and the University of Alaska Fairbanks. eDNA is DNA found in the environments of air,

soil, and water and can be detected for a variety of organisms and by multiple evolving technologies. Part one of this three-step project was successful (see Coastal Training Program update) and next steps include working with the eDNA equipment housed here in Homer to see if we can collect eDNA samples and analyze them locally. The final step of this project is to facilitate a community-focused workshop highlighting eDNA methodology and asking our partners and community members what questions they may be interested in, given what we know about eDNA.

Photo: Participants from the eDNA Workshop at the Alaska Marine Science Symposium, led by KBNERR Research Coordinator, Lauren Sutton, and supported by Katherine Schake and Rosie Masui.

The research team is currently planning a data synthesis workshop to be held March 6-8 at the Research Reserve. This will be a hybrid workshop focused on using long term datasets to answer ecologically relevant questions for Kachemak Bay. Participants will bring datasets and possible research questions that could be answered with these datasets together in a structured 3-day workshop. The goal is to build partnerships and create or revisit projects that use long term data.

The research team has been working on improving the Alaska Aquatic Invasive Species Clearinghouse (AK aqua), an online, open-source interactive database that highlights where invasive species have been found and locations of current survey detection effort. Presence, or lack thereof, is currently shown for European Green Crab as well as presence/absence and effort for Orthione griffensis, an invasive isopod that impacts blue mud shrimp. A handful of species still need to be included in the clearinghouse and the project is moving forward. By 2025 we intend to add species to the clearinghouse on an as-needed basis and continue with maintenance of the website.

## Peatlands, Watershed Ecology Program

Recruitment is underway to hire an Ecology Technician position to support the Peatland Beaver Project with Alaska Wildlife Alliance, support peatland monitoring protocol deliverables for the land acquisition projects, and support salt marsh monitoring efforts this summer. Interviews for this position will begin

in March, with a start date in April. Lindsey Flagstad, Principal Investigator for the peatland projects, maintains excellent communication with KBNERR staff based in Homer.

## Salmon Watershed Stewards, Watershed Ecology Program

Erin Larson, Principal Investigator for the Salmon Watershed Stewardship project, has returned from parental leave and is working with the Reserve Manager and KBNERR staff to schedule planning meetings for a joint Fish Habitat Partnership event between the Kenai Peninsula and the Mat-Su partnerships in spring 2025. Erin maintains excellent communication with KBNERR staff based in Homer.

The research team is currently looking to hire an Ecology Technician to lead the Beaver Peatland project. This will entail a lot of field work as well as data analysis. Interviews will be held in March with a start date in April.

## Funding Opportunities or Proposals Submitted

**Sutton L and Schuster, K.** $95,550. **"** FY23-FY28 Enhancing Development of an Aquatic Invasive Species Data Portal." Fish and Wildlife Service. Funded.
**Sutton L**, Bentz S, Causey D, Harrald I, Boege-Tobin D, Rii S, and Ching C. $63,900. "Explorations, Demonstrations and Novel applications for environmental DNA in Kachemak Bay, Alaska." 2023. National Estuarine Research Reserve System Science Collaborative. Funded.

**Sutton L** and Forster C. $30,000. "Functional diversity of Arctic fishes in response to changing ice conditions". 2023. Arctic Marine Biodiversity Observing Network. Funded.

## Manuscripts

**Sutton L**, Ulaski B, Lundstrom N, Whitney E, Fellman J, Guo G, Beaudreau A, Jenckes J, Gabara S, and Konar B. Seasonality and hydroclimatic variability shape the diversity of nearshore fish communities in glacierized estuaries of Alaska. Journal of Experimental Biology and Ecology. Submitted.
**Sutton, L.**, Hauri, C., Pages, R., Mueter, F., and Iken, K. Predicting epibenthic functional distribution on changing Arctic shelves. In preparation for Elementa.

**Sutton L.,** Forster C., Muete F., and Iken K. The role of static and dynamic environmental drivers in shaping Arctic fish functional diversity. In preparation for Marine Ecology Progress Series.

## Oral / Poster Presentations

**Rioult-Pedotti, S. and Guo, C.** Stomach Contents and Stable Isotope Analyses of Sportfish in Lower Cook Inlet. Poster presentation at the Alaska Marine Science Symposium, January 2024.

**Sutton L**, Ulaski B, Lundstrom N, Whitney E, Fellman J, Guo G, Beaudreau A, Jenckes J, Gabara S, and Konar B. Seasonality and hydroclimatic variability shape the diversity of nearshore fish communities in glacierized estuaries of Alaska. Poster presentation at the Alaska Marine Science Symposium, January 2024.

**Sutton L.,** Forster C., Muete F., and Iken K. The role of static and dynamic environmental drivers in shaping Arctic fish functional diversity. Poster presentation at the Alaska Marine Science Symposium, January 2024.

Pretty J**, Sutton L,** Campbell R, and McKinstry C. Examining functional trait diversity of zooplankton in Prince William Sound. Poster presentation at the Alaska Marine Science Symposium, January 2024.

**Education** *(Students mentored, classroom presentations)*

Lauren Sutton is the current mentor for the KBNERR Margaret A. Davidson fellow, Jonah Jossart. In addition, Lauren sits on two graduate student committees for the University of Alaska Anchorage and University of Alaska Fairbanks. Two NOAA Hollings interns have been selected for the 2024 summer season. One student will work with Ingrid Harrald on outreach regarding European Green Crab and the other student will work with Lauren Sutton on nearshore fish ecology and with fisherman in Kachemak Bay.

**Outreach**

The research reserve continued to host publication lunches open to the public and focused on scientific literature relevant to this region.

## HARMFUL SPECIES PROGRAM

### PROGRAM UPDATE

Weekly phytoplankton sampling at Homer Harbor was conducted whenever the weather and the harbor ice allowed. Samples have been sparse throughout the winter, but pseudo-nitzschia was observed in December and January this year, which has not occurred since 2018. Kim participated in the Annual AHAB Meeting in Anchorage in January, where much of the focus was on the use of Imaging Flow Cytobot (IFCB). IFCB is an automated robotic microscope that can monitor phytoplankton in situ, they can be mounted to a research vessel or a dock or buoy with power. They require technical training to keep running and the AHAB network is figuring out how to get more Alaskan's trained on the operation of this tool as well as purchasing them to add to the tools in the state for predicting and monitoring HABs.

Planning for the Marine Invasive Science Collaborative travel workshop in Washington is well underway. KBNERR staff have been working with Padilla Bay NERR staff and WA Sea Grant Crab Team in preparation for 11 Alaskans from 9 different organizations to travel in March for the knowledge transfer and adaptation. Jasmine has begun updating the Alaskan EGC Community Monitoring Early Detection Protocols, this process will include adding the molt walk surveys and habitat monitoring. In February Jasmine traveled to Padilla Bay NERR for a larval crab identification workshop, where she learned larval crab identification, connected with BC and WA zooplankton monitoring networks, brainstormed management needs, the utility and limitations of larval crab data and learned where EGC larvae are being detected in Washington. Jasmine and Kim are in the planning stages for Spring Trainings for Phytoplankton and EGC early detection monitors. There will be an informative and recruiting luncheon for invasive species during the Kachemak Bay Science Conference in March.

Early detection trapping efforts for invasive European green crabs will begin again in late April. The spring tunicate plate swap will take place at the end of March or early April.

## Oral / Poster Presentations

**Marine Invasive Species a Threat to Fisheries and Coastal Ecosystems** — Jasmine Maurer, Kachemak Bay National Estuarine Research Reserve at *Kenai Peninsula Fish Habitat Partnership Meeting Homer, Alaska*

**Help Us Stop Invasive Species! What's New in Alaska —**Tammy Davis Alaska Department of Fish and Game at AKISP Sitka, Alaska; Jasmine Maurer Kachemak Bay National Estuarine Research Reserve; Gino Graziano Cooperative Extension Service, University of Alaska Fairbanks at the *Alaska Forum on the Environment (AFE) in Anchorage, Alaska*


Photo: Jasmine presenting at AFE 2024 in Anchorage. Approximately 35 audience members were present for this joint session on "What is New with Invasive Species in Alaska."

## Data and other Products

Jasmine and Kim are members of the AKISP Marine Invasive Species Committee, the EGC statewide sub-committee and the AHAB Network attending monthly meetings for each of these committees. Jasmine also participates in the quarterly meeting for Kenai Peninsula Cooperative Invasive Species Management Area (KP-CISMA) and monthly AKISP meetings.

The Alaska Aquatic Invasive Species Clearinghouse (AKAqua), the new data portal for marine and freshwater invasive species, continues to be updated to address USFWS and AK Invasive Species Partnership requests. It is located on the AK Center for Conservation Science website here: https://accs.uaa.alaska.edu/invasive-species/aquatic-invasive-species/

# COASTAL TRAINING PROGRAM

### PROGRAM UPDATE

During this quarter, the KBNERR Coastal Training Program activities were led by CTP Specialist Rosie Masui, while Syverine was on family leave. The primary focus of CTP this quarter was on the

Kachemak Bay Science Conference, grant deliverables, and proposal writing support. The program provided technical assistance during the proposal development and submission phase for the NOAA Climate Resilience Regional Challenge, Track 2 proposal. Rosie will be working on completing her graduate school program through the University of Alaska Anchorage's school of engineering project management department while at the Reserve. Her project is titled *'Cultivating and Sustaining Community Engagement at the Kachemak Bay National Estuarine Research Reserve'* and she will be working with the council and staff to perform a needs assessment in the fall. The needs assessment will then be used to develop a community engagement program that will ensure the work at the Reserve is reflective of the community needs and priorities. Please feel free to contact Rosie if you would like to be involved.

**eDNA Workshop at Alaska Marine Science Symposium**

CTP assisted with the development of an eDNA Workshop at the Alaska Marine Science Symposium that was led by Lauren Sutton and supported by Katherine Schake. The workshop was an opportunity to share compiled information pertaining to aquatic eDNA projects throughout Alaska with the goal of understanding how scientists and communities are using eDNA to answer research questions in Alaska. They had 25 participants and met for two hours. Feedback from the workshop evaluations said that all participants felt that the workshop was a good use of their time and that they learned something new while there. The information exchanged at this workshop and the feedback from the evaluations will be used to inform the upcoming community eDNA workshop that will be held in Homer this summer.

**Kachemak Bay Science Conference**

The Kachemak Bay Science Conference will be held at the Kenai Peninsula College - Kachemak Bay Campus from March 17-20th. CTP is supporting the conference by facilitating steering committees, coordinating the conference, and developing trainings for the community. KBNERR will be well represented at the conference through oral presentations, hosting informative and working sessions, delivering trainings, and expo booths. The training program will be hosting a Science Communications training on Monday, March 4th to prepare presenters for the conference. During the conference, CTP will be assisting with coordination of the conference and moderating panels. On the last day, CTP is partnering with the Coastal Observation and Seabird Survey Team to deliver a full-day, in-person training. An agenda will be available by the council meeting for members to pick up for review. A big thanks to council members Paul Allan and Donna Aderhold for volunteering to assist with the conference!

**Transferring Knowledge Ahead of Marine Invasives, Padilla Bay Training**

One of KBNERR's current NERR Science Collaborative grants is focused on marine invasive species knowledge transfer, specifically European green crab. We are working with partners at Washington Sea Grant and the Padilla Bay NERR to develop an in-person training from March 26-28th. Eleven partners from the state of Alaska will be traveling to the training to learn best practices from monitoring programs down in Washington. The information from this training will then be used to inform a 'train the trainer' training that will be hosted in Homer in August.

**Using Beavers to Mitigate Climate Drying Peatland Project**

KBNERR is partnering with the Alaska Wildlife Alliance(AWA) and Alaska Center for Conservation Science(ACCS) staff on a Wildlife Conservation Society Climate Adaptation Fund grant. Lindsey Flagstad from ACCS will be leading the project with our incoming Ecology Technician providing support for the project through the field season. The project team has met twice to discuss organizing field work and community engagement opportunities. The project will be working on the development of a beaver dam analogue and CTP will be developing community engagement and training opportunities with the AWA.

### Risk Communication Training Course Guest Lecturer

Rosie will be going into the Kenai Peninsula College's Sharing Science with Diverse Audiences Course to present and deliver a training based on risk communication. The training was developed by Syverine, Rosie, and NOAA OCM staff for members of the Alaska Harmful Algal Bloom Network and was delivered at the Alaska Marine Science Symposium in 2020. A *Risk Communication Training* focused on flooding and natural hazards was adapted and developed to be appropriate for Alaska audiences, specific to the topic of Harmful Algal Blooms. Students will get an overview of risk communication and have the opportunity to practice using those techniques.

### Science Friday Lunch Pub Club

This monthly opportunity was restarted this fall after a summer break to increase awareness and provide access to local and current science. This group engages researchers, resource managers and environmental educators, and meets monthly to discuss a recent scientific journal article that is of interest and relevant to coastal professionals. These events reached 40 professionals and decision makers this fall, with topics ranging from marine heatwave ecosystem effects, kelp forests, and benthivorous seabirds. The next event will be hosted on March 15, 2024.

## EDUCATION PROGRAM

### PROGRAM UPDATE

#### *Youth Programs*

KBNERR continued partnering with local educators to deliver multiple youth programs locally and statewide.

**K-12 School Programs**

- **Homer Middle School Career Day** - Interviews with students
- **Science Careers** and skills at Homer Flex

**The Alaska Native Science and Engineering Program (ANSEP)**

- Monthly half day classes on Habitat Monitoring with 200 + Rural Alaskan Students

**Seldovia Village Tribe and Susan B. English School**

- Weekly Science Friday events for Connections students and Susan B. English School in Seldovia. Topics from intertidal zone, snow science, watershed science. Student attendance ranging from 10 to 30 weekly.

#### *Community Programs*

KBNERR continued to partner with local organizations for Winter Discovery Labs on Geology, and Animals in Winter. These Discovery Labs were an opportunity for our Semester By the Bay interns

to design and lead education events. Total attendance to the public labs was 200+ people (children and adults).

## ***Interns***

**High School Interns**

The Education Coordinator (EC), Ingrid Harrald, continued to develop the High School Internship Program, qualified two more staff as mentors in addition to Ingrid and Syverine (Jasmine and Rosie). Current Intern **Audrey Daubney** is a graduate from Homer Flex High School. She has been on staff since January working on school group programs, Discovery Labs, and outreach.

Right Photo: Student intern performs phytoplankton tow
Left photo: Student interns visit Oyster Co-op in Homer

**Semester by the Bay Interns**

Intern **Darcy Chaguaceda** is the Semester by the Bay Student working with KBNERR education this semester. She is a Florida resident and focused on community outreach and conservation. She will be working with school groups, discovery labs, and other outreach and education projects.

**NOAA Hollings Interns**

Interviewed 12 potential Hollings interns, and hired two, their focus will be community outreach around Invasive Species and Fish Diet. KBNERR will be hosting a third Hollings Intern with USF and Mark Rains focusing on groundwater. Bios below:

### ***Hollings Intern Bios:***

- I'm **Ishika** - an environmental science student from Sarah Lawrence College! I grew up on Long Island, New York which encouraged a love for the water and everything within it. I'm interested in water quality, environmental justice, citizen science, and climate change-related hazards. In the past, I've interned at an environmental education and research center so I'm very excited to use that experience to enhance community education and contribute to research at KBNERR this summer!

- Hi, my name is **Keksi Geurts**, I am an undergraduate student at the University of Hawaii at Manoa in my junior year currently working towards a BS in Marine Biology. Marine Biology has been a passion of mine since I was a child, leading me to grow a

passion for aquariums and fishkeeping, as well as diving and swimming. Every aspect of marine life, ecology, and biology is amazing and interesting. I never turn the ecologist brain off so every walk is a naturalist walk for me. Outside of academics and career planning, I am still a very nature focused person, I grew up hiking, skiing, and exploring the Rocky Mountains and have never stopped. I am a huge summer camp enthusiast and this has only contributed to my love of outdoor activities. Not to say that I don't also enjoy reading every chance I get, and love to catch up on my favorite shows or books.

- Hey, my name is **Ainsley**, I'm currently a junior studying Marine Science at the University of South Carolina. I was inspired to pursue marine science after attending marine biology trips to the Florida Keys in high school where we got to observe marine life, practice identifying types of algae, and even designing our own experiments. This quickly guided me into research, and I currently work in a phytoplankton ecology lab where we look at phytoplankton through pigment analysis and even get to go out into the salt marsh to collect samples. I enjoy being able to help others by serving as a peer mentor for the National Fellowship office and for the School of the Earth, Ocean, and Environment. Outside of academics I like to do ceramics and other art projects, Scuba diving, and reading new books. I'm extremely excited to be able to conduct my summer internship at KBNERR this summer!

## ***Partnership Activities***

- **Shorebird Festival** – The E.C. is on the Shorebird Festival Planning Committee, Junior Birder Coordinating team. She is leading 3 events, collaborating on 4 others, and designing the first year of a new Teen Bird Program.
- **EPSCOR** – The EC coordinated 2 teams from Project Grad rural after school program (one from Anchor Point, the other for the Russian Villages) to travel to Fairbanks for Science Olympiads in February.
- **KBEEA** – The EC is redesigning Master Naturalist and creation of Science Fridays in Seldovia.
- **Seldovia Village Tribe** – The EC is providing educational activities for Science Fridays
- **KBC** – EC created a bi-monthly student support program and mentoring guidelines.
- **Smithsonial Environmental Research Center/Pratt Museum** – The EC attended 5-day training on Orchids in the Classroom in Maryland, and is looking to bring the program to Alaska through TOTE in fall of 2024.

## ***Outreach and Presentations***

- The EC supervised the SBB Intern's ***I heart Estuaries*** – a social media campaign

## ***TOTE Trainings***

The EC is designing a March TOTE training for local teachers around the upcoming Kachemak Bay Science Conference. She is working with Kenai Peninsula Borough School District to supply substitute stipends and Kachemak Bay Campus to supply 1 credit for attendance.