

## Research Plans for 2023

Spring 2023 marks the beginning of another field season for BLE LTER researchers. On our first visit in April, we sampled under the ice in Kaktovik and Jago Lagoons. This month (June) we'll work during ice break-up with a small inflatable boat. The team plans to return in August and continue our collections of water, plankton, and small invertebrate animals during the open water period.

We are excited to share our findings and pictures with you all as we did at the Community Center in April. We also hope you are willing to share your observations of these lagoon systems. The traditional and local knowledge of hunters and fishers is very valuable in helping us understand the changes that are taking place in these coastal ecosystems.

Our field work would not be possible without support from KIC, the village of Kaktovik, and individual members of the community. Thank you!



A student observes and draws a live hermit crab from the Texas coast.

## Beaufort Lagoon Ecosystems (BLE)

### Long-Term Ecological Research (LTER)

#### Connecting with an Arctic coastal ecosystem in transition



## BLE LTER Schoolyard Program

We visited the students once again at Harold Kaveolook School this past January and April. Activities included investigating live crabs and snails brought all the way from the Texas coast (above) and dissecting of a Gulf of Mexico sea urchin (below)! Younger students went outside to measure snow drifts and examine how layers form in the snow. 4<sup>th</sup> and 5<sup>th</sup> grade students practiced nature journaling (left).

High school and middle school students wrote hypotheses about the lagoon ecosystem that we investigated together on the ice in April. Our activities included sampling the bottom with grabs and taking core samples of the ice and bottom of the lagoon.



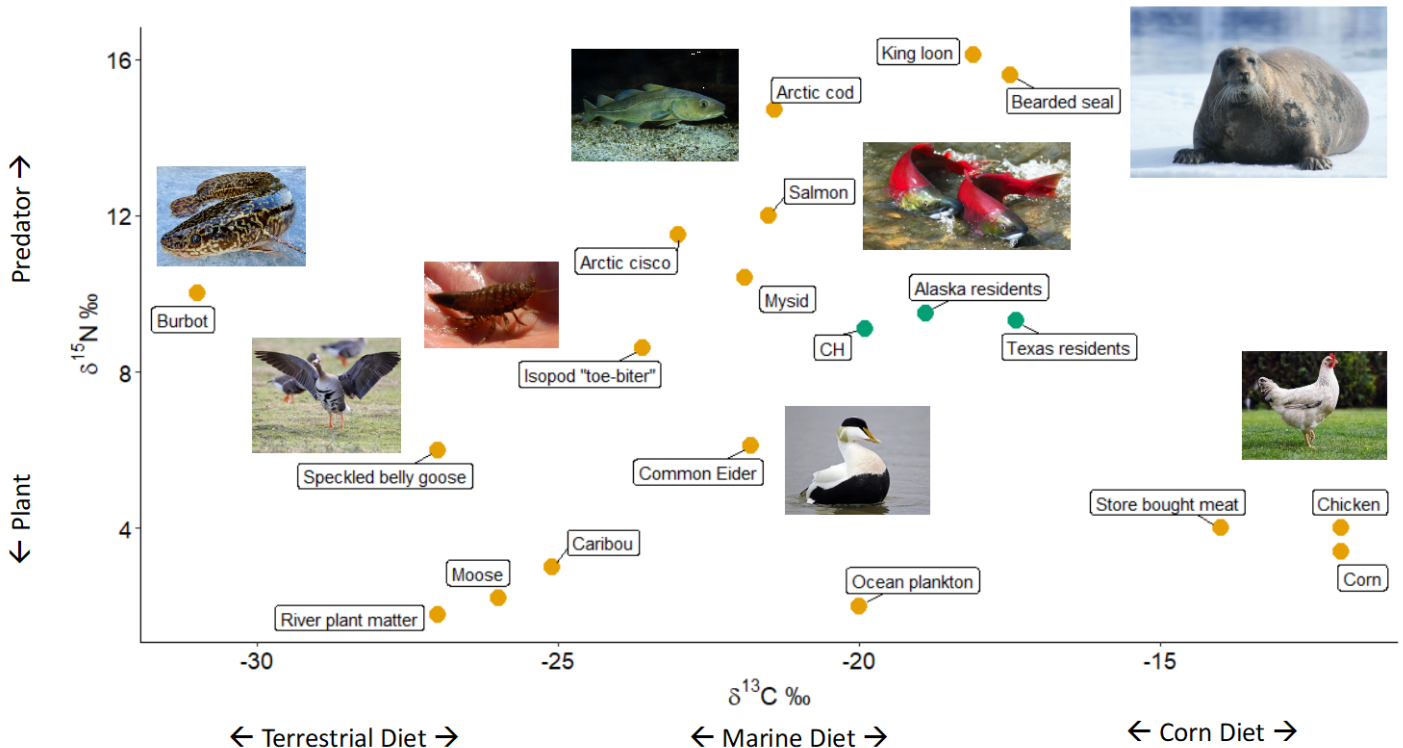
## Meet a Marine Scientist!!



Sydney Wilkinson (left) is a BLE scientist and Ph.D. student at the University of Alaska Fairbanks who studies food webs. She wants to know more about what the animals are eating and where their food originates. Knowing about food webs can provide scientists and subsistence fishers with information to better assess the health and condition of the ducks and fish they capture. These important observations will better enable us to prepare for changes in lagoon food webs as temperatures continue to rise around the globe.

Sydney is curious if animal diets change with changing seasons. What are the fish and birds eating when they migrate into the lagoons? One way Sydney answers this question is by using a method called “stable isotope analysis”. This means using instruments to examine the carbon and nitrogen atoms in an animal’s tissue. By plotting her findings on a graph, Sydney can determine the main food source of any creature.

As part of our activities with the high school and middle school students, BLE researchers from both Alaska and Texas and one Kaveelook teacher (Carey Hahnier), submitted fingernail clippings for stable isotope analysis. On the graph below you can see how we compare to each other and to different food sources (see points in green)! The graph shows that the teacher’s diet is the most different from our Texas residents, whose diet is based toward corn! Those from Alaska consume a lot of Alaska salmon and fall more toward an intermediate, marine based diet.



We extend our thanks to the Kaktovik Iñupiat Corporation for their assistance with logistics this past January. We are working in cooperation with the Kaktovik Traditional Knowledge Panel (led by Carla Sims Kayotuk), the Kaktovik Iñupiat Corporation (KIC), the Ukpeaġvik Iñupiat Corporation (UIC), the North Slope Borough School District (NSBSD), the US Geological Survey (USGS), the Bureau of Ocean Energy Management (BOEM), and the United States Fish and Wildlife Service (USFWS). The National Science Foundation (NSF) funds our research, which includes scientists and graduate students from seven universities. For questions contact Nathan McTigue at [mctigue@utexas.edu](mailto:mctigue@utexas.edu)