Amanda Shortall
Methods of STEM Education
6/9/15

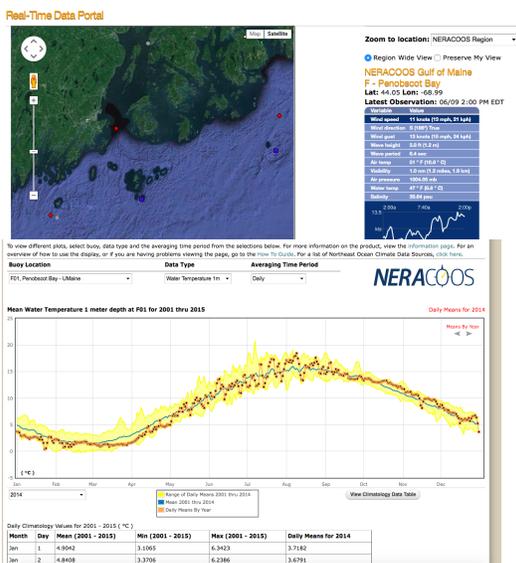**Proposal for Engaging Contexts Data Collection study**

For this data collection activity, the guiding question will be "What impact does ocean temperature in the Gulf of Maine have on lobster landings in Maine?"

In previous years I have taken groups of students to the Gulf of Maine Research Institute for a hands-on lab research field trip, and this is could easily be an extension of that. There are many aspects of the fisheries in Maine that could be studied, and I chose to look at ocean temperature and lobster landings. I was inspired to look at landings data after I had read some of the articles below from earlier this year that detail current research at the GMRI to forecast the start of the lobster season. Although I am not currently teaching this unit, my science students have been working on graphing so this data will be collected with current students and we will graph the live data collected.

This data collection and study could also fit in with a larger study of climate change or the complex systems in the ocean. Students could extend the data collection with research on the impact a warmer or colder Penobscot Bay (and the Gulf of Maine on a larger scale) may have on lobsters and/or the ecosystem as a whole. They could consider the impacts of climate change and what could happen to the lobster population (and landings) if the temperature in the Gulf of Maine rises or falls by 2°C.

Background research included these articles:

- http://www.gmri.org/our-work/research/projects/gulf-maine-lobster-forecasting
- http://www.pressherald.com/2015/03/05/maine-lobster-harvest-may-start-late-forecast-says/
- http://www.accuweather.com/en/weather-news/warmer-ocean-temperatures-dimi/17663728
- http://e360.yale.edu/feature/fast-warming_gulf_of_maineoffers_hint_of_future_for_oceans/2827

To collect the data, live buoy temperature data for a period of time (in this case 10 days). Penobscot Bay buoy data will be used. Then this data can be compared against historical temperature data (data is available for the years 2004-2014) for the same time of year. This data can then be correlated with the historical data with historical lobster landings data so students can make a prediction about the number of pounds of lobster that will be landed during the month of the current data.

The live buoy data will be collected for 10 days from the buoy in Penobscot Bay (Top image) http://www.neracoos.org/realtime_map
Historical data graphs and tables for the bouy can be found here: (lower image) http://www.neracoos.org/datatools/climatologies
Historical Lobster Landings data can be found here:
http://www.maine.gov/dmr/commercialfishing/recentlandings.htm