Annual Report to Nunavut Research Institute – Cambridge Bay Observatory
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Results of 2013 Research Activities

Ocean Networks Canada (ONC) has been operating an underwater observatory in Cambridge Bay since September 2012. Underwater sensors and a camera provide continuous information on seawater properties, ice thickness and marine organism activity to a shore station located on the Cambridge Bay wharf where a small weather station is also located. Data from the underwater instruments and the weather station are transmitted by a WIFI link to a server in the Nunavut government building, from where data are transmitted via satellite to our the ONC data centre at the University of Victoria and made available to all.

The observatory has been operating continuously since the installation, providing valuable data for researchers and for public outreach. Results from the two years of operations were presented at several high profile research conferences including the 2013 Arctic Observing Summit in Vancouver, BC, the Canadian Meteorological and Oceanographic Society Annual Conference in Saskatoon, Saskatchewan (26-30 May 2013) and the ArcticNet 2013 Annual Scientific Meeting in Halifax, Nova Scotia. We also held a science user workshop (20 attendees) during the 2013 ArcticNet meeting, to teach scientists and graduate students how to access data from the Cambridge Bay Observatory, using online tools available on the Ocean Networks Canada website.

2013 Field Activities in Cambridge Bay

Ocean Networks Canada sent a team of three engineers and technicians to Cambridge Bay from August 24 through September 4, 2013, to service and upgrade the underwater observatory and shore-based weather station. Divers recovered the underwater platform so that newly calibrated sensors could be installed. In addition, a hydrophone, an underwater microphone, was installed on the system to enable researchers and the public to monitor marine mammal sounds, and background noise from passing ships. The weather station on the wharf was replaced with a higher quality model. Work was coordinated with the Canadian Hydrographic Service, who calibrated the depth sensor on our instrument platform, so that it can be used as a tide gauge. This will allow continuous monitoring of tides in Cambridge Bay, and lead to improved tidal predictions. Finally, an Ocean Tracking Network (OTN) acoustic fish tag receiver was installed on the instrument platform, to detect fish that had been marked with acoustic tags. Researchers have recently began inserting acoustic tags in arctic char in the Cambridge Bay region, to track the movement of char between freshwater and marine environments. These data are important to managing individual fish populations that are exploited commercially.

The field team also made several public and school presentations during their stay in Cambridge Bay. The presentation to the high school science class was organized in collaboration with teacher Beth Sampson.

Planned 2014 Activities in Cambridge Bay

The field team plans to return to Cambridge Bay in late August and early September 2014, to service the observatory instruments and make more public presentations.

NEW ACTIVITY - We plan to collect seawater and mud samples in the vicinity of the observatory platform, to calibrate our instruments. We would also need to collect specimens of seafloor life (invertebrates) around the instrument platform, so that our experts can identify the species that we are observing in the observatory camera.