Cambridge Bay Undersea Observatory – a NEPTUNE Canada Initiative

NEPTUNE Canada, a division of Ocean Networks Canada, based at the University of Victoria, in Victoria, BC, would like to install a cabled undersea observatory in Cambridge Bay, as soon as the summer of 2012. This observatory would be the first location in Canada's Arctic for year-round monitoring of the marine environment. This would improve the knowledge of the northern environment and aid in the protection of fragile arctic marine ecosystems. It would create scientific and technical training opportunities for residents of Cambridge Bay, and there would be some local employment opportunities associated with the installation, operation and maintenance of the observatory infrastructure. The project also represents a pathfinder experiment for the future Canadian High-Arctic Research Station (CHARS), to be built in Cambridge Bay by 2017. This site was preferred for several factors: the existing community and infrastructure (power, airstrip and dock) and the opportunity for science education at the local school, the outreach potential both to the local community and to the cruise ship visitors.

NEPTUNE Canada currently operates a very large deep ocean observatory off Vancouver Island and a mini-observatory at Brentwood College near Victoria where high school students use data collected by underwater instruments for their science classes. Cambridge Bay would have a similar design, where the live data and underwater video feeds collected would be available for use by the local school. The data collected would also be made available to the public both locally and nationally and to researchers, which may result in publications. All data will be archived for long-term study of the changing ocean environment in the Arctic.

Our proposal is to install a mini-observatory in Cambridge Bay that would operate for a period of 5 years. An underwater instrument platform would be placed on the ocean floor at 10 metres depth, at a reasonable distance from the anchorage area, and be connected by cables to a breakout box on the public wharf that would provide power and communications. The instrument platform would host an underwater camera and underwater microphone, and a suite of sensors to measure seawater properties, plus an instrument to measure ice thickness. From the wharf, data would be transmitted over a wireless link to the school. An Internet connection would be used to make data available beyond Cambridge Bay. The project would be decommissioned in August 2017 or sooner; at this point all parts will be removed.