

BACKGROUND

Ocean Networks Canada (ONC) at the University of Victoria

ONC by the numbers

- **850+** km seafloor cables
- **400** instruments containing over **5,000** sensors online 24/7
- **6** ocean observatories
- **50+** instrumented sites
- **9,000** measurement sensors
- **10** high-frequency radars to improve marine safety
- **280** gigabytes of data collected every day
- **500+** terabytes of data archived in over **26 million** files, and counting
- **\$35 million** generated annually in economic impact to BC
- **23,000+** science and business registered users from over 200 countries
- **22** BC companies to date partnered with ONC
- **\$0.00** cost to use the data

Key ONC milestones

- 1990s** Dreams of Canadian and US researchers coalesce around the technological potential of internet-connected cabled seafloor observatories.
- 2002** The Canada Foundation for Innovation and BC Knowledge Development Fund provide funding to UVic to pioneer development of seafloor observatories.
- 2006** VENUS, the world's first advanced, 24/7 seafloor cabled observatory, is installed in Saanich Inlet near Victoria. It expands into the Strait of Georgia in 2007.
- 2009** The 800-km NEPTUNE observatory is completed off the west coast of Vancouver Island. ONC is designated a federal Centre of Excellence in Commercialization and Research to accelerate global commercialization of technologies used in ocean observatories.
- 2012** The first-ever Arctic Ocean community observatory is installed in Cambridge Bay, Nunavut.
- 2014** ONC begins hosting data from the Atlantic for a Fundy Ocean Research Centre project on tidal energy, giving ONC a presence in all three of Canada's oceans.
- 2016** Smart Ocean Systems™ observing stations are installed at key sites along the BC coast.

ONC impact: selected examples of recent ONC partnerships

Seismic sensor networks Funded by Emergency Management BC, ONC is expanding its seismic sensor network on land and on the seafloor, and is developing a software platform that will deliver an earthquake early warning alert to emergency responders.

Monitoring Strait of Georgia ONC is partnered with BC Ferries to maintain ocean monitoring instruments on three of the fleet's ships to monitor surface water properties in the Strait of Georgia, Canada's busiest waterway.

Arctic sea ice changes ONC is leading a project funded by Polar Knowledge Canada to improve our understanding of sea ice processes. The project will improve predictions of ice freeze-up and break-up dates for safe ice travel and shipping.

Hudson Bay observatory ONC is a partner in the new Churchill Marine Observatory, which is installing an environmental monitoring system to investigate technological, ecological and economic issues related to marine transportation, and oil and gas development.

Shipping and marine mammals To better understand and manage the impact of shipping on at-risk marine mammals, ONC, Vancouver Fraser Port and JASCO Applied Sciences deployed a hydrophone listening station for monitoring underwater vessel noise in the Strait of Georgia.

Ocean technology testing At one of ONC's node sites, AML Oceanographic Ltd. of Sidney, BC, successfully tested a prototype anti-biofouling system to reduce marine growth on ocean instruments.

Salmon abundance ONC teamed up with the Pacific Salmon Foundation to develop the Community Fishers app, which allows citizen scientists to collect and upload oceanographic data to better understand salmon abundance.

Fisheries data management Fisheries and Oceans Canada engaged ONC in a pilot project to organize its Pacific fisheries, marine mammal and ocean data to make data more accessible and user-friendly for stakeholders, researchers and the public.

Community engagement ONC has engaged 57 coastal and Indigenous communities to develop resources and programs for students, citizen scientists, and community leaders, connecting science with traditional knowledge to help communities make informed decisions about their coastlines.

Public education ONC interactive displays, live data portals and exhibits at the Vancouver Aquarium and Ripley's Aquarium of Canada make coastal and deep-ocean environments in the northeast Pacific accessible to a wide range of audiences.

[Find out more about ONC.](#)