



**THE ATLANTIC REGIONAL ASSOCIATION OF THE
CANADIAN INTEGRATED OCEAN OBSERVING SYSTEM**

PARTNERSHIP PROFILE:

Centre for Marine Applied Research

The Centre for Marine Applied Research (CMAR) leads and supports research projects in collaboration with industry, government, community and other marine user groups that support the sustainable development of coastal resources in Nova Scotia. CMAR collects and analyzes biophysical and socio-economic data that provide the foundation for science-based decision making and foster innovation necessary to advance the long-term sustainable development of the fisheries and aquaculture industries.

CMAR was established to support the Nova Scotia Department of Fisheries and Aquaculture's (NSDFA) growth strategy and operates as a special division under Perennia Food & Agriculture Inc.

NOVA SCOTIA WAVE & WEATHER DATA COLLECTION

With funding from provincial and federal partners, CMAR collects near real time data on wave and weather conditions from around Nova Scotia's coastline to support marine aquaculture operations and development in the province. This data will improve our understanding of the potential effects of waves and wind on marine aquaculture operations and development in the province.

CMAR & CIOOS PARTNERSHIP

CMAR's partnership with CIOOS makes data Findable, Accessible, Interoperable, and Reusable (FAIR) for all stakeholders with an interest in the coastal ocean environment. Improved knowledge of Nova Scotia's coastal waters supports science-based decision making and advancement of Nova Scotia's coastal resources.

THE CANADIAN INTEGRATED OCEAN OBSERVING SYSTEM



Xeos wave and weather buoy deployed in Jordan Bay, Nova Scotia.

Xeos buoys with streaming capabilities for wave and weather data are currently deployed in Jordan Bay, St. Mary's Bay and Chedabucto Bay. Data from these buoys is streamed to CIOOS every 30 minutes, including wave direction and spread, significant wave height, maximum wave height, peak wave period and wave spread. Extreme wind and wave condition values are used to validate robust exposure models for bays throughout Nova Scotia, to inform decisions on existing and potential aquaculture sites.



CIOOS Atlantic staff are friendly, knowledgeable, and willing to help support the partnership in any way they can.

- *Dr. Danielle Dempsey,*
Research Fellow in Coastal Oceanography,
Centre for Marine Applied Research

Aquaculture operators need reliable estimates of extreme wave and wind conditions to ensure aquaculture infrastructure can withstand energetic waves, and harsh weather conditions. Damaged cages from abrasion or collapse can lead to major economic losses and the potential for fish escapes. With reliable real-time data and robust exposure models, operators can maintain existing sites and design new sites to withstand extreme weather events.



CIOOS-Atlantic staff assisted CMAR in meeting the challenge of gathering and submitting metadata for their data collection by using the CIOOS metadata profile.



Buoys with steaming capabilities for wave and meteorological data are deployed in Jordan Bay, St. Mary's Bay and Chedabucto Bay.



Buoys may be relocated based on the needs and requirements of NSDFA and aquaculture/fishing industries.



Data from these buoys are intended for integration into CIOOS. CMAR is looking forward to discussing CIOOS Atlantic data visualizations.

Collecting ocean data with buoys also has its own complications. A large vessel (i.e. a barge) with a boom is required to deploy the buoys. Potential navigation hazards may arise if the buoy mooring fails and the buoy 'wanders'. Maintaining or removing/redeploying buoys has expenses associated with field work.