Canadian National Committee for SCOR
Comité national canadien pour SCOR

Scientific Committee on Oceanic Research

CANADIAN OCEAN SCIENCE NEWSLETTER

LE BULLETIN CANADIEN DES SCIENCES DE L'OCÉAN

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OCEAN SCIENCE PROGRAMS

Listening in on the deep: passive acoustic monitoring of whales and ocean noise off Nova Scotia

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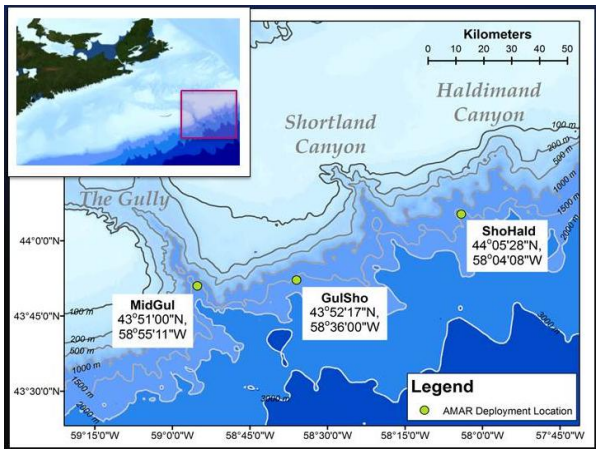
More than twenty species of whales, dolphins and porpoises occur off eastern Canada, including species listed under the Canadian *Species at Risk Act* such as Endangered right whales, blue whales and northern bottlenose whales. While much has been discovered about these magnificent creatures in our waters over the years, a considerable number of questions remain unanswered about the abundance, distribution, movement patterns, habitat requirements and behavior of many of these species. Additionally, threats to these species, particularly the impacts of man-made ocean noise on individuals, populations and their habitat, are poorly understood. To better protect whales in our waters, more baseline data on their occurrence and current exposure to man-made noise is needed.

In order to address some of these knowledge gaps, Fisheries and Oceans researchers at the Bedford Institute of Oceanography are listening in on waters off Nova Scotia for whales. Our research program, supported by the Strategic Program for Ecosystem-Based Research and Advice (SPERA), uses passive acoustic monitoring (PAM) methods and technologies to investigate the occurrence of whales in specific areas throughout the year. Because many species of whales are highly vocal with distinctive vocalizations, PAM offers an effective alternative to more traditional visual surveys to collect information on species occurrence, even during winter months when weather conditions make visual surveys difficult. The acoustic recordings collected can also be used to characterize the ocean noise environment of the Scotian Shelf, including the level and rate of both natural and man-made sources of noise. Our current focus is on the eastern Scotian Slope, a probable migration route for large baleen whales and home to rare deep-diving toothed whales. Autonomous Multichannel Acoustic Recorders ("AMAR"s © Jasco Applied Sciences Ltd) are used to monitor sound across a wide frequency range, capturing both low and high frequency sounds (from 2Hz to more than 60 kHz) in the Gully Marine Protected Area (MPA) and at two adjacent locations on the Scotian

Slope. A near-continuous acoustic dataset extending over a two year period ending in October 2014 is being collected and analyzed.



Deployment locations

The most reliable datasets collected during the first year of this study show that noise levels occurring along the eastern Scotian Slope are roughly comparable to deep-ocean noise measurements made elsewhere. Noise from various sources, including wind-origin noise, vessel noise, and seismic survey impulses have been identified. As part of future work, we will continue to characterize environmental noise levels occurring in the area, especially noise contributions from specific human activities such as local and distant shipping, fishing activities, and seismic surveys.

Vocalizations from many different species of whales were detected in the first year of recording including blue whales, fin whales, sei whales, humpback whales, sperm whales, northern bottlenose whales, Sowerby's beaked whales, killer whales, pilot whales and small delphinids. Many of these species were detected consistently during all seasons of the year, demonstrating that both toothed and baleen whales occur in the study area year-round. The vocalizations of some species, such as fin whales, occurred more often during winter months, suggesting that fin whales may be largely winter residents of the Scotian Slope. This is interesting given the fact that many large baleen whales are presumed to migrate to more southern waters during the winter to breed - our data shows that at least some individuals of these species remain in our waters throughout the year.


A group of northern bottlenose whales socializing in waters of the Gully Marine Protected Area
(photo credit: Hilary Moors-Murphy).

Scotian Shelf northern bottlenose whales are known year-round residents of the Gully MPA and the nearby Shortland and Haldimand canyons, all of which have been identified as critical habitat of this Endangered population. It is known that these whales travel between the three canyons, but the extent to which they use between-canyon areas is unknown. One of the main objectives of the current project is to investigate how northern bottlenose whales are using the continental slope areas between canyons, to determine if these areas may also constitute critical habitat for the population. More detailed analysis of the acoustic data collected will help answer this, and many other questions relevant for protecting at risk whale species.

MEETINGS

Smart Ocean/Smart Industry: An International Workshop to Advance Industry-Science Collaboration and Ocean Industry Data Collection in Canada, 27-29 May, Montreal, QC

The World Ocean Council (WOC) and MEOPAR are co-organizing an international workshop to advance ocean industry data collecting and sharing. The workshop is part of an international initiative to facilitate, coordinate and ramp up efficient, cost-effective ocean and atmospheric information collection by a growing number and range of vessels and platforms. Click here to read more.

CNC-SCOR Annual Meeting, 1 June, Rimouski, QC

CNC-SCOR will hold its annual business meeting on the first day of the 48th CMOS Congress. The Committee will meet Sunday 1 June at 10:30 in the Léonard room of the Hotel Rimouski. Among the discussed topics will be the review of the new SCOR Working Group proposals. Minutes of previous meetings are posted on the CNC-SCOR website (http://cmos.ca/scor/scorindexe.html).

Réunion annuelle du CNC-SCOR, 1 juin, Rimouski, QC

La réunion annuelle du CNC-SCOR aura lieu le premier jour du 48e Congrès de la SCMO, soit le dimanche 1er juin à 10:30 à la salle Léonard de l'Hôtel Rimouski. Un des sujets de discussion sera la revue des propositions de nouveaux groupes de travail de SCOR. Les procès-verbaux de ces réunions annuelles sont disponibles au site web du CNC-SCOR (http://cmos.ca/scor/scorindexe.html).

CANADIAN JOBS and TRAINING

Postdoctoral Fellowships in Coastal Ocean Dynamics

Applications are invited for two 2-year Postdoctoral Fellowships in coastal ocean dynamics related to tidal hydroelectricity development using in-stream tidal energy converters in the Bay of Fundy. The first position is located at Dalhousie University and will focus on gathering and analyzing field measurements, including making comparisons between the observations and results from tidal circulation and high-resolution CFD models generated by the other groups in the team. The second position is located at Acadia University and will focus on numerical modelling, specifically using a coastal oceanographic model (FVCOM) to model the passages and power extraction from the chosen deployment sites. More information is available here (click for pdf file).

IT Research Assistant in the ocean sciences and technology lab, MEOPAR, Dalhousie University.

MEOPAR is looking for a motivated individual to work as a research assistant in the ocean sciences and technology lab and oversee various IT aspects of the field program. The successful applicant will maintain and expand a data management solution for the various oceanographic data streams collected on the Atlantic Canadian shelf and slope. Click here for more details. Closing date is 23 May 2014.

Looking for work? Try the CMOS site (click)
Vous recherchez un emploi? Visitez le site SCMO (click)

GENERAL

Survey of Southern Ocean Satellite Data Needs

A joint initiative of Southern Ocean Observing System (SOOS), Climate and the Cryosphere (CliC), and World Meteorological Organization Polar Space Task Group (WMO PSTG) aims to identify the satellite data requirements for the Southern Ocean (across all temporal/spatial scales) and to compile this information into a *community report* of Southern Ocean satellite data requirements.

This is a great opportunity to voice your needs, and feed information directly into the strategic planning for future missions. Provide feedback on current data streams, issues with data access, validation issues, gaps in data products, spatial and temporal coverage etc. This survey is open to all Southern Ocean data users, across all data types (air-sea flux, sea ice, biological, physical, etc).

If you have requirements for Southern Ocean satellite data, you are invited to take this quick online survey: www.climate-cryosphere.org/activities/targeted/so-sat-req. Please contact Louise Newman (newman@soos.aq) or Jenny Baesmann (jenny.baeseman@npolar.no) if you have any questions.

Note this survey closes 30 May 2014.

Subscription to the GOOS Update

The new GOOS Update is a quarterly review of activities of the GOOS Steering Committee and panels, GOOS Regional Alliance news, examples of how ocean observations are being applied, and job opportunities.

Click here to read the April 2014 GOOS update. If you'd like to receive future mailings of the GOOS Update and webinar announcements please subscribe (click here).

For more information on GOOS and related programs visit the GOOS website (http://ioc-goos.org/)

OceanViewer Pilot Project

The MEOPAR Network of Centres of Excellence has launched a pilot project, *OceanViewer*, aiming to facilitate access to information about the ocean environment. The *OceanViewer* web site (oceanviewer.org) is a real-time browser of ocean conditions and forecasts gathered from various sources including buoys, satellites, underwater gliders, ships, webcams, drifters and models.

Early support for its development was provided by the Canada Excellence Research Chair in Ocean Science and Technology. In the current pilot stage, *OceanViewer* focuses exclusively on the Atlantic Canada coast, from Labrador to the Gulf of Maine. Opportunities may arise in the future to extend the *OceanViewer* platform to other regions of Canada's coastline, and internationally.

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Previous newsletters may be found on the CNC/SCOR web site.
Les bulletins antérieurs se retrouvent sur le site web du CNC/SCOR.

Newsletter #77 will be distributed on 16 July, 2014. Please send contributions to Michel Mitchell, michel.mitchell@dfo-mpo.gc.ca
Le Bulletin #77 sera distribué le 16 juillet 2014. Veuillez faire parvenir vos contributions à michel.mitchell@dfo-mpo.gc.ca

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