

EDITORIAL

Ocean literacy – communicating science in an ocean province

Nova Scotia, an ocean province, is a regional hotbed for ocean science and technology in Atlantic Canada. Given this fact and the various issues affecting the seas locally and globally, especially climate change, it behoves us to have an ocean-literate population and to promote ocean literacy (herein called OL), in Nova Scotia and throughout the Atlantic Provinces. Indeed, OL is a major focal point of the United Nations Decade of Ocean Science for Sustainable Development 2021-2030 (UNESCO 2021). Therefore, the steps that we take to advance and promote OL in Nova Scotia will be an important contribution to this global initiative.

Within the Nova Scotian Institute of Science (NSIS) and by the interested public, the first question to be asked is: What is OL and why is it so important? What initiatives are occurring in the region and in Canada? Where and how can OL best be promoted, and what could NSIS's role be?

The term OL refers to “the understanding of the ocean’s influence on us and our influence on the ocean” (UNESCO 2021), or more simply put, “understanding the ocean and our relationship to it” (CaNOE 2021). OL addresses the need for public understanding of the ocean’s role in our lives and collective future. A more ocean-literate population could contribute to understanding and resolving major current issues such as climate change, loss of marine biodiversity, the location of protected areas, the condition of fisheries, the health of both people and ecosystems, and the sustainability of local and global economies. Clearly, ocean literacy and climate literacy are inextricably linked; efforts on both should be mutually supportive.

To achieve this in Nova Scotia, there is a need for more critical understanding of these issues, more public education, and active engagement of people in hands-on ocean projects. To have a continued impact, OL also should be promoted within school systems as an integral part of the curricula from K-12, as well as directly within coastal communities.

Over the past few years, there have been numerous initiatives on OL in Canada, notably under the aegis of such national organisations

as CaNOE (Canadian Network for Ocean Education – CaNOE 2021), and the Canadian Ocean Literacy Coalition that recently released its Ocean Literacy Strategy (COLC 2021). There have also been many local initiatives in Nova Scotia, for example CARP (Clean Annapolis River Project Society), the Cliffs of Fundy Geopark in the Minas Basin, and the International Ocean Institute-Canada and the Ocean School, both based at Dalhousie University. Not to be forgotten are the many years of communication regarding Bay of Fundy issues by BoFEP (Bay of Fundy Environmental Partnership – www.bofep.org) that have provided accessible information to researchers and communities on coastal and marine issues and research. It is also noteworthy that the federal Bedford Institute of Oceanography (BIO) states on its website (www.bio.gc.ca) that it is “moving in the direction of enhanced citizen engagement and outreach to the public” on the ocean. Certainly much more focus is needed on many local issues, from fisheries management to marine protected areas.

It would be remiss not to mention that ocean literacy is critical at the policy and decision making levels in government, especially in Canada where much of the population is located inland, far from the sea. So while government departments are engaging the public on OL, that engagement should include all senior officials charged with ocean programs. OL is both a top down and bottom up activity, if integrated coastal and ocean management, and ocean governance are to be effective (see MacDonald *et al.* 2016, Werle *et al.* 2018).

The linkage to, and involvement of, local groups is clearly critical to the success of the overall OL initiative as it enhances the reach of information about our coasts and ocean.

For example, from 2011 to 2016, the International Ocean Institute-Canada, and a number of partner organizations, planned and delivered the Halifax Ocean Film Festival (HOFF) to promote ocean awareness among the general public. Panels discussing OL were also part of the most recent Bay of Fundy Science Workshops on the premise that the subject should be a high priority for the public at large. At the events mentioned above, it became clear that there is a keen interest for the introduction of OL into the Nova Scotia school system in order to produce a more ocean literate public.

Recently, an exciting new OL initiative has emerged with the aim of creating a collaborative Bay of Fundy Coloring and Activity Book

(<https://drive.google.com/file/d/1C31GcotzORFYeFEuq-YVwiUM-jwI-o023/view?usp=sharing>). This project was devised by several active fishers and researchers in the Minas Basin, including one of us (S. Eger), and it has been supported by Oceans North, Coastal Routes, and Rural Routes at Memorial University. The project focuses on producing an easily accessible and informative colouring book on the species and ecology of the Bay's marine environment. It is designed for pupils in school and adults. The project is currently solidifying partnerships and enhancing work with various organizations in and around the Bay of Fundy. These include non-governmental organizations, indigenous organizations, university researchers and local community members, all with an interest in public education.

Every group can help make this project a reality through funding support, content contributions and promotion. For instance, the NSIS could help promote this and other such OL projects through its networks, as well as by having more lectures on ocean topics, and even considering a special set of lectures one year on OL.

While contemplating this suggestion, we note that the diversity of marine-related contributions in this issue of PNSIS ranges from the history of the former Marine Ecology Laboratory (BIO), to marine geology, the life history of mysids, and the ecology of coastal seabirds. Amongst the topics published in the Proceedings over many years, marine ones are frequent, reflecting the very active research on ocean science conducted in Nova Scotia and the region. We hope that you enjoy reading this issue of the PNSIS and will think more about our blue planet and its role in our lives. Please consider how members of the NSIS can promote ocean literacy, in our annual program and throughout Atlantic Canada, especially with the involvement of other groups.

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REFERENCES

- CaNOE (Canadian Network for Ocean Education).** (2021).
<http://www.oceanliteracy.ca>
- COLC (Canadian Ocean Literacy Coalition).** (2021). Land Water Ocean US. A Canadian Ocean Literacy Strategy. 2021-2024. 17 p.
<https://colcoalition.ca/canadas-ocean-literacy-strategy/>
- MacDonald, B.H., Soomai, S.S., De Santo, E.M. & Wells, P.G.** (eds.). (2016). Science, Information, and Policy Interface for Effective Coastal and Ocean Management. CRC Press, Boca Raton, FL. 474 p.
- UNESCO (United Nations Educational, Scientific and Cultural Organization).** (2021). Ocean Literacy within the United Nations Ocean Decade of Ocean Science for Sustainable Development. A Framework for Action. UNESCO, Paris. 29 p.
- Werle, D., et al.** (eds.). (2018). The Future of Ocean Governance and Capacity Development. Essays in Honor of Elisabeth Mann Borgese (1918-2002). Brill Nijhoff, Leiden, Boston. 562 p.

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