Session 3 Event Summary
Solutions and Strategies for Data Exchange

Monday, December 14th

The Ocean Data Connector Series is a collaborative partnership between the Canadian Integrated Ocean Observing System (CIOOS) and Canada's Ocean Supercluster (OSC) to explore how data sharing drives coastal and marine collaboration and innovation.

Final Session Overview

Session 3 focused on solutions and strategies for marine data exchange from the perspectives of national lead speakers, Brian Burke and Dr. Mike Smit, and international keynote, Steven Adler, who each shared profound insight on the real and potential value of making marine science data discoverable to others. Speakers shared examples of how open data exchange is a powerful tool for driving collaboration and innovation across marine industries and sectors. Messages closely aligned with CIOOS' own solutions and strategies for marine data exchange including the national and regional open data platforms, tools, and resources as well as the VITALITY project. To continue to explore ways that CIOOS can add value to marine industries, OSC members participated in an interactive Mentimeter activity and submitted responses to live poll questions focused on current and future priorities of CIOOS. Final reflections on the overall series were delivered by OSC and CIOOS.

Event Highlights

The Nunavut Fishery - The Requirement for Data Collection and Sharing
Brian Burke, Executive Director, Nunavut Fisheries Association (NFA)

The NFA represents a common voice for Nunavut stakeholders and rightsholders on issues including increased share of resources, maximizing employment, securing funding, ensuring Inuit consultation, and translating data into better decision making. The 100% Inuit owned Association undertakes research programs such as offshore surveys, tracking studies, inshore and offshore fisheries development, and reducing environmental impacts. The Association faces a number of challenges in the North, including a huge region and coastline, data scarcity for both offshore and inshore fisheries, and the effects of climate change creating more storms and extreme events. They face challenges with data availability due to ownership and privacy issues. NFA joined OSC because of the development of innovative approaches and technologies to address data challenges and collaborations within and across ocean sectors. Access to more/ better data and knowledge through collaboration on data collection and sharing can contribute to a number of priority areas for the Association, including better understanding of offshore habitat and sensitive benthic areas, and more sustainable fishing practices using technologies and AI to improve harvest, reduce bycatch, reduce environmental impacts etc.

Schrödinger's Data: Why Your Data is Worthless and Priceless at the Same Time
Dr. Mike Smit, Project Lead, CIOOS Atlantic; Associate Professor, Dalhousie School of Information Management

Data has enormous and very little value at the same time. Individual data collection efforts convey limited information on a very narrow part of the ocean, however, combined with data collected by other projects, infrastructure, etc., this data has much greater value as it provides a more comprehensive picture of an area. Once data is made available in a system, there are many different options for re-use: data as a service, data products, informed decisions, monetary value, forecasting, collaborations, etc. While companies know the cost of collecting data, it is difficult to add a dollar value to data discoverability. When data is inaccessible, its value is diminished, particularly over time. Many organizations only use the most current data and stash their historical data. If data has no competitive value, its potential value could be unlocked by making it discoverable to others. Data is grounds for relationships. More can be achieved if we share data as no one has a complete

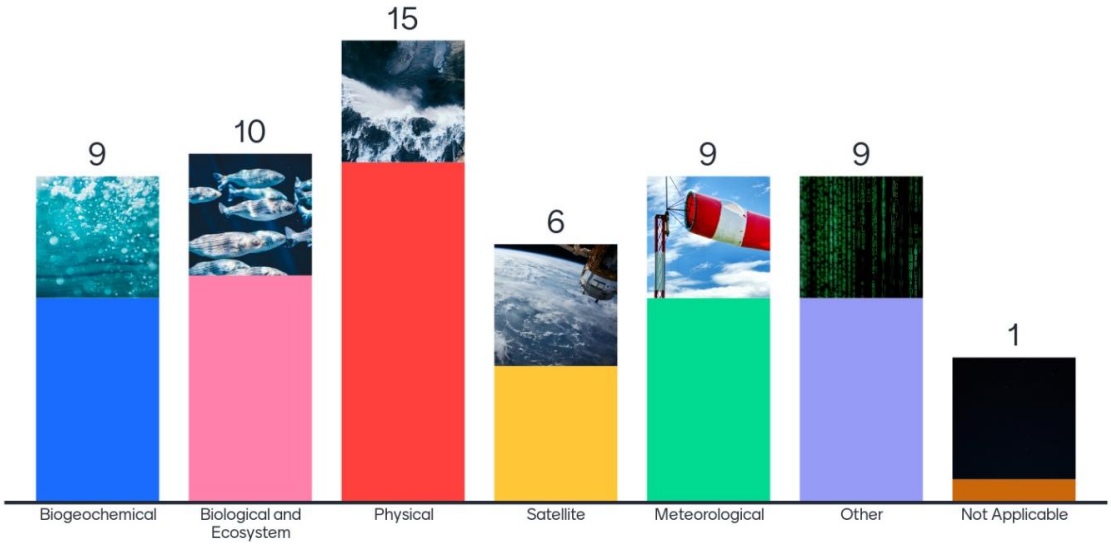
understanding of the ocean. The value of data discoverability is realized by extending the long-term value of otherwise unimportant data, and as a means to build strategic partnerships based on open data collaborations.

A Digital Ocean Transformation
Steven Adler, CEO, Ocean Data Alliance

In reaching a digital ocean transformation, certain challenges must be acknowledged. The ocean is largely unmapped, the calibration of sensors used to collect ocean data varies widely, and little to nothing is known about the humans who collect the data, with very little of the large amounts of ocean data being collected, being shared openly. Mr. Adler contrasted the lack of ocean data sharing against the ways in which people love to share stories and experiences, including through social media. The difference is that people are rewarded for sharing on social media with 'likes', with no similar reward for sharing ocean data. Similarly, scientists receive recognition, financial rewards and job security for publishing papers, however there is no incentive for publishing ocean data. IBM has created an internal reward system for employees that file patents; this has resulted in IBM being the #1 producer of patents in the US for over 20 years. Individuals who contribute to ocean data collection (scientists, tech designers, crew members) must also receive proper attribution using concepts like Internet Resource Locators for missions and surveys. Data is not a traditional asset, like gold, where its value is based on scarcity; its value is purely transactional and based on use. The longer data sits unpublished, the less likely anyone is to discover and use it. Audiences were challenged to commit to sharing data openly where possible, to stimulate growth, creativity, and innovation in more powerful ways than if data was kept private.

Mentimeter Poll Responses

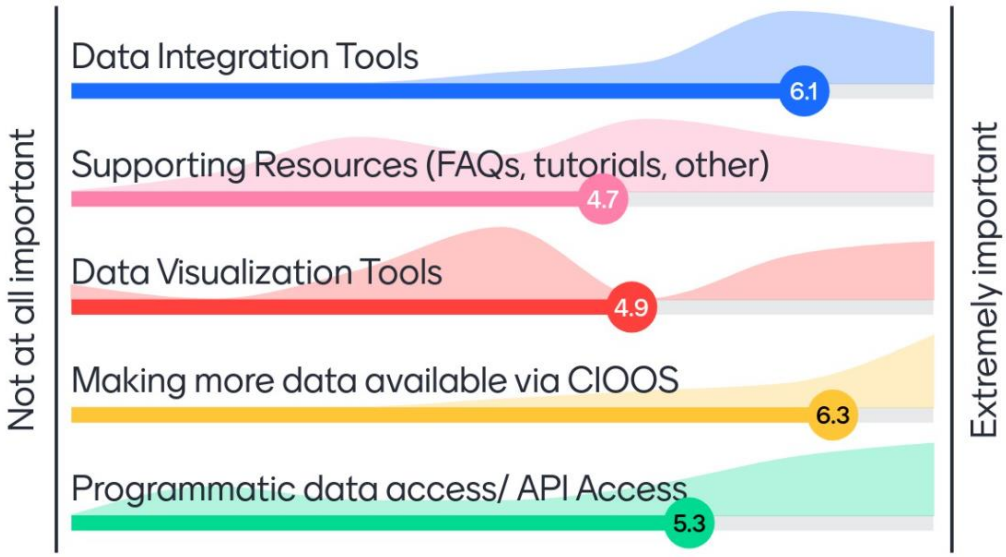
1. **What data type(s) does your organization or company collect/ manage/ use?**



2. **Are there coastal and ocean geographic areas that you need data for?**

- *Bay of Fundy; Minas Basin; Coastal Nova Scotia; Scotia Shelf Bioregion; Cabot Strait; Southwest Grand Banks; Atlantic Canada; Aquaculture sites on East and West Coast; Baffin Bay; Davis Strait; Ungava Bay; Qikiqtani region; Land-sea interactions; Tidal rivers; and Seagrass beds.*

3. **How important are these CIOOS priorities for your company/ organization?**



4. **What comes to mind when you think of CIOOS and data exchange?**

Mentimeter Reflections

Respondents were asked to reflect on answers to the Mentimeter poll questions in small breakout groups. Generally, respondents were surprised by the diversity of data types being collected/ managed/ used. Physical data was noted for benefiting engineering analysis for site suitability. Biological data was identified as useful for invasive species monitoring, North Atlantic Right Whale presence, and eDNA studies. “Other” data included AIS, managerial, and metadata. Real data gaps for offshore operations were noted, with an added interest in data for coastal regions, particularly in support of aquaculture operations (a recurring Series theme). Overall, respondents were interested in the “total ocean”. Interest was expressed for CIOOS expansion into the Arctic, so long as this is undertaken in close partnership with existing initiatives in those regions. Digital twins, virtual tools that match physical environments, were discussed. A strong potential for partnering digital twin initiatives with CIOOS was noted. Some respondents valued making more data available through CIOOS more than visualizations, to enable API access through their work.

Final Remarks

Across all three sessions, numerous opportunities have been identified for greater collaboration through data exchange. CIOOS is designed as a platform to support these opportunities by fostering coordination and collaboration among diverse data contributors in support of coastal and ocean stewardship, economic innovation, and marine safety and navigation, by providing access to high quality coastal and ocean information and data through our online platform. CIOOS’ data platform and staff can support many aspects of OSC’s vision, such as realizing the potential of Canada’s ocean economy by facilitating cross-sectoral engagement and collaborations and supporting commercial outcomes through open data.

Thank-you for taking the time to join us for this event! We look forward to working with OSC members and associates in the future to support their ocean data initiatives.

To receive the VITALITY data management training and/or data registry requirements surveys

please sign-up at https://form.jotform.com/203434369757060

Reach out to info@cioosatlantic.ca for questions, or to sign-up to receive the VITALITY survey.