

Canadian Ocean Accounts Pilot

Fisheries and Oceans Canada/Statistics Canada: March 11, 2020

Rationale

The ocean is an essential component of the Earth's climate and ecosystems, contributing enormously to our culture, society and economy. Yet we allow the ocean to become polluted, overexploited, acidified, warmed and used unsustainably.

Vital information about the ocean is often fragmented across scientific domains, policy frameworks, sectors and institutions. Ocean Accounts are based on the premise that developing a standard approach to measure the environmental, economic and social aspects of the ocean will support integrated decision making to encourage sustainable use.

The Ocean Accounts Framework

An international coalition of science, statistics and policy experts, led by The United National Economic and Social Commission for Asia and the Pacific¹ (ESCAP), has developed an Ocean Accounts Framework. The framework is built upon existing statistical standards such as the System of National Accounts² (SNA) and the System of Environmental-Economic Accounting³ (SEEA). The SNA is used by all countries to measure economic production. The SEEA is being used by over 60 countries to standardize measures of environment-economy linkages. The SEEA has proven instrumental in harmonizing and prioritizing collection of environmental statistics in other domains (land, freshwater, energy, waste, ecosystems, etc.) and this experience will be invaluable in implementing the SEEA for the ocean.

As noted in a recent Nature editorial⁴ on achieving global biodiversity targets: asking statistics offices to take responsibility for collecting and reporting environmental data “was a stroke of genius”.

While still being developed and tested, the ocean accounts framework has been used as the basis for several national pilot studies⁵. In addition to Canada, Australia⁶ has also invested in piloting ocean accounts.

Canada has been a member of this international coalition since its inception and has become a member and co-chair of the Global Ocean Accounts Partnership⁷ (GOAP). GOAP was established in 2019 to encourage collaboration among international agencies, national governments and researchers to “Organize blue data and statistics for sustainable development”.

The Canadian Pilot

The Canadian ocean accounts pilot was established as a collaborative effort of DFO and Statistics Canada in early 2019. With a budget of approximately \$1 million over four years, the Canadian pilot supports the commitments outlined in the **Charlevoix blueprint for healthy oceans, seas and resilient coastal communities**⁸ made under Canada's G7 Presidency and more recently, as part of the High Level Panel for a Sustainable Ocean Economy⁹ (HLP). The HLP is committed to developing a complete sequence of national ocean accounts by the national statistical offices, in partnership with marine agencies, the details of which are outlined in the Blue Paper on “National Accounting for the Ocean and Ocean Economy”¹⁰. The Blue Paper

supports the Canadian vision and the on-going efforts to develop national ocean accounts that provide countries with information needed for the sustainable development of the oceans.

This project is based on many earlier successful joint projects, such as the Measurement of Ecosystem Goods and Services¹¹ (MEGS). MEGS had already published data on fisheries biomass and landings by region, as well as fishery employment by area.

Statistics Canada leverages its experience in compiling SNA and SEEA accounts¹², integrating fragmented data and establishing new socio-economic data collection when required. DFO collect and analyses volumes of scientific¹³, economic¹⁴ and commercial fishing¹⁵ data. The two departments initially scoped the availability of relevant data in the light of Canada's ocean-related policy objectives such as the Oceans Act¹⁶, Species At Risk Act¹⁷, and the Fisheries Act¹⁸.

Initial findings were that (a) much data and research were available, but required inventorying, harmonization, gap analysis and inter-sectoral cooperation, (b) that advanced work was already ongoing on measuring the ocean economy that could benefit from improved data and (c) several initiatives including marine spatial planning and establishing marine protected areas could benefit from applying international standards on measuring market and non-market services.

Early results¹⁹ were reported at the GOAP "Global Dialogue on Ocean Accounting²⁰" in Sydney, Australia in November 2019.

Current work at Statistics Canada is concentrating on creating initial national accounts of ocean and coastal ecosystem extent and their condition This includes four key ecosystems, seagrass meadows, kelp forests, coldwater corals, sponge reefs, and saltmarshes, as well as data on sea surface temperature, salinity and sea ice. This will be published in *Human Activity and Environment* in late 2020. Furthermore, an updated version of DFO's Marine Economy Accounts will be published in EnviroStats²¹ during the first half of 2020.

Fisheries and Oceans Canada in collaboration with University of British Columbia (UBC) has invested approximately \$175K in a two-year project to provide a first overview of blue carbon stocks in eelgrass beds along the Canadian coastline. The proposed work would lay the foundation to further extend the estimates of carbon stocks for seagrass in general. The results of the research will be available in 2021.

Challenges

Cross-sectoral coordination is always a challenge. The project is not attempting to change the way people achieve their mandates but is offering an opportunity to better integrate across activities. Locating and acquiring data is an ongoing need, as is assessing the new data and integrating them given differences in characteristics and methodology. Furthermore, implementing a new approach requires familiarity with a variety of knowledge areas including ecology, economics, spatial analysis and policy analysis. This requires enhancing technical capacity across these sectors. Raising awareness of the benefits of ocean accounting is also ongoing. Agreement on key parameters both nationally and internationally would be extremely helpful as the accounts are developed.

The future

The project has contributed to the development of the Technical Guidance document, which will be revised and will also contribute to the revision of the SEEA for Ecosystems for 2021. We have also contributed to the discussions of the High Level Panel for a Sustainable Ocean Economy. Fisheries and Oceans Canada and Statistics Canada have agreed to host the Second Global Dialogue on Ocean Accounting in Ottawa in October 2020. This will be an opportunity to showcase not only the ocean accounts pilot, but also to discuss collaboration with a range of Canadian and international stakeholders.

Who we are

- Barbara Best, Acting Director, Economic Analysis and Statistics Directorate, DFO
- François Soulard, Chief, R&D Section, Environmental Accounts and Statistics Program Statistics Canada
- Zeba Ali, Manager, Economic Analysis and Statistics Directorate, DFO
- Michael Bordt, Senior Economic Advisor, Ocean Accounts, Economic Analysis and Statistics Directorate, DFO
- Keldi Forbes, Senior Economist, Economic Analysis and Statistics Directorate, DFO
- Alejandro DeMaio-Sukic, Manager, Economic Analysis and Statistics Directorate, DFO
- Jessica Andrews, Senior Methodologist, Statistics Canada
- Christine Irwin, Acting Economist, Economic Analysis and Statistics Directorate, DFO
- Gisele Magnusson, Senior Economist, Economic Analysis and Statistics Directorate, DFO

¹ ESCAP Regional Ocean Accounts Platform: <http://communities.unescap.org/node/1144/view>

² UN Statistics System of National Accounts: <https://unstats.un.org/unsd/nationalaccount/sna.asp>

³ UN Statistics System of Environmental Economic Accounting: <https://seea.un.org/>

⁴ Nature, The United Nations must get its new biodiversity targets right: <https://www.nature.com/articles/d41586-020-00450-5>

⁵ ESCAP pilot studies in China, Malaysia, Samoa, Thailand and Vietnam: <http://communities.unescap.org/node/1163/view>

⁶ Australian Government, Ocean Accounts: <https://eea.environment.gov.au/accounts/ocean-accounts>

⁷ The Global Ocean Accounts Partnership: <https://www.oceanaccounts.org/>

⁸ Government of Canada, Charlevoix blueprint for healthy oceans, seas and resilient coastal communities: https://www.international.gc.ca/world-monde/international_relations-relations_internationales/g7/documents/2018-06-09-healthy_oceans-sante_oceans.aspx?lang=eng

⁹ High Level Panel for a Sustainable Ocean Economy: <https://www.oceanpanel.org/>

¹⁰ The Blue paper will be released on April 1, 2020.

¹¹ Statistics Canada, Human Activity and the Environment; Measuring Ecosystem Goods and Services: <https://www150.statcan.gc.ca/n1/pub/16-201-x/2013000/part-partie1-eng.htm>

¹² Statistics Canada, Canadian System of Environmental-Economic Accounting: <https://www150.statcan.gc.ca/n1/en/catalogue/16-509-X>

¹³ DFO, State of Canada's Oceans: <https://www.dfo-mpo.gc.ca/oceans/soto-rceo/index-eng.html>

¹⁴ DFO, Marine sectors in Canada summary tables: <https://www.dfo-mpo.gc.ca/stats/maritime-eng.htm>

¹⁵ DFO, Canada's sustainable fisheries: <https://www.dfo-mpo.gc.ca/fisheries-peches/sustainable-durable/fisheries-peches/index-eng.html>

¹⁶ Justice Canada, Oceans Act: <https://laws-lois.justice.gc.ca/eng/acts/o-2.4/>

¹⁷ Justice Canada, Species at Risk Act: <https://laws.justice.gc.ca/eng/acts/S-15.3/page-3.html#docCont>

¹⁸ Justice Canada, Fisheries Act: <https://laws.justice.gc.ca/eng/acts/F-14/rpdc.html>

¹⁹ Pilot study report – Canada:

https://www.unescap.org/sites/default/files/2.2.A.1_Canada_Global_Ocean_Accounting_12-15Nov2019.pdf

²⁰ First Global Dialogue on Ocean Accounting; <https://www.unescap.org/events/global-dialogue-ocean-accounting-and-first-annual-meeting-global-ocean-accounts-partnership>

²¹ Statistics Canada, EnviroStats: <https://www150.statcan.gc.ca/n1/en/catalogue/16-002-X>