

Joint meeting :GEBCO Sub-Committee on Regional Undersea Mapping (SCRUM) and Technical Sub-Committee on Ocean Mapping (TSCOM) ,November 12-13, 2018 Canberra

# **OCEAN MAPPING & MARINE DATA MANAGEMENT AT FISHERIES AND OCEANS CANADA**

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# Topics

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- Expanding the multibeam fleet in the Arctic
- New technologies for survey operations
  - Hydrographic Remote Sensing
  - Autonomous Hydrographic Surface Vehicles ((AHSV)
- Oceans Protection Plan & Data Sources
  - Metadata and the Marine Spatial Data Infrastructure (MSDI)
- Data Coverage, priorities and availability
- Collaboration and Crowd sourcing

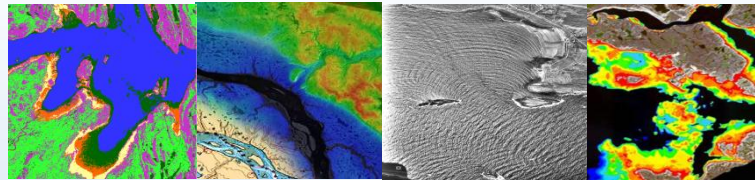


# Expanding the Multibeam fleet - icebreakers



# New Technologies – First International IHO Hydrographic Remote Sensing Workshop

- Co-sponsored by CHS, NOAA and SHOM with the support of the IHO
- Three-day workshop in Ottawa, Ontario, Canada: September 18-20, 2018
- Attended by Private Sector, Academia and Government
- Goal: Accelerate the implementation of remote sensing and Satellite Derived Bathymetry (SDB) in Hydrography.
- Contacts: *Rene.Chenier@dfo-mpo.gc.ca*





# New technologies - AHSV

- Two Autonomous Hydrographic Surface Vehicles (AHSVs) fully integrated in hydrographic survey operations at CHS Office in Mont-Joli, Québec



- Hydrographic Survey Launch converted to double as an AHSV





Government  
of Canada

Gouvernement  
du Canada

# \$1.5 Billion **National Oceans Protection Plan**

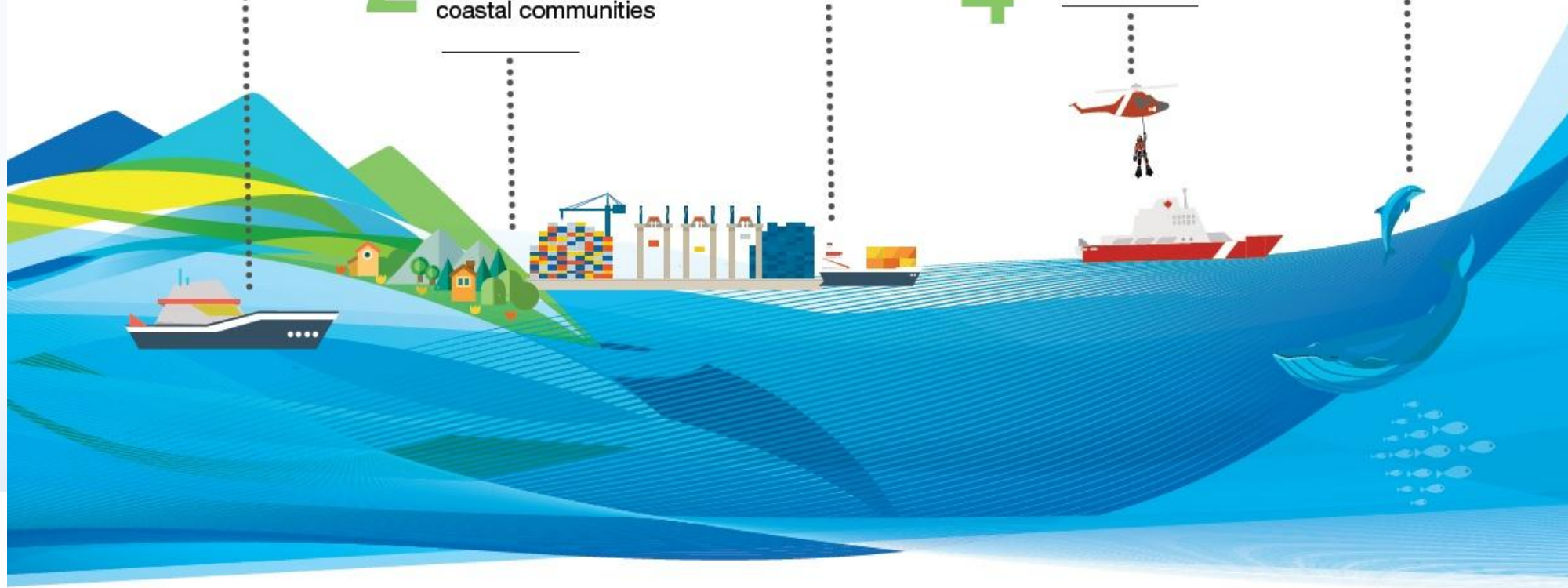
**1** Supports safe and clean marine shipping

**3** Increases economic opportunities for Canadians

**5** Protects the marine environment

**2** Builds partnerships with Indigenous and coastal communities

**4** Improves marine safety



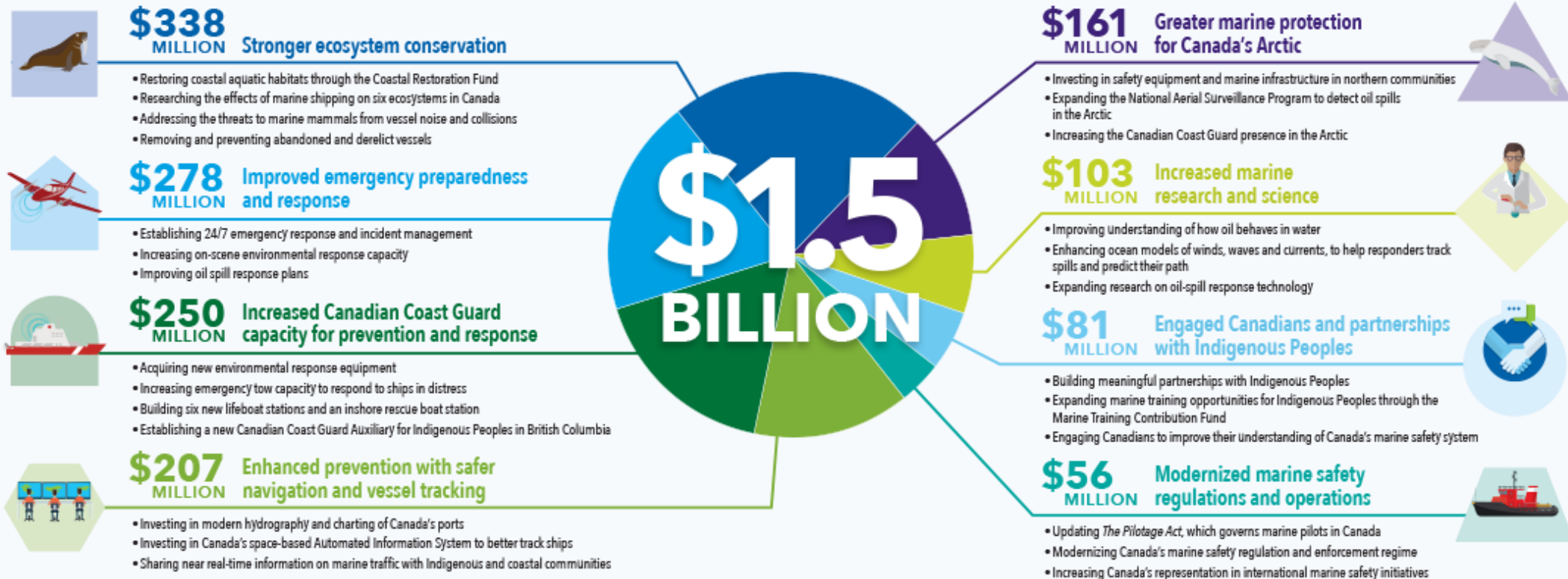
[canada.ca/oceans-protection-plan](https://canada.ca/oceans-protection-plan)

Canada



# OCEANS PROTECTION PLAN – PROTECTING OUR COASTS

The national Oceans Protection Plan is the largest investment ever made to protect Canada's coasts and waterways for future generations, while growing our economy.



For more information, please visit the Oceans Protection Plan interactive map.

Note: program spending rounded to nearest million



— Manning (SCRUM) and Technical Sub-Committee on Oceanic Applications

Canada

# Metadata training and workshop at DFO

- CHS leads the Marine Spatial Data Infrastructure (MSDI) project for Fisheries and Oceans Canada (DFO)
  - Priority: Interoperability with the Government of Canada's Spatial Data infrastructure (CSDI), including Open Maps/Data platforms.
- Metadata training workshop: March 2018
  - How: Two-day workshop in Ottawa with both classroom and remote participation, with expert on ISO standards in classroom.
  - Focus: ISO 19115 Harmonized North American Profile
  - Participants: Scientific data owners and IT managers from all regional offices from coast to coast to coast and headquarters (200 people).
- Direct application to MSDI, the CSDI and Open Government
- Results: Local resources, best practice documents, verification processes

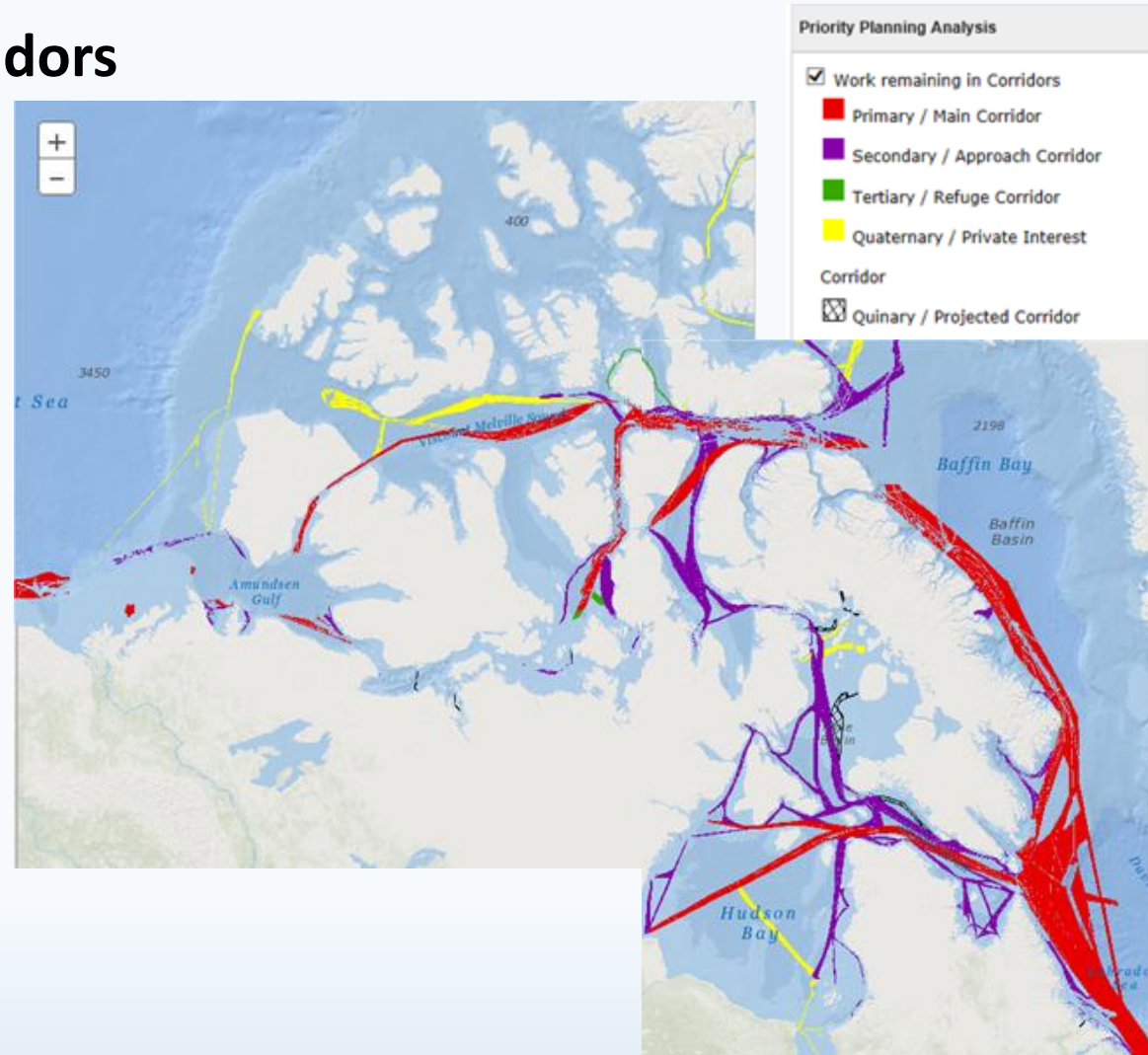




# Survey Priorities in Arctic Waters

## Proposed Low Impact Shipping Corridors

- Graphic illustrates areas in corridors that are not surveyed to modern standards
- At present, 28% of the combined areas of the Primary and Secondary Draft Low Impact Shipping Corridors<sup>1</sup> are adequately surveyed (surveyed to 'adequate' or 'modern' standards).
- Many areas within corridors are covered with either spot soundings, track lines (recon.), or unsurveyed.
- Client consultations are a significant driver



# Crowd Sourcing in the Arctic

- CCGS *Amundsen* MBES operational since 2003, CHS has been a partner with Arctic Net (Amundsen Science) since the beginning.
- Data from CCGS *Amundsen* represents ~65% of all of CHS' modern hydrography in the Arctic.
- Data from CCGS *Amundsen* has been incorporated on 83 charts to date.
- MBES is an EM302, mid-water mapping system.
- *Amundsen's* success established a blueprint for the rest of the icebreaking fleet.



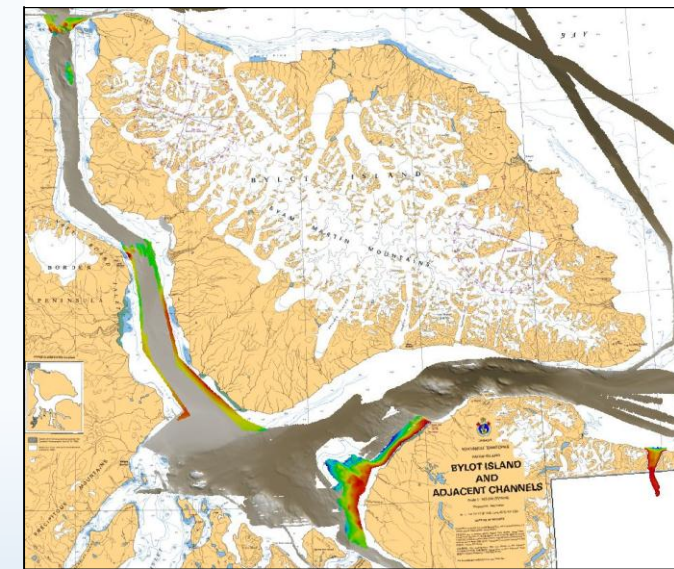


# Collaborations – Academia, National Defense

## Canadian Ocean Mapping Research and Education Network



2014 – HMCS *Kingston*



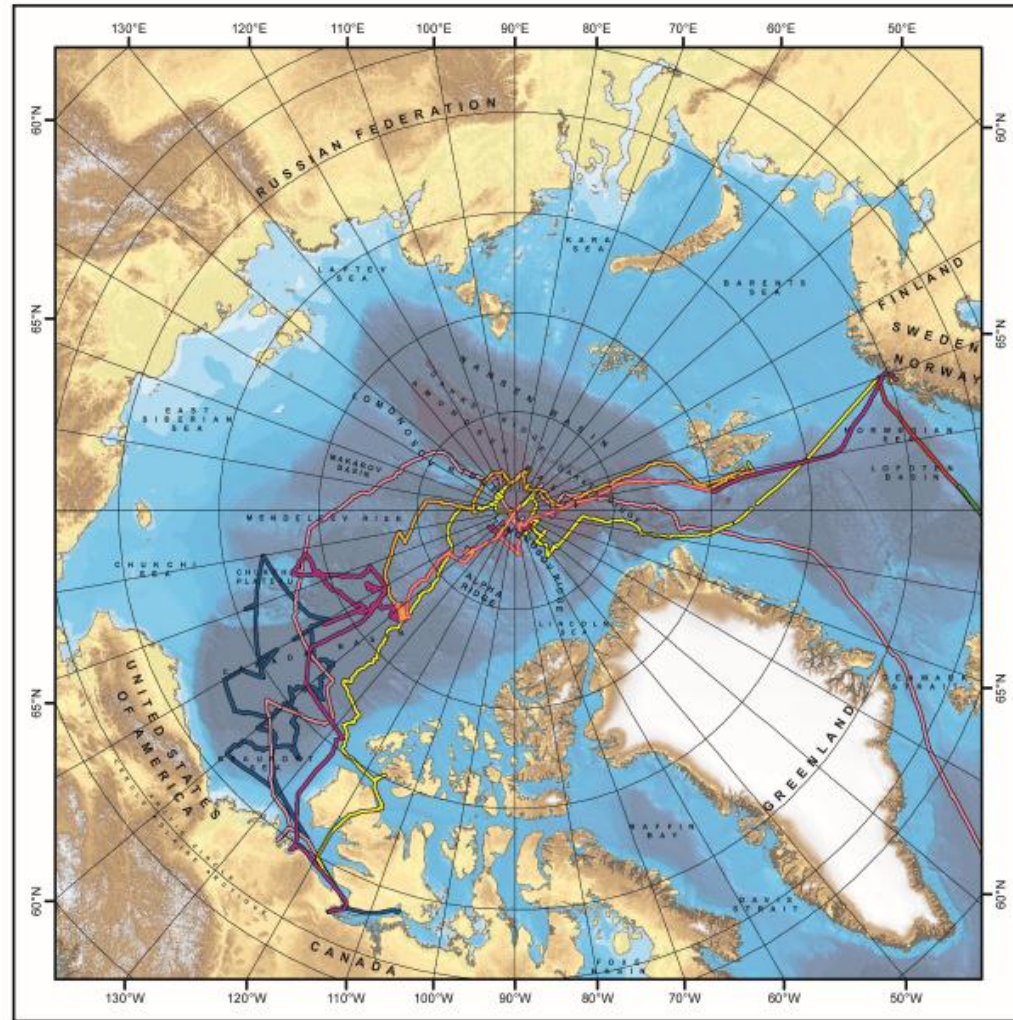
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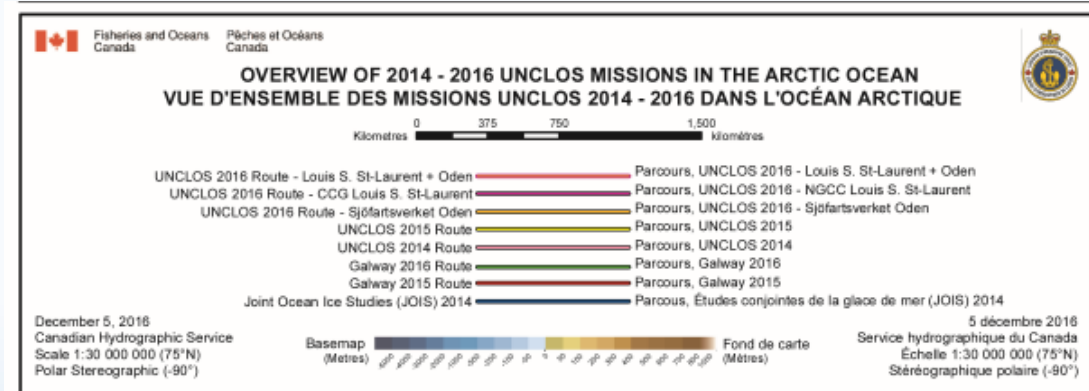
Canada



# Canadian Multibeam contributed to IBCAO

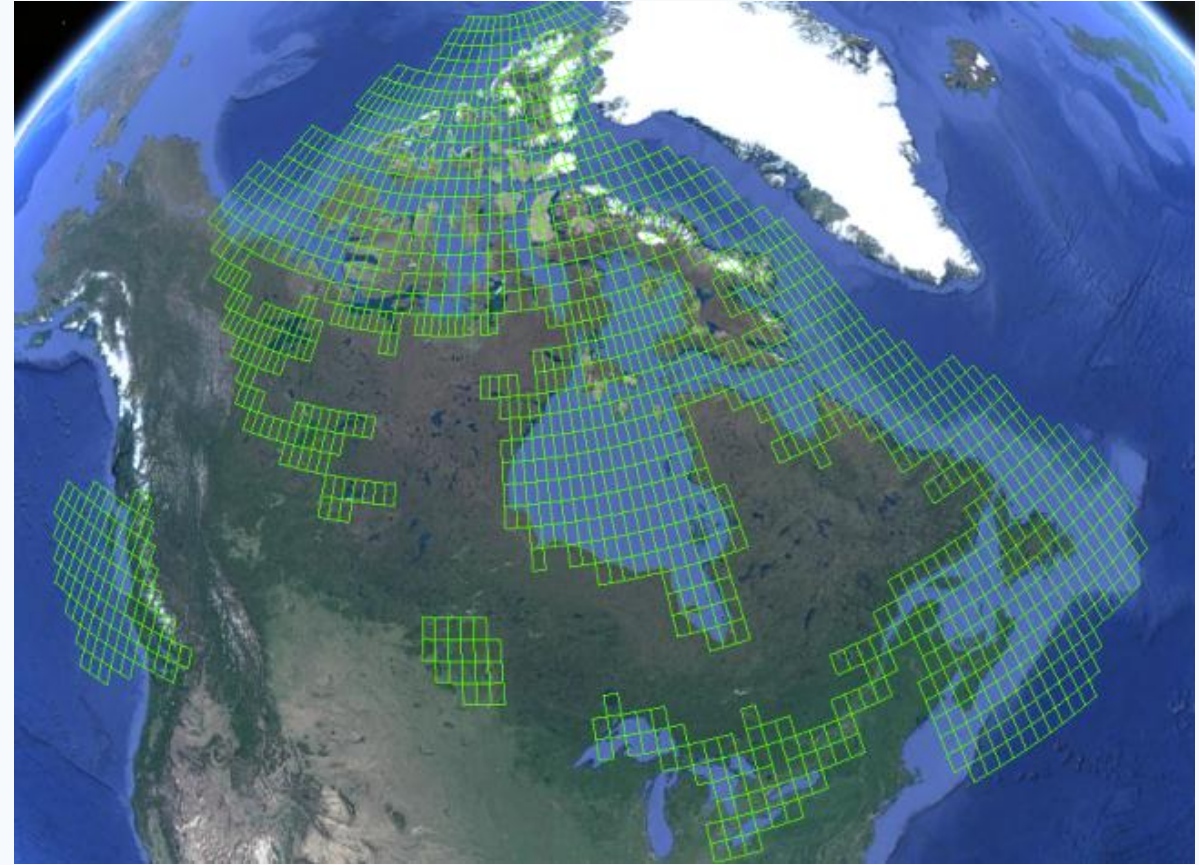


- Collected 2014-2016
- 90 000 line-km of MB contributed to IBCAO
- 100m grid resolution provided



# NONNA – 100: Free and Public

- **NON N**avigational products follows S-102 grid schema for the level 2 of S-102
- 100m gridded bathymetry cells: released in October 2018 and publically available for free on Open Maps and Open Data
- Will be used as a basemap in Canada's Marine Spatial Data Infrastructure (MSDI)
- Is bound to increase significantly the percentage of bottom coverage with modern bathymetry in GEBCO



<https://open.canada.ca/data/en/dataset/d3881c4c-650d-4070-bf9b-1e00aabf0a1d>







# CANADIAN HYDROGRAPHIC SERVICE

*Surveying and Charting  
Canada's Waters Since 1883*



# THANK YOU

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