Fisheries and Oceans Canada | Pêches et Océans Canada

Canadian Hydrographic Service / Service hydrographique du Canada

United States-Canada Hydrographic Commission
45th Meeting

Community Hydrography and Crowd-sourced Bathymetry (CSB)

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IHO International Hydrographic Organization

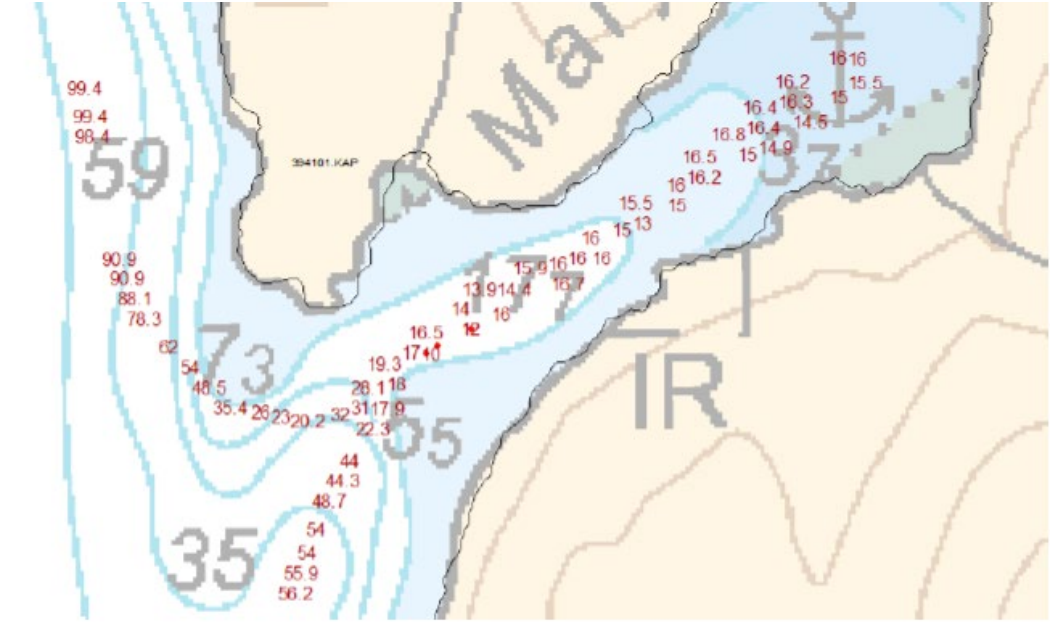
9-10 June 2022 Ottawa CA

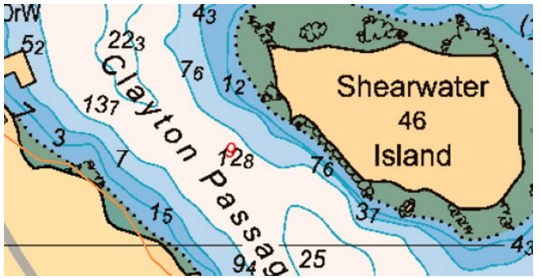
Canada

Why Community Hydrography & CSB

- Despite our efforts only 20% of the oceans have been adequately surveyed; fifty percent of the world's coastal waters shallower than 200 meters remain unsurveyed to modern standards (GEBCO_2021 and IHO publication C-55).
- CSB - collection of depth measurements from vessels, using standard navigation instruments, while engaged in routine maritime operations.
- Community Hydrography provides support by means of equipment, training, data validation, sharing and archiving.

A source for product updates

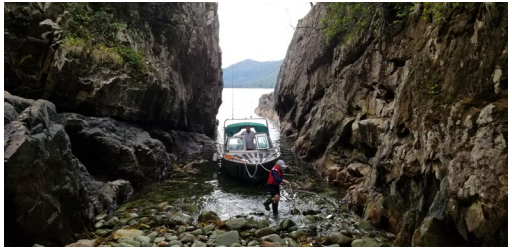




The Canadian Hydrographic Service (CHS) has used crowdsourced bathymetry to update products

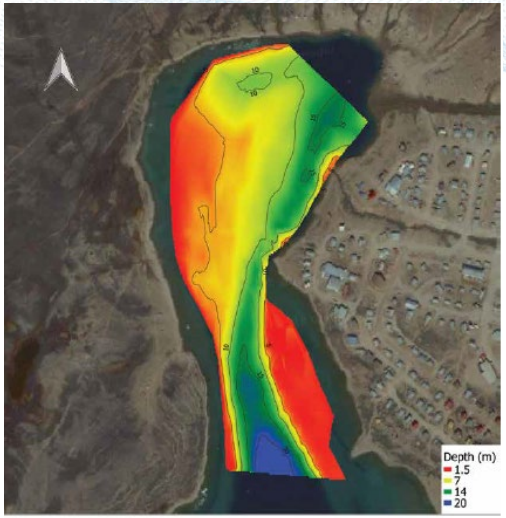
Objectives – Community Hydrography

- Data collected for free or through a modest investment!
- Fill in the gaps
- Identify dangers
- Leverage technology
  - Artificial Intelligence (multiple passes, tide correction)
  - Continuous Vertical Datum
  - Automatic data transmission and sounding computation
- Allows for the collection of validated data
- Contribute to DCDB
- Citizen Science – involvement increases interest



Canadian Approach

- A funded initiative following success of pilot projects.
- Staffed positions
- Reconciliation commitment
- A workshop to discuss successes, challenges and way ahead
- Develop a CHS Policy on the use of Community data
- Data collection and data controlled by community



Gjoa Haven chart

Equipment

TCSB-HydroBall and HydroBlock

A robust shell of spherical shape (13kg – 40cm diam) which contains :

- **Echosounder---(MBES a possibility)**
- **GNSS (L1/L2 receiver)---(position)**
- **Inclinometer---(roll and pitch)**

Post-processing <0.25m (95%) vertical accuracy is achievable.

ADVANTAGES

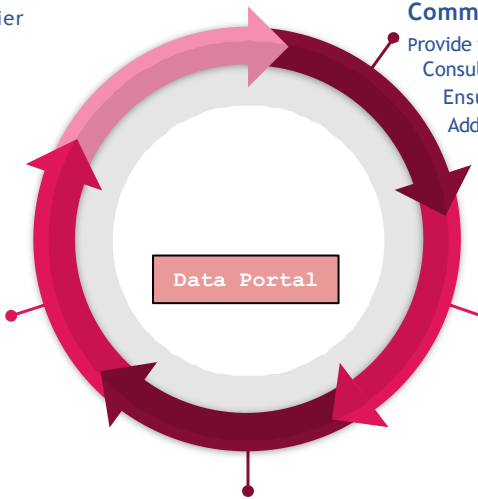
- **Require no offset measurement by field team**
- **Uncertainties in measurement can be reported**
- **Operated by non specialist**

Community solution an option!

Roles of Project Partners

COMREN / Industry
Technology Supplier
Processing

Community Hydrography Team
Provide indiginous Awareness Module
Consult with and train first nation communities
Ensure follow-up with communities
Address Technical Issues



UNB / Memorial University
Automated processing workflow
Integration of other sound speed models
Perform initial validation

COMMUNITY
Receive training
Accept to install and operate TCSB system (hydroBlocks) on their vessels.

Thank you