



Database Driven Bathymetry

NOAA Open House on Nautical Cartography

July 7, 2017
Silver Spring, Maryland, USA

Derrick R. Peyton

- Cartographic Challenges
- Past/Present Approaches
- Database Drive Approach
- Community of Practice
- Challenges

Problem Definition

“Among the proposed boater-friendly changes in the National Charting Plan, according to Shingledecker, are more frequent chart updates – weekly, instead of long intervals, and the better integration of data with other agencies such as the U.S. Army Corps of Engineers and the U.S. Coast Guard, which could mean integrating the latest channel depths and aid to navigation positions. The plan also allows NOAA to focus attention on underserved waterways, such as resolving chart discrepancies in areas of importance to recreational boaters.”

“We see a more efficient chart production that allows more frequent updates of obstructions, discrepancy resolution and exploration of using crowd-sourced data,”

<http://www.threesheetsnw.com/blog/2017/06/boatus-noaa-national-charting-plan-looks-to-the-future/>



Problem Definition

on Tuesday. Our industrial associates will be invited to join in the afternoon of Tuesday 25 July for a session that will set the scene for focused discussions on Wednesday 26 July.

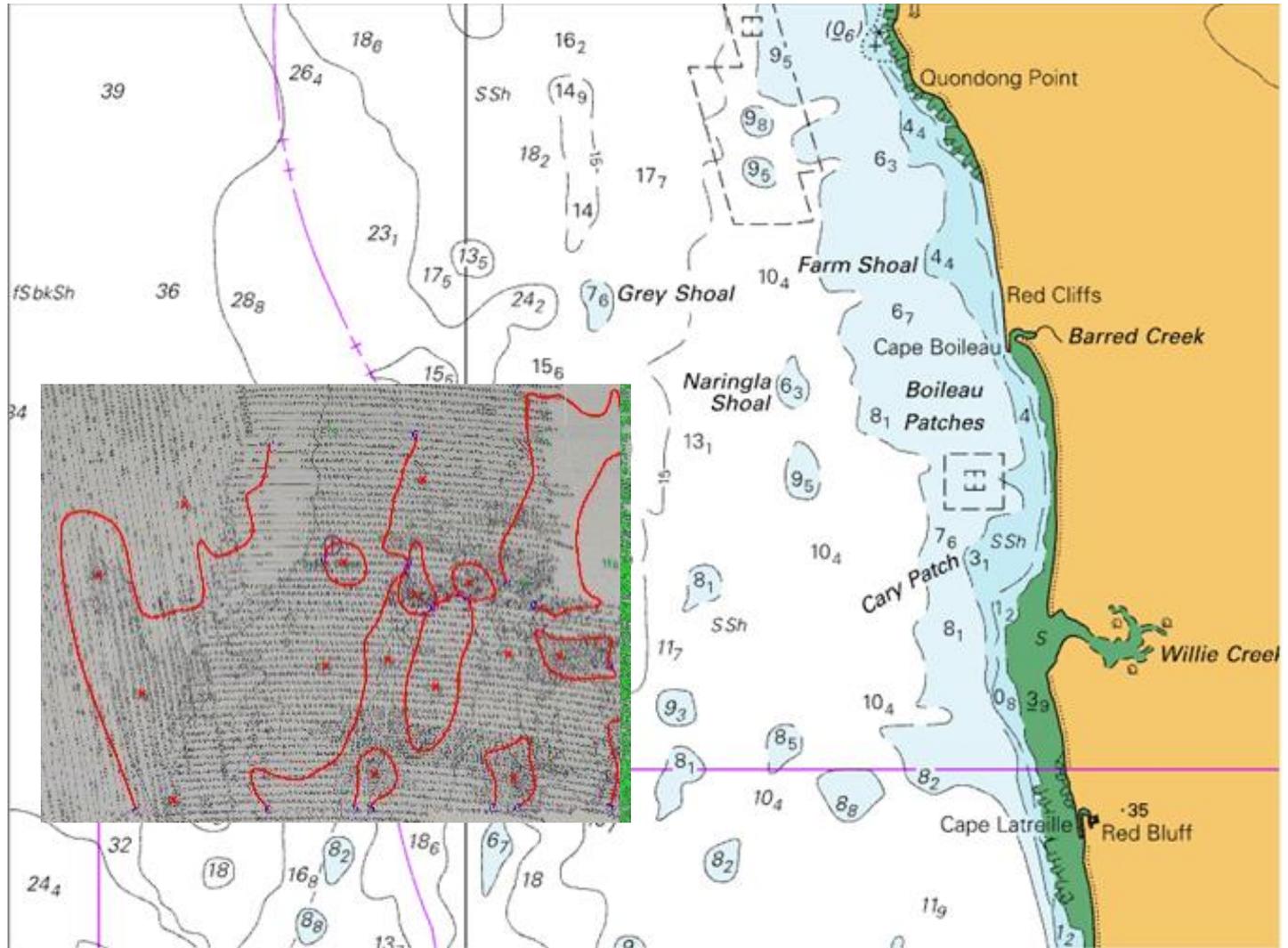
This year, Admiral Smith would like to join you in a discussion focused on “Charting Challenges,” encompassing challenges associated with charting from the compilation of the chart to final shipboard and small vessel presentation and display. Tours of the Center and

Larry Mayer

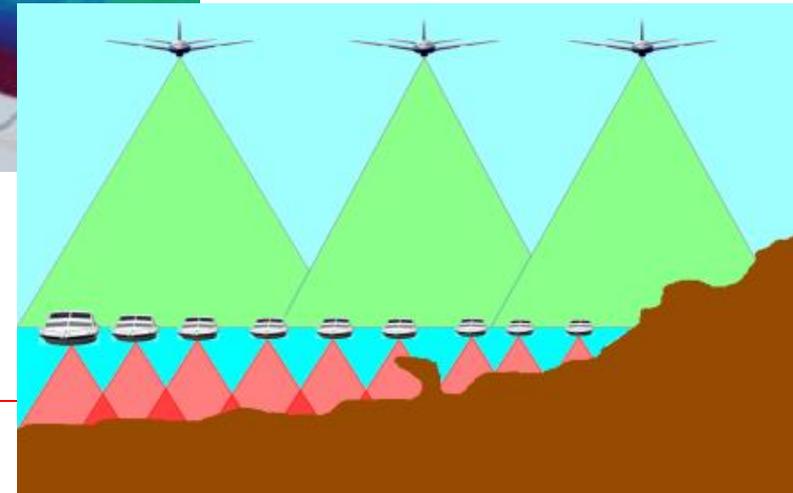
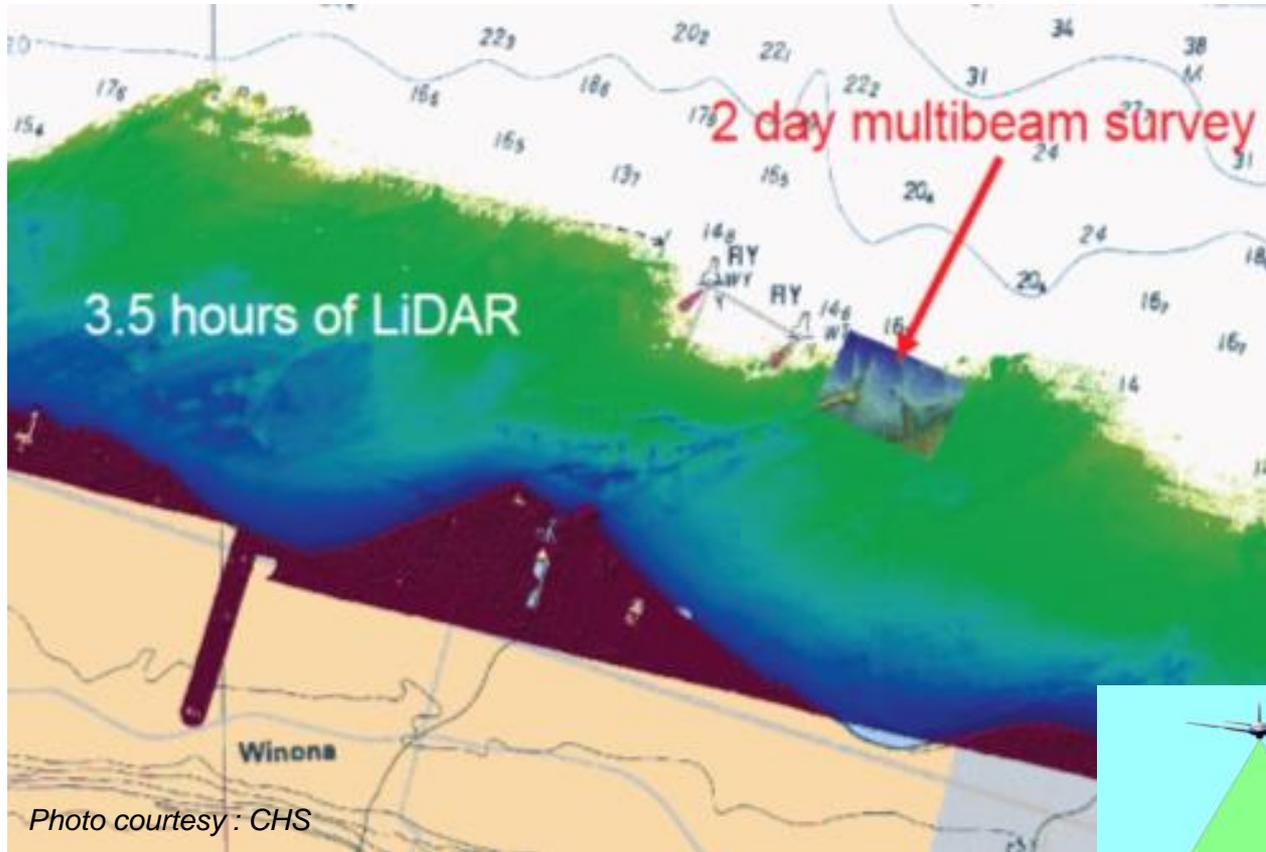
Director, Center for Coastal and Ocean Mapping

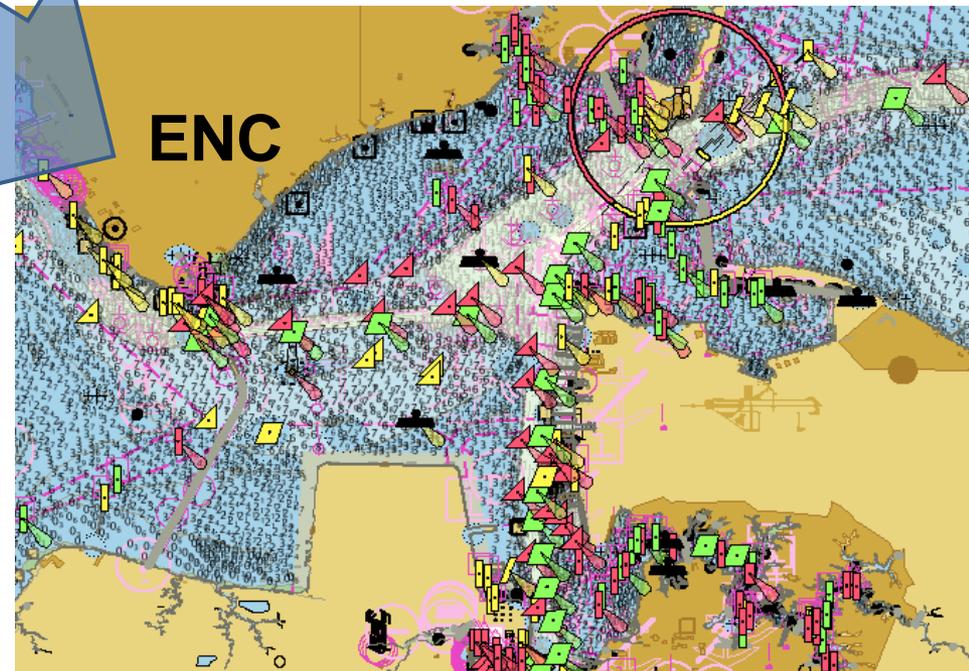
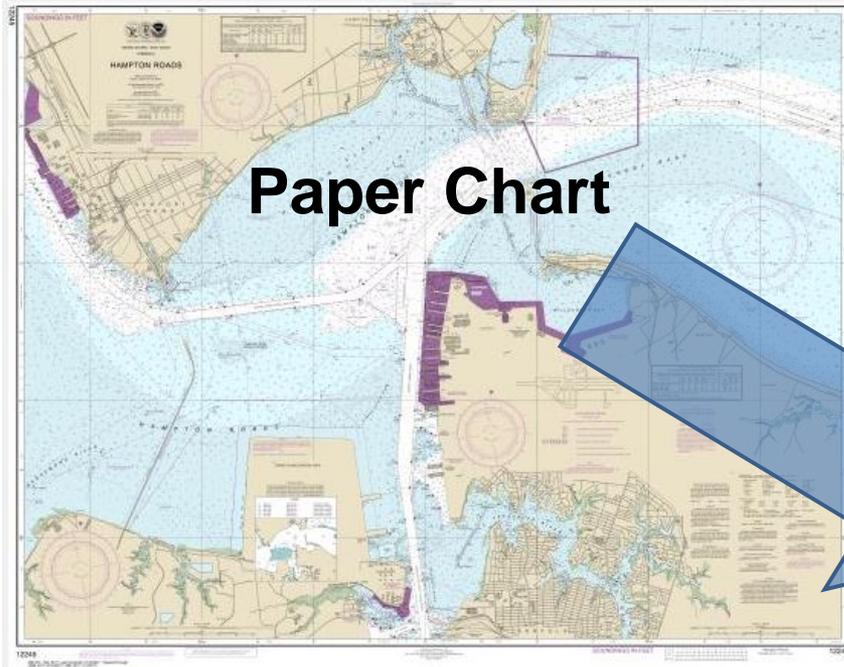
Co-Director, Joint Hydrographic Center

Present Approach



More demand... More data....



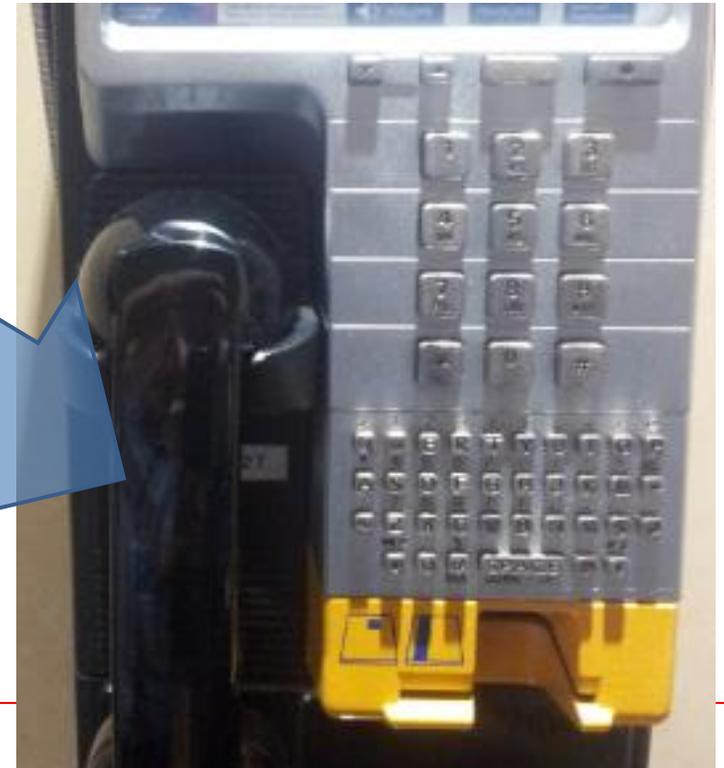
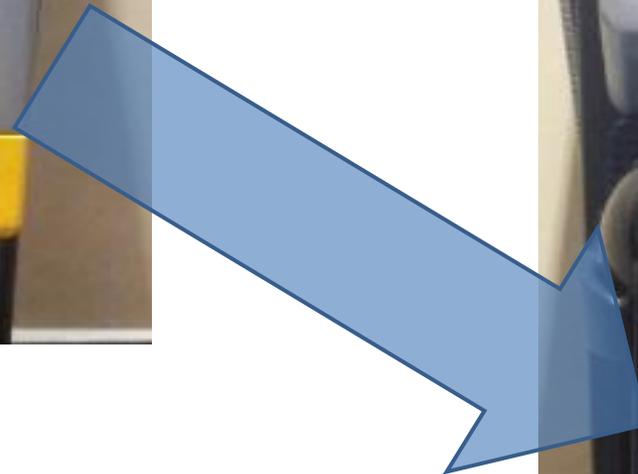


Less than perfect



Stretching

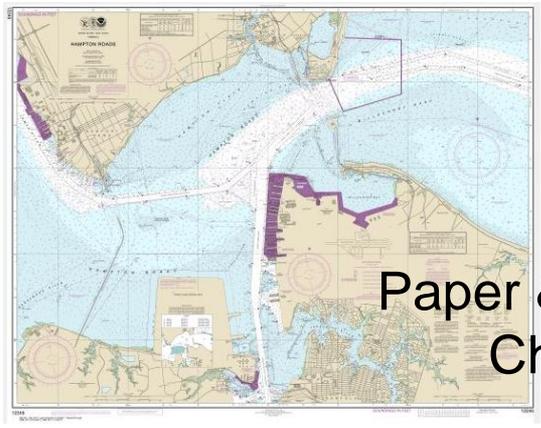
Technologies



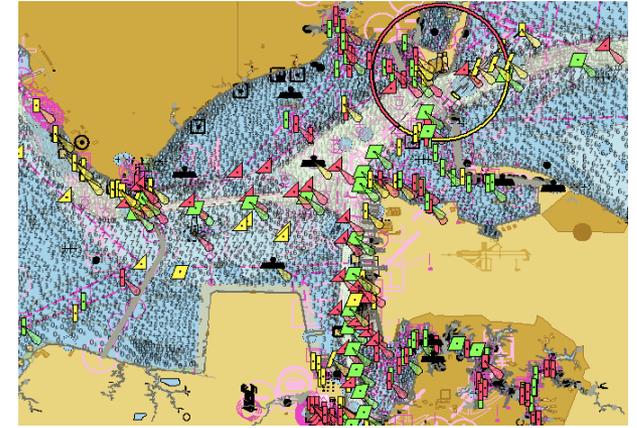
Formula!!!!

Charting²⁰¹⁷ = f (Hydrography, Cartography, Oceanography)

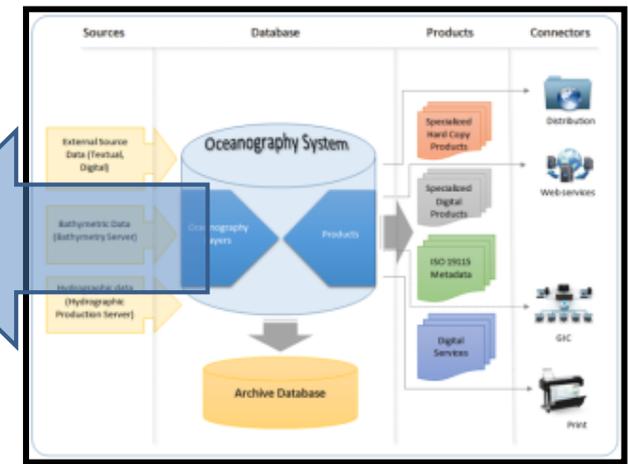
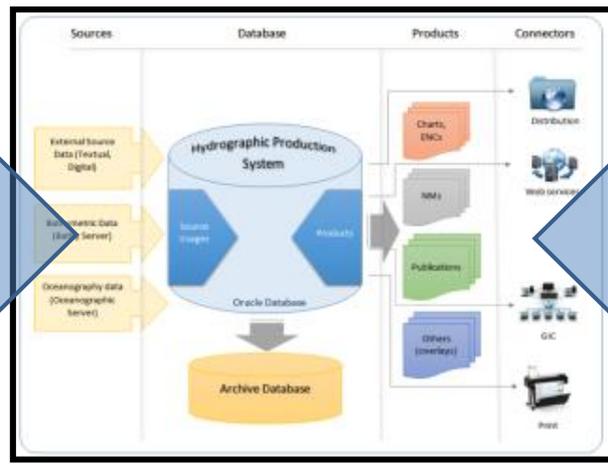
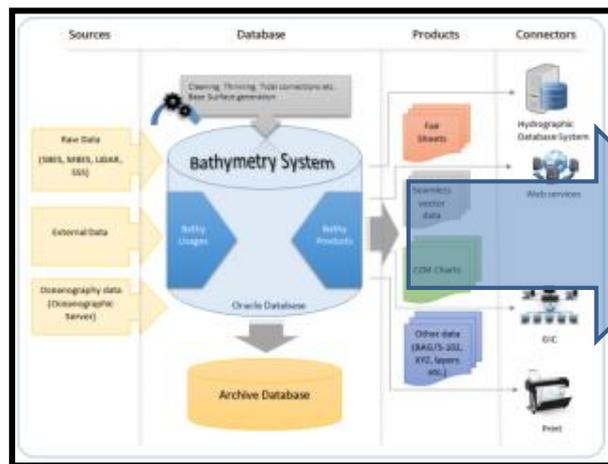
Multi Sources Multi Products



Paper & Raster
Charts



ENCs

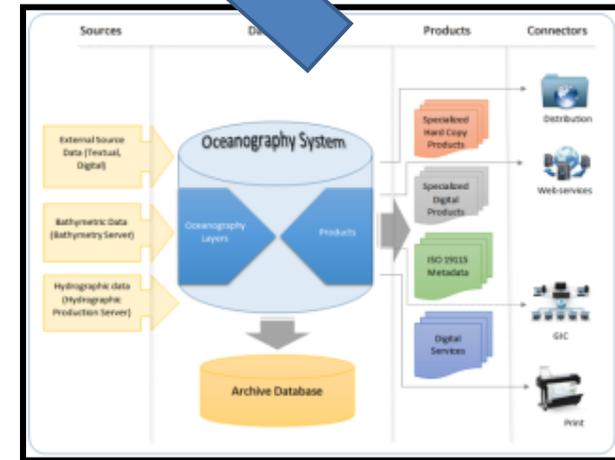
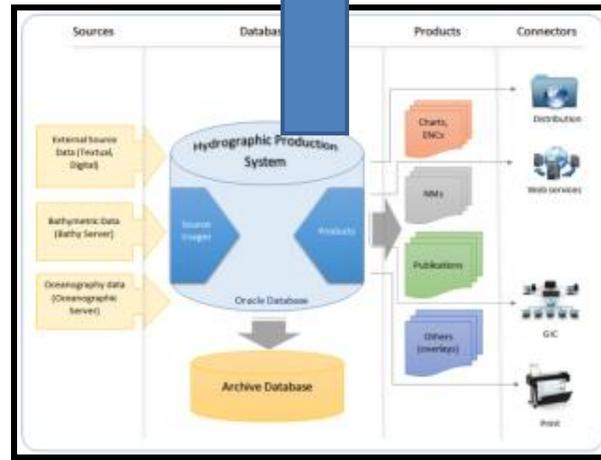
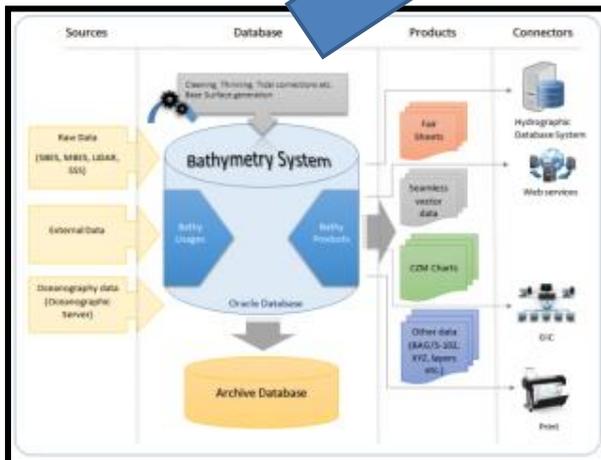
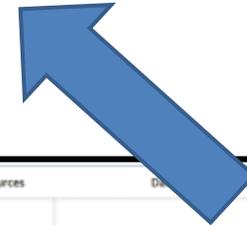
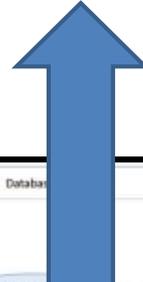


Bathymetric Database

Hydrographic Database

Oceanographic Database

More than just nautical charts

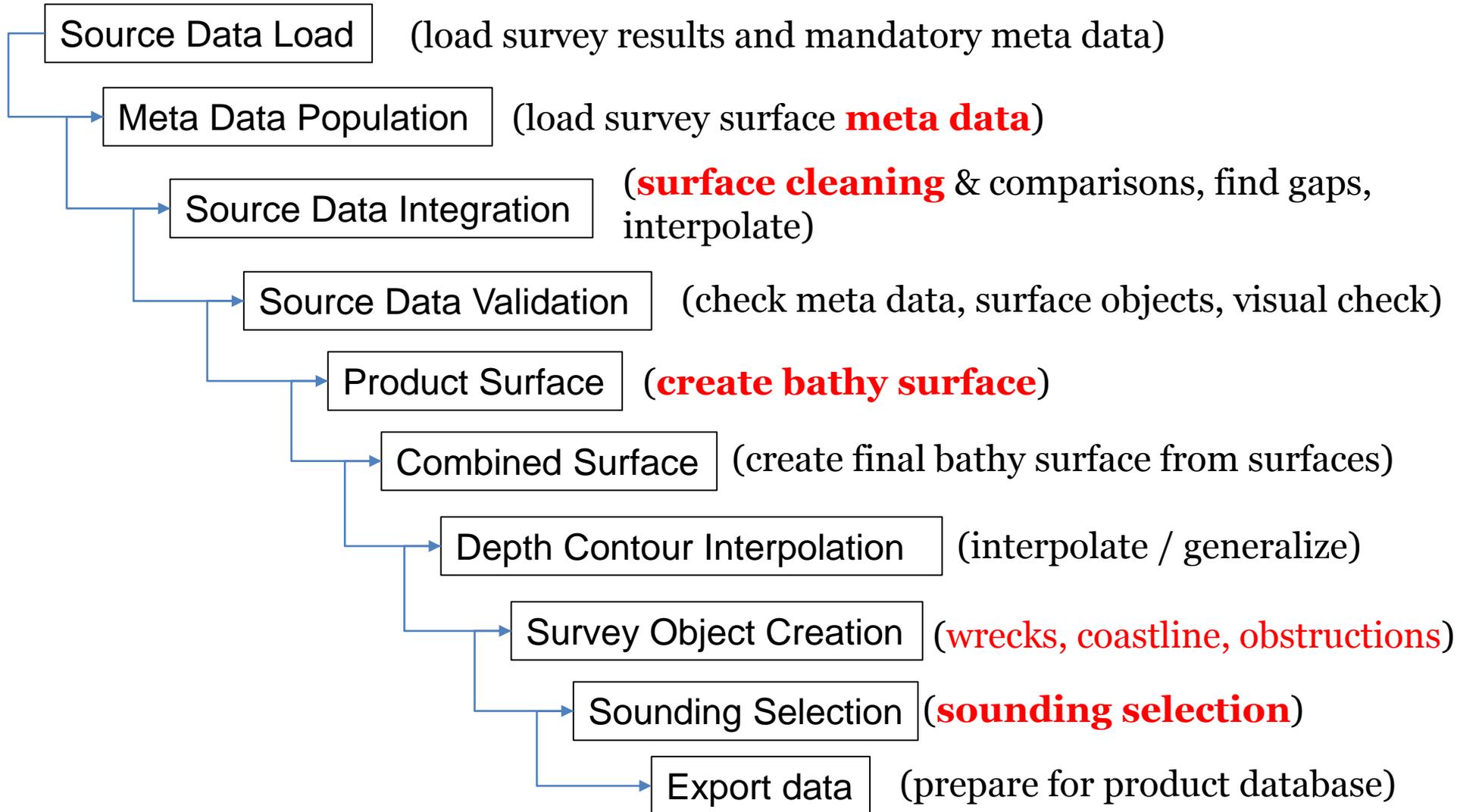


Bathymetric Database

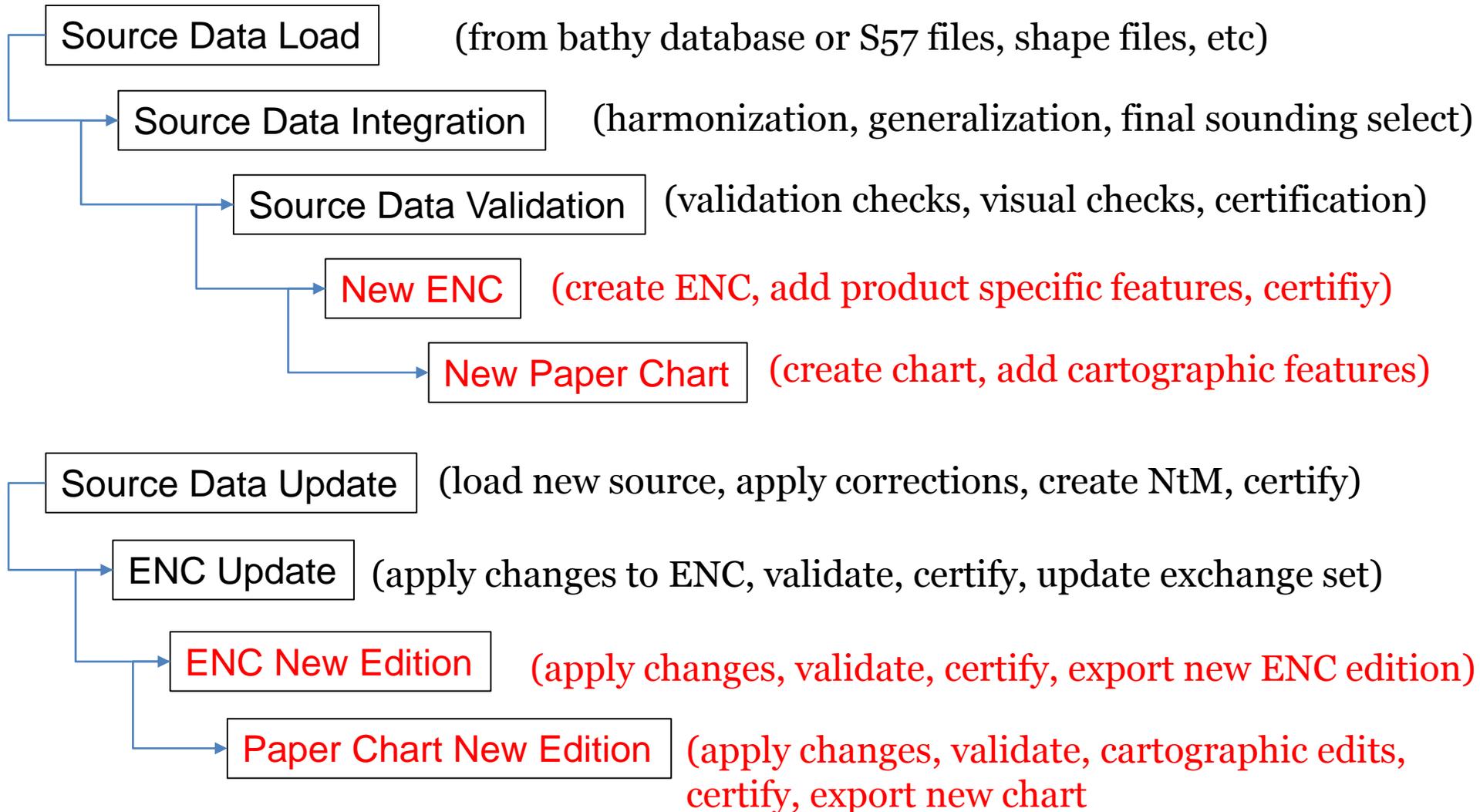
Hydrographic Database

Oceanographic Database

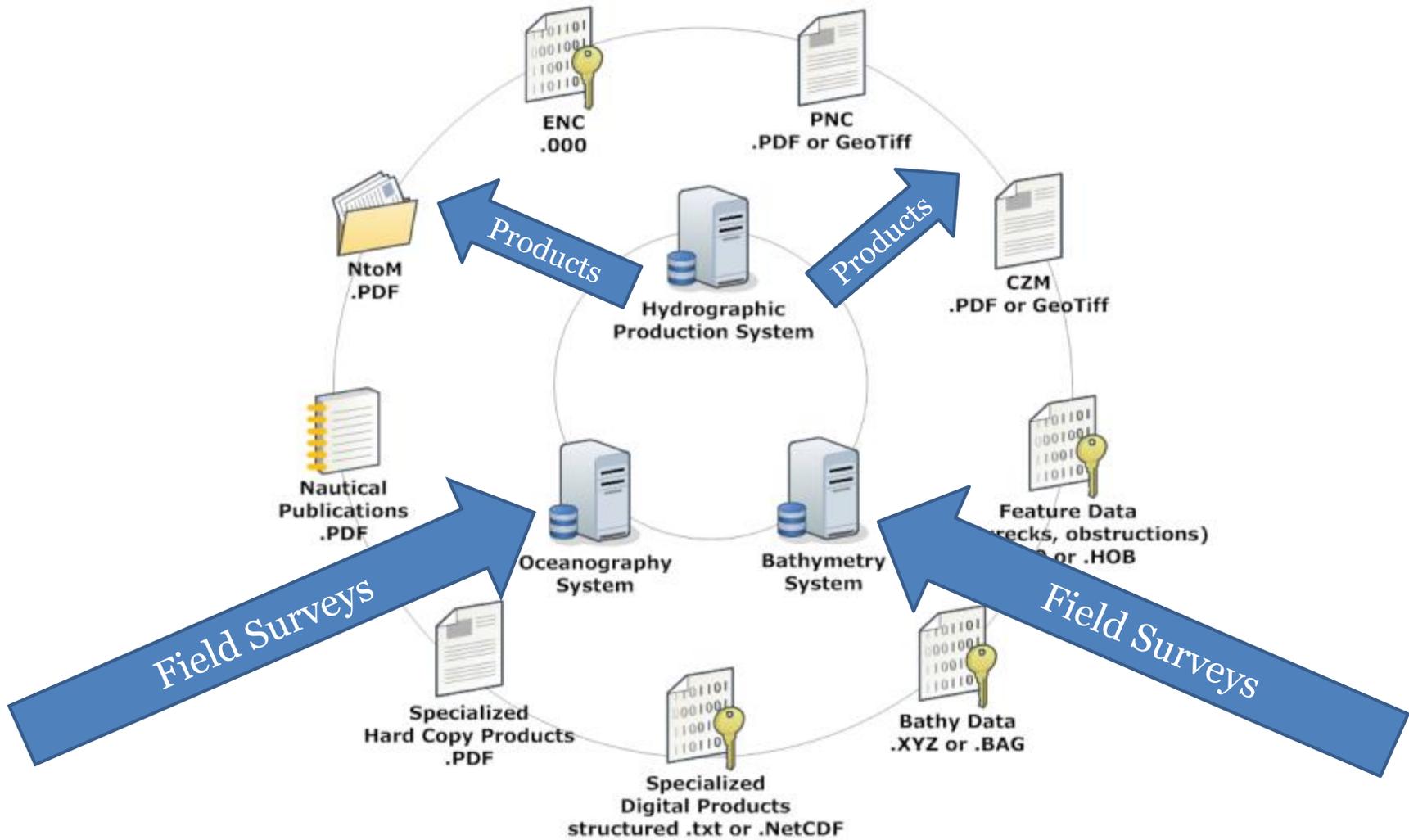
Bathy Database Workflow



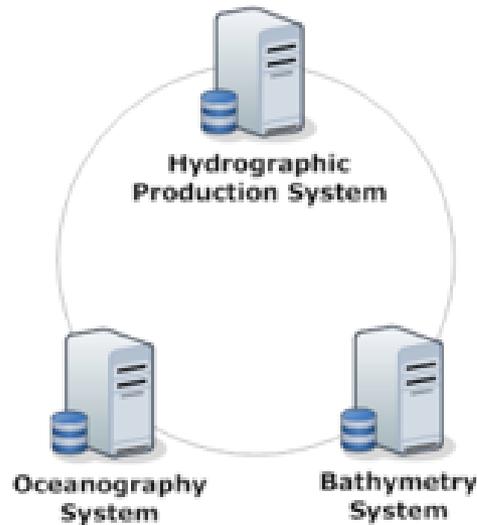
Product Database Workflow

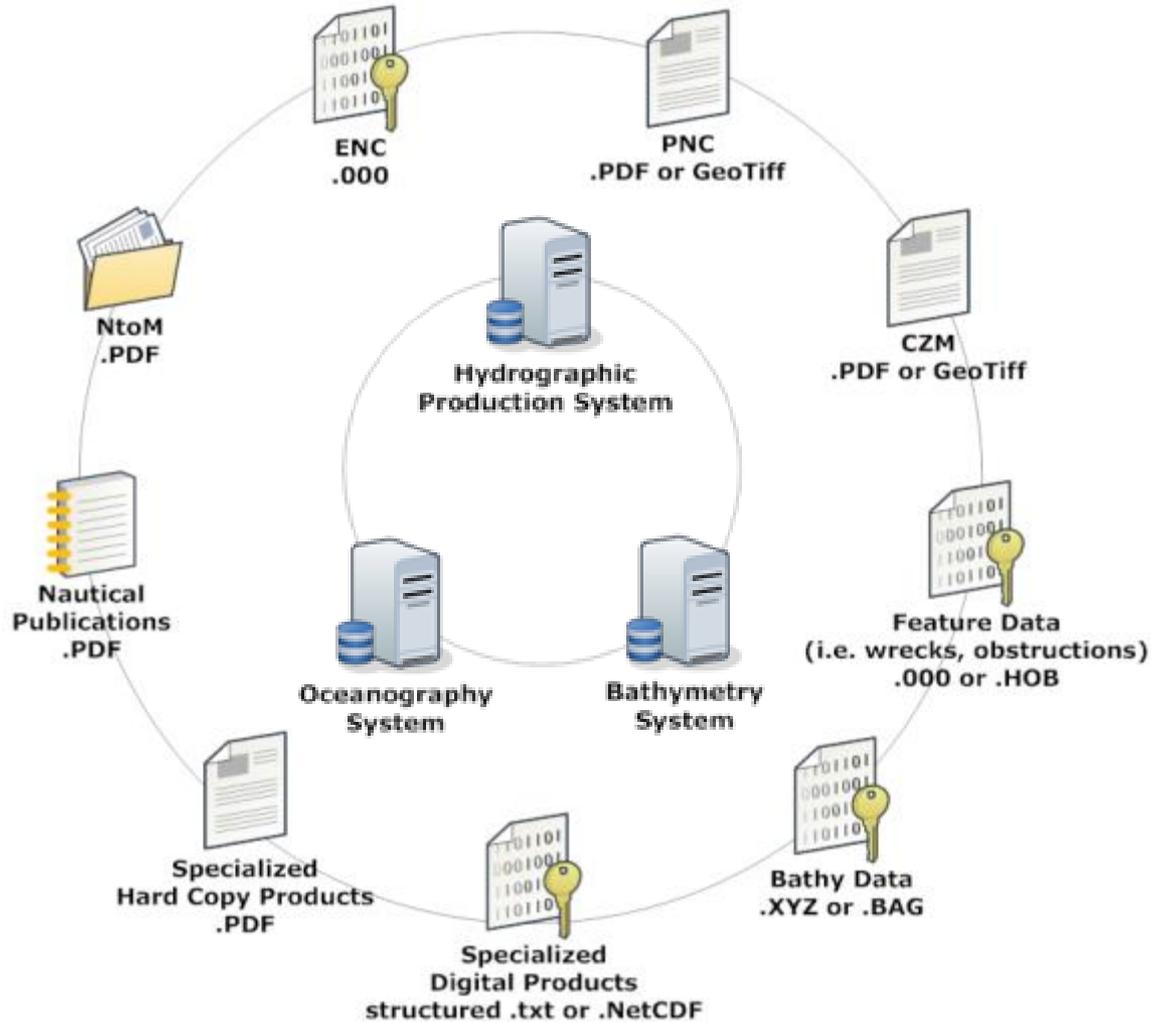


Bathy and Product Database Overview



Remote Connection
Or
Database Extraction





Community of Practice

Training and Education



**INTERNATIONAL
FEDERATION OF
SURVEYORS**



**STANDARDS OF COMPETENCE
FOR CATEGORY "A" HYDROGRAPHIC
SURVEYORS**

**Publication S-5A
First Edition
Version 1.0.1 - June 2017**

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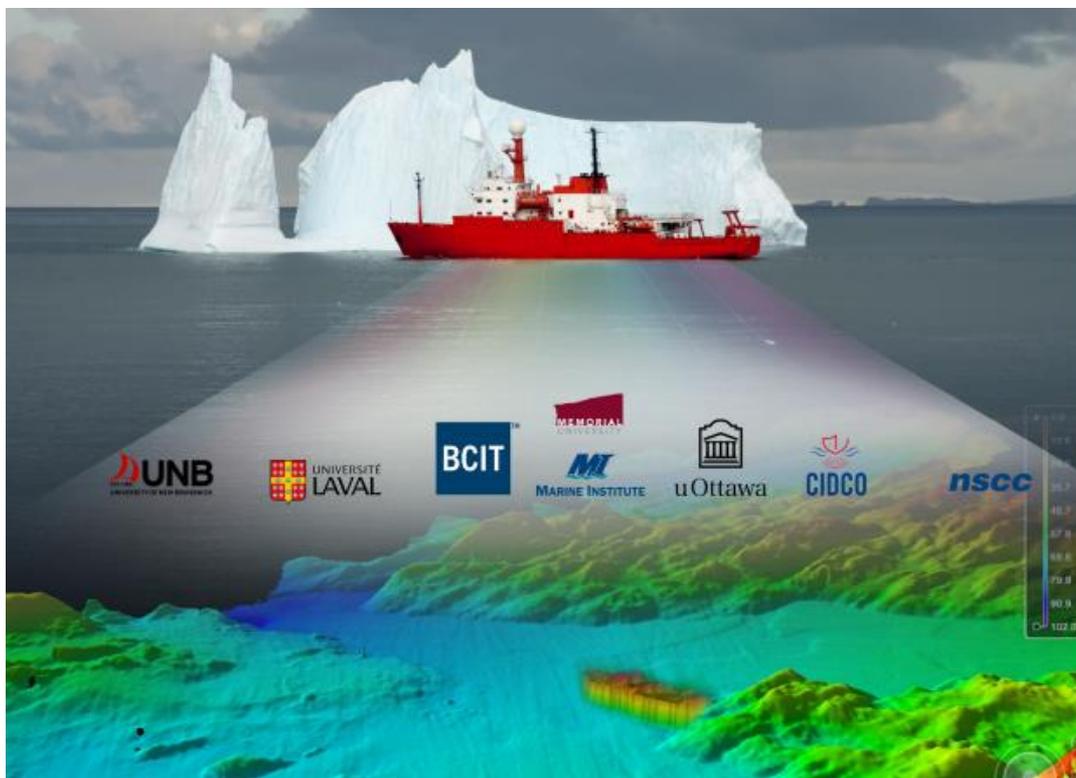


**STANDARDS OF COMPETENCE
for
Nautical Cartographers**

**Publication S-8
Third Edition
Version 3.1.0 - December 2014**



Canadian Ocean Mapping Research and Education Network (COMREN)



Perform Survey

- Clean data (as automatically as possible)

Bathymetric Database processes.....

- Store result in bathymetric database as a single “master product surface” using variable resolution (dense inshore, sparser in deeper water). Older data gets superseded at this point.
- Generate contours and selected soundings in at the largest required scale
- Identify shoals, wrecks, other features of interest

Product Database processes.....

- Load up generated product sources (contours, soundings, other features) into Source Database
- Update the products based on those sources

It's not perfect... yet.



Challenges

- Quality Control
- Workflow Processes
- Monitoring
- Education and Training
- Certification

Thank you !