Crowdsourced Bathymetry in Tampa Bay

Sophia Chernoch, Sherryl Gilbert, Kristin Erickson, Steve Murawski, Sarah Grasty, Rian Childs, and many others....

Center for Ocean Mapping and Innovative Technologies

UNIVERSITY OF SOUTH FLORIDA
College of MARINE SCIENCE

COMIT CSB Program Goals

- ❑ Utilize vessels of opportunity to collect seafloor mapping data
- ❑ Make the data accessible to the public
- ❑ Provide a model interface between policy makers and the public
- ❑ Create resources for other coastal regions to establish CSB programs

CSB Program Roadmap

Sept. 2022

June 2023

March 2024

Sept. 2025

and beyond!

Phase I

Foundations & Relationship Building
September 2022 – June 2023

Phase II

Outreach & Expansion
July 2023 – March 2024

Phase III

Regional-Scale Demonstration
April 2024 – September 2025

Who is the “Crowd”?

Eckerd College Search and Rescue
- *Rescue 4*
- *Rescue 5*
- *Rescue 7*

Pinellas County Environmental Management
- *Privateer*

United States Geological Survey
- *Sallenger*

USF College of Marine Science
- *Tocobaga*

Chance Maritime Technologies
- *MC-29*

USGS
science for a changing world

ECKERD COLLEGE

ORANGE FORCE MARINE

Pinellas County

CHANCE
MARITIME TECHNOLOGIES

Center for Coastal & Ocean Mapping
Joint Hydrographic Center
CCOM
JHC
University of New Hampshire

Data Snapshot

First 2 loggers activated in
April 2024

3rd logger activated in
June 2024

4th+5th loggers activated in
April 2025

6th logger activated in
November 2025

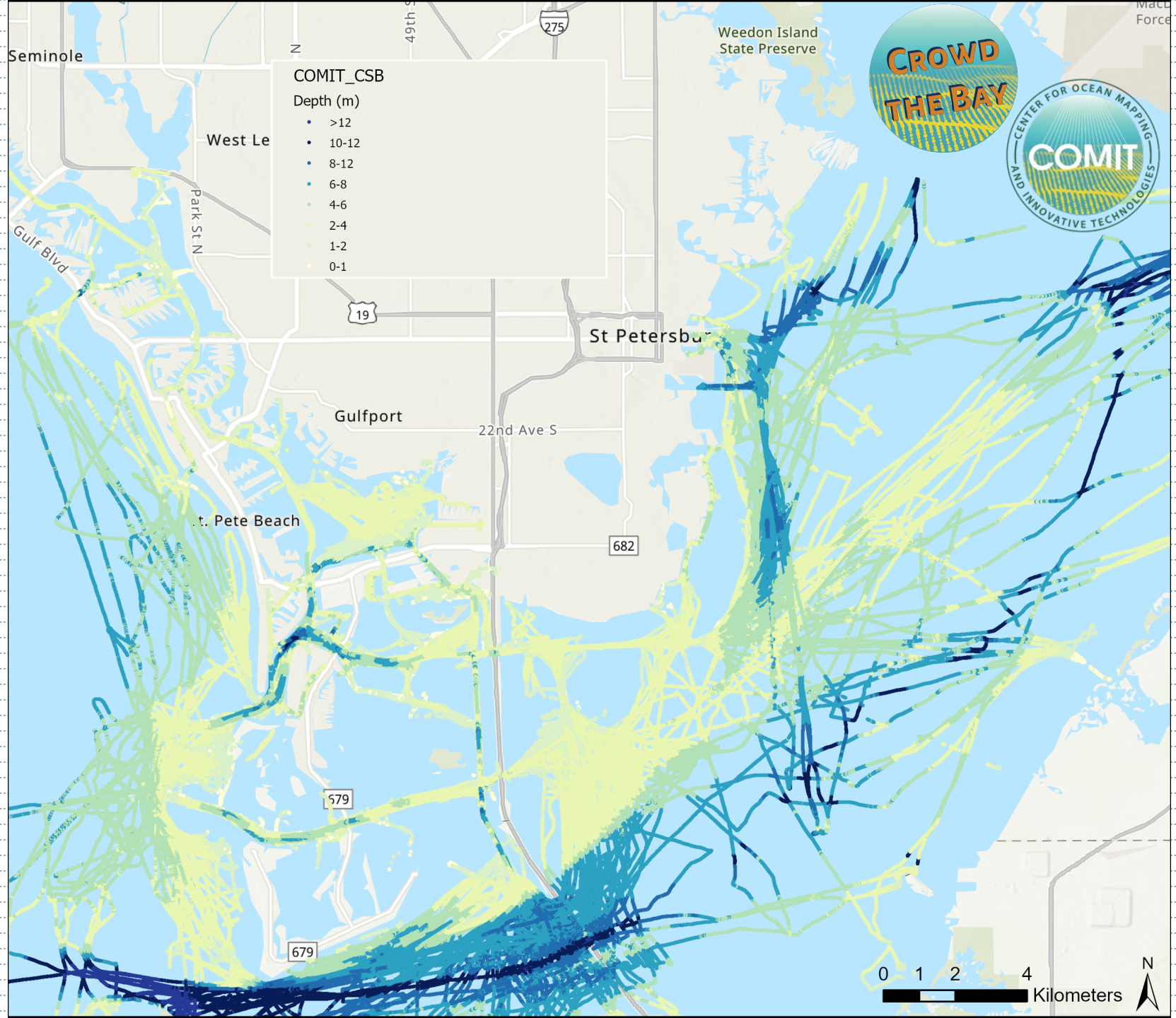
>9.6 million soundings collected to date

Data Snapshot

>9.6 million soundings collected to date

Collected by **6 vessels**

…in **22 months**



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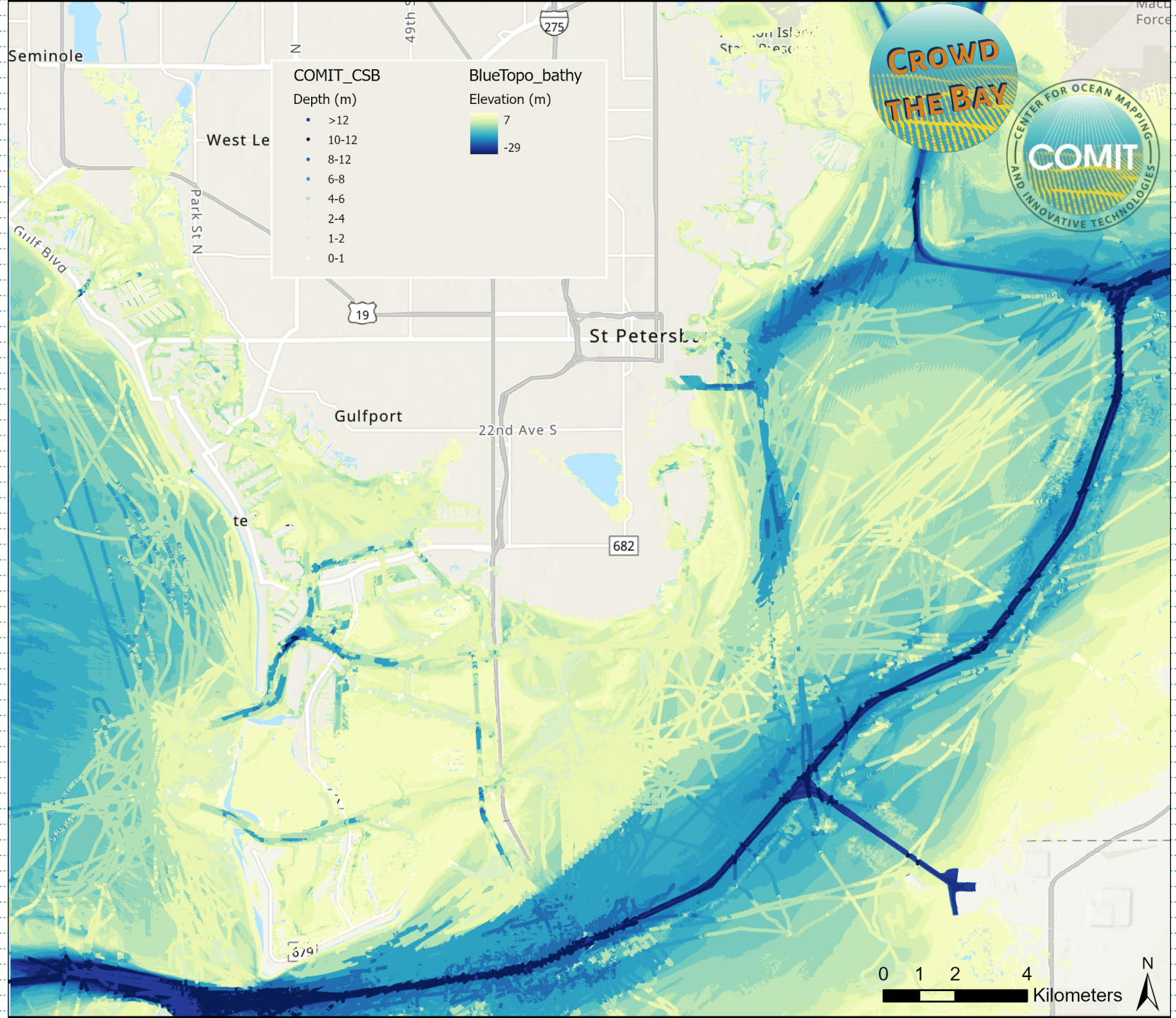

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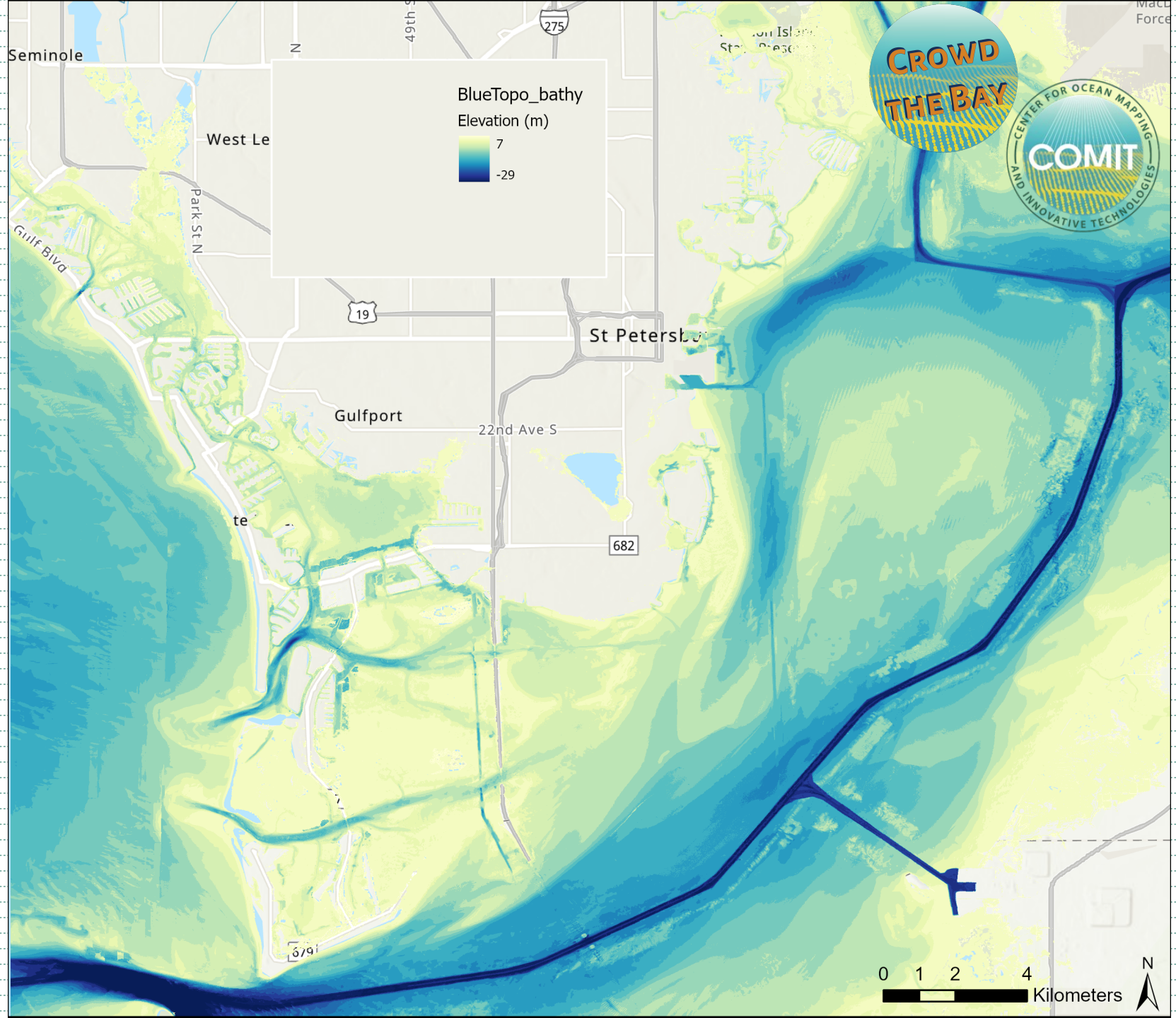


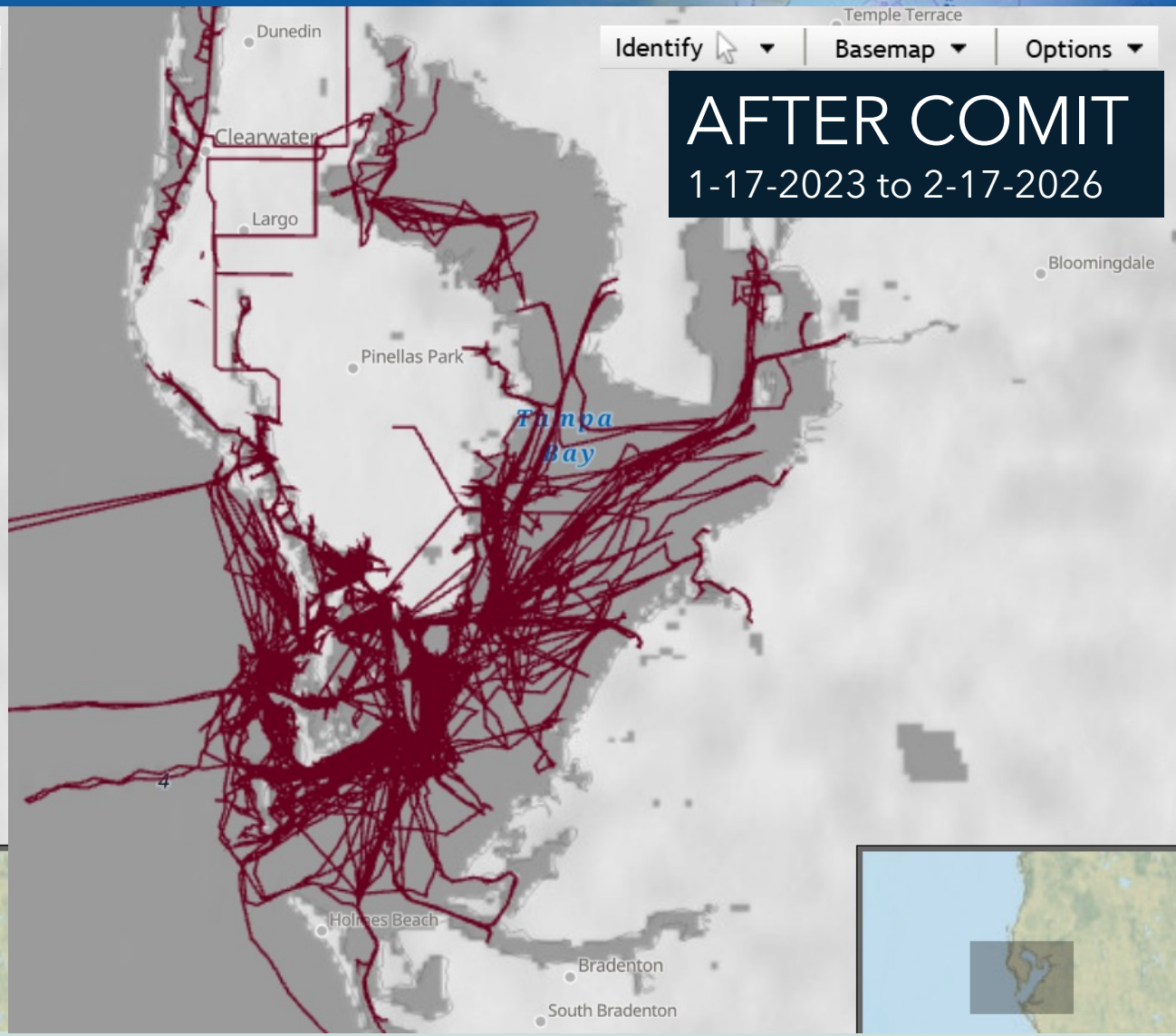
Organization	Vessel	Logger Type	Install Date	Months Active
Chance Maritime Technologies*	MC-29	WIBL	2/16/2024	24
Eckerd College Search and Rescue	Rescue 5	OFM Mussel Kit	4/18/2024	22
Eckerd College Search and Rescue	Rescue 7	OFM Mussel Kit	4/18/2024	22
Pinellas County Envir Management			/2024	20
Eckerd College Search and Rescue	Rescue 4	OFM Mussel Kit	4/7/2025	10
United States Geological Survey	Sallenger	OFM Mussel Kit	4/23/2025	10
USF College of Marine Science	Tocobaga	OFM Mussel Kit	11/25/2025	3

>5 million soundings

IHO International Hydrographic Organization

Regional Scale Demonstration

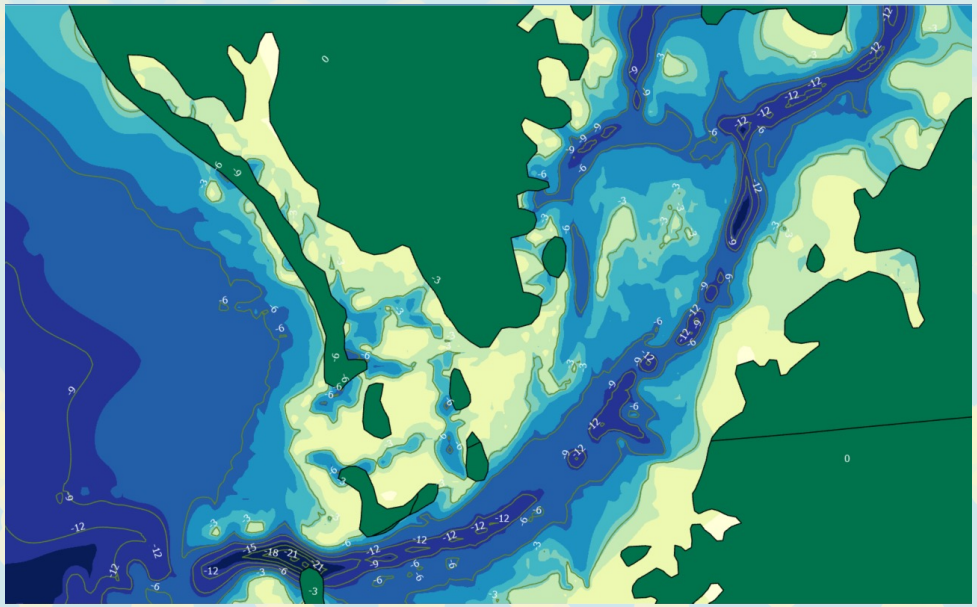
Data Centre for Digital Bathymetry Viewer



Sept '22 — Phase I — June '23 — Phase II — Mar '24 — Phase III — Sept '25

Phase III.I

Intercalibration Exercises & Case Studies



Sept '25

Sept '26

Case Studies

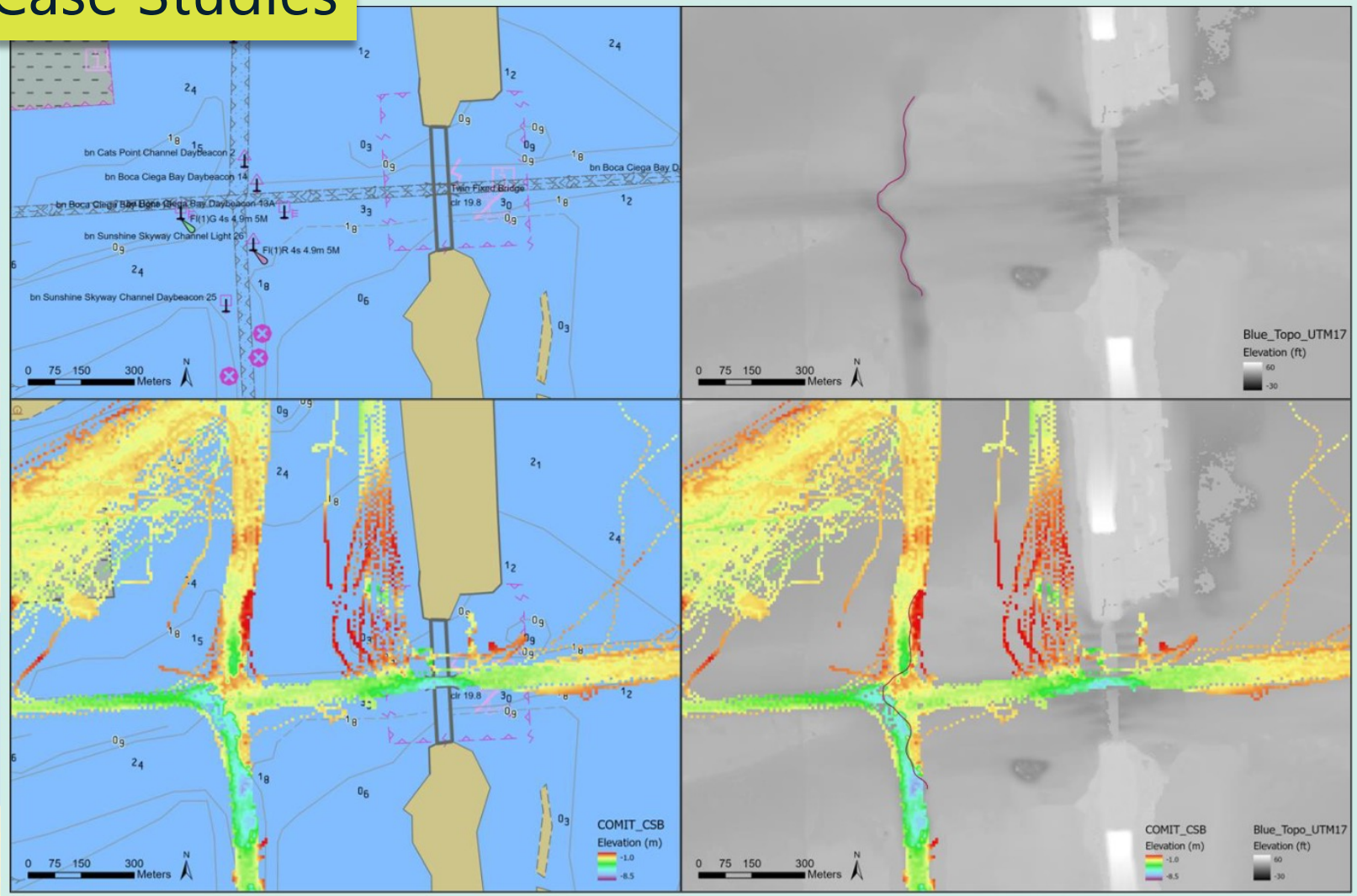
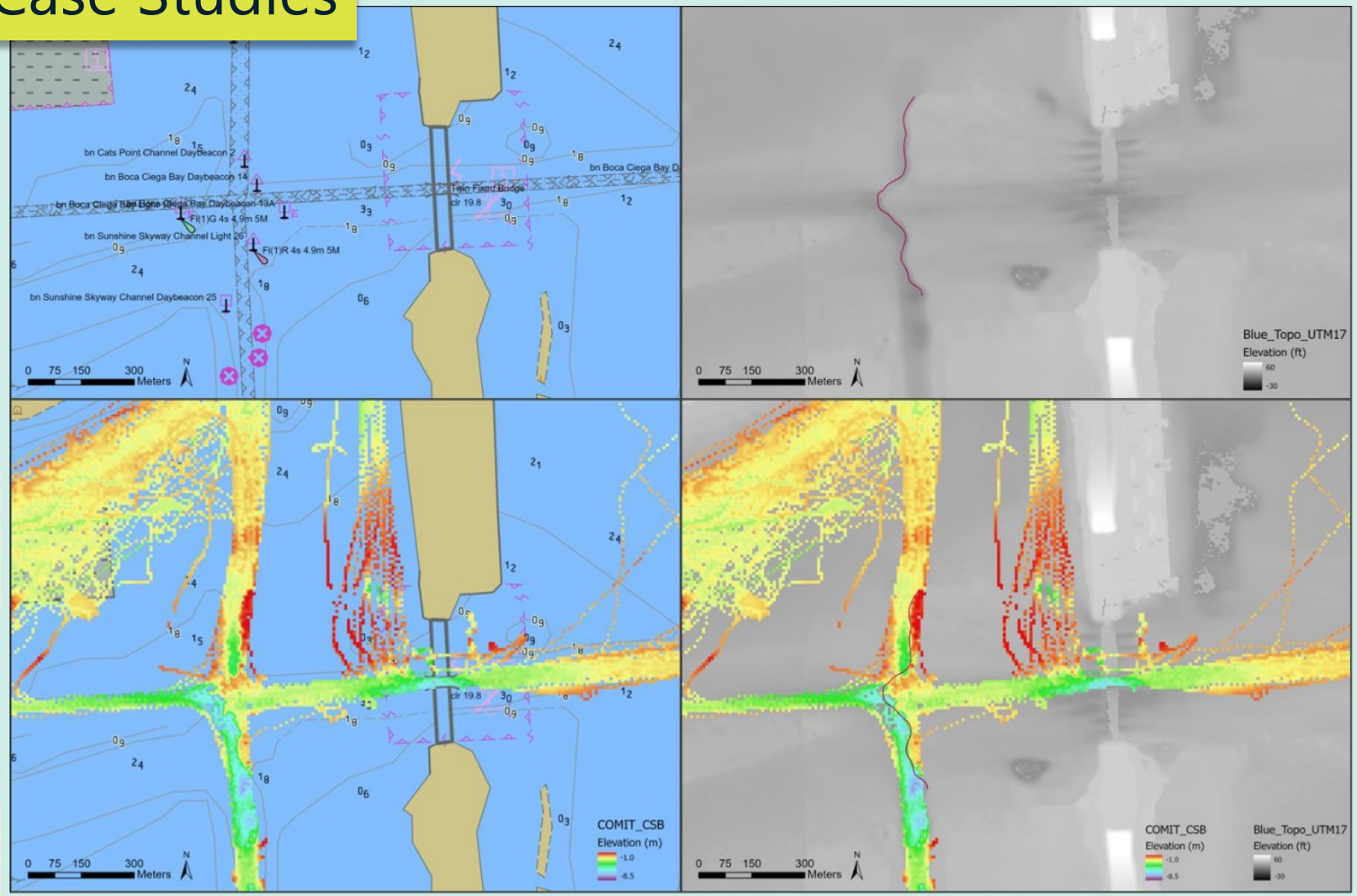


Figure 1. An uncharted shoal feature in a navigation channel was identified in the COMIT CSB dataset and validated by comparison with NOAA's BlueTopo™ surface.

Case Studies



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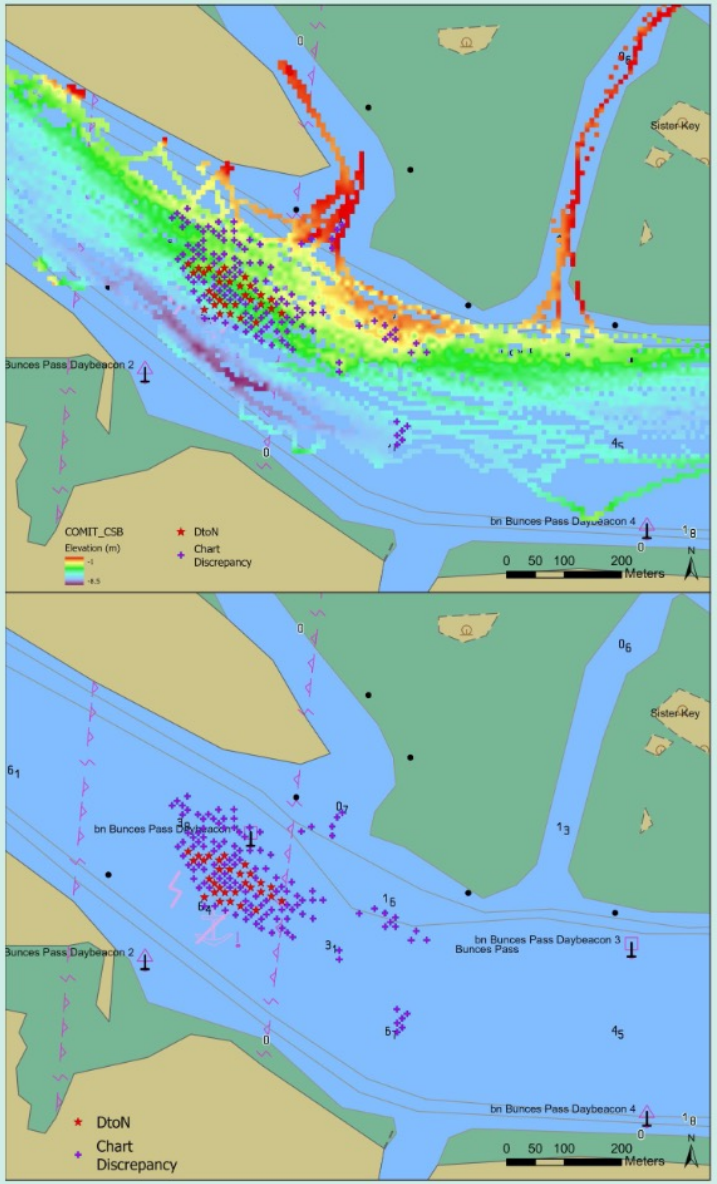
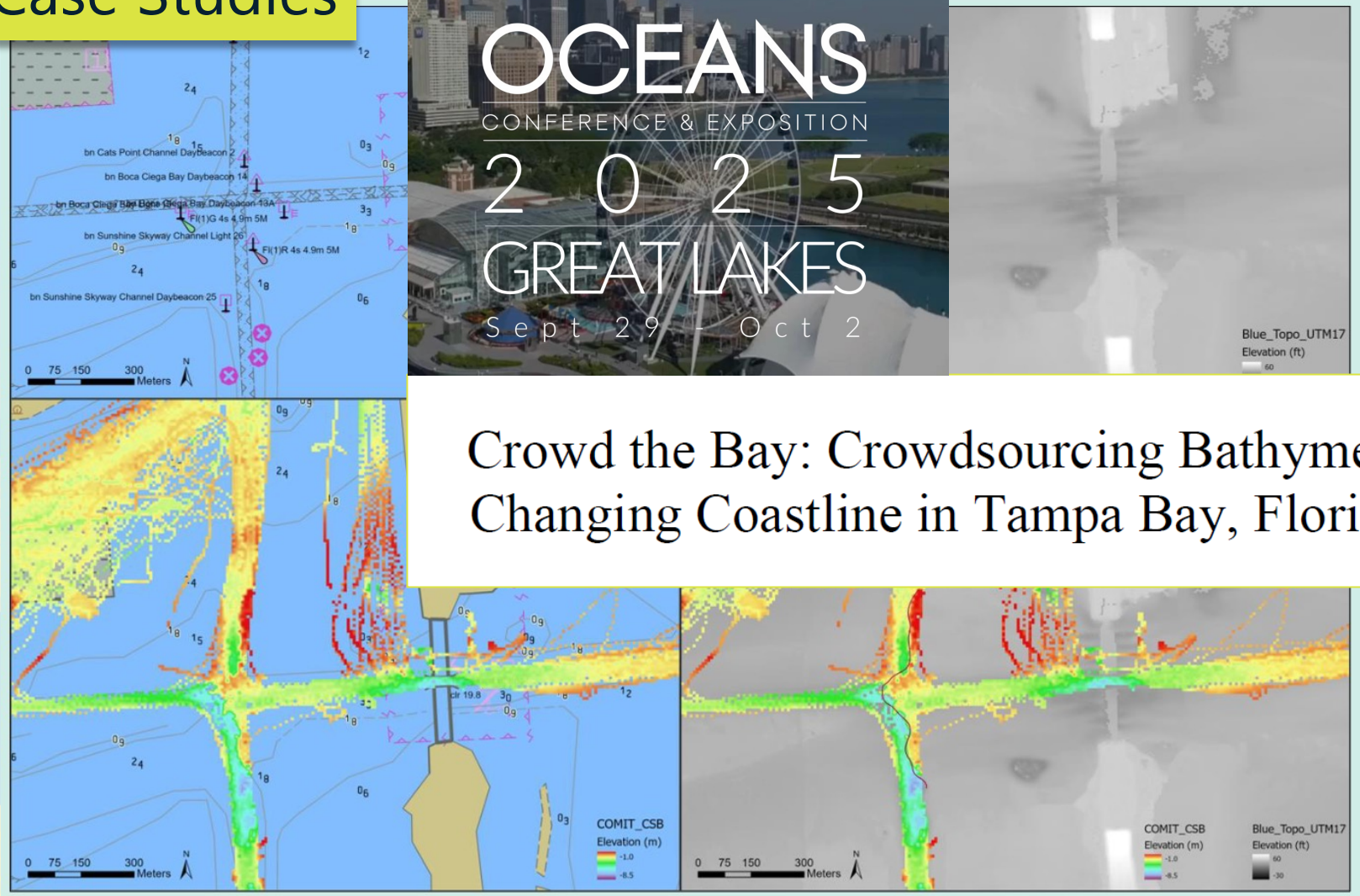


Figure 2. Chart discrepancies (<1 m) and dangers to navigation (>1 m) identified in Bunces Pass, FL from COMIT CSB data using the CA Tools application in Pydro Explorer.

Case Studies

Crowd the Bay: Crowdsourcing Bathymetry for a Changing Coastline in Tampa Bay, Florida, USA



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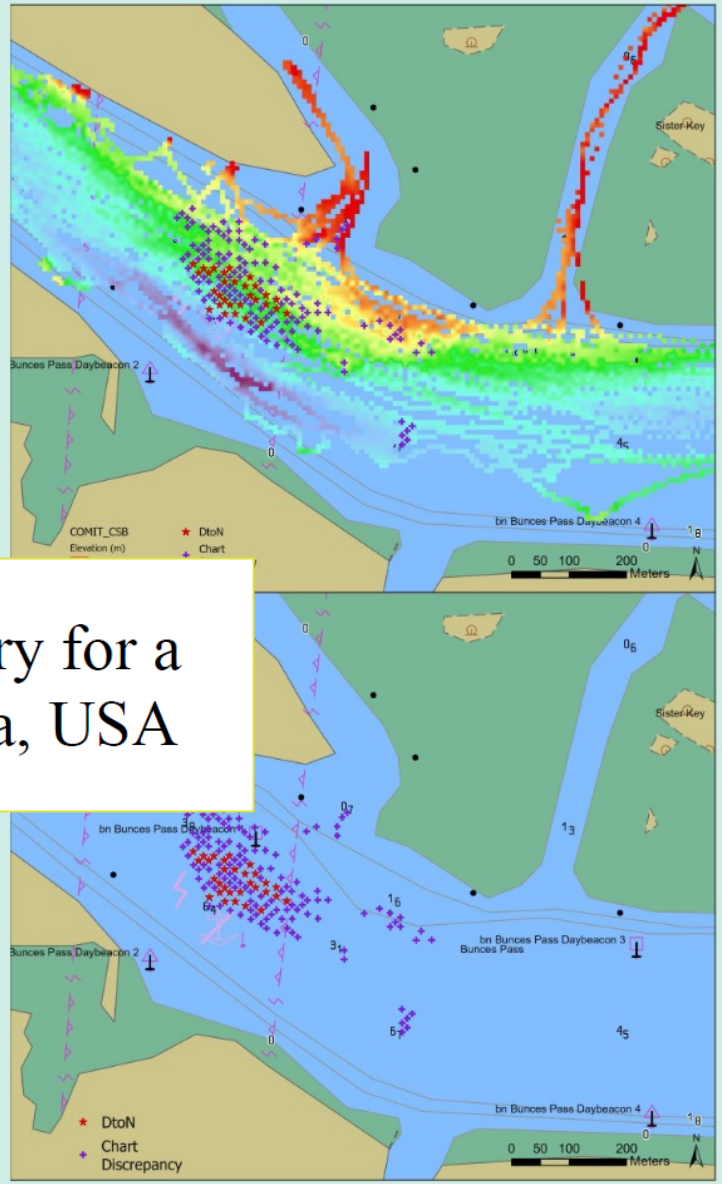

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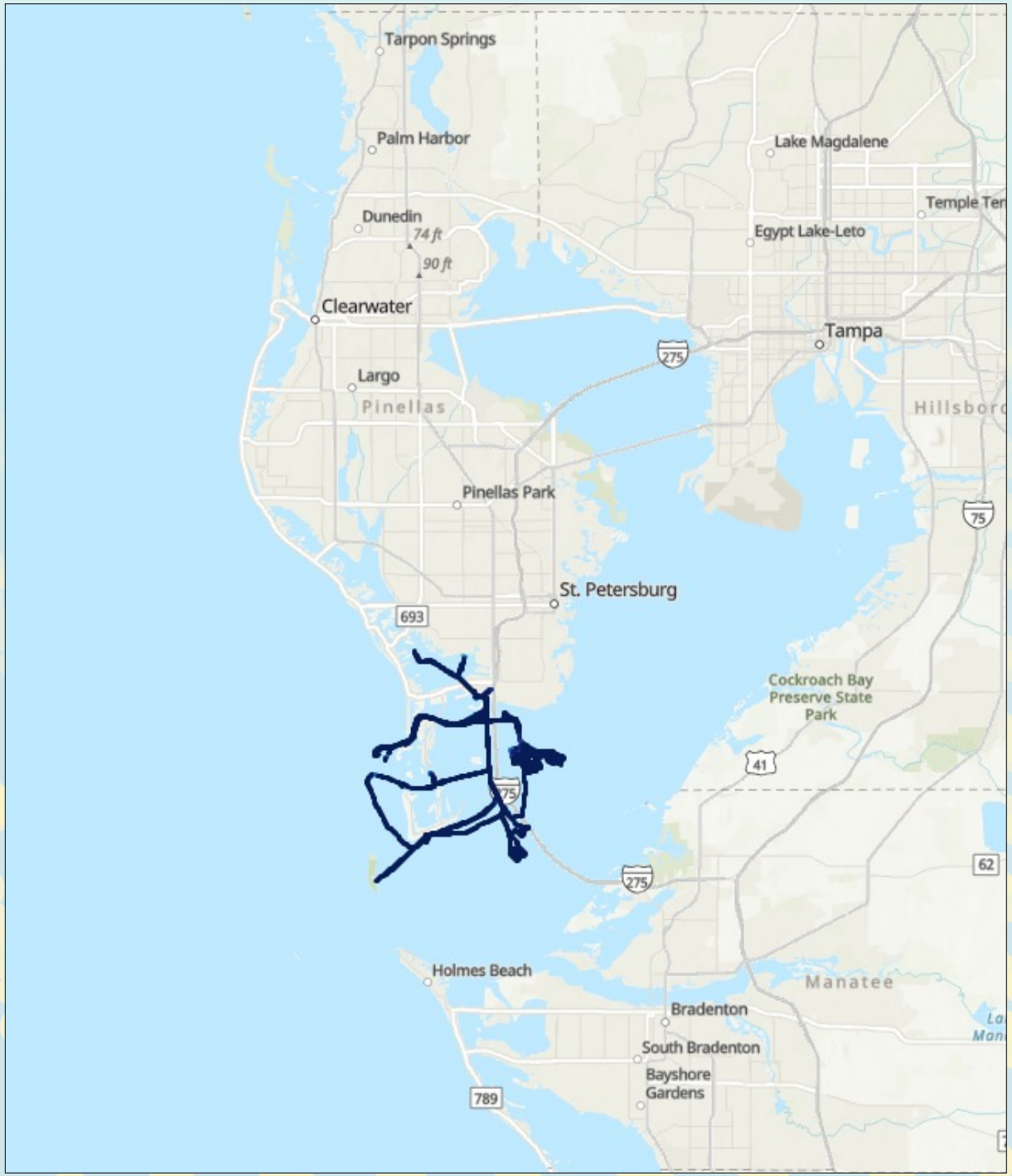
the florida high tech corridor

CROWDSOURCED BATHYMETRY PROJECT

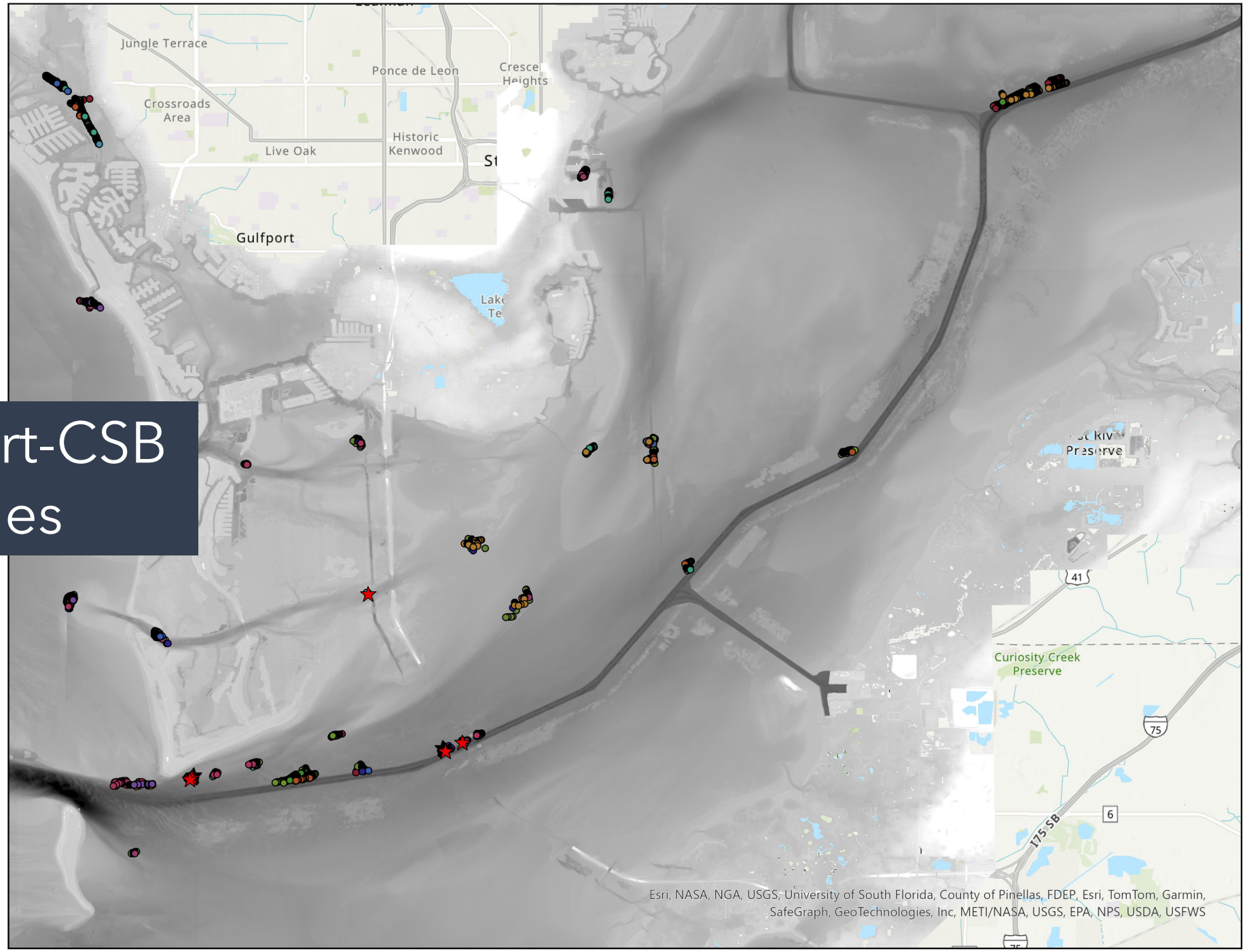
SPRING 2026 INTERNSHIP

COMIT

Crowd the Bay Data Timeseries



Identifying Chart-CSB discrepancies



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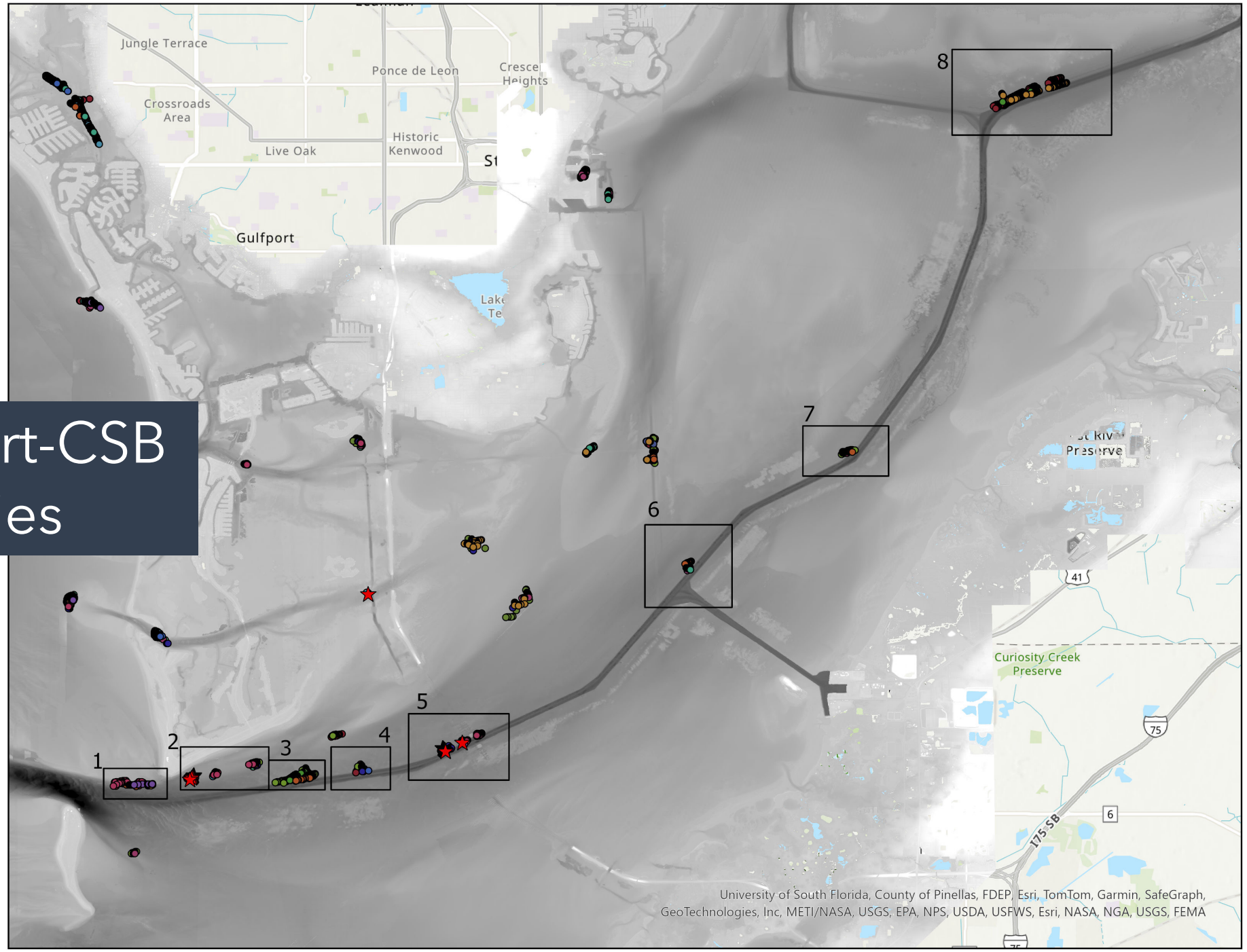
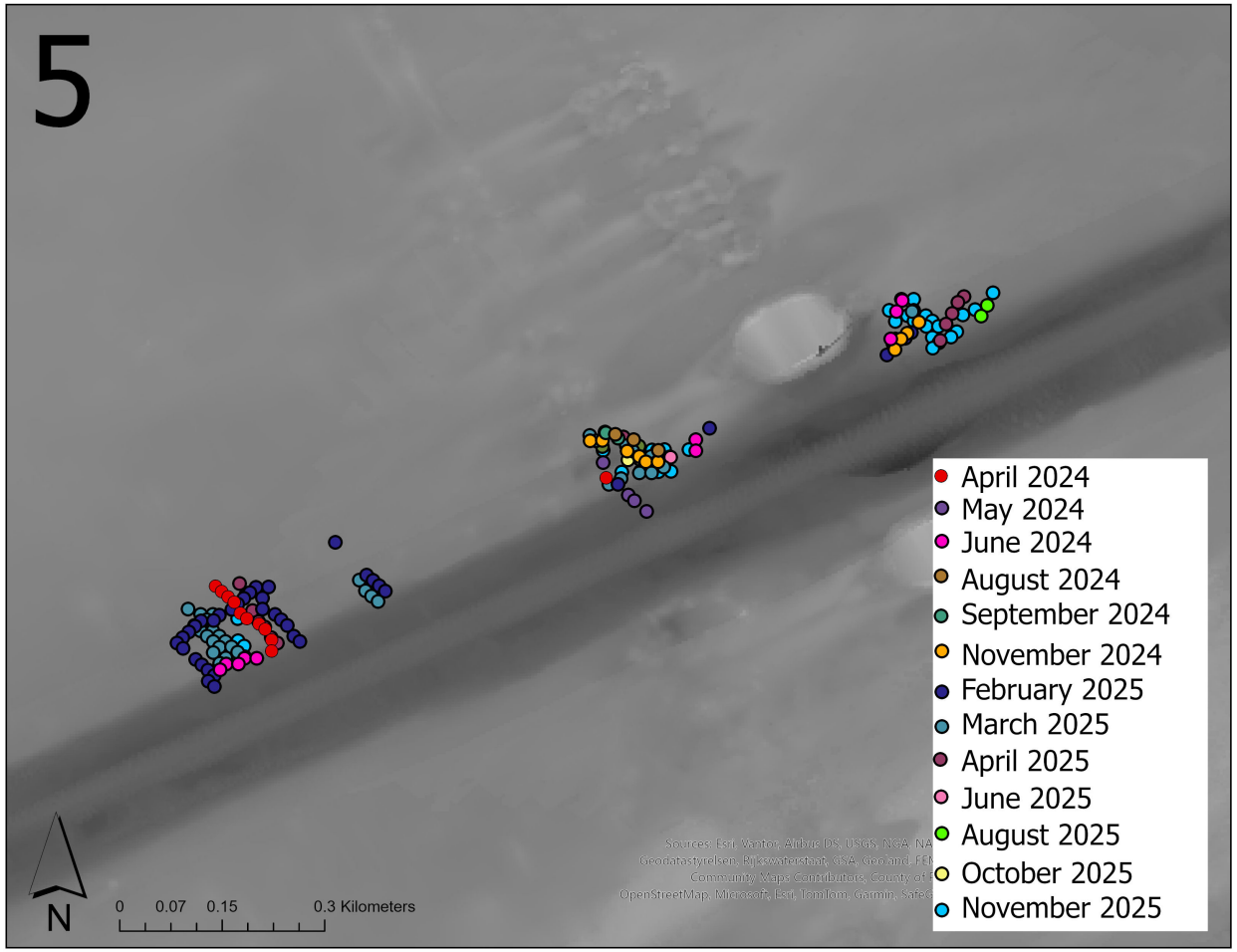


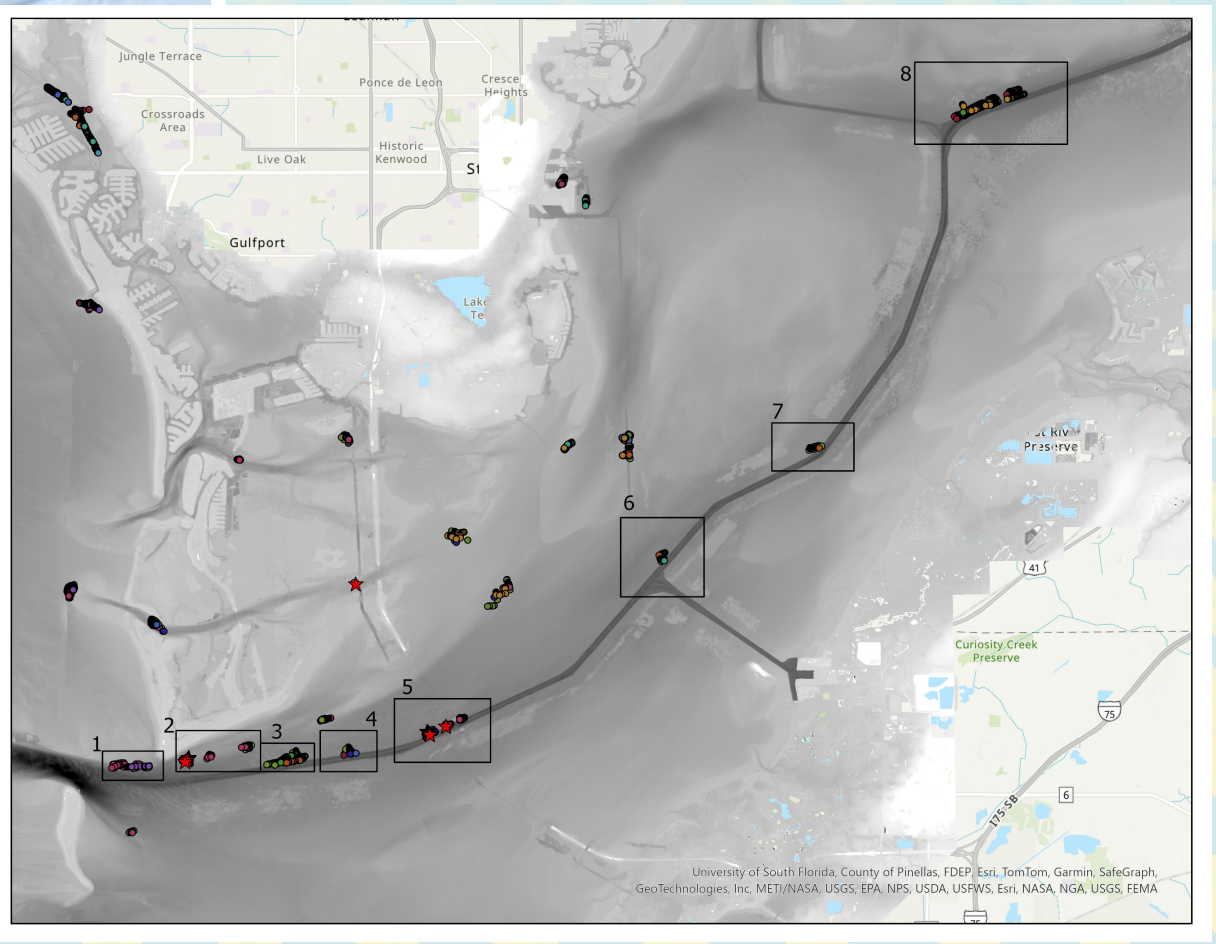


Identifying Chart-CSB discrepancies

Data Centre for Digital Bathymetry Viewer

Current filter:
Starting year: 2024

Pinellas Park
West Lealman
Lealman
St Petersburg
Gulfport
St. Pete Beach



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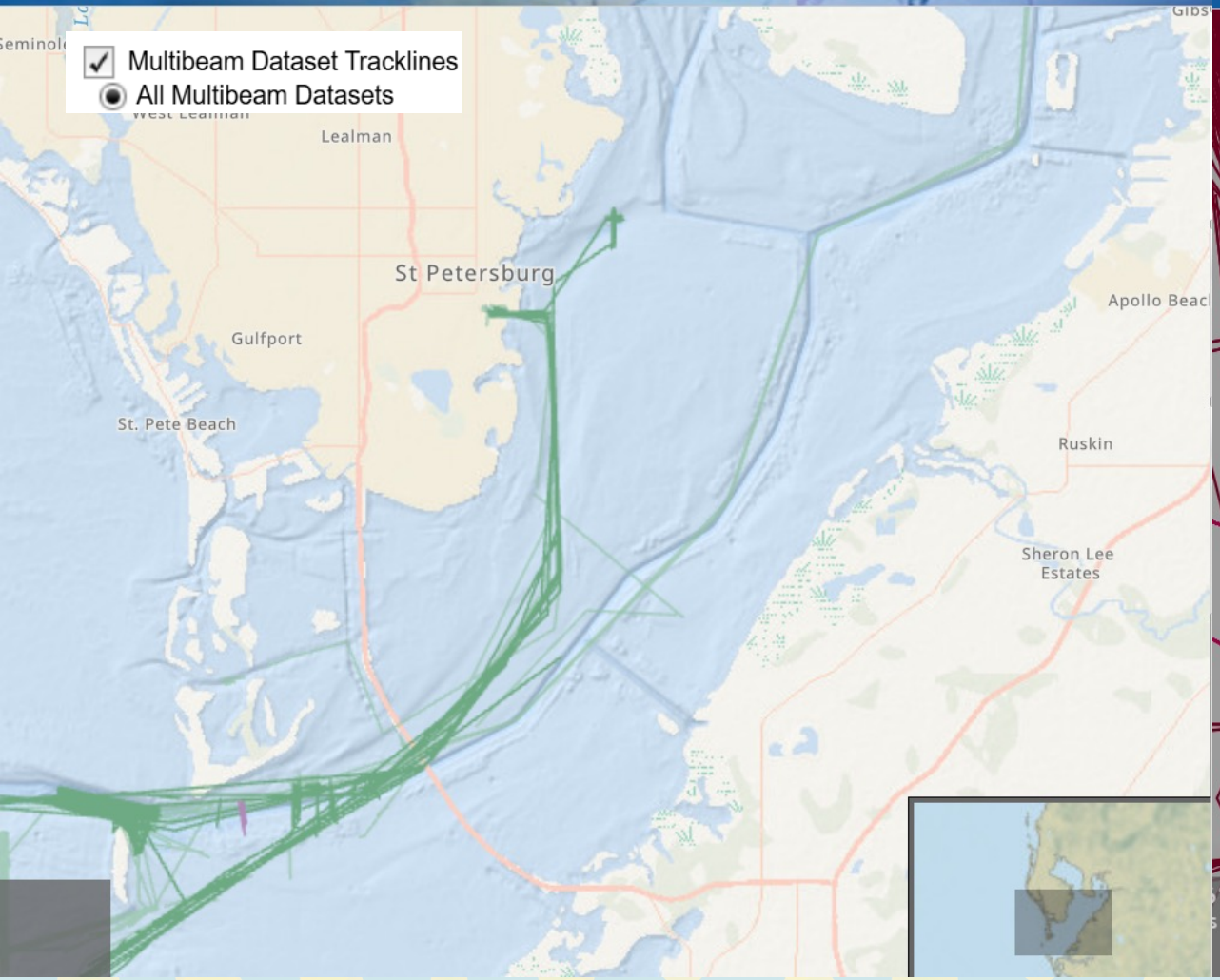

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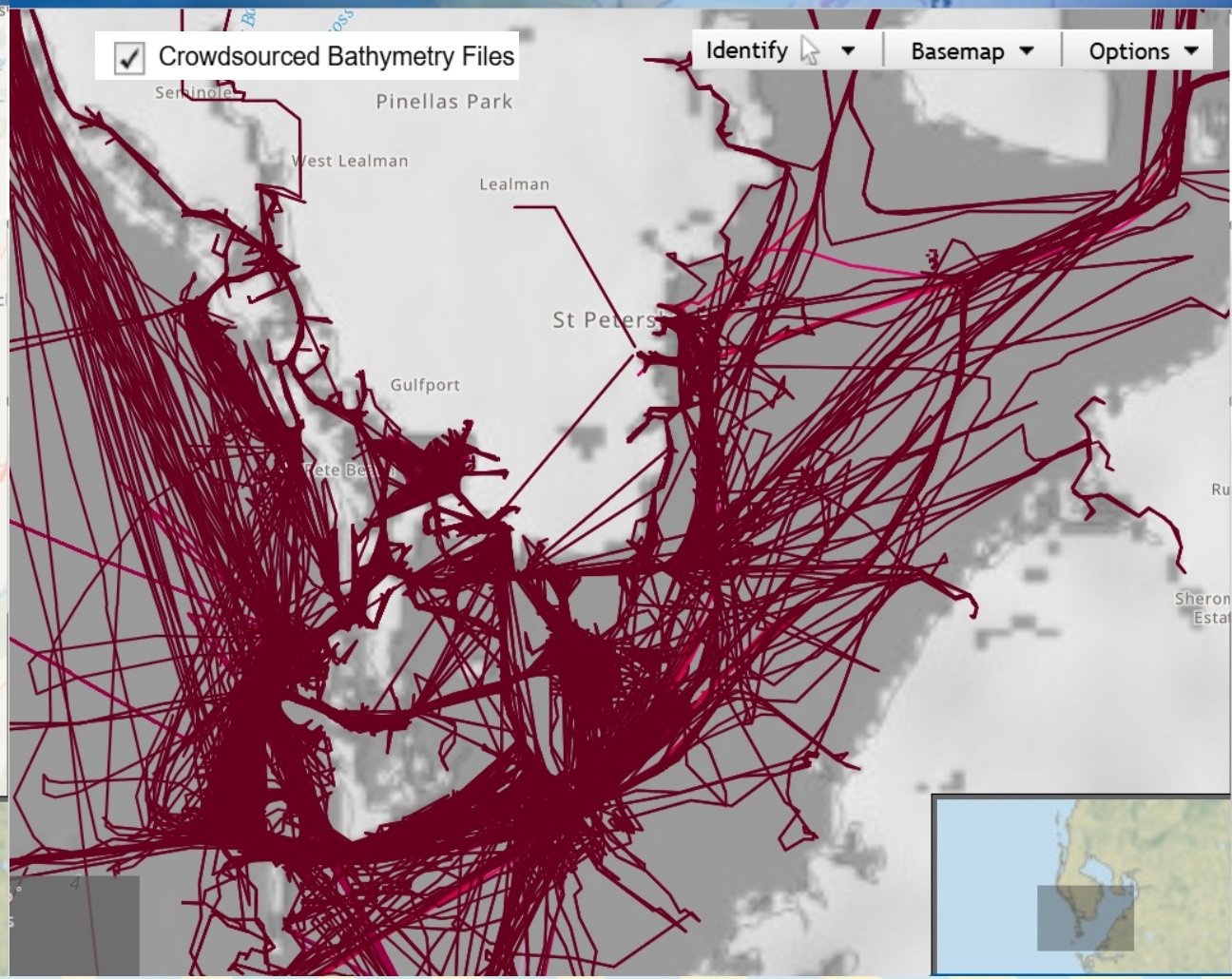

Can we develop a method to directly compare CSB data to S102 bathymetry to identify discrepancies? And – if this is possible – is there value in comparing these outputs to CA Tools results?

e.g., if CA Tools identifies DtoNs, and the CSB data agree with the S102 surface – does this increase our confidence in the ability of CSB data to flag outdated chart areas?

Or, if we identify discrepancies between CSB data and the S102 surface, can this help us gauge how accurate/inaccurate CSB data are?

- Can we use S102 metadata to investigate the data sources where discrepancies exist? (i.e., is it possible S102 is the incorrect layer?)
- If there is a discrepancy between CSB and S102 for one month, does the discrepancy still exist if we average tracks over several months?
    - How many CSB points need to be included in the average before they agree with the S102 surface?
- If CSB agrees with S102 over several months and then changes, does this tell us something about timescales of natural seafloor variability? (i.e., can it help assess how frequently an area should be re-surveyed?)

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