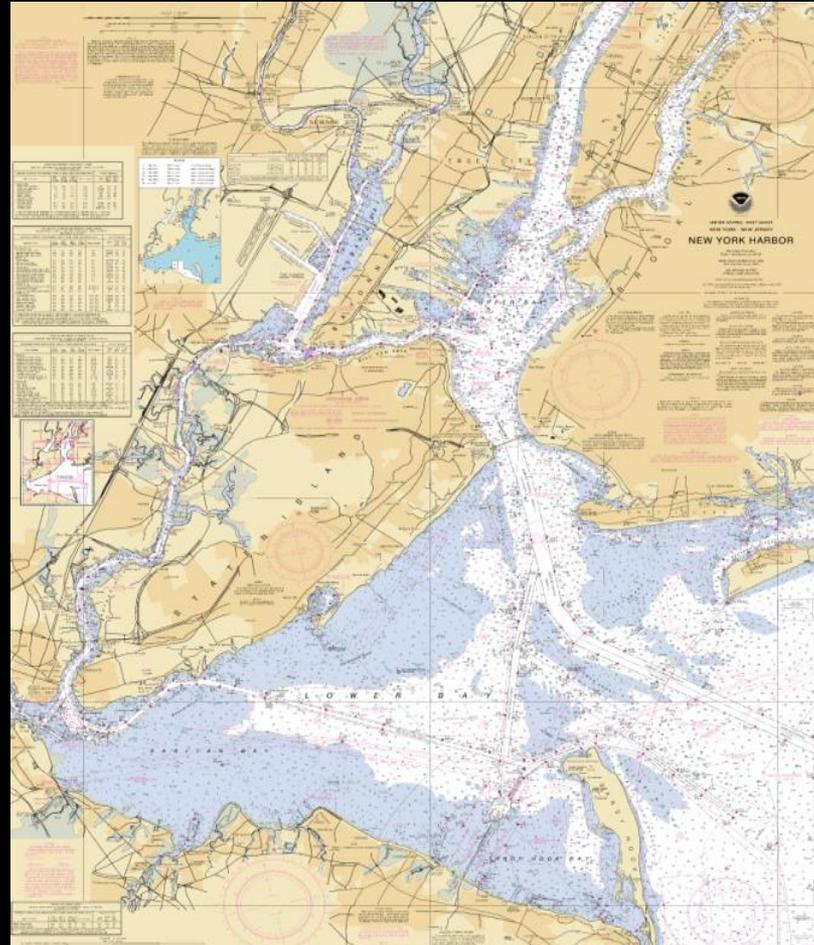


The National Bathymetry as Data

Nautical Cartography Open House
Silver Spring, MD
July 26, 2019

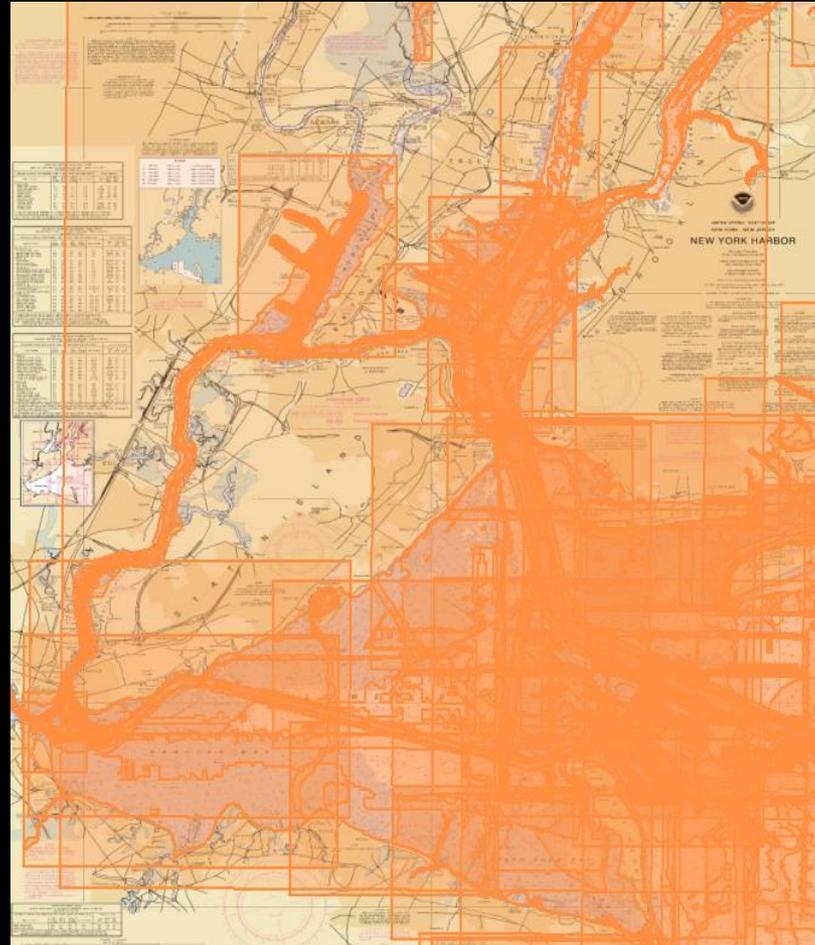


“The Nation’s Nautical Chartmaker”



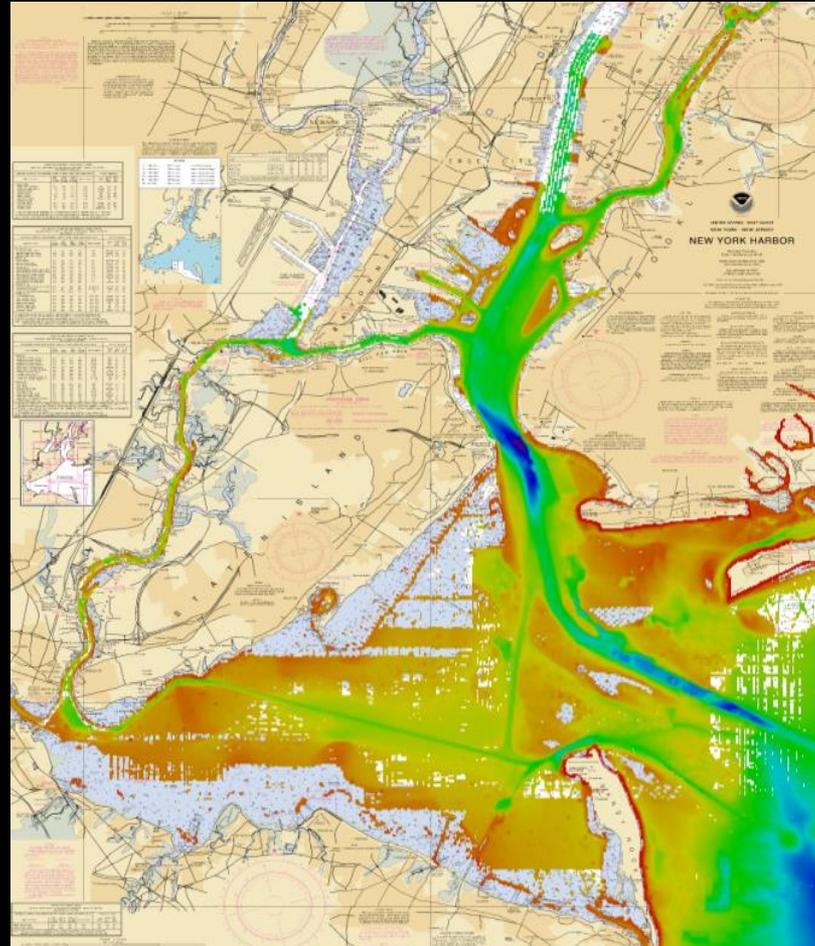
Office of Coast Survey

“The Nation’s Nautical Chartmaker”



Office of Coast Survey

“The Nation’s Nautical Chartmaker”



Office of Coast Survey



APPROACHES TO NEW YORK
NANTUCKET SHOALS TO FIVE FATHOM BANK

APPROVED FOR PUBLICATION BY THE CHIEF OF THE HYDROGRAPHIC SURVEY, U.S. NAVY, ON 12/15/00

NO. 1155

1:50,000

NO. 1155

1:50,000

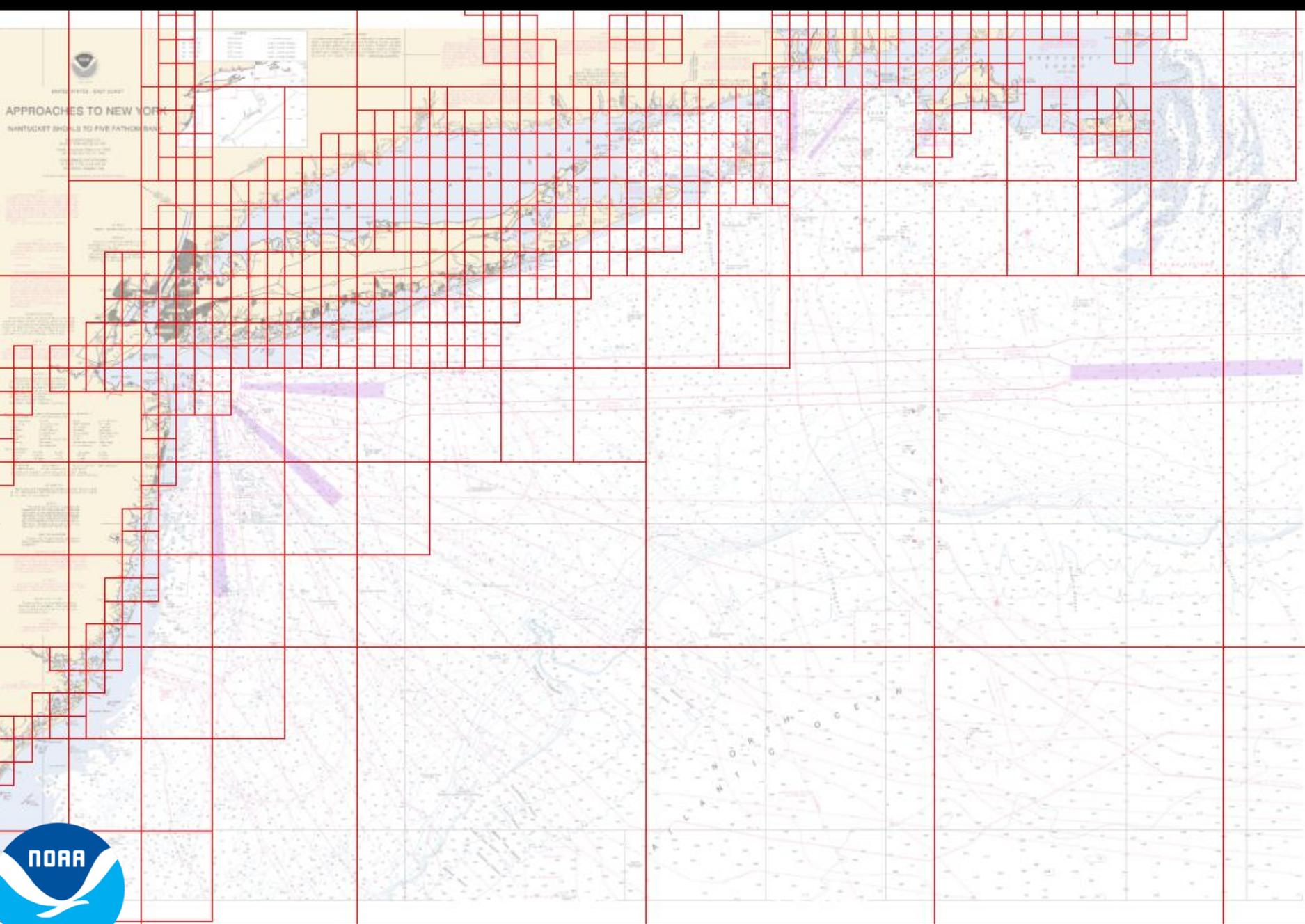
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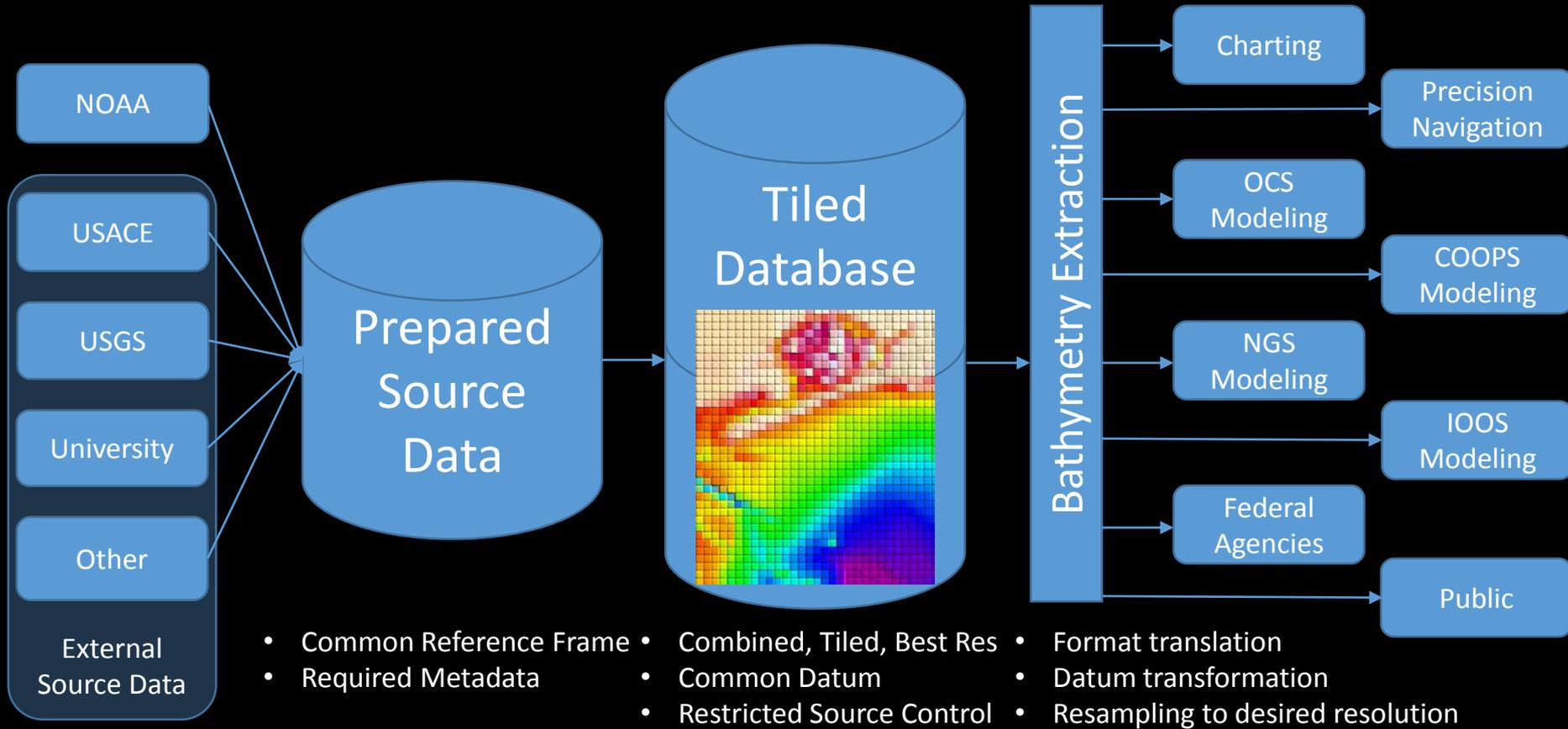
NO. 1155

1:50,000

NO. 1155



How Coast Survey builds the National Bathymetry



Office of Coast Survey

Internal Source Data
External Source Data

Hydrographic Surveys Division
Data Preparation

NBS

Marine Chart Division
Chart Production

Navigation Services Division
Response

Coast Survey Development Lab
*Precision Navigation
Marine Modeling*

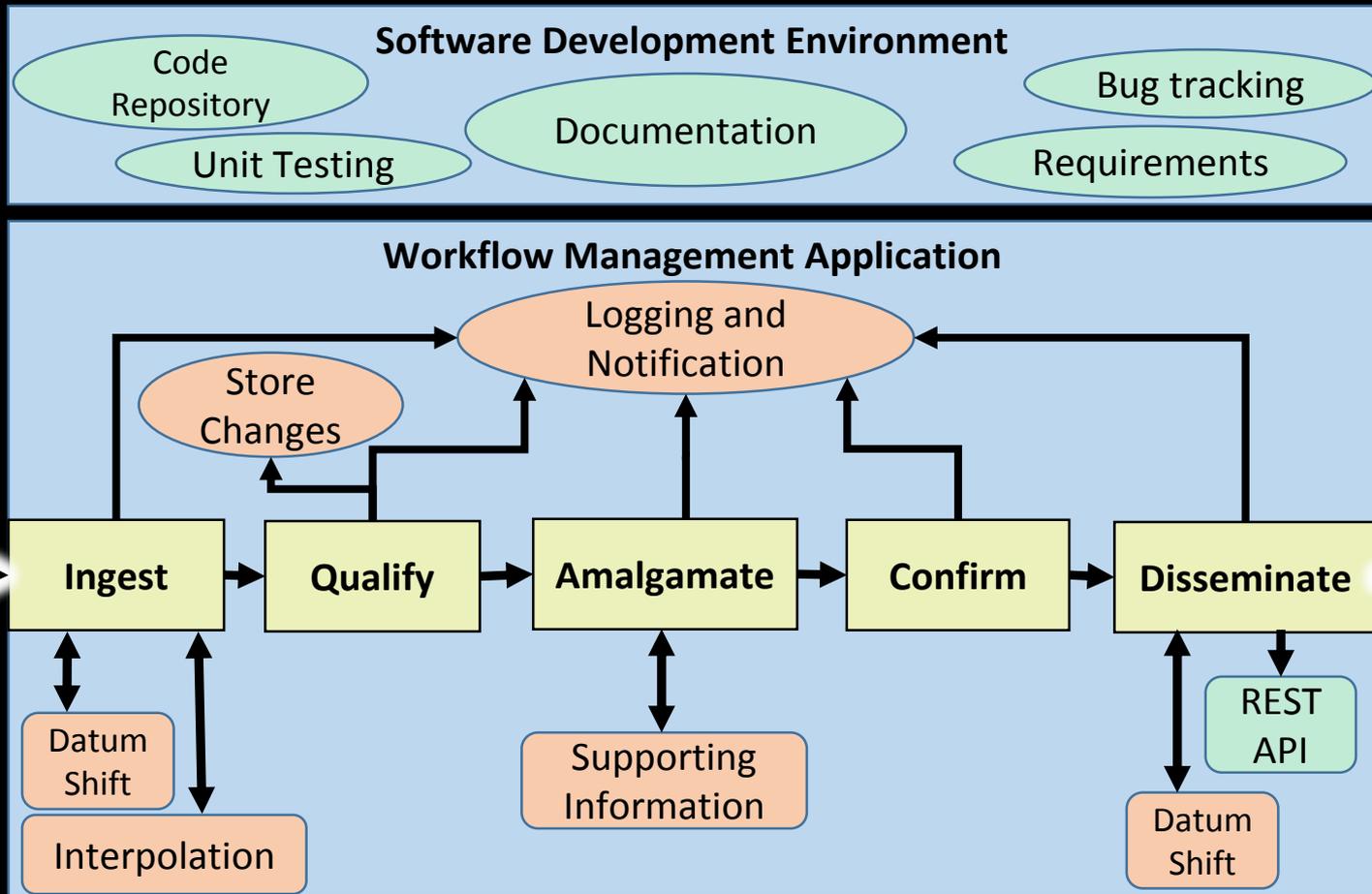


Federal Agencies

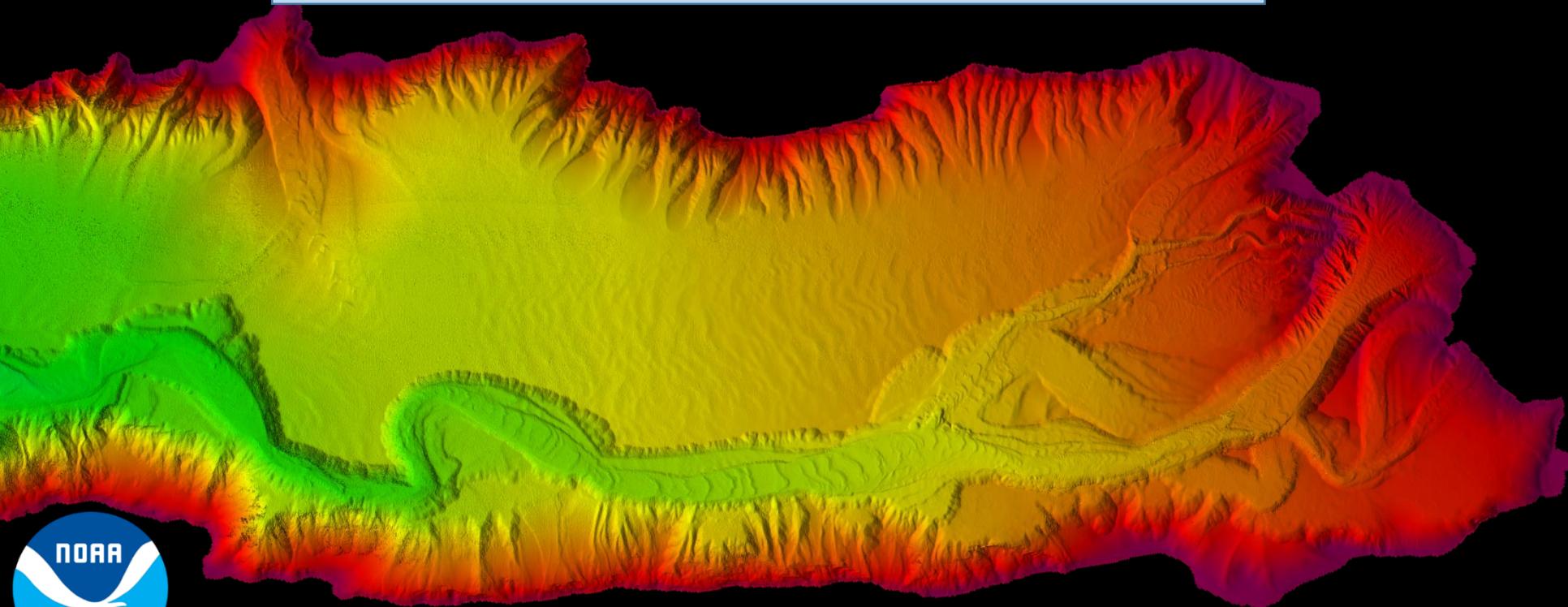
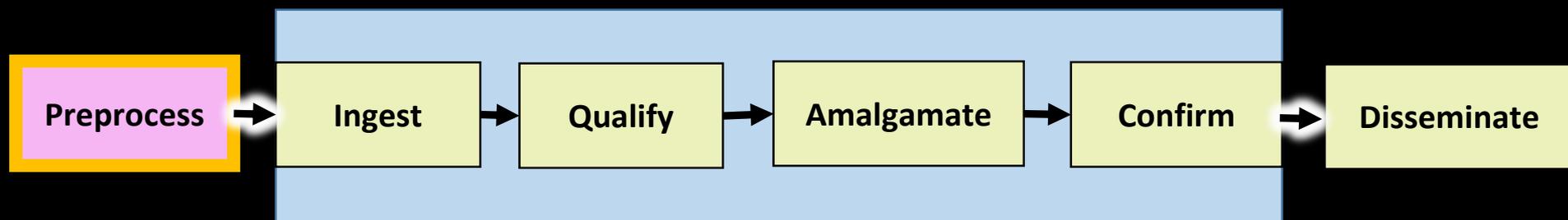
General Public



Workflow

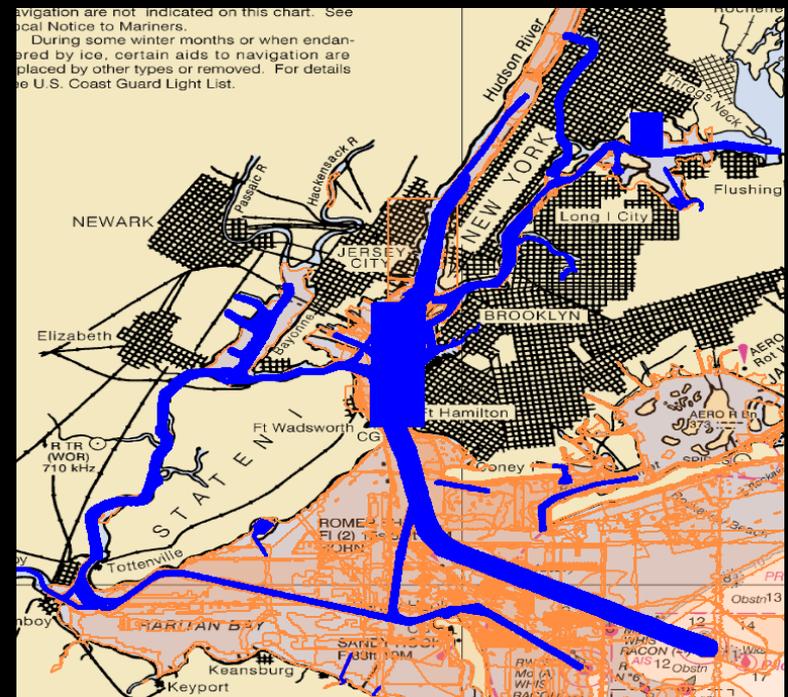
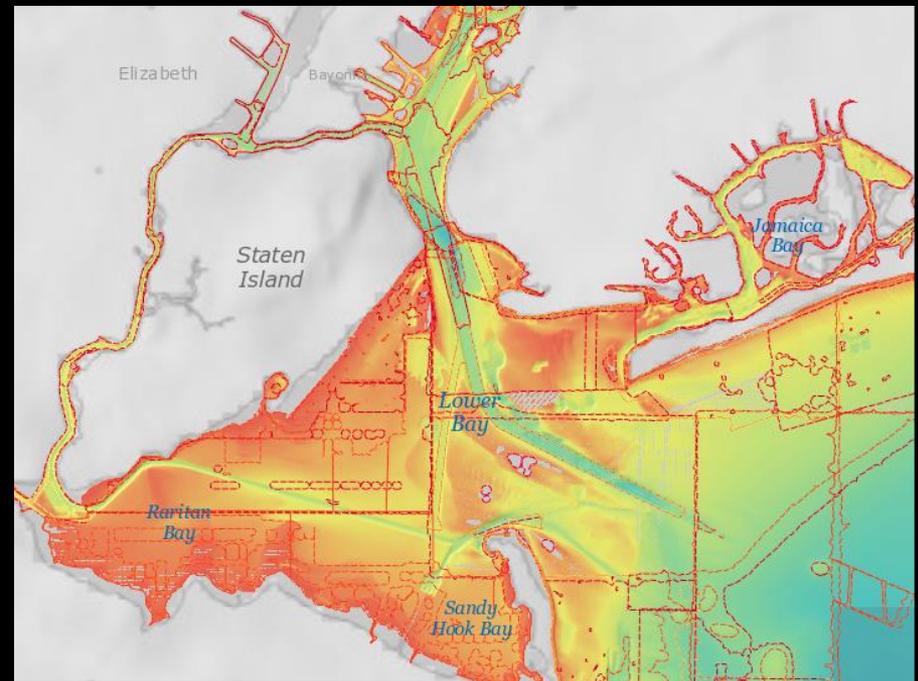


Workflow: Preprocess



Source Data

- Office of Coast Survey
 - BAG
 - Internal Source Data
 - External Source Data
 - Bathy Point Store
- National Geodetic Survey
 - Lidar
- US Army Corps of Engineers
 - eHydro



Automated Daily eHydro Query

Select Survey:
List is limited to 50 records. To see older surveys, configure a custom date range or zoom in on the map to limit results.

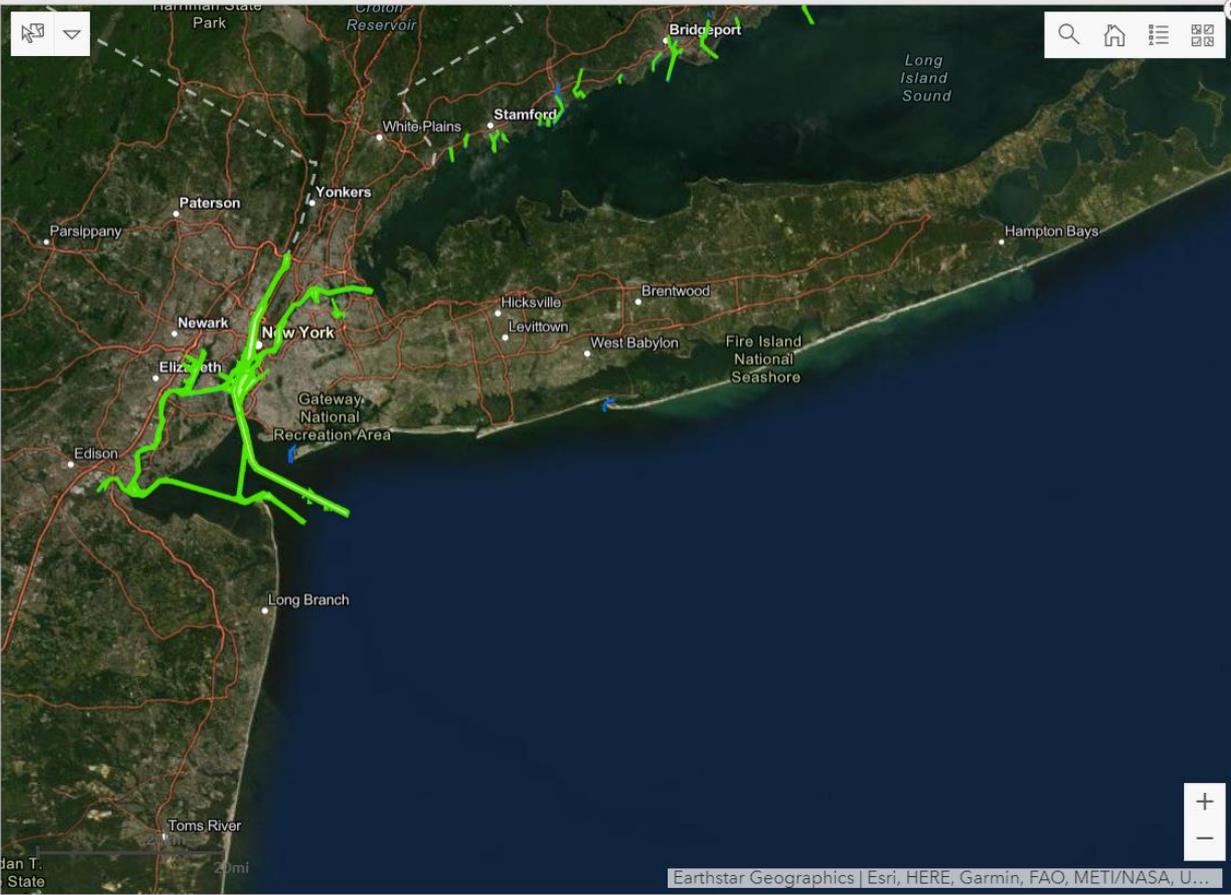
District: CENAN
Name: NEWARK BAY - Main Channel
Survey ID: NB_01_MAI_20190628_BD_4850_30 X
Survey Date: 6/28/2019
[Download Data](#)

District: CENAN
Name: Perth Amboy Anch & 2nd Chnl
Survey ID: NJ_02_PAA_20190606_CS_4839_45 X
Survey Date: 6/6/2019
[Download Data](#)

District: CENAN
Name: Perth Amboy Anch & 2nd Chnl
Last update: a few seconds ago

[Survey List](#) [Recently Updated](#)

Number of Surveys
 **216**
3 last 60 days
Last update: a few seconds ago

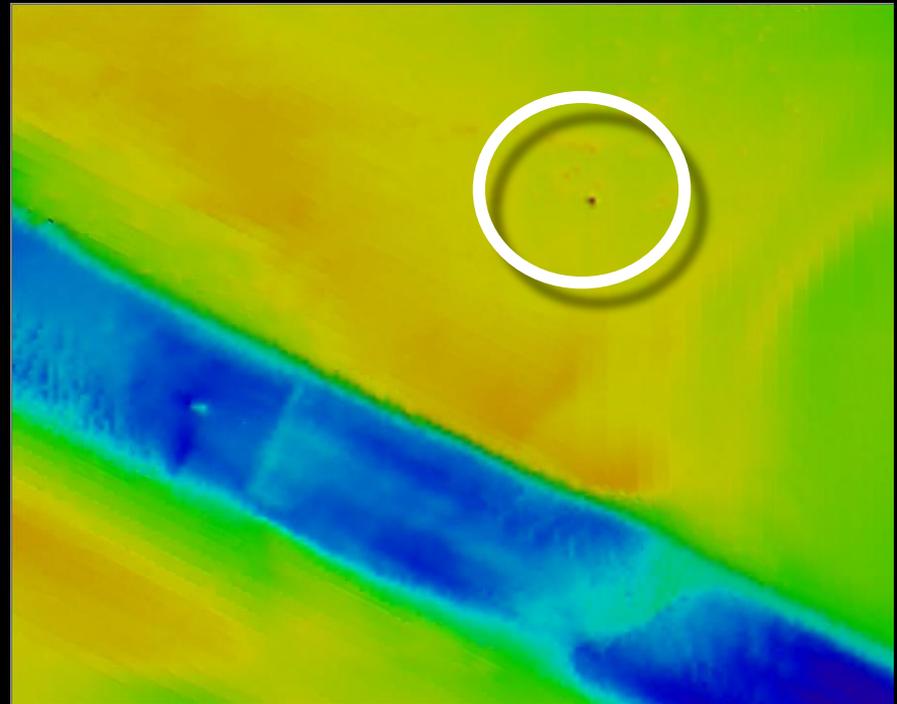


Earthstar Geographics | Esri, HERE, Garmin, FAO, METI/NASA, U...



Assumptions

- Hydrographic eye as been applied
 - Data is clean
 - Metadata is correct
- All data is machine readable
 - Open formats
 - Standard formats



Required Metadata

Datum

- Vertical
- Horizontal
- Units

Amalgamation

- Survey Date
- Quality Score
 - Vertical Uncertainty
 - Horizontal Uncertainty
 - Feature Detection Capability
 - Seafloor Coverage

Downstream

- Survey Name
- Authority
- License



Workflow: **Ingest**

Preprocess

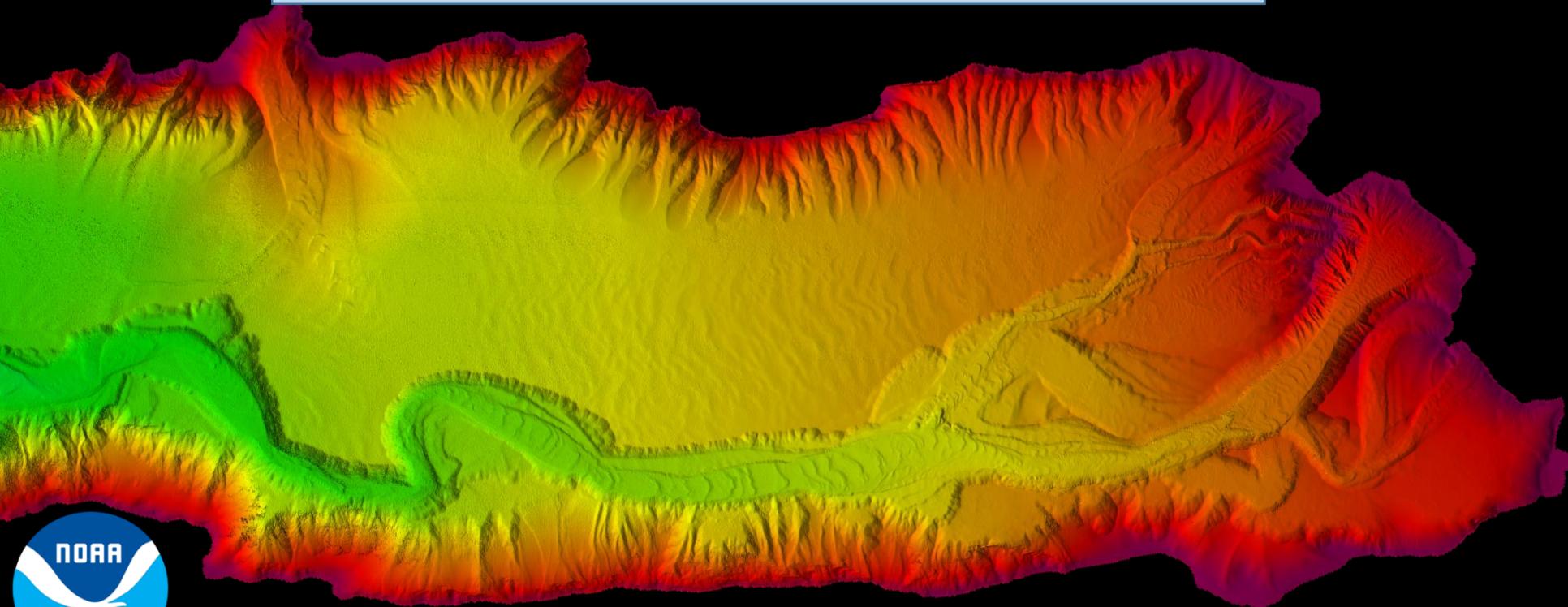
Ingest

Qualify

Amalgamate

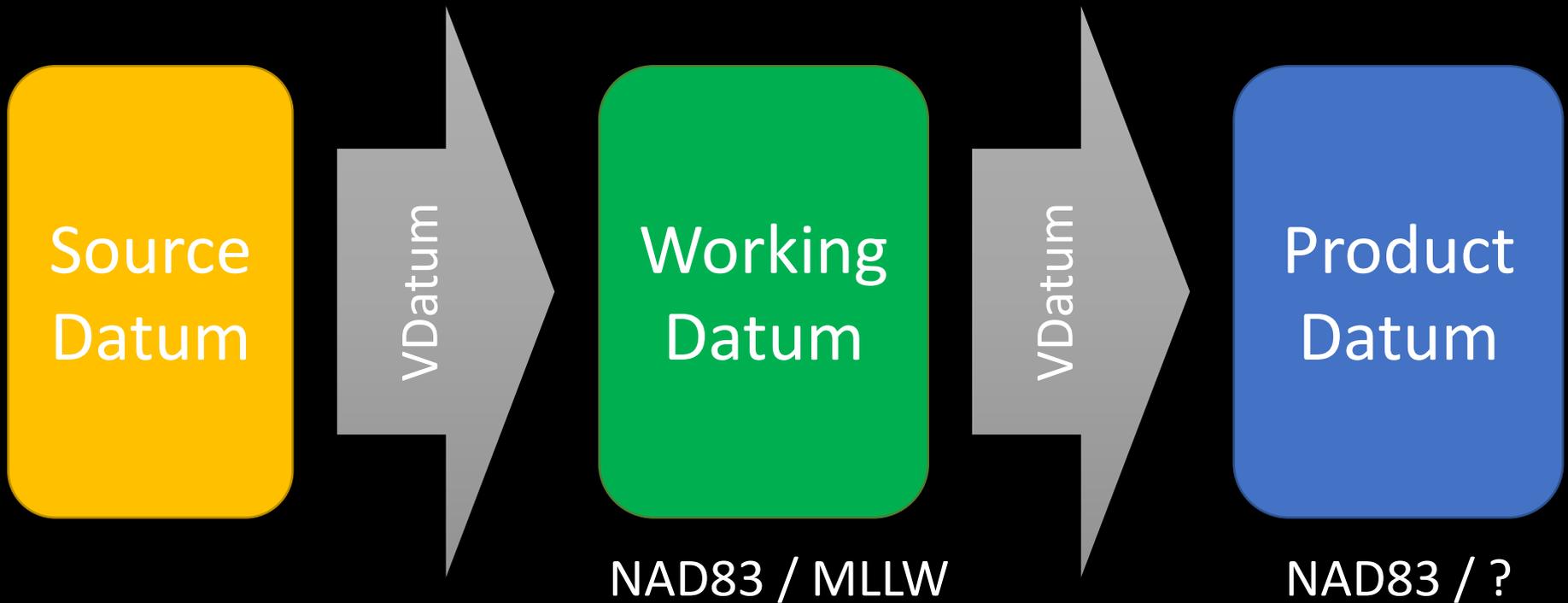
Confirm

Disseminate

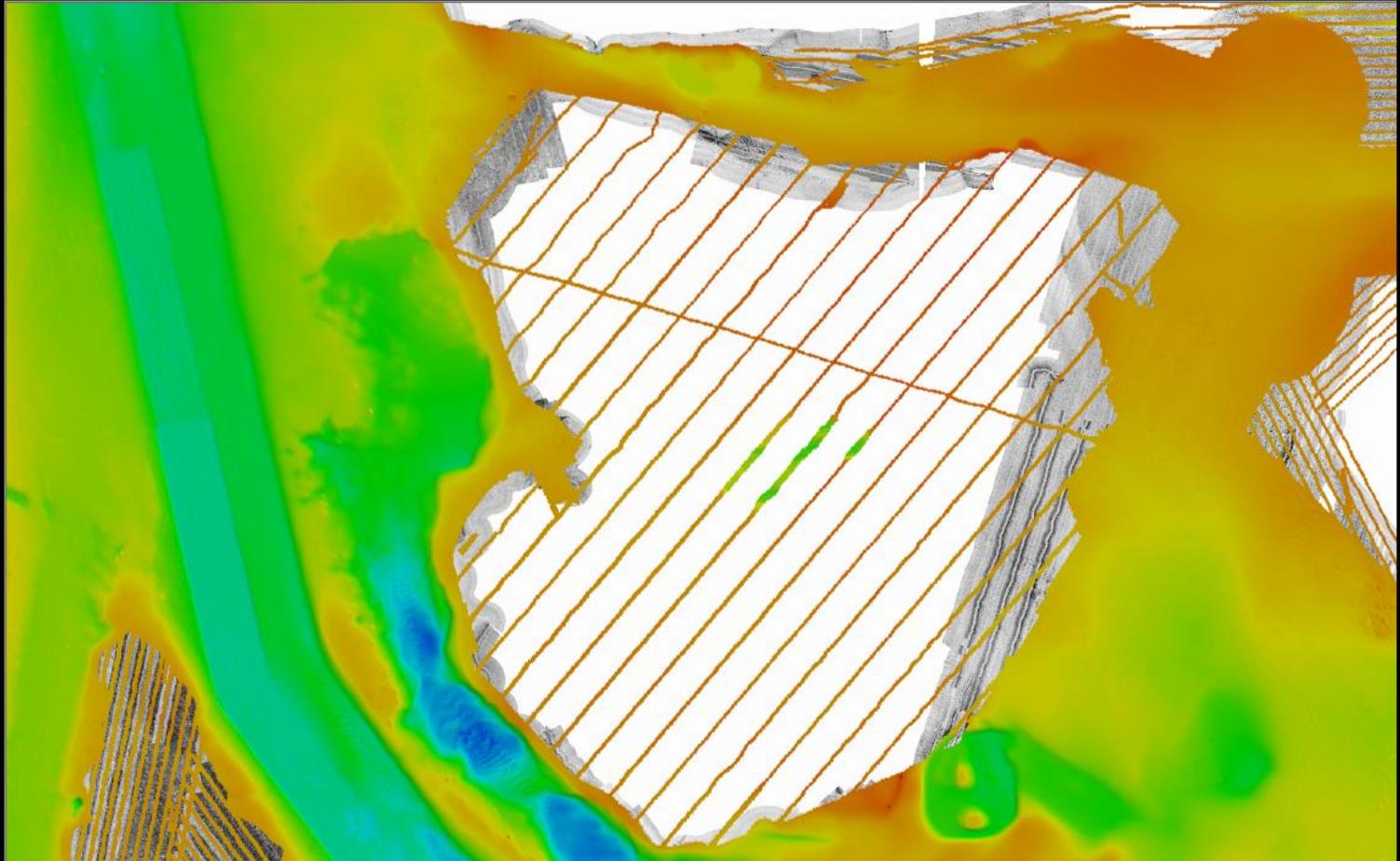


NOAA

Datum Transformations



Interpolation



Workflow: Qualify

Preprocess

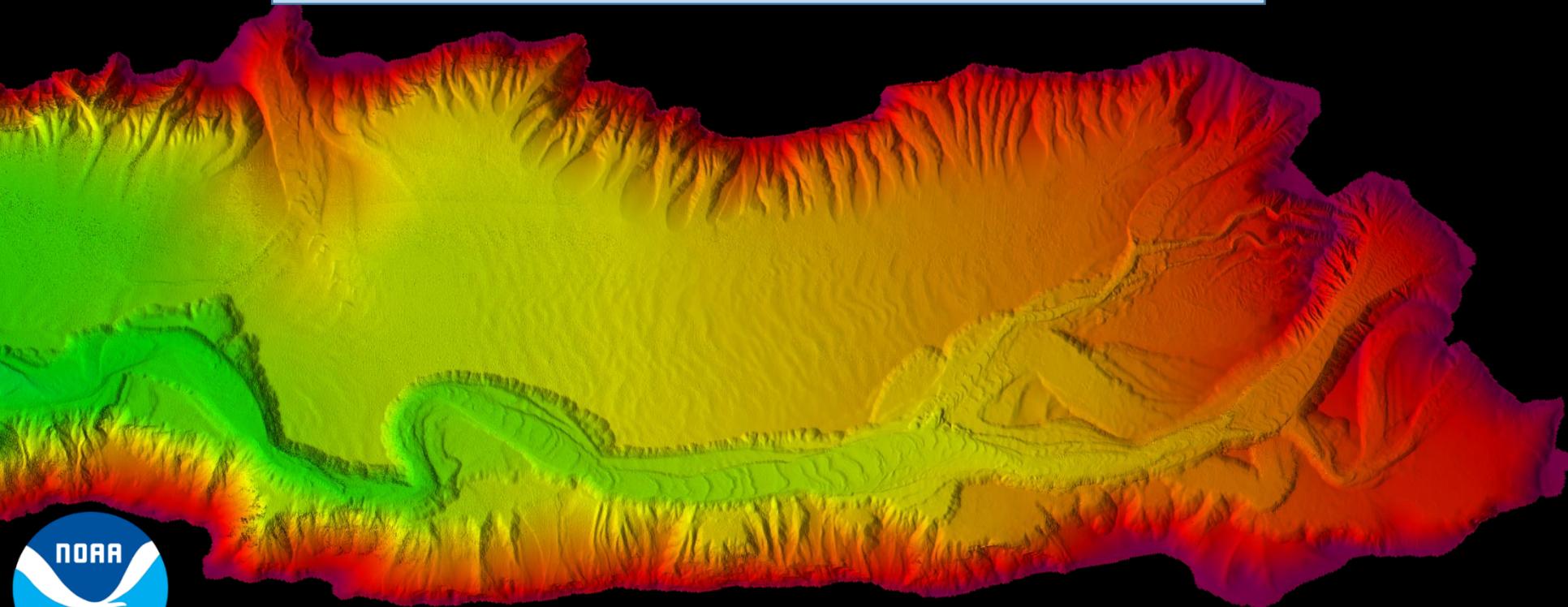
Ingest

Qualify

Amalgamate

Confirm

Disseminate



NOAA



Review of input data

- Do we have the right data?
- Is the data what it should be?
- Do we have the metadata?
 - Datum transformation
 - Supersession



Workflow: Amalgamate

Preprocess

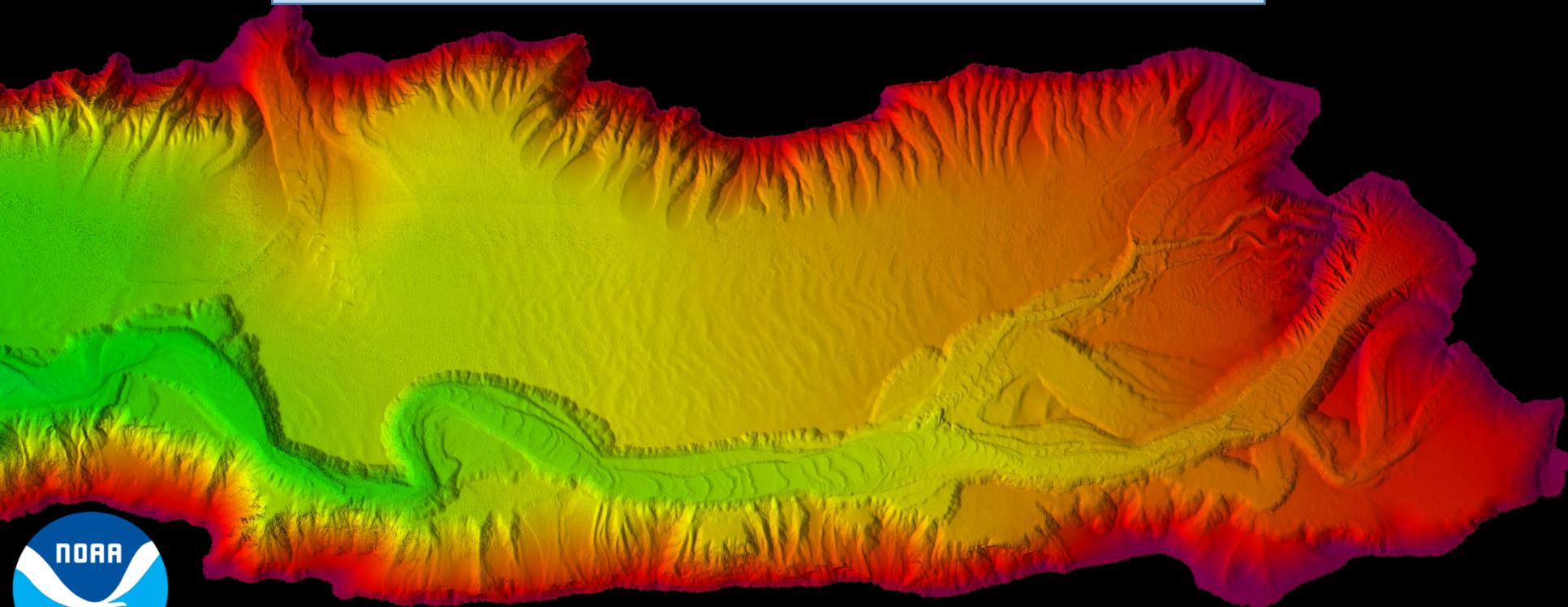
Ingest

Qualify

Amalgamate

Confirm

Disseminate

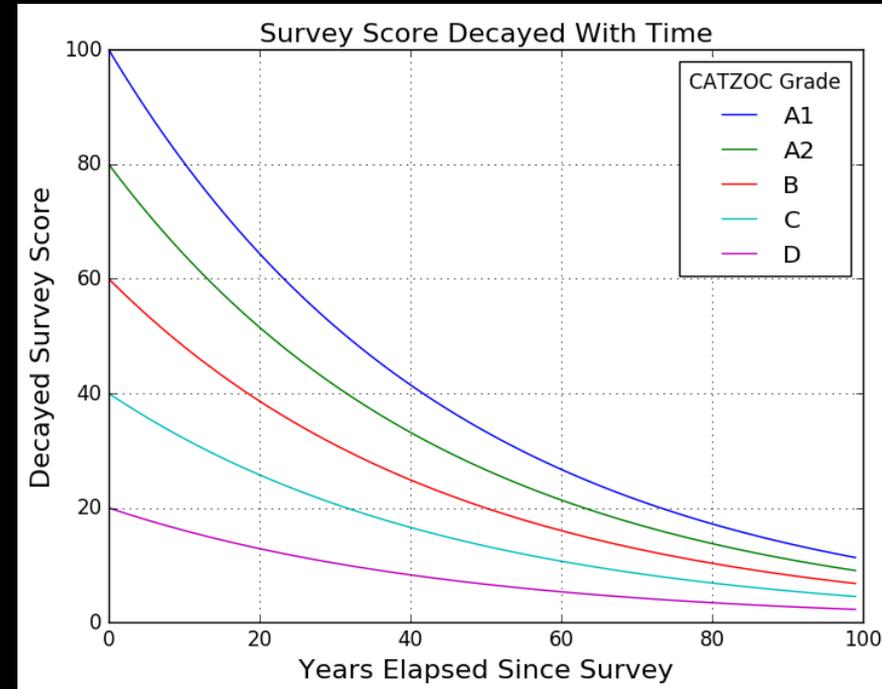


NOAA



Change in Quality

- Quality decays with time
 - Events
 - Hurricanes
 - Earthquakes
 - Dredging
 - Sedimentation / erosion
 - Feature “deposition”



Workflow: Confirm

Preprocess

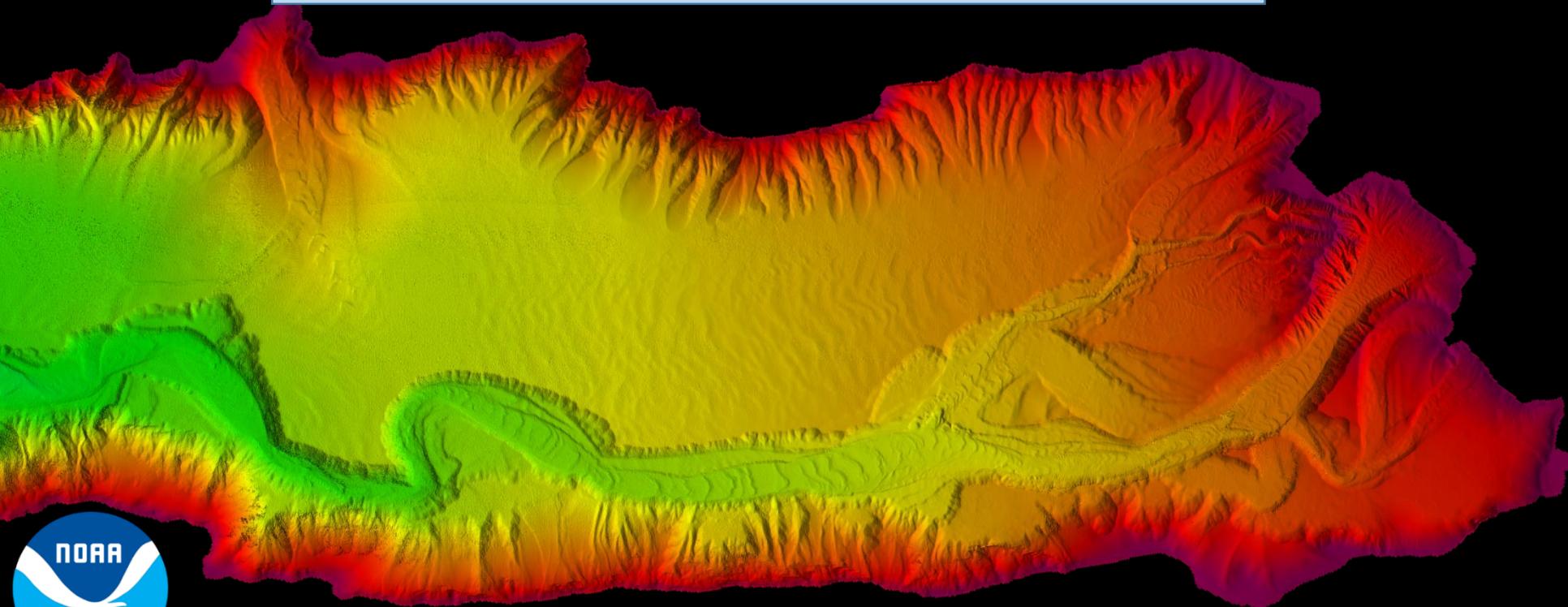
Ingest

Qualify

Amalgamate

Confirm

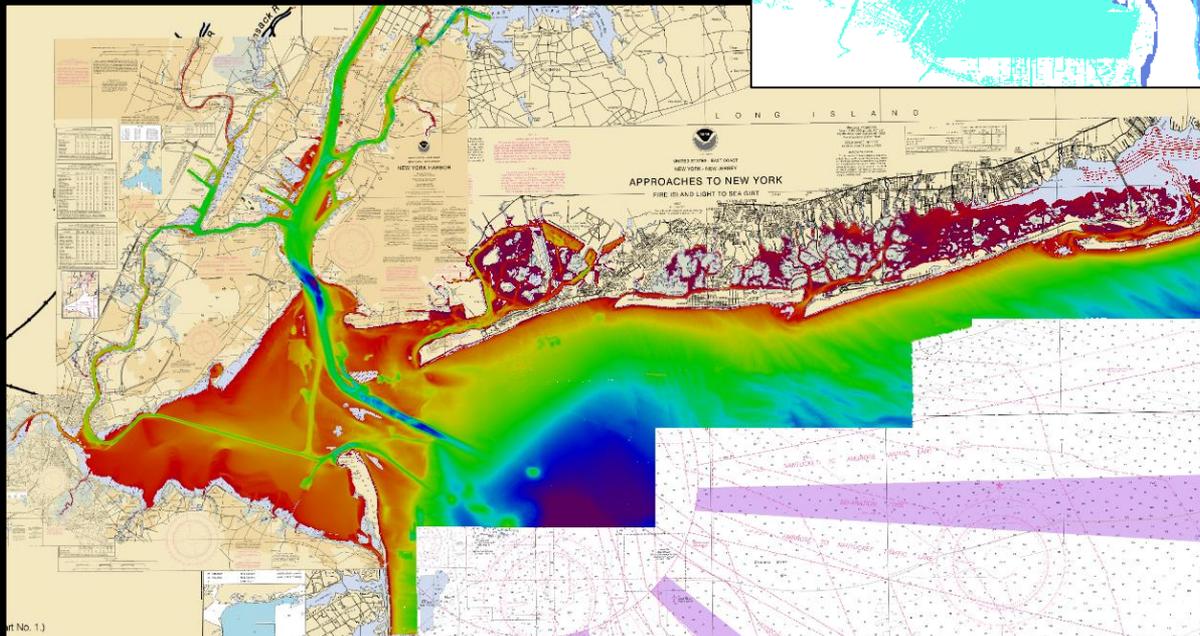
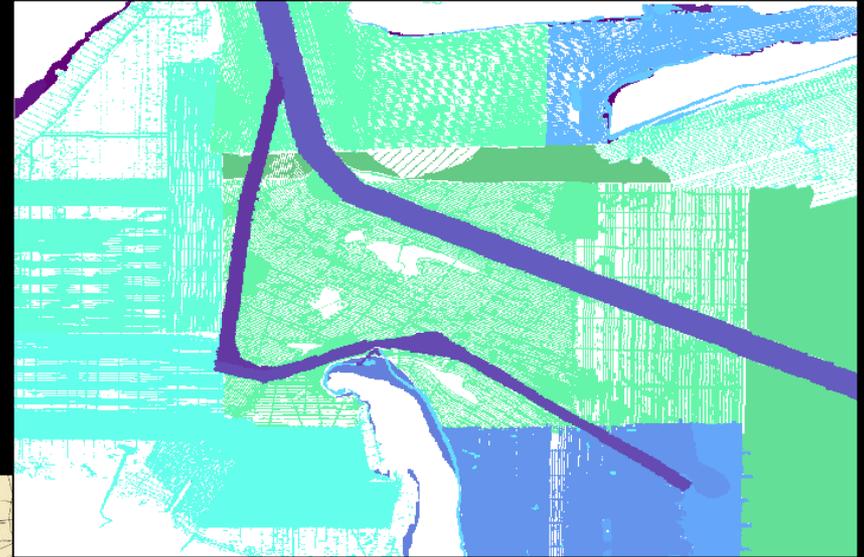
Disseminate



NOAA

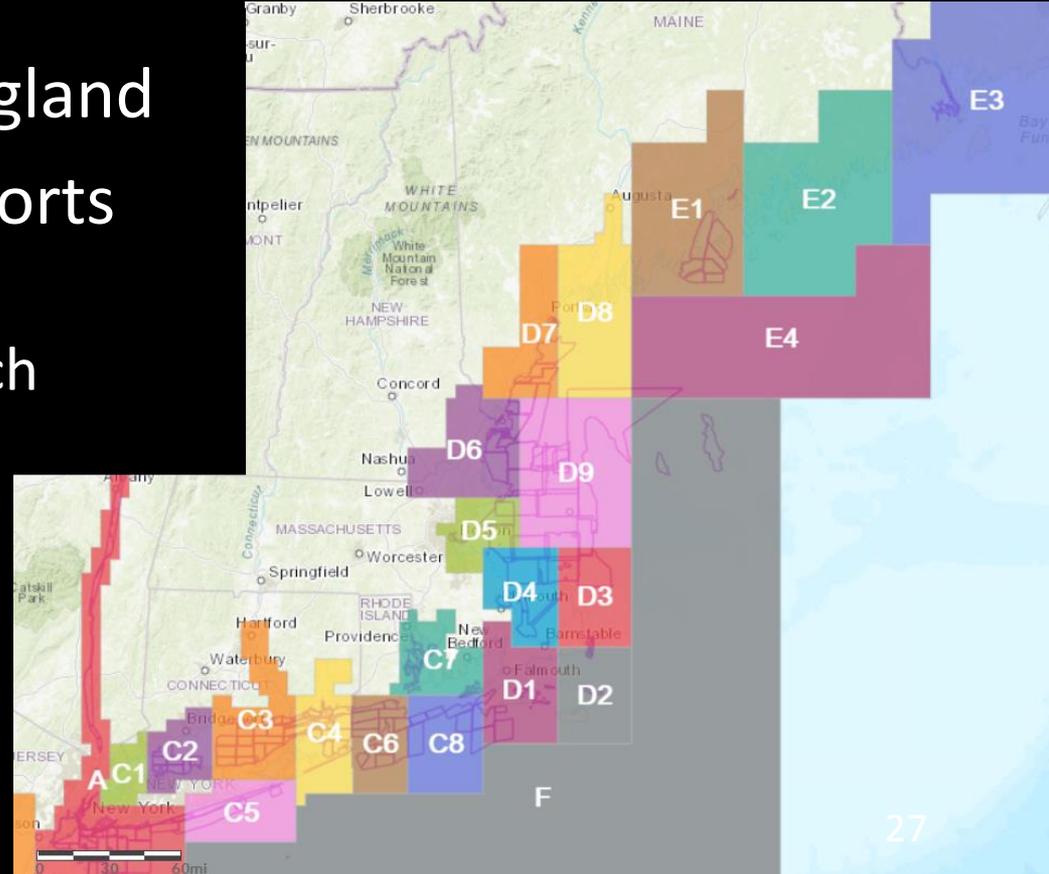
Product Review

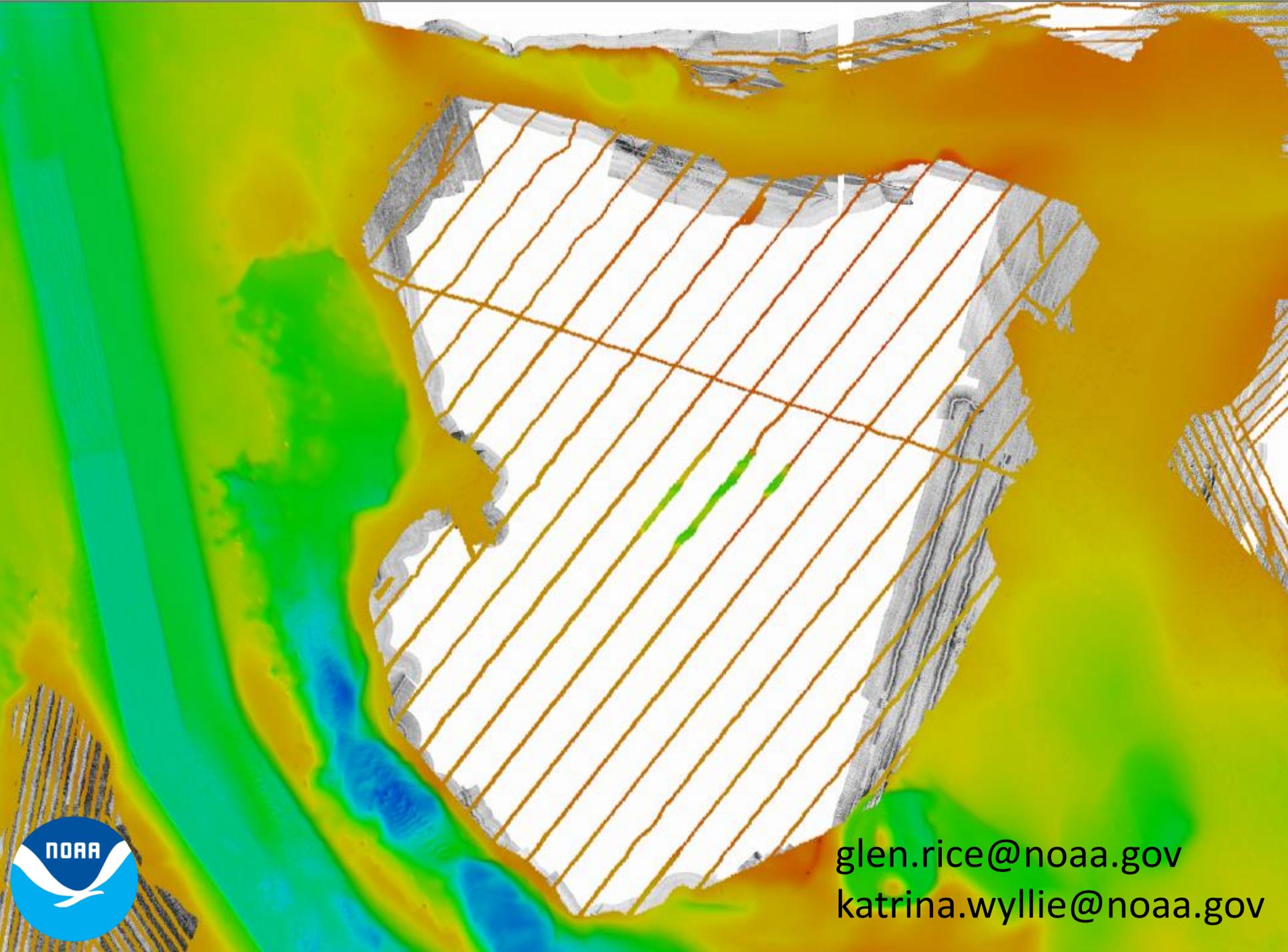
- Does this look right?
- Bootstrapping
 - Chart comparison
 - Finding missing source



What is next?

- Continue to build the process
 - Automate
 - Distribution
 - Variable resolution
- Build through New England
- Precision Navigation Ports
 - New York
 - Los Angeles Long Beach
 - Mississippi River
- Continue to engage
 - DOD
 - GMRT / Seabed 2030
 - Other Countries





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katrina.wyllie@noaa.gov