

# All Things Bathymetry at NCEI

## Archive to Distribution

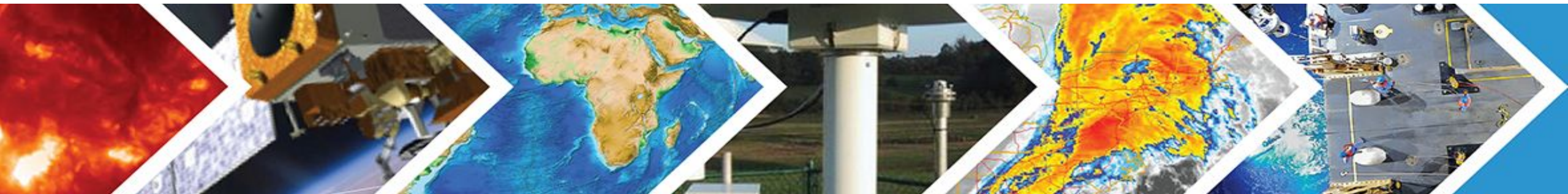
Brian Meyer, Trackline Geophysics Data Manager

National Centers for  
Environmental Information (NCEI)

September 28, 2023

# Who We Are

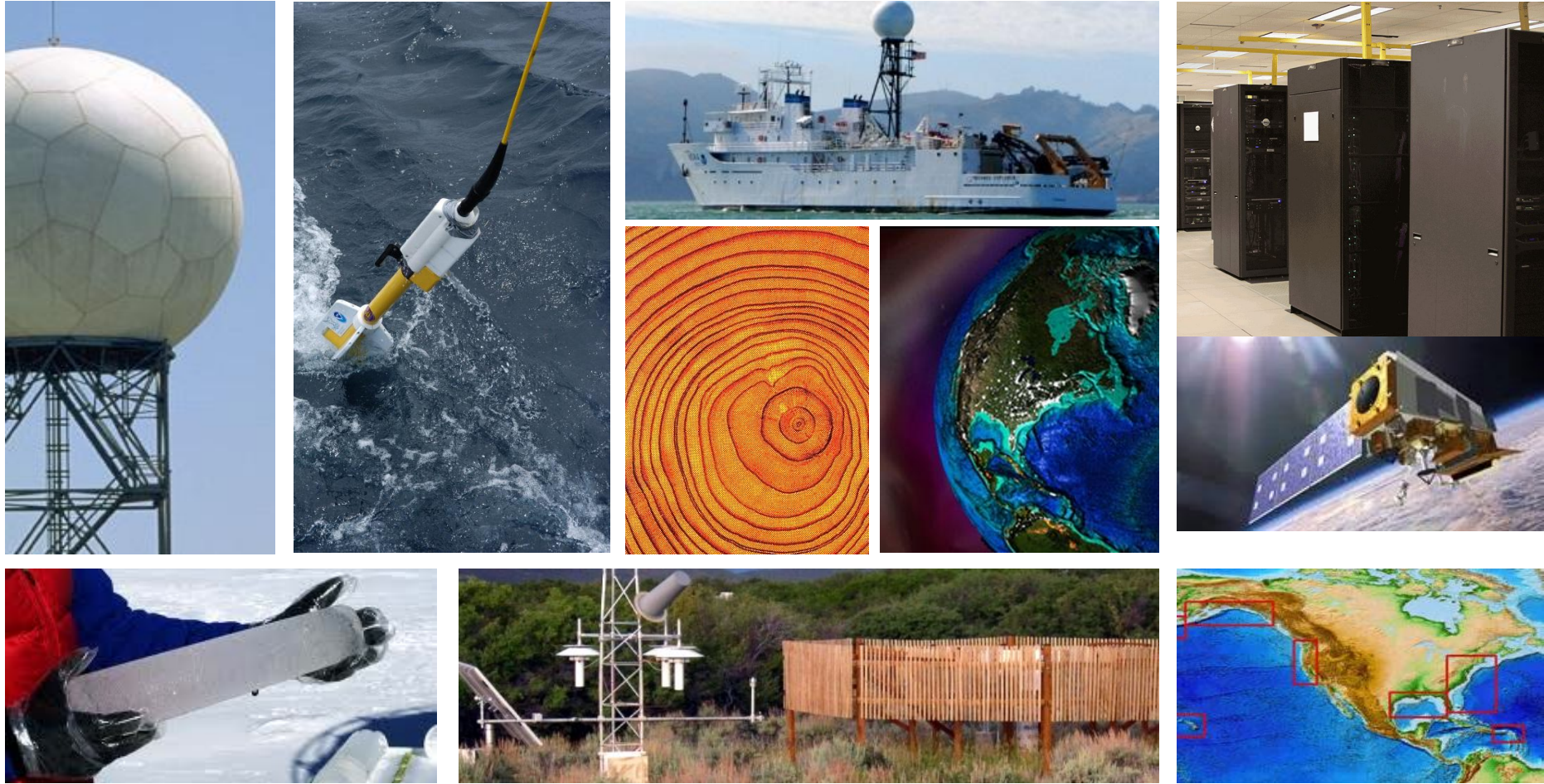
- NOAA's National Centers for Environmental Information (NCEI) is responsible for hosting and providing access to one of the largest archives of atmospheric, coastal, geophysical, and oceanic data in the world.
- As such, it is the Nation's leading authority for environmental information.



*Proper stewardship of ocean & coastal mapping data maximizes the use & re-use of valuable data.*



# Steward of the Nation's Environmental Information



*With data that spans stone age to space age, from the depths of the ocean to the sun, and across the globe*

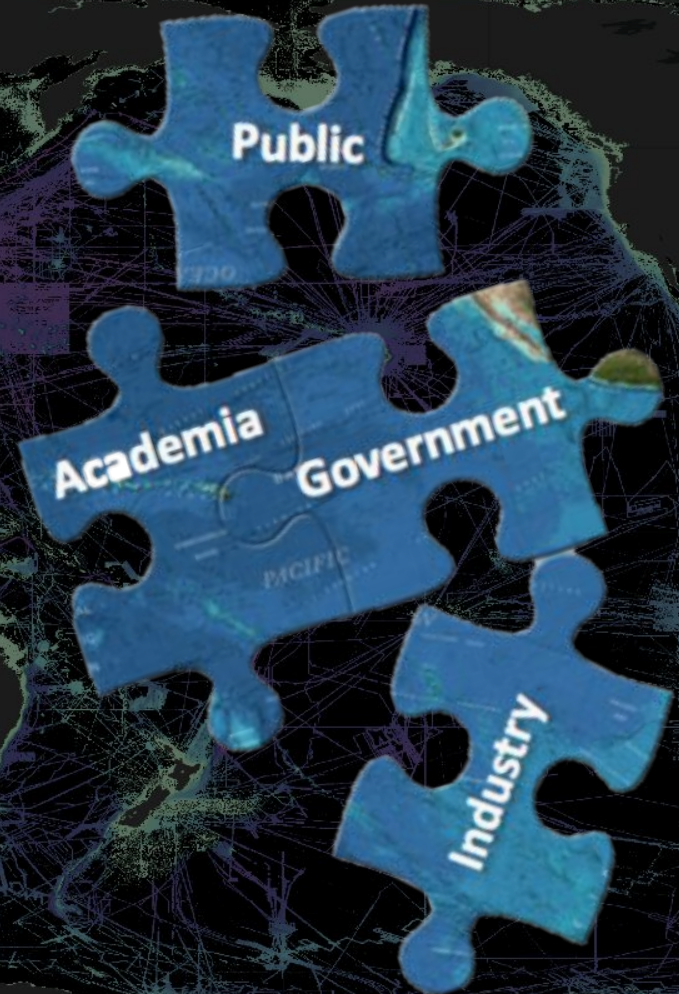


# What We Steward

**NCEI stewards a variety of bathymetric data:**

- **Office of Coast Survey (OCS) - 1274 TB**
- **Multibeam - 69 TB**
- **Singlebeam - 100's of Millions of points**
- **Coastal Lidar - High resolution shallow water**
- **Crowdsourced - Millions of points and growing fast!**
- **Satellite Derived\* - Global Coverage**

\*Planned for the future





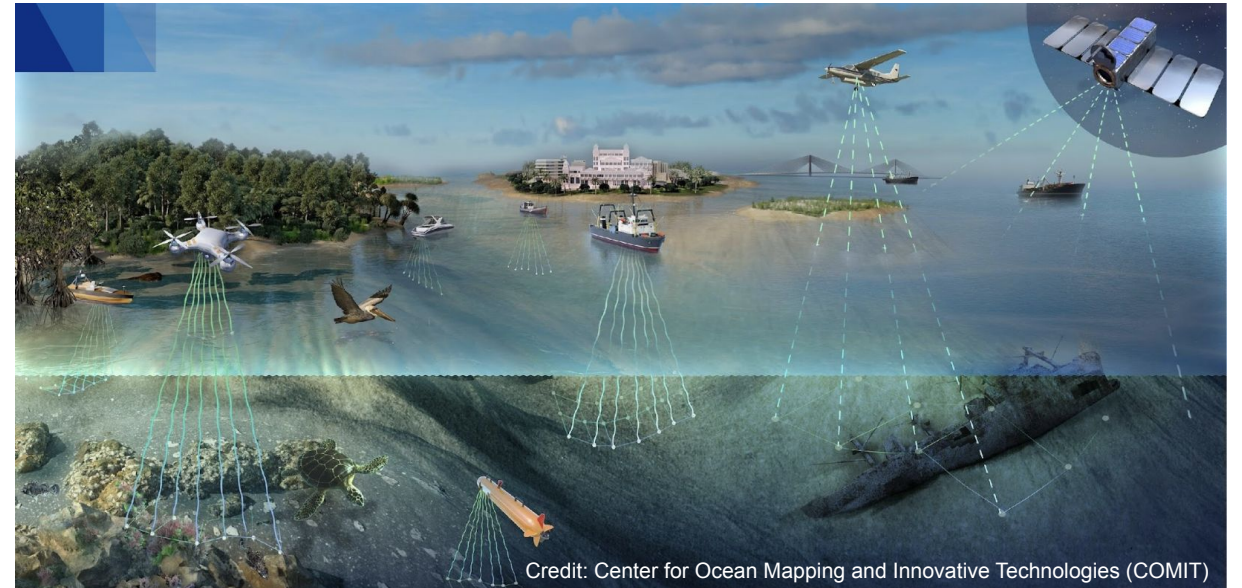
# How It Got Here

NCEI has been stewarding bathy data since day 1 of NOAA

- Paper records
- Scanned microfilm
- Punch cards

Most data these days comes from

- FTP
- WAFs (including Google Drive)
- **Hard Drives**



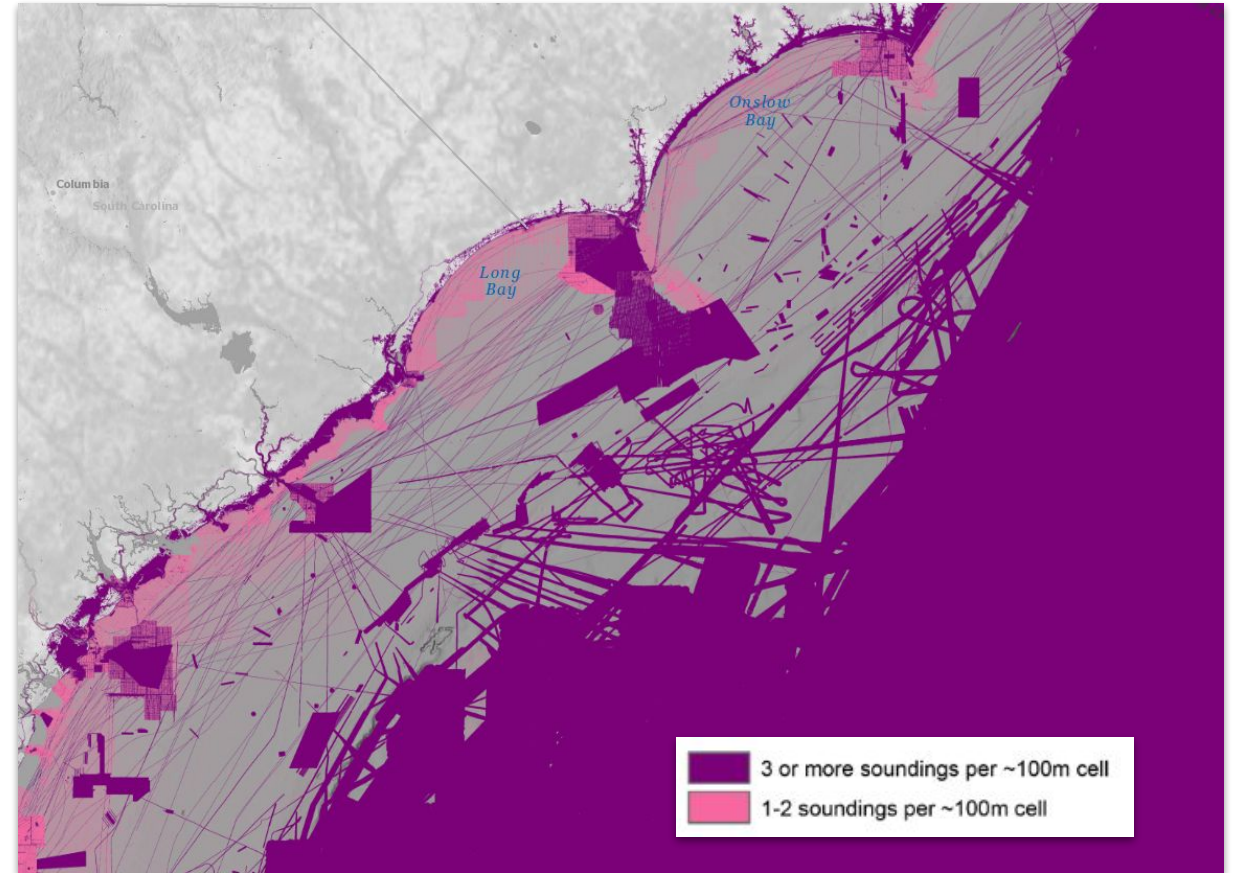
**NCEI receives every flavor of Bathy data that is out there**

**Over the course of a year we will receive data from dozens of providers**

# How We Handle It

6 separate stovepipes that follow the same high-level structure:

1. Data is sent to us
2. Reorganize the data into well known structures
3. Harvest metadata and populate databases
  - a. Cruise, instrument, and geometry
4. Send to the archive
5. Publish to map viewers



Using all publicly-available bathymetric data, classify as “well-mapped” or “minimally-mapped.” Compiled with all Multibeam, single-beam, NOS hydrography, crowdsourced bathymetry, lidar. [iocm.noaa.gov/seabed-2030-status.html](http://iocm.noaa.gov/seabed-2030-status.html)



# How You Can Find & Access

[NCEI has multiple web-viewers](#) for each primary dataset and a combined Bathy Viewer

When data is requested:

- Delivered from archive
- Packaged from WAF
- Manually downloaded by user
- Large orders are packaged by hand

Current efforts:

- Experimenting with various ways to display point data
- Transitioning more services into ArcGIS Online (NOAA GeoPlatform)
- Working with global community to adopt standards for interoperability to continue to include and update more web services

https://www.ncei.noaa.gov/maps-and-geospatial-products

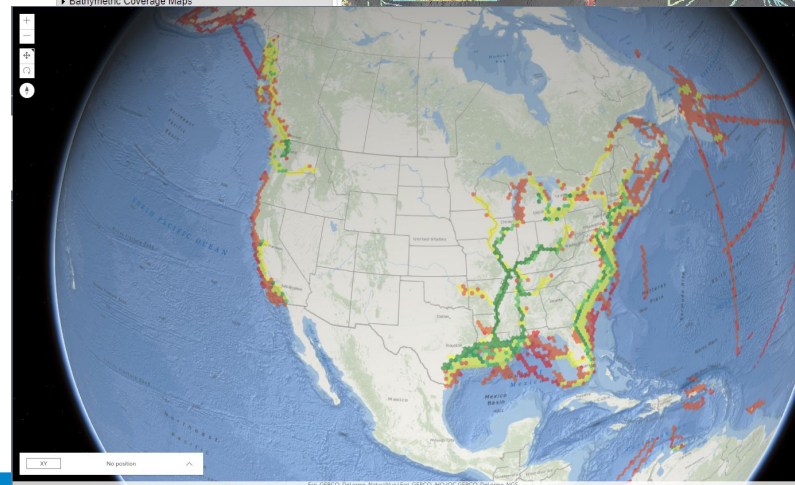
Data Centre for Digital Bathymetry Viewer

Layers

- IHO DCCB/NOAA NCEI
  - Multibeam Surveys
  - Multibeam Survey Footprints
  - Multibeam Bathymetry Mosaic
  - Single-Beam Surveys
  - Single-Beam Sounding Density
- NOAA Hydrographic Surveys
  - All Surveys with Digital Data
  - Surveys with BAGs
- BAG Shaded Relief Imagery
- Crowdsourced Bathymetry Files
- U.S. Bathymetry Coverage and Gap Analysis

EMODnet

- Australia
- Canada
- France
- Germany
- Japan
- Netherlands
- New Zealand
- Portugal
- United Kingdom
- Other Data Sources
- Known Non-Public Data
- Bathymetric Coverage Maps



**Multibeam Report for FA160003**

Ship Name: Fugro Americas  
Chief Scientist:  
Source Organization: Fugro  
Start Date: 2016-09-30  
End Date: 2016-10-15

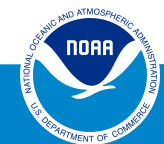
**View ISO Metadata**

Download / Request All Files

**Data Request Summary:**

Request Data: [Input Field] [Submit Request]

File Name	File Size	Description
0007_20161006_161204_Fugro_Americas_all.m800.gz	1021.31MB	Kongsberg multibeam vendor format
0008_20161006_161203_Fugro_Americas_all.m800.gz	289.26MB	Kongsberg multibeam vendor format
0009_20161006_201206_Fugro_Americas_all.m800.gz	289.26MB	Kongsberg multibeam vendor format
0010_20161007_011204_Fugro_Americas_all.m800.gz	288.33MB	Kongsberg multibeam vendor format
0011_20161007_041205_Fugro_Americas_all.m800.gz	127.69MB	Kongsberg multibeam vendor format
0012_20161007_011203_Fugro_Americas_all.m800.gz	81.54MB	Kongsberg multibeam vendor format
0013_20161007_161203_Fugro_Americas_all.m800.gz	106.00MB	Kongsberg multibeam vendor format
0014_20161007_161207_Fugro_Americas_all.m800.gz	122.78MB	Kongsberg multibeam vendor format
0015_20161007_161204_Fugro_Americas_all.m800.gz	122.37MB	Kongsberg multibeam vendor format



# Where We Are Going

Data archiving rates are growing exponentially

Seabed 2030, NOMECC, CrowdSourced, and better instruments

***The 6 stovepipes morphing into 1 NCEI in the Cloud!***

Transition will take several years and increase interoperability

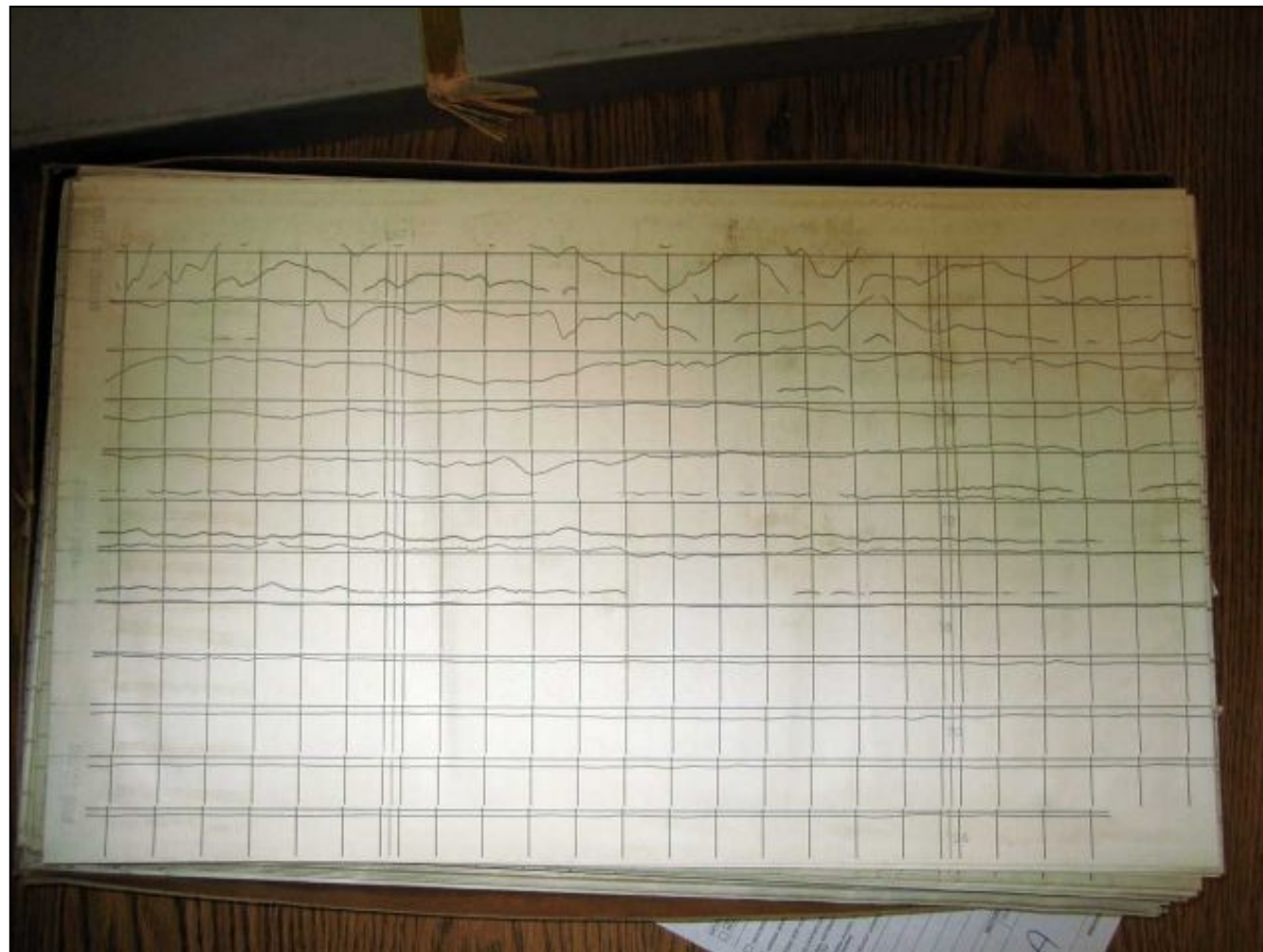
Best way to get the most out of our transition is to meet the data in the Cloud

**The Dream:** Both Providers and Users will never have to ship/download a TB of data, can use all of the data directly





# Why Metadata Matters



# How WE Can Help YOU

## *NCEI has developed CruisePack*

- Data packaging tool that builds consistent submissions and helps populate full metadata
- Used by NOAA Data Rescue Project
  - OER and NOS are looking to incorporate into their workflows
- Decreases the time to archive/discovery
- Easy to use GUI with reusable components

The screenshot shows the CruisePack v.3.3.2 web application interface. It features a navigation bar with tabs for 'Package', 'People / Organizations', 'Cruise Information', 'Omics', and 'Datasets'. The main form includes fields for 'Cruise ID', 'Segment or Leg', and a 'Select Existing Record' dropdown. Below these are instructions: 'Select existing record to update or enter new cruise ID. Enter a segment/leg name if creating multiple packages per cruise.' There are also fields for 'Destination (package directory will be created automatically)' with a 'Select Directory' button, 'Ship' with a 'Select Ship Name' dropdown, and 'Departure Port and Date (yyyy-mon-dd)' with a 'Select Departure Port' dropdown and a date selector set to '2023-May-18'. Similar fields exist for 'IHO Sea Area' and 'Arrival Port and Date (yyyy-mon-dd)'. A 'Projects' section has a text input for 'Enter project name here or choose from drop-down menu' and a '+ Add Additional Project Menu' button. At the bottom right, there is a 'Default Public Release Date' dropdown set to '2023-May-18'. A footer bar contains buttons for 'Hide Records', 'Import/Export', 'Clear Form', 'Stop Packaging', 'Save For Later', and 'Package Data'.

<https://www.ncei.noaa.gov/products/cruisepack>

