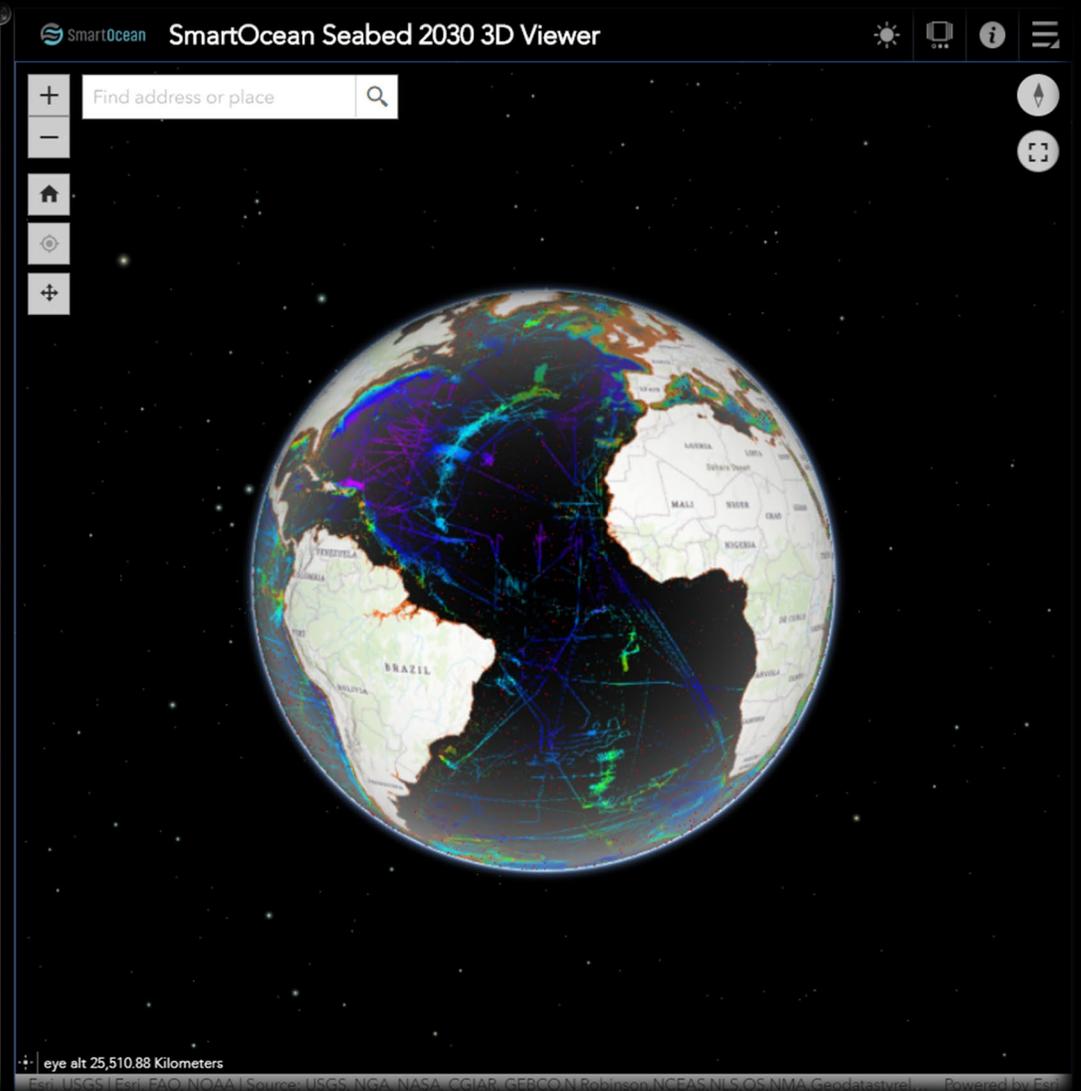
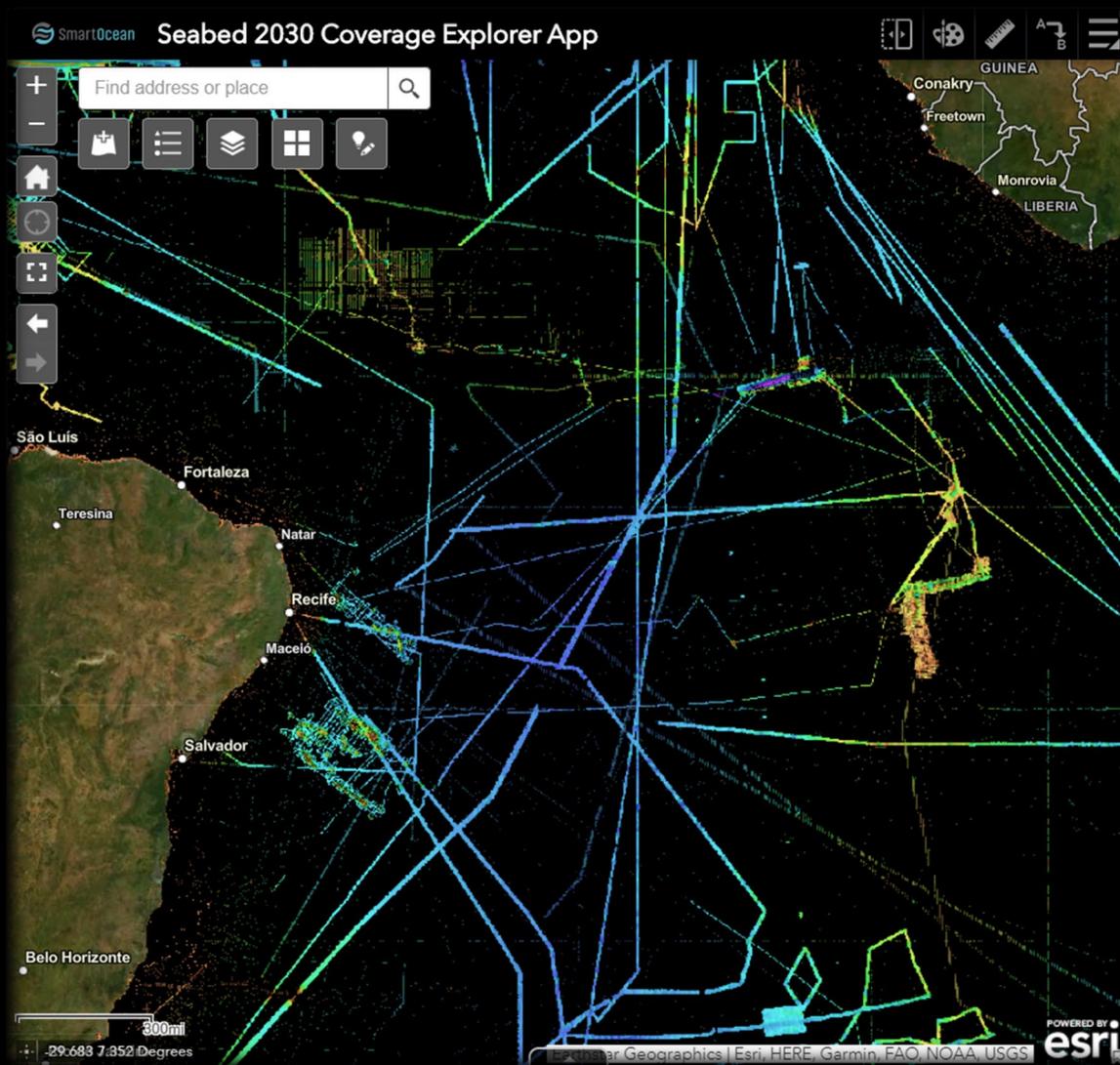


An Overview of Cloud-Based Geospatial Technologies to Help Map the Gaps

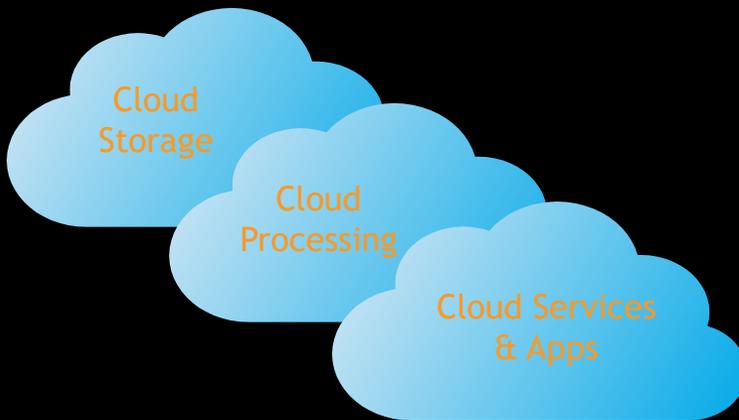
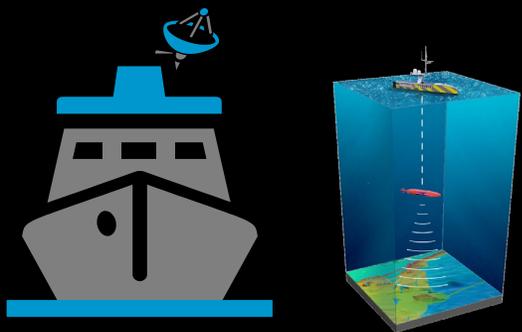




While recent technological advances in underwater survey and mapping technologies have significantly increased the efficiency, rate, quality, and resolution of data collection in ocean, coastal and riverine environments, the persistence of **desktop-based** data processing, localized storage, and proprietary workflows has hampered the adoption of the **Web GIS Pattern**.



**The Future is Coming
Faster Than You Think**



Distributed Collaborators

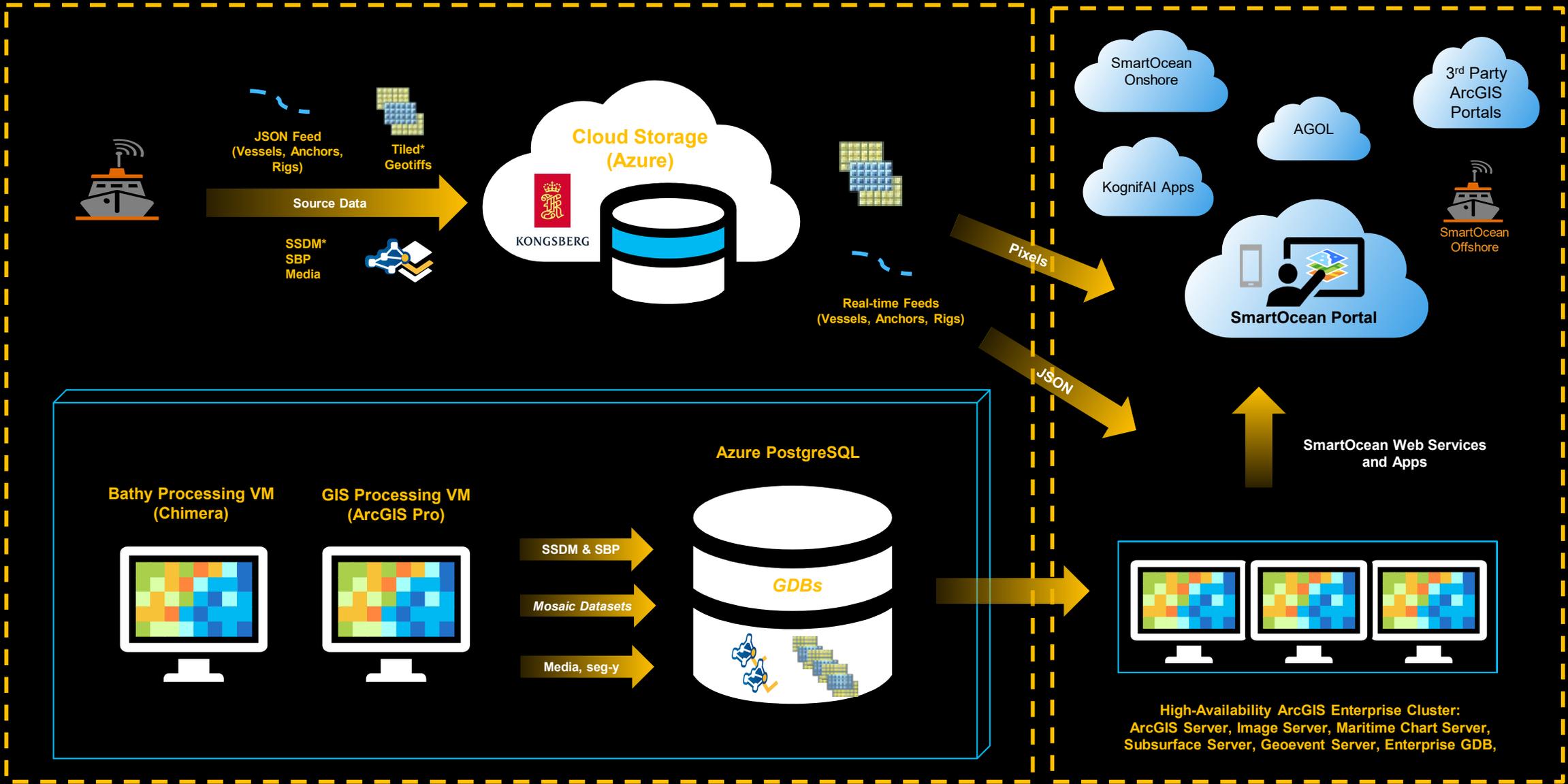
Real-time feeds
xyz, ctd, temp., etc.



Seabed Survey Data
Geodatabase, SBP,
Video, Water Column

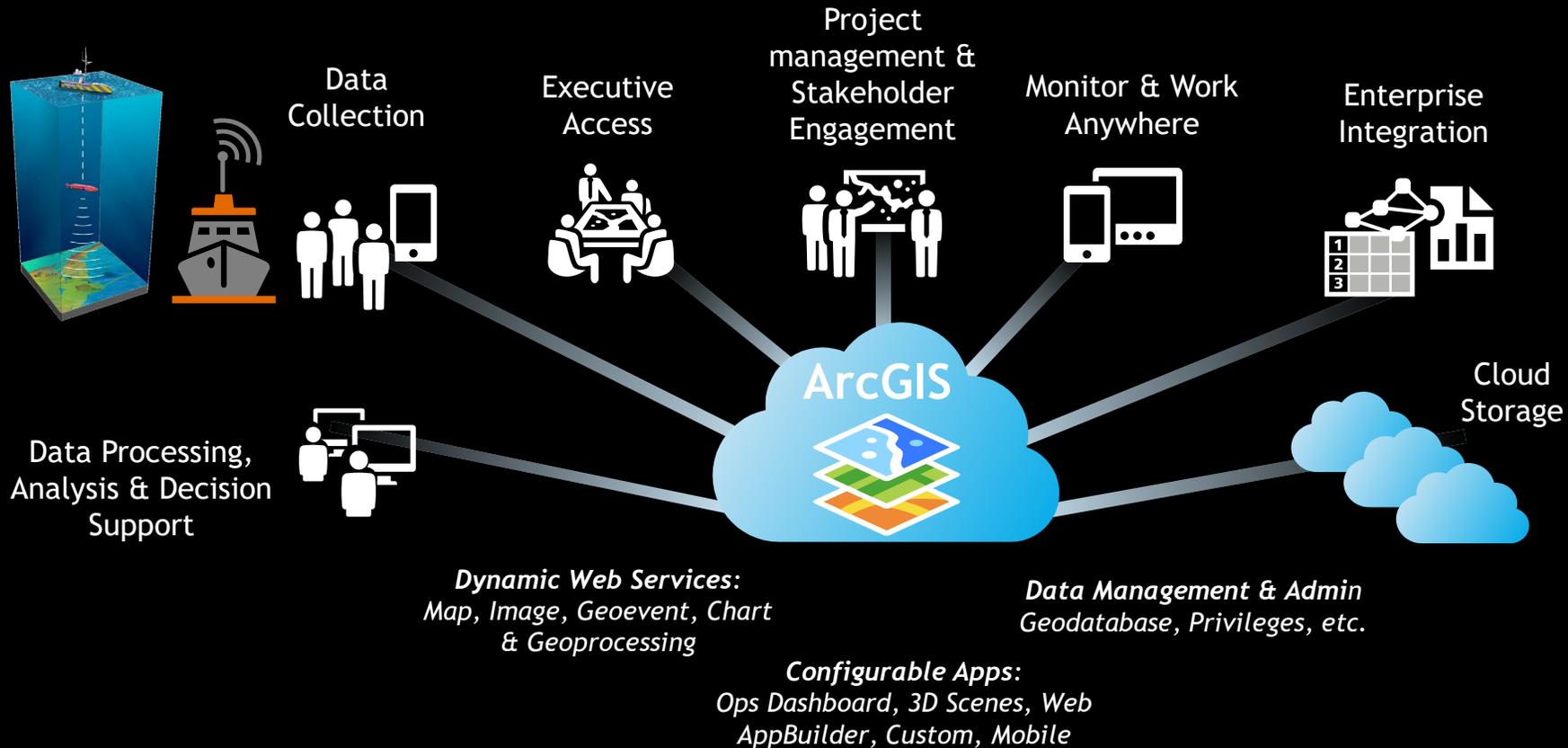


Geotiffs
Bathymetry
Backscatter





Apps & Extensions for ArcGIS that make ocean data and analytics available virtually anywhere, on any device, at any time



A best-in-class COTS geospatial solution for hydrographic survey, ocean research, natural resource management, energy, and conservation



SmartOcean Connect - List of Services

Category	Description	Input Data	Output Service Type	Core Products
Location Feeds	Real-time feeds from sensors, vessels, anchors, rigs, etc..	vector, rss/xml, JSON	Geoevent Services	ArcGIS Desktop, /ArcGIS Pro, ArcGIS Enterprise, Geoevent Server
	Image Services w/ raster functions and metadata filters	Processed Geotiffs	Image Services w/ metadata	Image Server
Bathymetry	Geoprocessing Service to convert flagged records in .all/.kml files to las/i3s	.all/.kml	Geoprocessing Services	ArcGIS Pro/Server
	i3s Web Services; include/link uncertainty and extended metadata	.las/i3s	i3s web services	ArcGIS Server
	Bathymetric Information System (BIS) / Nautical Information System (NIS)	Derived	Framework	ArcGIS Desktop & ArcGIS Pro, Maritime Charting Desktop Extension, ArcGIS Enterprise, Maritime Chart Server extension
S-57 / S100 & ENCs	Semi-automated generation of S-57 / S-100 and ENC datasets; ENC web services derived from client-provided bathymetry	Derived	Geoprocessing Services, ENC, POD Services	ArcGIS Desktop & ArcGIS Pro, Maritime Charting Desktop Extension, ArcGIS Enterprise, Maritime Chart Server extension
Backscatter	Image Services w/ raster functions and metadata filters	Processed Geotiffs	Image Services w/ metadata	ArcGIS Image Server
SSS/HISAS	Side-scan sonar / HISAS data stored as geotiffs	Processed Geotiffs	Image Services w/ metadata	ArcGIS Image Server
Images/Video	Geotagged images and video	jpg/mp4	Feature Services	ArcGIS Desktop / ArcGIS Pro, ArcGIS Enterprise
Water Column	Video playback of selected coverage (?)	vector, rss/xml	Feature Services	ArcGIS Desktop / ArcGIS Pro, ArcGIS Enterprise, Full Motion Video Extensions
Location Feeds	Ship tracks, other feeds from sensors, vessels, anchors, rigs, etc..	vector, rss/xml, JSON	Geoevent Services	Geoevent Server
SSDM	SSDM geodatabase, feature templates and web services	vector	Feature Services	ArcGIS Server/SQL
SBP & Seismics	3D Visualization of sub-bottom profiler and seismic data in geospatial context	seg-y, segz	Seismic Server Services	ArcGIS Server, Subsurface Server for ArcGIS (Geocap)*

Browser: n08300-db03-001.westeurope.cl | <https://extjmp.kognif.ai/guacamole/#/client/MTE2AGMAc3Fsc2VydMvY>

Taskbar: Jobb, Data, Nyheter, Terje, 2019, ProtonMail, Calendar, THP, Kane dar, Telenor Mine Sider, Dagens Lunch - Tu...

Application: QPS Qimera 2015

Project Sources: Raw Sonar Files

3DEditor - 361124 points loaded

File	Display	Slices	Options
0 selected	record=2064 subrecord=189	file=... Data/Panopee/20130614_0823_em2040C_wreck_400-0001.qpd (7)	[98290.70, 5361161.53, -6.43] [4°22'26.49"W, 48°23'43.46"N, -6.43]

Control Bar:

- Editing Mode: Sounding Editing, CUBE Editing (K)
- Cursor Mode: [Icons]
- Display: Soundings, Rejected, Surface, Hypotheses
- Color By: Depth
- Highlight: None
- Exag: 1.81x
- Size: [Slider]
- Slices: Slice Size: 5, Start
- Selection: Clear, Invert, Select By
- Edit: Reject, Unreject

Main View: 3D bathymetric map of a wreck site. A white polygon outlines a specific area. A vertical line with a circular top indicates a profile view. Depth scale on the right: -3.75, -4.50, -5.25, -6.00, -6.75, -7.50, -8.25.

Time Series Plots: [Graph showing depth over time from 40 to 130 seconds]

Status Bar: 00:00:00 | 00:01:37 | 06/14/2013 08:06:12.161, Roll -0.521

Job Activity: Properties | Swath Editor

Geo Coords (x,y,z) -> [98242.4 5361134.1 -5.24] (lat,lon) -> [48°23'42.55"N, 4°22'28.81"W]

Memory: 3.3 GB

sm_demo - ArcMap

File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help

1:6,000

Table Of Contents

Layers

- gis.sde.demo1_BreiangenNo
 - Boundary
 - Footprint
 - Image
 - Value: High: -4.0775, Low: -208.44

Catalog

Location: gis.sde.demo1_Breiangen

- Home - EarthAnalytic\SmartOcean
 - data
 - BreiangenNorth
 - Repo
 - dataowner@GIS.10.0.0.0
 - gis.dataowner.BISm
 - gis.dataowner.Smar
 - gis.sde.demo1_Brei
 - dev.gdb
 - BreiangenNorth
 - gp
 - scripts
 - Toolbox.tbx
 - Remove All Rasters
 - Update Mosaic Rast
 - sm_demo.mxd
 - Folder Connections
 - c:\
 - C:\Users\ZF82JT3VT\Docur
 - D:\
 - Y:\
 - \\n00295westeuropa.file.c

Table

gis.sde.demo1_BreiangenNorth\Footprint

objectid *	name	minps *	maxps *	lowps *	highps *	category	tag	groupname	productname
1904	254	0	20	2	2	Primary Dataset			
1905	255	0	20	2	2	Primary Dataset			
1906	256	0	20	2	2	Primary Dataset			
1907	240	0	20	2	2	Primary Dataset			
1908	241	0	20	2	2	Primary Dataset			
1909	242	0	20	2	2	Primary Dataset			
1910	243	0	20	2	2	Primary Dataset			
1911	244	0	20	2	2	Primary Dataset			
1912	245	0	20	2	2	Primary Dataset			

gis.sde.demo1_BreiangenNorth\Footprint

Update Mosaic Rasters

Completed

Close this dialog when completed successfully

```

Executing: UpdateMosaicRasters D:\EarthAnalytic\smartocean_demo\data\BreiangenNorth
D:\EarthAnalytic\smartocean_demo\data\dataowner@GIS.10.0.0.9.sde\gis.sde.demo1
_BreiangenNorth
Start Time: Tue Sep 11 10:19:35 2018
Running script UpdateMosaicRasters...
DEBUG: Input Project Data Location D:\EarthAnalytic\smartocean_demo\data
_BreiangenNorth
DEBUG: Input Mosaic Raster for update D:\EarthAnalytic\smartocean_demo\data
\dataowner@GIS.10.0.0.9.sde\gis.sde.demo1_BreiangenNorth
DEBUG: Raster Table location C:\smartocean\smartocean.gdb\raster_table
DEBUG: Time to parse files from project folder = 0.0 seconds
DEBUG: Number of Rasters added 86
DEBUG: Time to AddRasters to Mosaic = 21.536 seconds
Completed script UpdateMosaicRasters...
Succeeded at Tue Sep 11 10:19:59 2018 (Elapsed Time: 23.63 seconds)
  
```

SmartOcean Demo Powered by Earth Analytic

Find address or place

SP S2 S3

Content

Layer List

Operational layers

- SVP Sample Locations
- Points of Interest
- Areas of Interest
- km_horton_safe_area
- Mission Plan (Route)
- seismicportal - ShallowSurveySBP

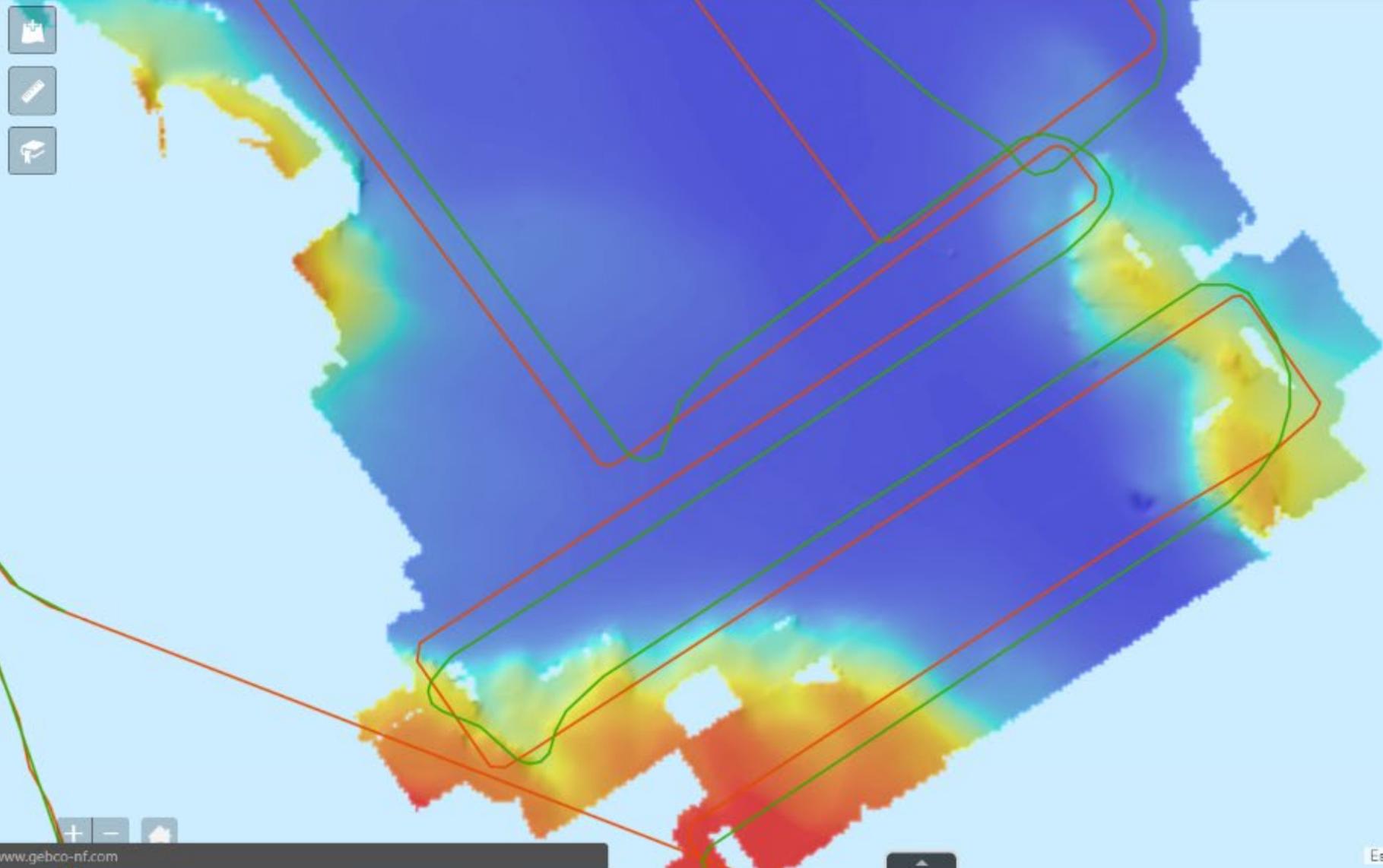
Basemap Gallery

Legend

km_horton_safe_area

seismicportal - ShallowSurveySBP

10.354 59.466 Degrees



Layer List

Operational layers

- Study Area
- Mission Plan
- SeaKit_track
- AUV_nav_post-processed
- CTD Samples (Sound Velocity Profiles)
- Bathy_2m_contours_5m
- Navigation
- Spot Images - Mission
- Spot Images - Previous
- Bathy Subsets
- Magnetometer Strip Grid - Trial Data
- Bathy - EM2040_HISAS_2m - Slope
- Bathy - EM2040_HISAS_2m
- Bathy - EM2040_HISAS_2m - Hillshade
- Side-Scan Sonar
- Chart (Night)



Find address or place

Profile | SP | S2 | S3

(3 of 3)

MinPS	0.00
MaxPS	40.01
LowPS	2.00
HighPS	4.00
Category	Primary
Tag	Dataset
GroupName	
ProductName	
CenterX	582,001.00
CenterY	6,594,001.00
ZOrder	
Thumbnail	
Item Pixel Value	-193.75 0.56

[Zoom to](#)

Content

Layer List

- Bathy_SAS_sssb_hisas_1m.tif
- Bathy_SAS_sssb_wide_2m.tif
- Bathy - EM2040_HISAS_2m - Slope
- Bathy - EM2040_HISAS_2m
- Bathy - EM2040_HISAS_2m - Hillshade
- Sea Surface Temperature (°C) - Esri
- Seafloor Temperature (°C) - Esri
- Seafloor Salinity (pss) - Esri
- GOM_Layers
- GOM_Deepwater_Bathymetry_and_Hillshade_Tiled
- enc_coverage
- enc_harbour
- enc_coastal
- TopoBathy - Esri

Basemap Gallery +

Legend +

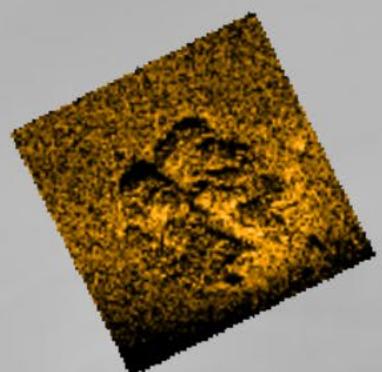
Navigation icons: Home, Previous, Next, Full Screen, Refresh, Home, Zoom In, Zoom Out

1000ft
10.474 59.473 Degrees



Find address or place

Profile SP S2 S3



Navigation controls including left and right arrows, a zoom-in (+) and zoom-out (-) button, and a home icon.

100ft
10.468 59.454 Degrees

Smart Editor

Points of Interest

Description
Magnetic Anomaly - High Probability

Depth

Remarks

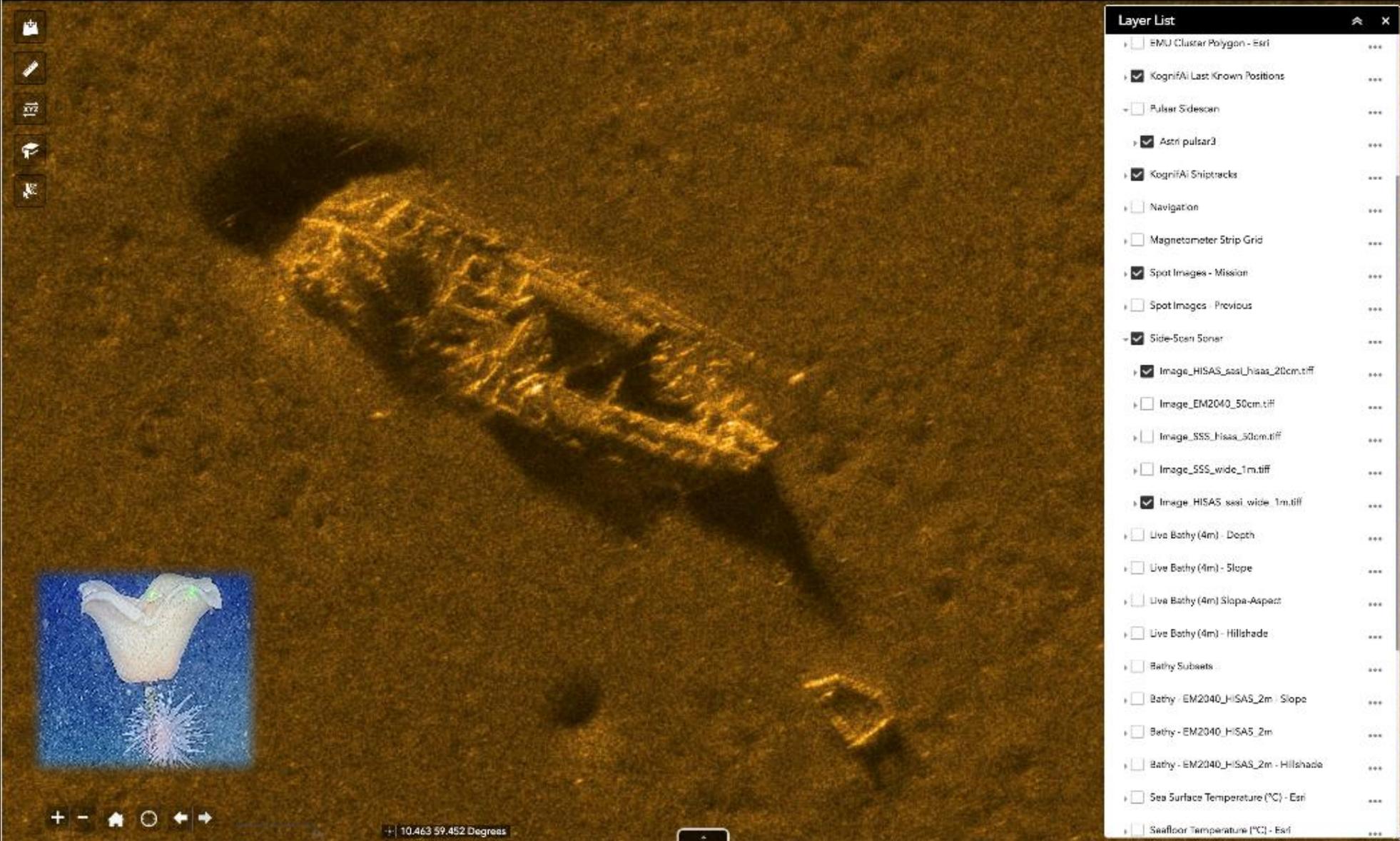
URL_Popup

Attachments:
Choose File No file chosen

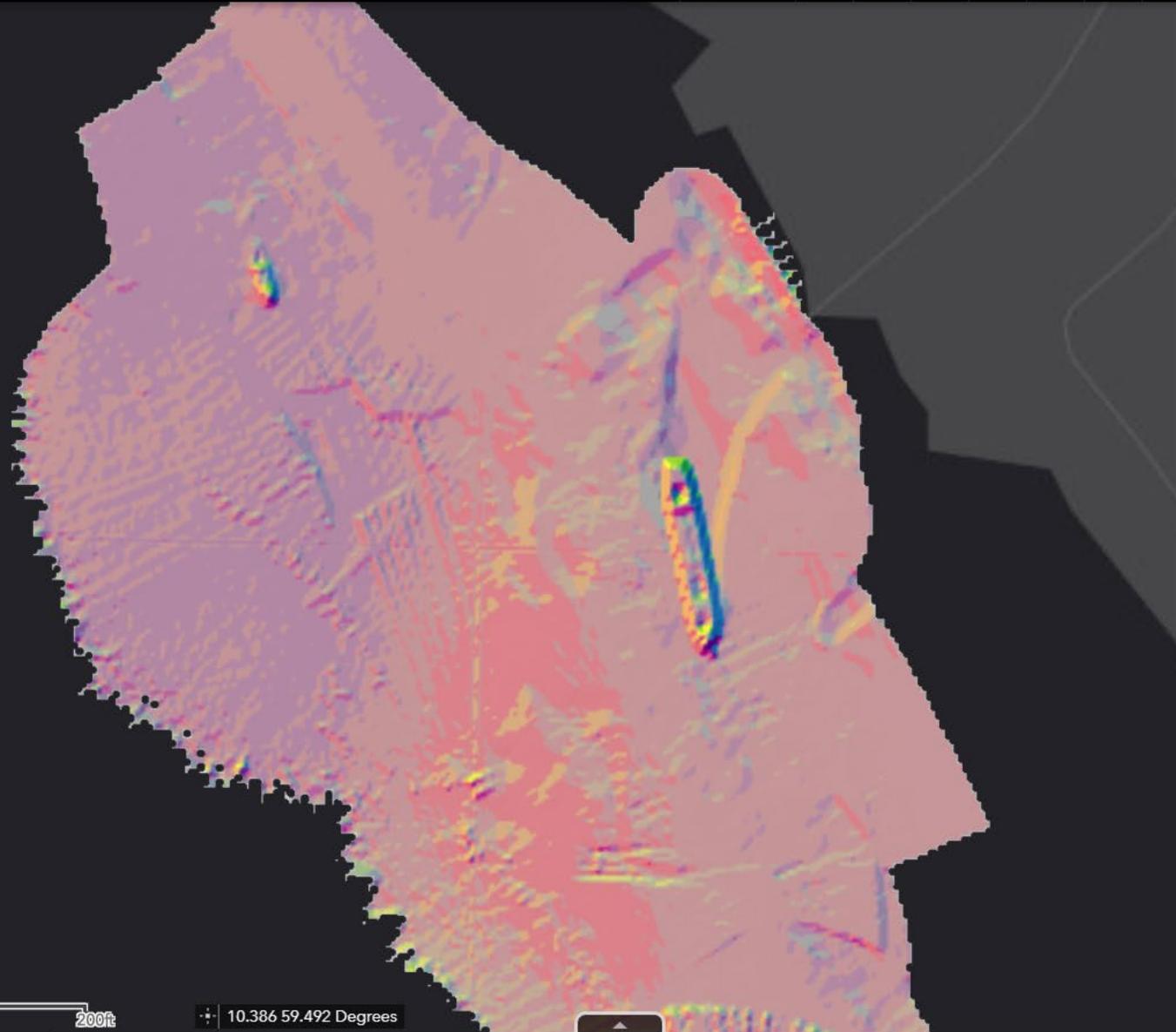
Edited seconds ago

Edit Geometry

Clear Save



Vertical toolbar with icons: home, ruler, XYZ, hand, arrow

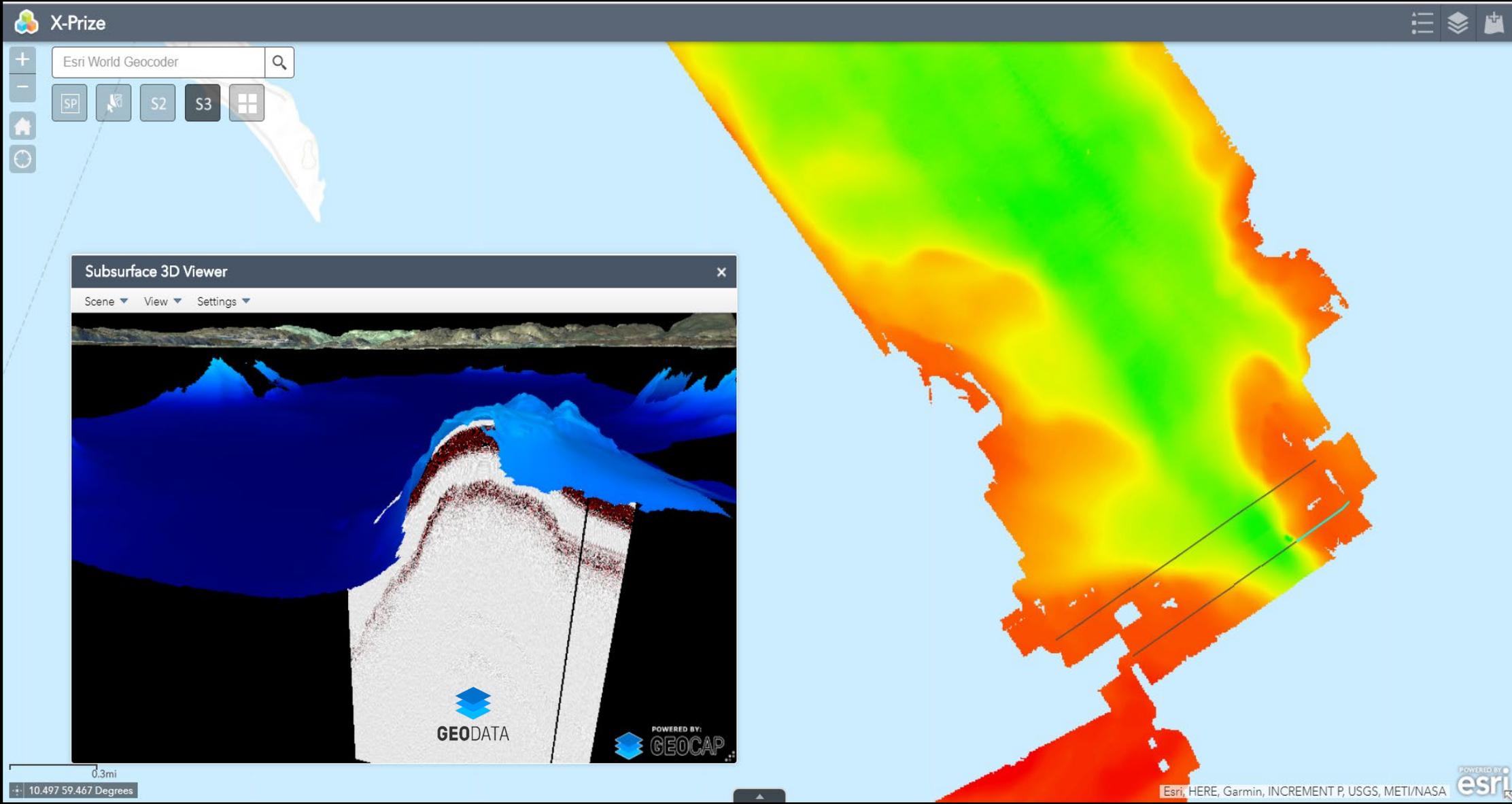


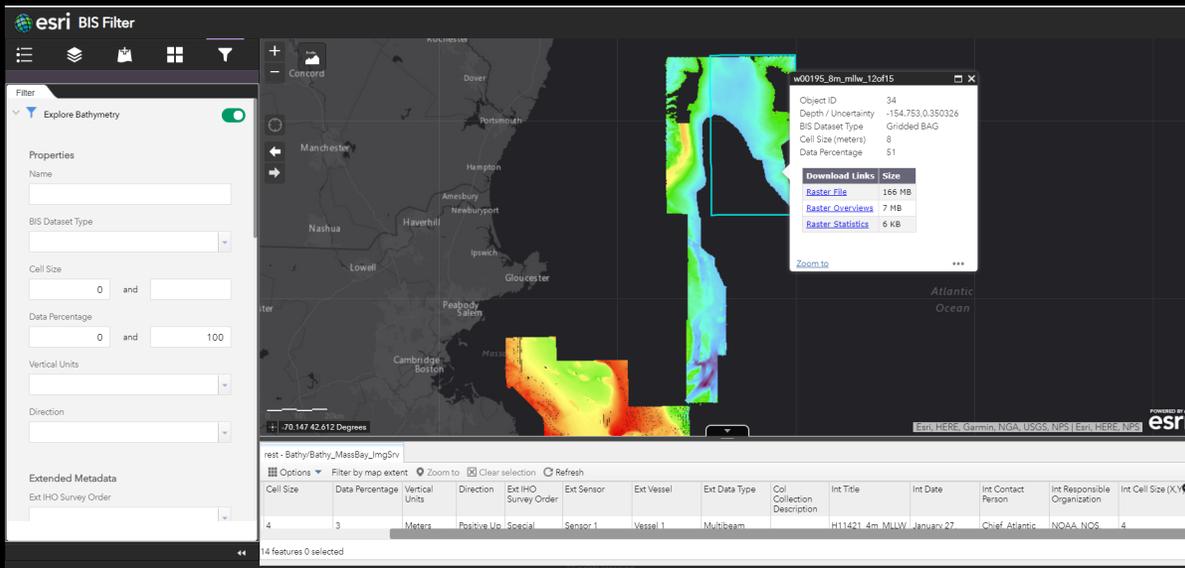
Layer List

- ≤ 1.657
- Live Bathy (4m) Slope-Aspect ...
- 19
- 21
- 22
- 23
- 24
- 25
- 26
- 27
- 28
- 31
- 32
- 33
- 34
- 35
- 36
- 37
- 38
- 41
- 42
- 43
- 44
- 45
- 46
- 47
- 48
- LBH ...

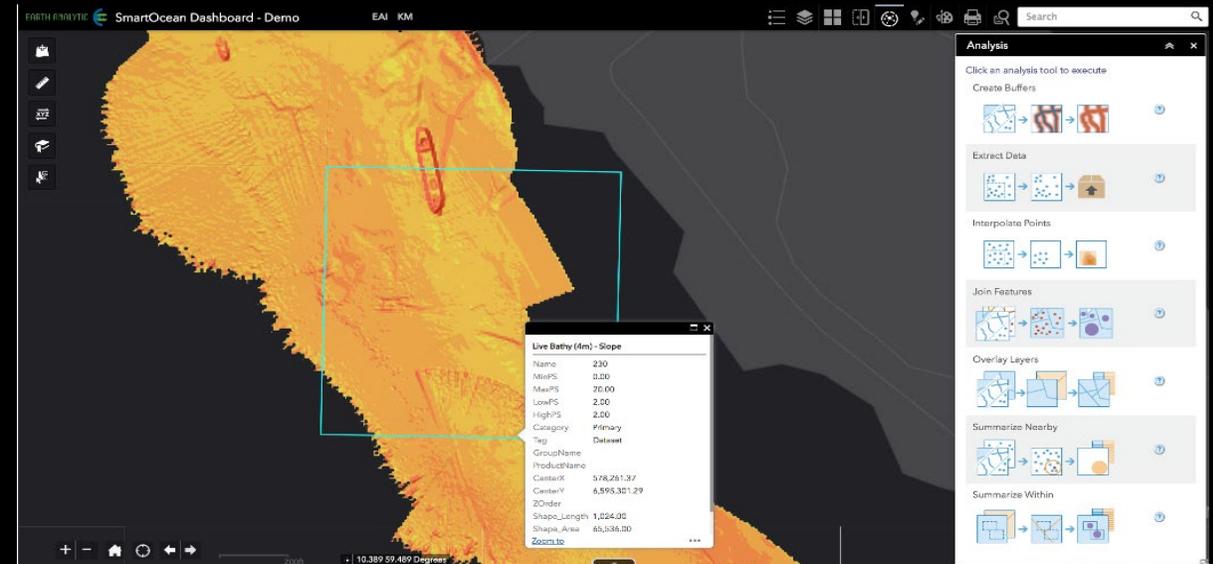
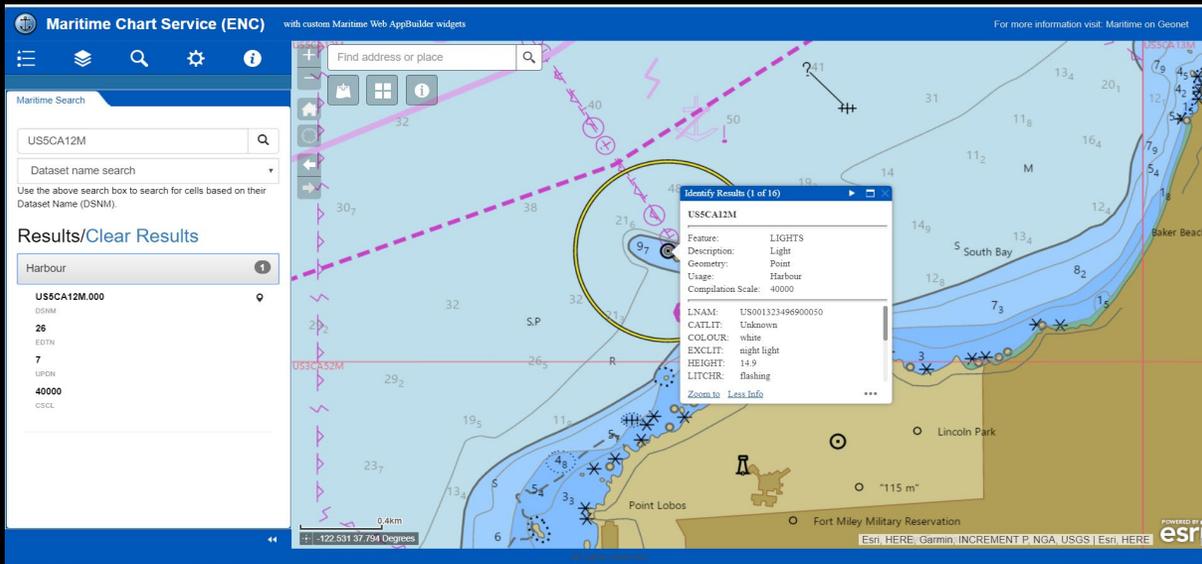
Map navigation controls: zoom in (+), zoom out (-), home, refresh, back, forward

200ft 10.386 59.492 Degrees





As solutions for the data processing become more autonomous, the final challenge will not be the real-time acquisition or processing of the data, but **what to do** with the data once a bathymetric surface is created.



SmartOcean Demo Powered by Earth Analytic

Find address or place

Self-service tools to extract ENC features to support AUV mission planning & collision-avoidance

Extract ENCs

- Layers to Clip*
- AidsToNavigationPHarbour_Beacon_Lateral_point
- AidsToNavigationPHarbour_Beacon_Safe_Water_po
- AidsToNavigationPHarbour_Beacon_Special_Purpo
- AidsToNavigationPHarbour_Buoy_Cardinal_point
- AidsToNavigationPHarbour_Buoy_Isolated_Danger
- AidsToNavigationPHarbour_Buoy_Lateral_point
- AidsToNavigationPHarbour_Buoy_Safe_Water_poi
- AidsToNavigationPHarbour_Buoy_Special_Purpose
- AidsToNavigationPHarbour_Daymark_point
- AidsToNavigationPHarbour_Fog_Signal_point
- AidsToNavigationPHarbour_Light_Float_point
- AidsToNavigationPHarbour_Radio_Station_point
- AidsToNavigationPHarbour_Retro_Reflector_point
- AidsToNavigationPHarbour_Radar_Transponder_Bo
- AidsToNavigationPHarbour_Topmark_point
- CoastlinePHarbour_Shoreline_Construction_point

Extract ENC - Coastal

SmartFootprint North Sea

Find address or place

Dynamic update of multi-criteria weighted overlay analysis and route optimization

SmartFootprint RouteFinder Tool

SmartFootprint Route Selection Destination Point*

Pipeline Flow Begins From: UPPER LEFT

Route Name*: SmartFootprint Route

User Name*: K. Datin

Run Least Cost Corridor Function*

Seabed Roughness Weight*: 10

Restricted Areas Weight*: 25

Environmental Sensitivity Weight*: 15

Slope Weight*: 15

Surficial Geology Weight*: 10

Energy and Telecom Weight*: 15

Depth Weight*: 10

Execute

SmartOcean Demo Powered by Earth Analytic

Find address or place

Dynamic profiles using best-available bathy data

Elevation Profile

Measure Profile Result

Hover over or touch the Elevations Profile chart to display elevations and show location on map.

Elevation Profile

Elevation in Feet

Distance in Miles

SmartOcean iSurvey Rig Move Portal Powered by SmartOcean & Kognifal

Real-time monitoring of rig moves

Legend

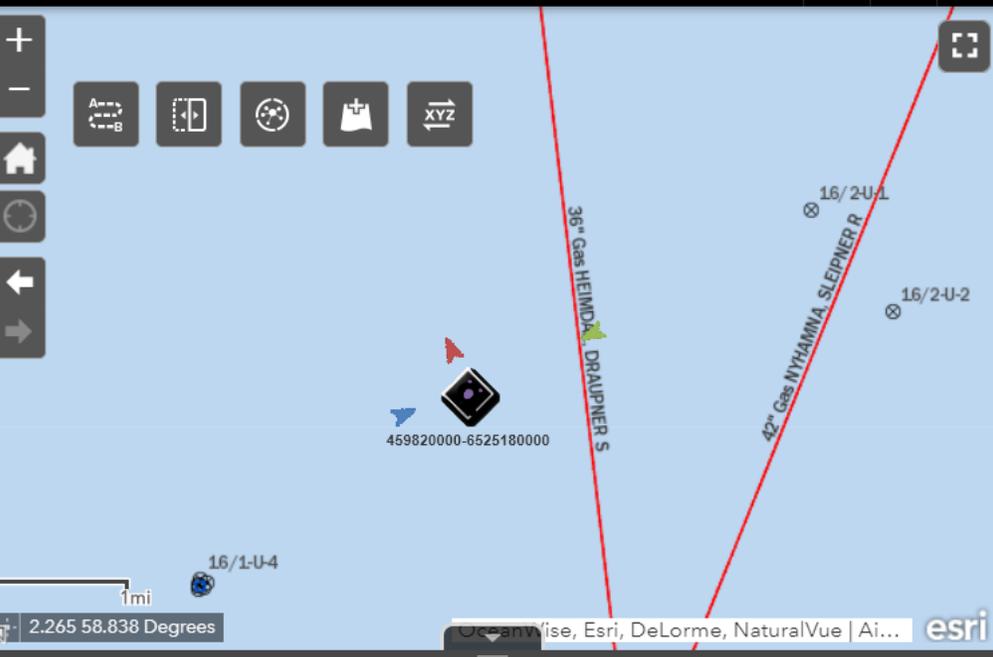
Vessels - Time-Enabled

- ▲ 265001000
- ▲ 123456789
- ▲ 219592000
- ▲ 259187000
- ▲ 229385000
- 99

Anchors and Rigs

- Anchor
- ◆ Reef
- others

SmartOcean iSurvey Rig Move Portal



Vessels - Time-Enabled | Anchors and Rigs | Existing Cables | Station ID, Air Temperature (deg F)

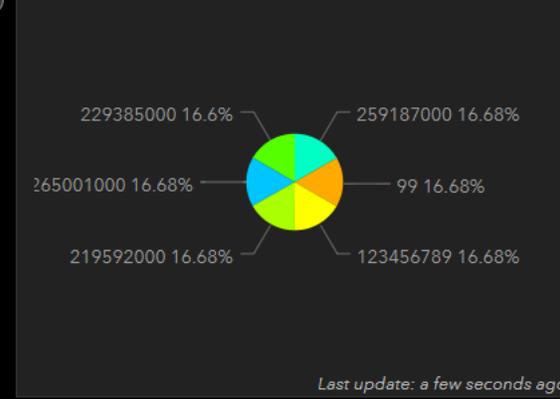
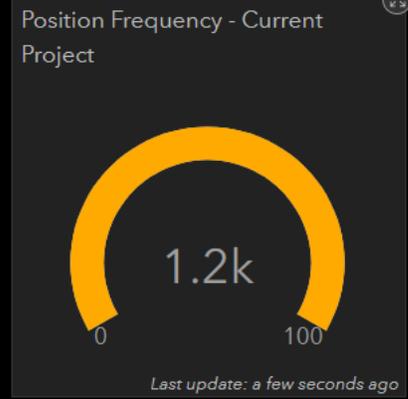
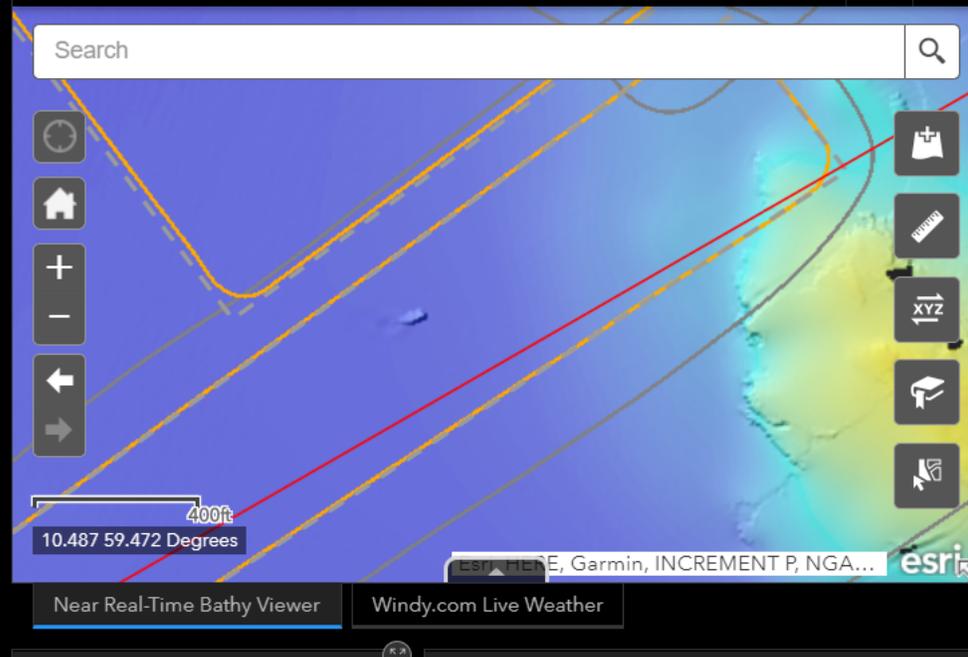
Options Filter by map extent Zoom to Clear selection Refresh

OperationId	Symbol	Id	Time	HeadingTrueNort	VesselId
10,001				220.00	123456789
10,001				336.10	219592000
10,001				243.40	229385000

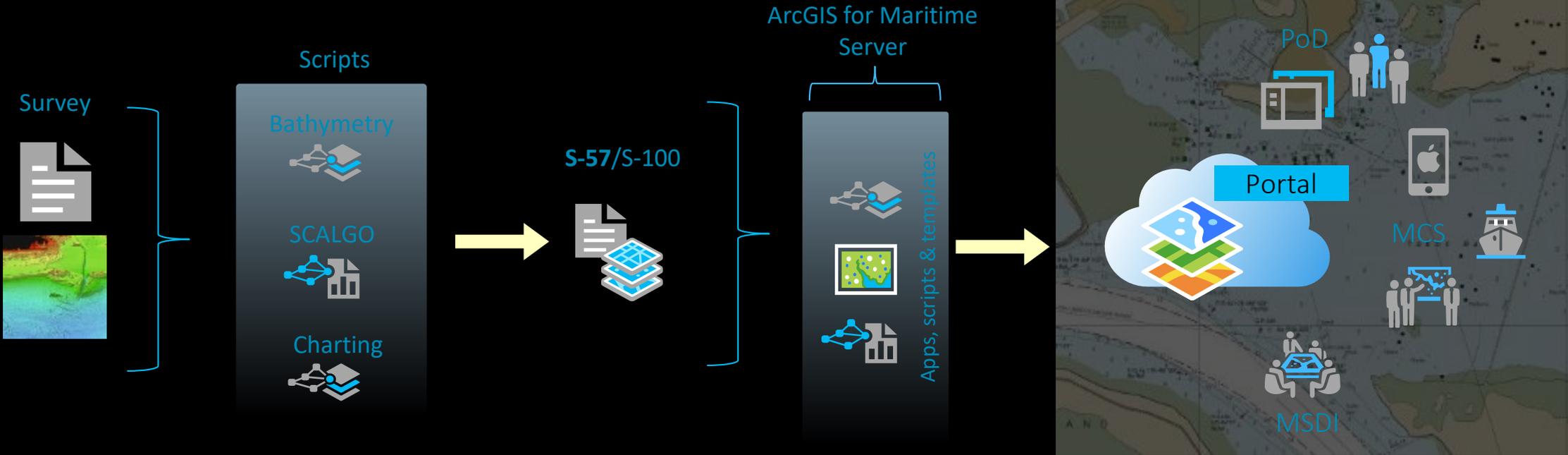
1187 features 0 selected

- 123456789 | 123456789 | 3/20/2019, 7:34 AM
 - 219592000 | 219592000 | 3/20/2019, 7:34 AM
 - 229385000 | 229385000 | 3/20/2019, 7:34 AM
 - 259187000 | 259187000 | 3/20/2019, 7:34 AM
 - 99 | 99 | 3/20/2019, 7:34 AM
 - 265001000 | 265001000 | 3/20/2019, 7:34 AM
 - 123456789 | 123456789 | 3/20/2019, 7:34 AM
 - 219592000 | 219592000 | 3/20/2019, 7:34 AM
 - 229385000 | 229385000 | 3/20/2019, 7:34 AM
 - 259187000 | 259187000 | 3/20/2019, 7:34 AM
 - 265001000 | 265001000 | 3/20/2019, 7:34 AM
 - 99 | 99 | 3/20/2019, 7:34 AM
 - 123456789 | 123456789 | 3/20/2019, 7:34 AM
- Last update: a few seconds ago

SmartOcean SmartOcean - Demo EAI KM



Automated Chart & S-57 File Product Updates



Filter

Explore Bathymetry

Properties

Name

BIS Dataset Type

Cell Size and

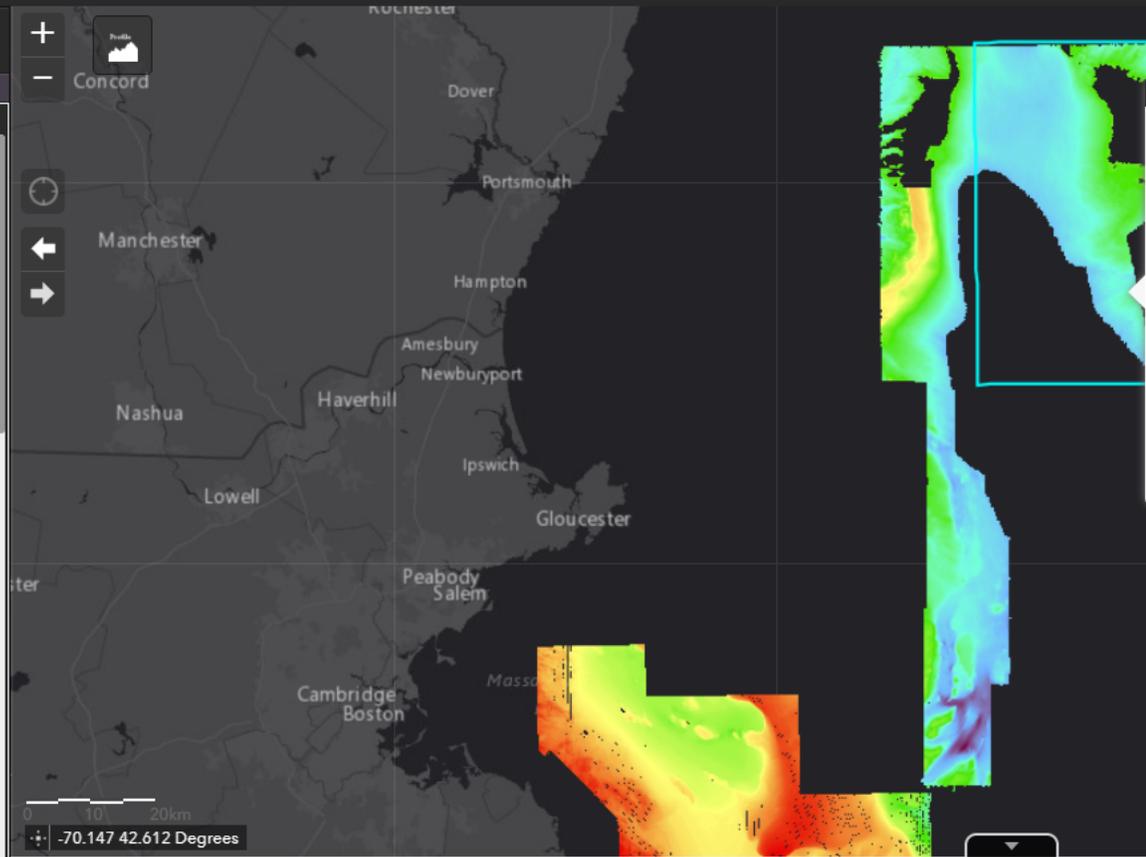
Data Percentage and

Vertical Units

Direction

Extended Metadata

Ext IHO Survey Order



w00195_8m_mllw_12of15

Object ID 34

Depth / Uncertainty -154.753,0.350326

BIS Dataset Type Gridded BAG

Cell Size (meters) 8

Data Percentage 51

Download Links	Size
Raster File	166 MB
Raster Overviews	7 MB
Raster Statistics	6 KB

[Zoom to](#)

rest - Bathy/Bathy_MassBay_ImgSrv

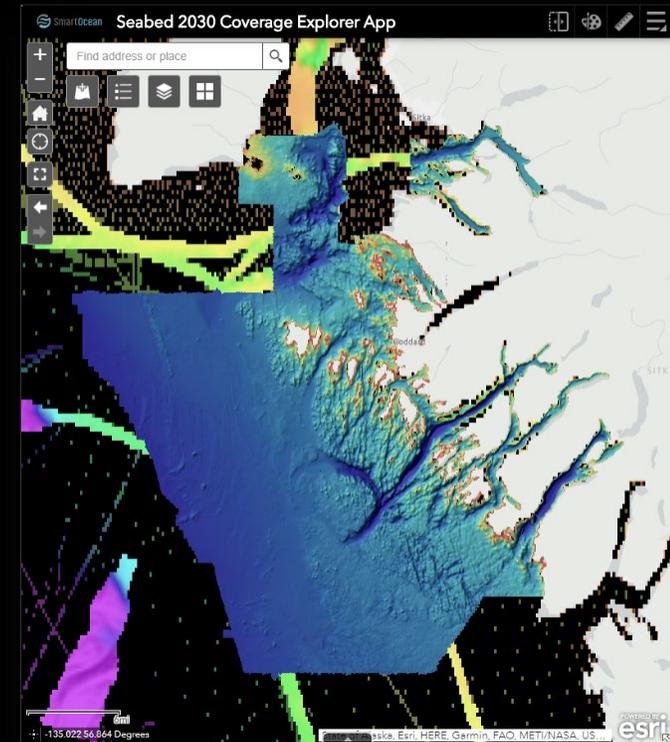
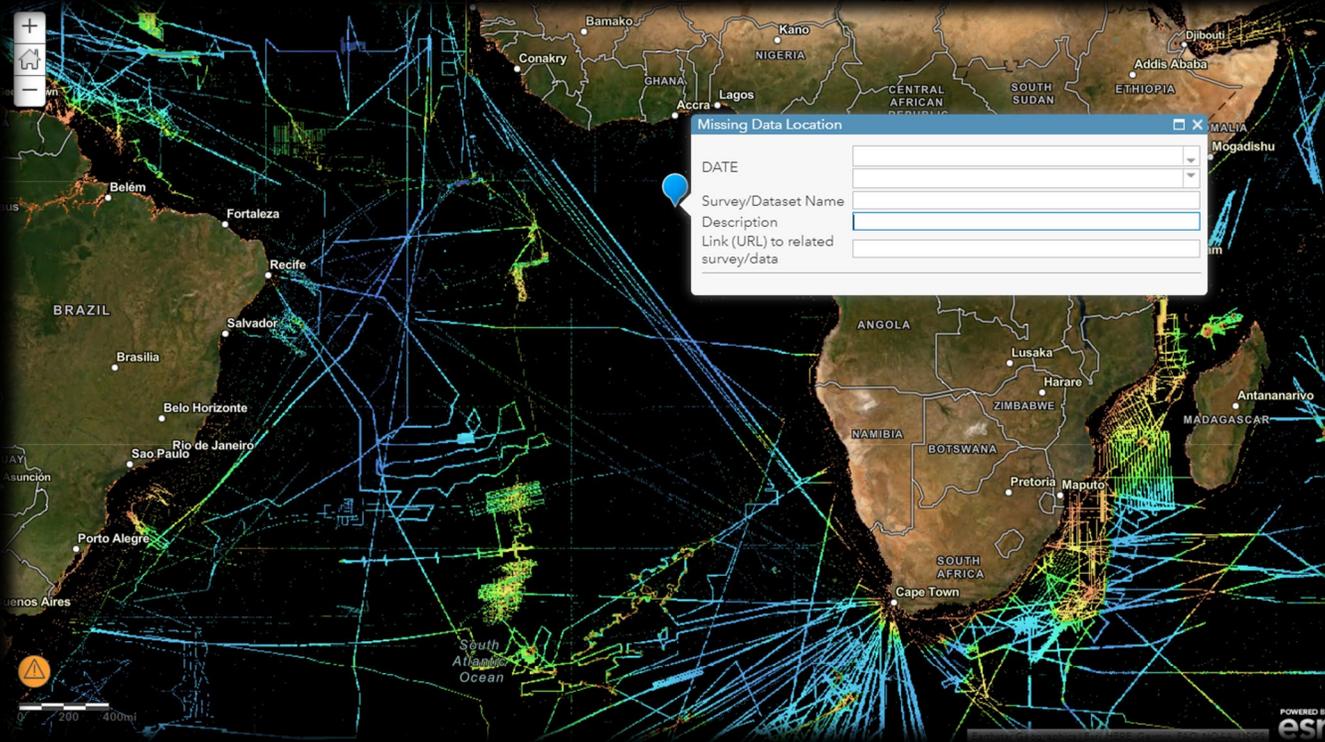
Options Filter by map extent Zoom to Clear selection Refresh

Cell Size	Data Percentage	Vertical Units	Direction	Ext IHO Survey Order	Ext Sensor	Ext Vessel	Ext Data Type	Col Collection Description	Int Title	Int Date	Int Contact Person	Int Responsible Organization	Int Cell Size (X,Y)
4	3	Meters	Positive Up	Special	Sensor 1	Vessel 1	Multibeam		H11421 4m MLLW	January 27,	Chief, Atlantic	NOAA NOS	4

14 features 0 selected

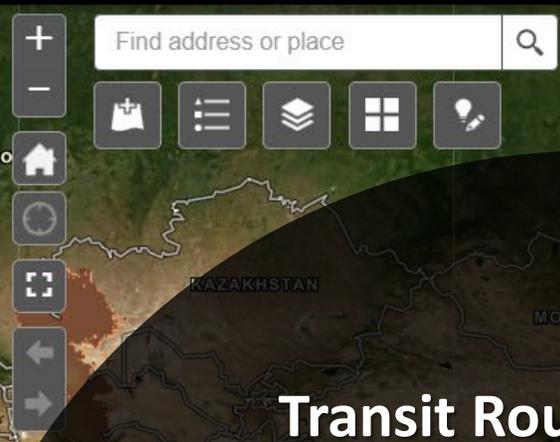
Seabed 2030 - Map the Gaps Investigator App

Managed Crowdsourcing



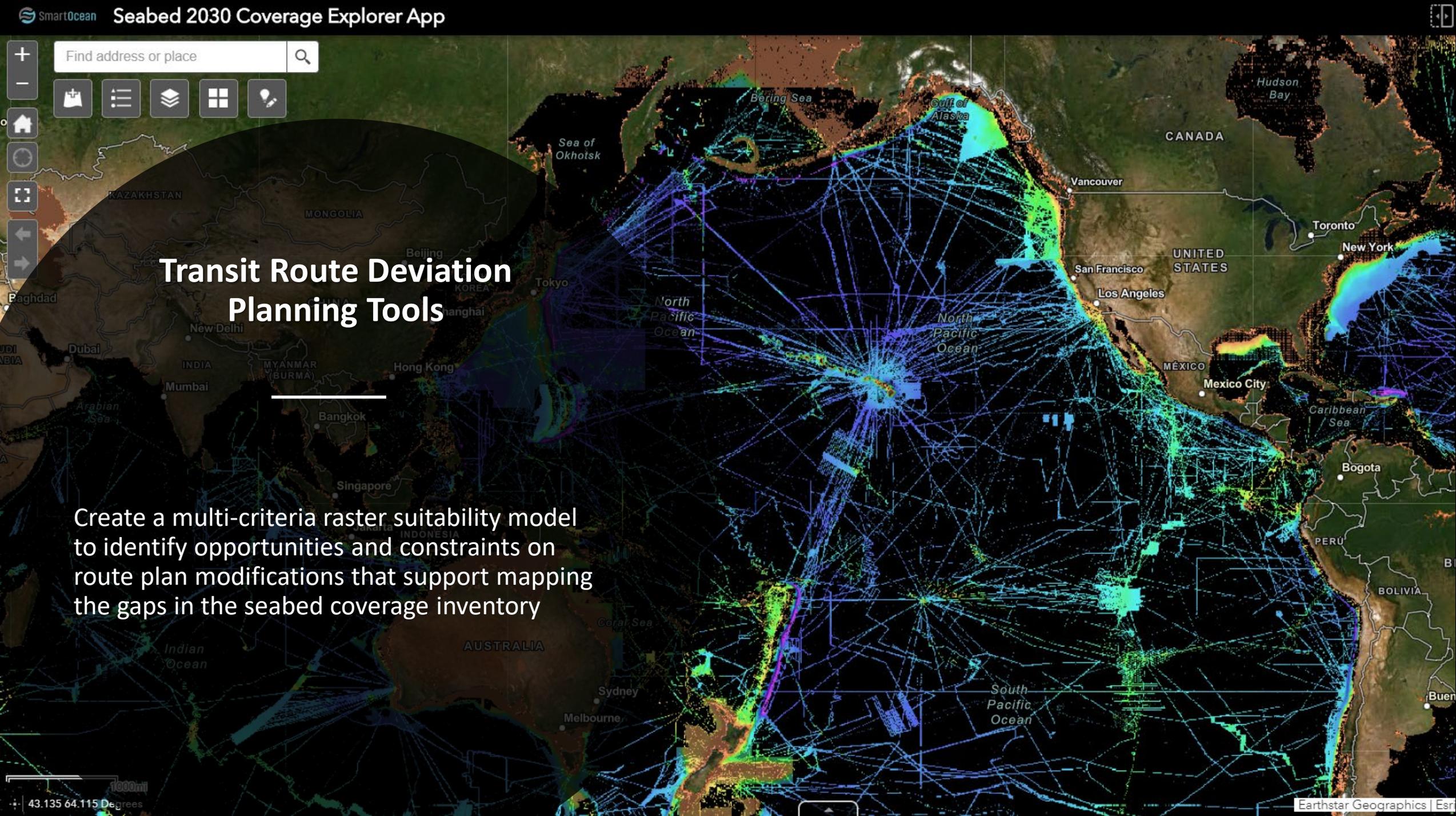
- Showing only mapped (not predicted) areas in apps helps experts and others recognize and point out the gaps that are easy to fix.
- For example, at least some areas in the NOAA “NGDC” are not in the current GEBCO Model (pers. comm. – Guy Noll)

Find address or place

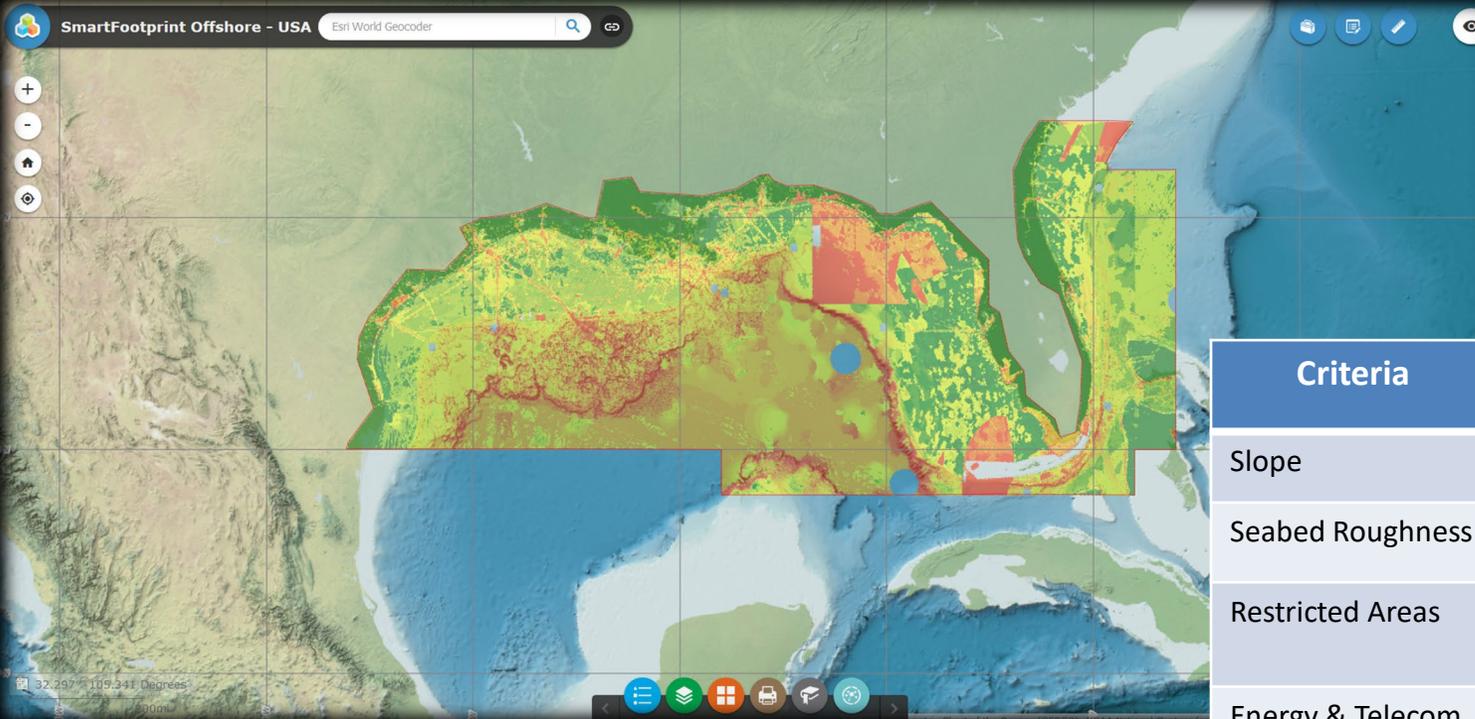


Transit Route Deviation Planning Tools

Create a multi-criteria raster suitability model to identify opportunities and constraints on route plan modifications that support mapping the gaps in the seabed coverage inventory



Offshore Route Selection for Pipelines: Cost Surface Criteria and Weights



Criteria	Weight	Components
Slope	15%	90m Bathy; Degree Slope
Seabed Roughness	10%	90m Bathy; Roughness Index
Restricted Areas	15%	Unexploded Ordnance, Artificial Reefs, Shipwrecks/Obstacles, , Marine Sanctuaries
Energy & Telecom	10%	Pipelines, cables, platforms; buffer and avoid
Environmentally Sensitive Zones	15%	Seagrasses, Habitats of Particular Concern, Critical Habitats
Surficial Geology	10%	Grain Size/Sediment Type Classes
Vessel (Ship) Traffic	15%	Fairways, Commercial Vessel Density
Depth	10%	90m Bathy; Deeper=more difficult/costly

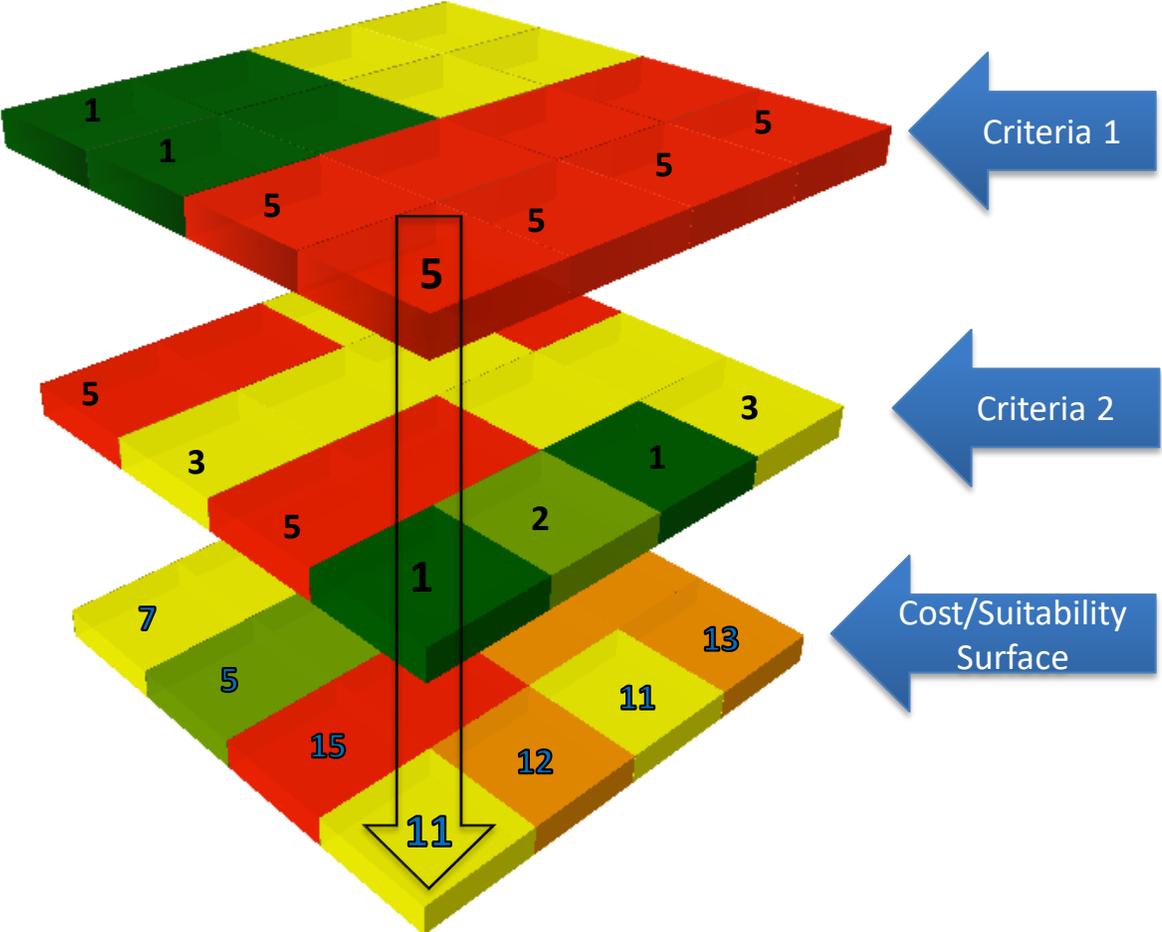
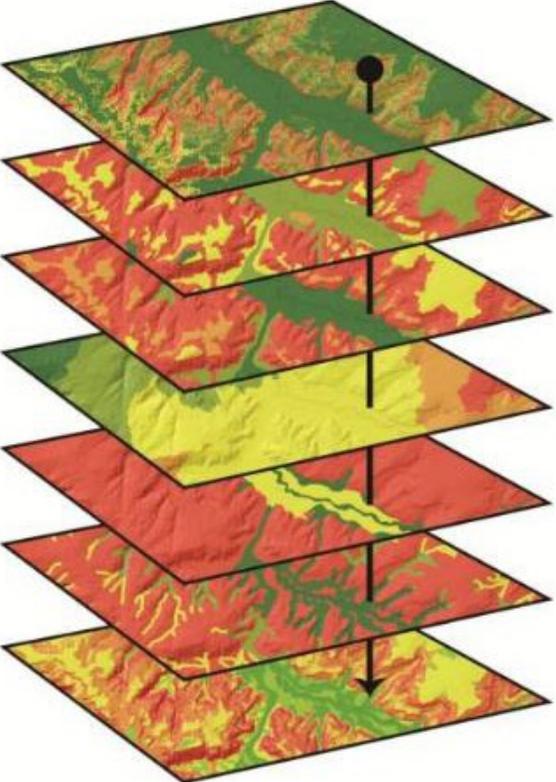
SmartFootprint Route Finder – North Sea Offshore App

The screenshot displays the SmartFootprint Route Finder web application. The browser address bar shows the URL: <https://eai.maps.arcgis.com/apps/webappviewer/index.html?id=ef225c701ece4a78a3ab88f0ed37a8cb>. The application title is "SmartFootprint Offshore - North Sea" and it was built by Earth Analytic. The map shows a cost surface with a highlighted route in the North Sea, near the island of NORDSJØEN. A Layer List on the left includes layers such as "Surficial Geology", "Protected Areas (CDDA)", "Protected Areas (Natura2000)", "SmartFootprint - Least Cost Corridor", "SmartFootprint - SmartFootprint Composite Cost Surface", "SmartFootprint - Route Segments By SmartFootprint Score", "SmartFootprint - SmartFootprint Route (Current Run)", "GeomapPetroleumCultural", "Borders and Areas", "Infrastructure", and "Wellbores". The SmartFootprint Route Finder panel on the right has the following settings:

- Input** / **Output** tabs
- Draw Study Area**: Includes icons for polygon, circle, line, and point, with a "Clear" button.
- SmartFootprint Route Selection Starting Point***: Includes a point selection icon and a "Clear" button.
- SmartFootprint Route Selection Destination Point***: Includes a point selection icon and a "Clear" button.
- Length Cost Formula Expression***: $(68.31 * \text{!Shape_Length!}) + 175000$
- Pipeline Flow Begins From**: Dropdown menu set to "UPPER_LEFT".
- Route Name***: Text input field containing "SmartFootprint Route".

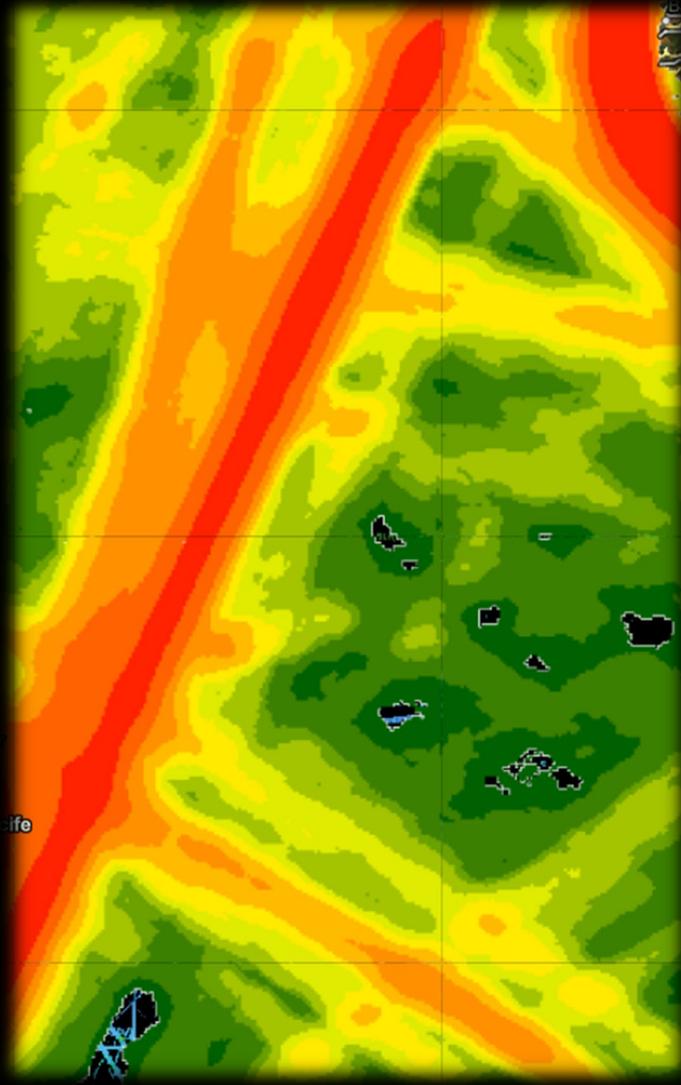
The Windows taskbar at the bottom shows the time as 2:45 AM and the system tray includes "Address" and "Desktop" indicators.

Multi-Criteria Suitability Analysis: Weighted Sum



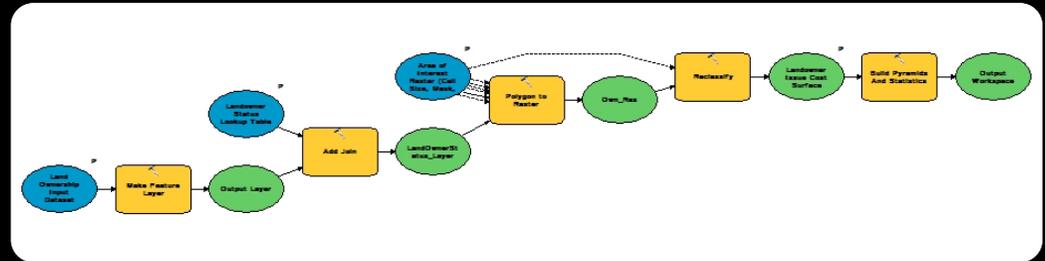
$(\text{Criteria 1} * 2) + (\text{Criteria 2} * 1) = \text{Solution}$

Vessel Traffic Criteria

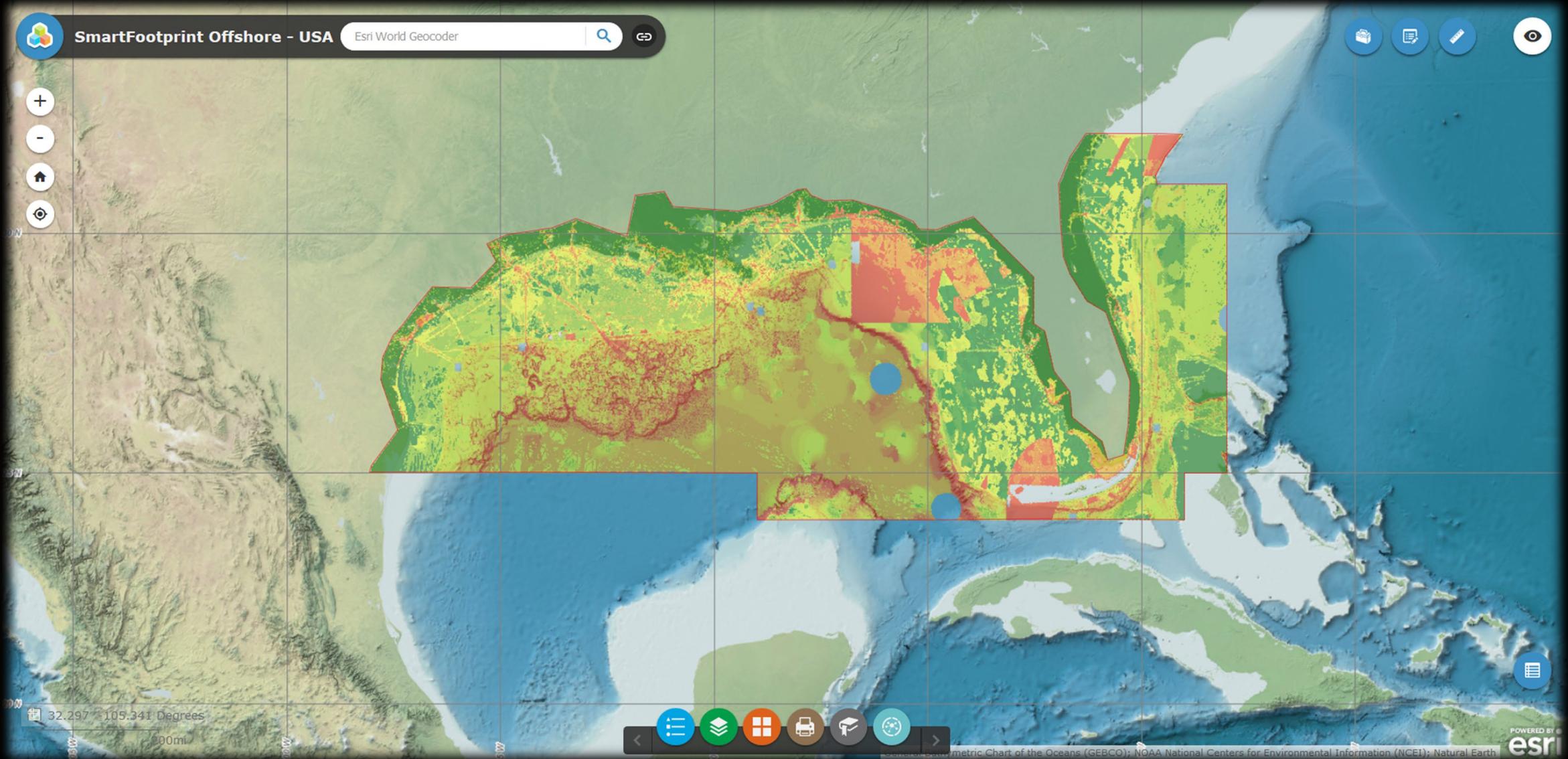


Access/Permission to Survey Criteria

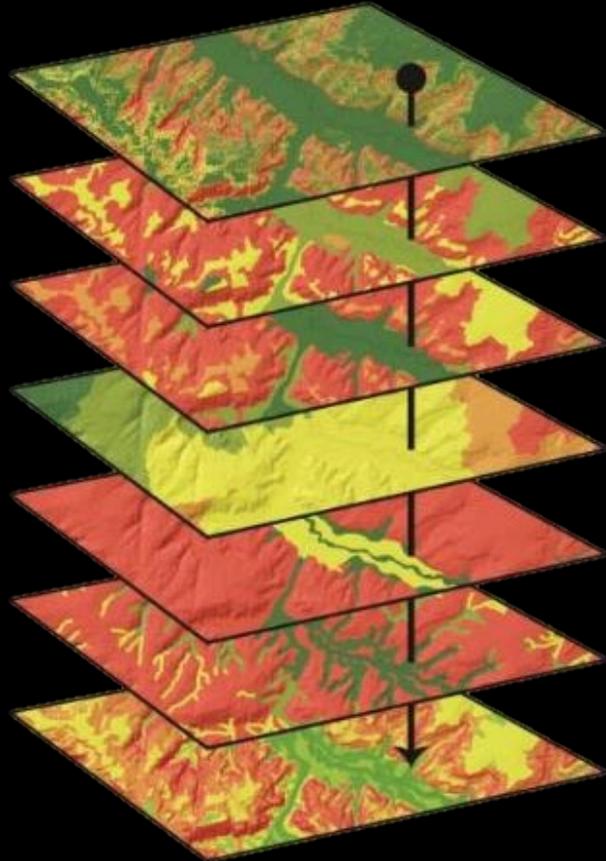
- Restricted Areas | **Score = 4**
- Exclusion Zones | **Score = No Data**
- Envir. Sensitive Areas | **Score = 3**
- All Other Areas | **Score = 0**



SmartFootprint Route Finder – USA Offshore App

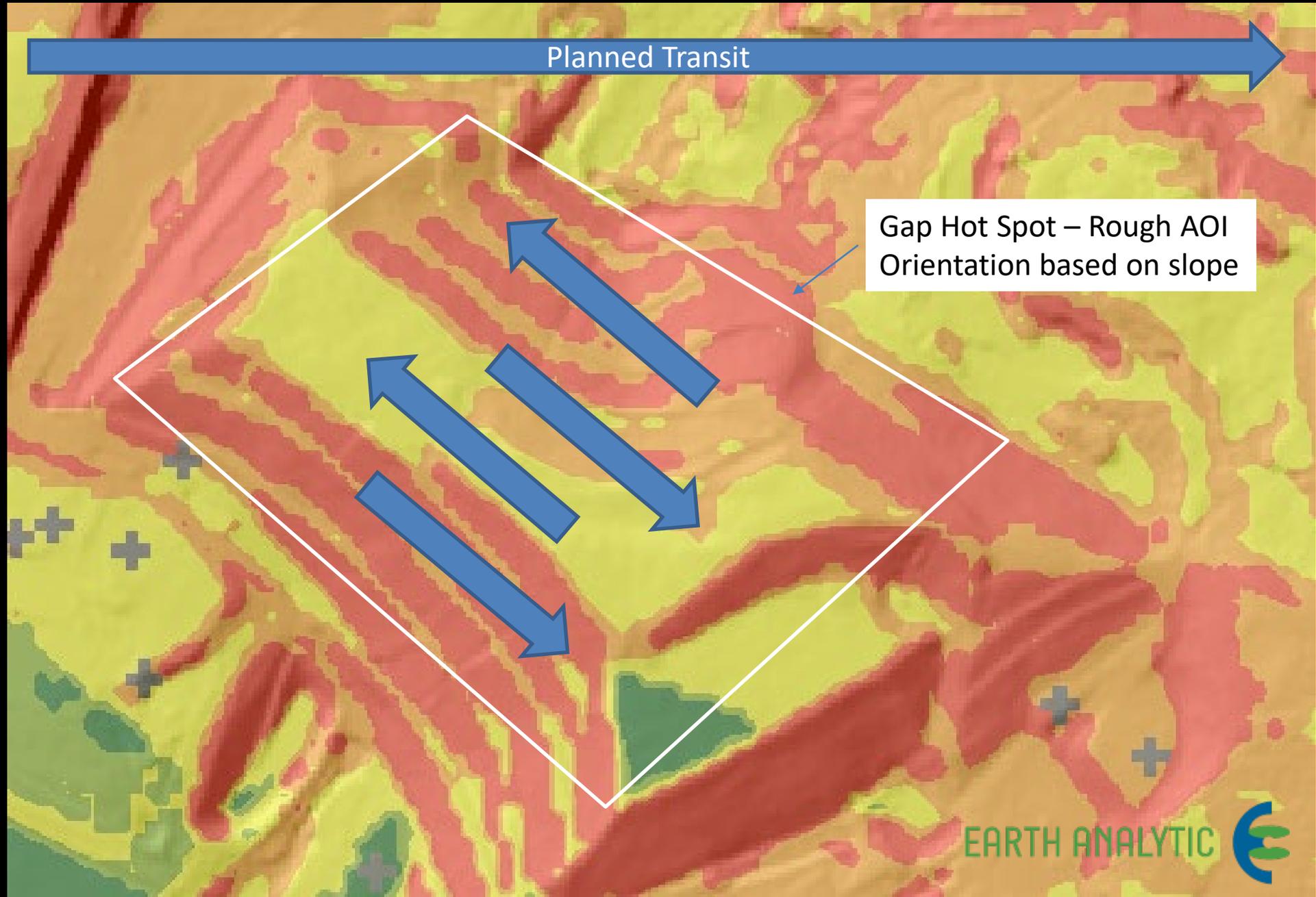


Map the Gaps Transit Deviation Suitability



Criteria	Weight	Components
Follow Seabed Contours	?	GEBCO Grid-Based Slope/Contours
Existing Coverage	?	Presence/Absence, Quality/Resolution, Density
Accessibility Constraints	?	EEZ Authorization, Sensitive areas, Piracy Risk
Energy & Telecom Avoidance	?	Pipelines, cables, platforms; buffer and avoid; likely mapped
Predicted Model Error	?	High Terrain Variability
Surficial Geology	?	Grain Size/Sediment Type Classes
Vessel Traffic Avoidance	?	Fairways, Commercial Vessel Density; Likely Mapped
Current Vessel Capacities	?	Sensor type, depth capability, speed, cost of crew/day, sea-state, AUV (independent coll.)

Seabed Slope Criteria Example



Leverage and Extend UNOLS Cruise Scheduling / Cost Calculator Functionality

Cruise Information	Cruise Information
<p>Chief Scientist: Kerry Strom, WHOI Select</p> <p>Activity Type: Transit Cruise</p> <p>Operator Cruise ID: AT37-10</p>	<p>Chief Scientist: Alice Doyle, URI_GSO Select</p> <p>Activity Type: At Sea for Science</p> <p>Operator Cruise ID:</p>
<p>Dates To Be Determined: <input type="checkbox"/></p> <p>Activity Days: 0 Adjustment Days: Start Date: 03/11/2017</p> <p>Transit Days: 10 0 End Date: 03/22/2017</p>	<p>Dates To Be Determined: <input type="checkbox"/></p> <p>Activity Days: 2 Adjustment Days: Start Date: 03/14/2017</p> <p>Transit Days: 0 0 End Date: 03/15/2017</p>
<p>Load Charge Days: 0 Load Date: 03/11/2017</p> <p>Unload Charge Days: 0 Unload Date: 03/22/2017</p> <p>Load Non-charge Days: 0</p> <p>Unload Non-charge Days: 0</p>	<p>Load Charge Days: 0 Load Date: 03/14/2017</p> <p>Unload Charge Days: 0 Unload Date: 03/15/2017</p> <p>Load Non-charge Days: 0</p> <p>Unload Non-charge Days: 0</p>

<p>Start Port: Select Port</p> <p>End Port: Select Port</p>	<p>Requested Start Port:</p> <p>Intermediate Port(s): None</p> <p>Requested End Port:</p> <p>Port Comments: Requested Ports: Start - Newport/Intermediate - /End - Newport</p>												
<p>Beginning Lat/Long Marsden Grid Navy Op Area</p> <p>NP09 map</p> <p>Ending Lat/Long Marsden Grid Navy Op Area</p> <p>NP09 map</p> <p>Clear Beginning Areas Clear Ending Areas</p> <p>Op Area Description:</p>	<table border="1"> <thead> <tr> <th>Beginning</th> <th>Lat/Long</th> <th>Marsden Grid</th> <th>Navy Op Area</th> </tr> </thead> <tbody> <tr> <td>Ending</td> <td></td> <td></td> <td>NP09 map</td> </tr> <tr> <td></td> <td></td> <td></td> <td>NP09 map</td> </tr> </tbody> </table> <p>Op Area Description:</p>	Beginning	Lat/Long	Marsden Grid	Navy Op Area	Ending			NP09 map				NP09 map
Beginning	Lat/Long	Marsden Grid	Navy Op Area										
Ending			NP09 map										
			NP09 map										

<p>Science Days: 27</p> <p>Transit Estimate: 3</p> <p>Mob Days: 0</p> <p>Demob Days: 0</p> <p>Repeating Cruise: No</p> <p>Number of Repeating Cruises: 0</p> <p>Repeating Cruise Comments:</p>	<p>Optimum Start Date: 11/25/2008</p> <p>Earliest Start Date:</p> <p>Latest Start Date: 11/25/2009</p> <p>Dates To Avoid:</p> <p>Repeating Interval:</p>
<p>Justification/Comments: The period between late November to the end of December is optimal for coccolithophore blooms based on remote sensing evidence. A 2008 cruise is preferred</p>	

Vessel Tracking, Scheduling, Digital Float Plans and Ship Logs

CPC Vessel Tracker

Esri World Geocoder

San Clemente

El Cajon

Photo

deviceId	lat	lon	timestamp	X_WM	Y_WM	messageType	messageMode	CurrentTrackerID	VesselName	Length	Tons	HP	LIFTING	Owner
0-2588612	33.21	-117.31	1/13/2017, 1:26 PM	-13.058.824.00	3,922.887.00	NEWMOVEMENT	LIVE	0-2588612	Island Fox	120	280	0	0	Navy
0-2588612	33.21	-117.31	1/13/2017, 1:26 PM	-13.058.824.00	3,922.887.00	NEWMOVEMENT	LIVE	0-2588612	Island Fox	120	280	0	0	Navy

CPC Float Plan

Date/Time Prepared: Friday, October 19, 2018 12:00 AM

Prepared By: _____

Float Plan ID: _____

Vessel Name: _____

Departure Port: _____

Departure Date: _____

Departure Time: _____

Destination Port: _____

CPC Float Plan

Planned Arrival Date/Time: _____

Delayed Arrival Warning: Enter value in hours: 12

Mission Name: _____

Plan of the Voyage: _____

Captain: _____

Registration Number: _____

Number of PFDs: _____

CPC Float Plan

Number of PFDs: _____

Number of Flares: _____

Equipment Checklist:

- Medical Kit
- Fire Extinguisher
- Flashlight
- Anchor
- Emergency Contact List
- Paddles or Oars
- Risk Assessment Completed
- Charts Reviews/Onboard
- Other

Enter/Edit Vessel Details?: No

Radio Call Sign: _____

CPC Ship Log

Captain's Name: _____

Vessel Name: _____

Current Date: Friday, October 19, 2018

Current Time: 7:18 AM

Map Location: 33°32'N 105°54'W

CPC Ship Log

Wind Speed: 12

Wind Direction: 35

CPC Ship Log

Pressure: _____

Wave Height: 2

Notes: observations noted

Observations:

Observation Date/Time: October 19, 2018 7:18 AM

Description: _____

Photo or Doc (1): _____

Photo or Doc (2): _____

Record Audio Notes?: _____

November 2017

Month | Month List | Week | Day

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25

Transit for research project

Vessel: R/V Shearwater

Start: 2018-02-24T00:00:00

End: 2018-03-02T00:00:00

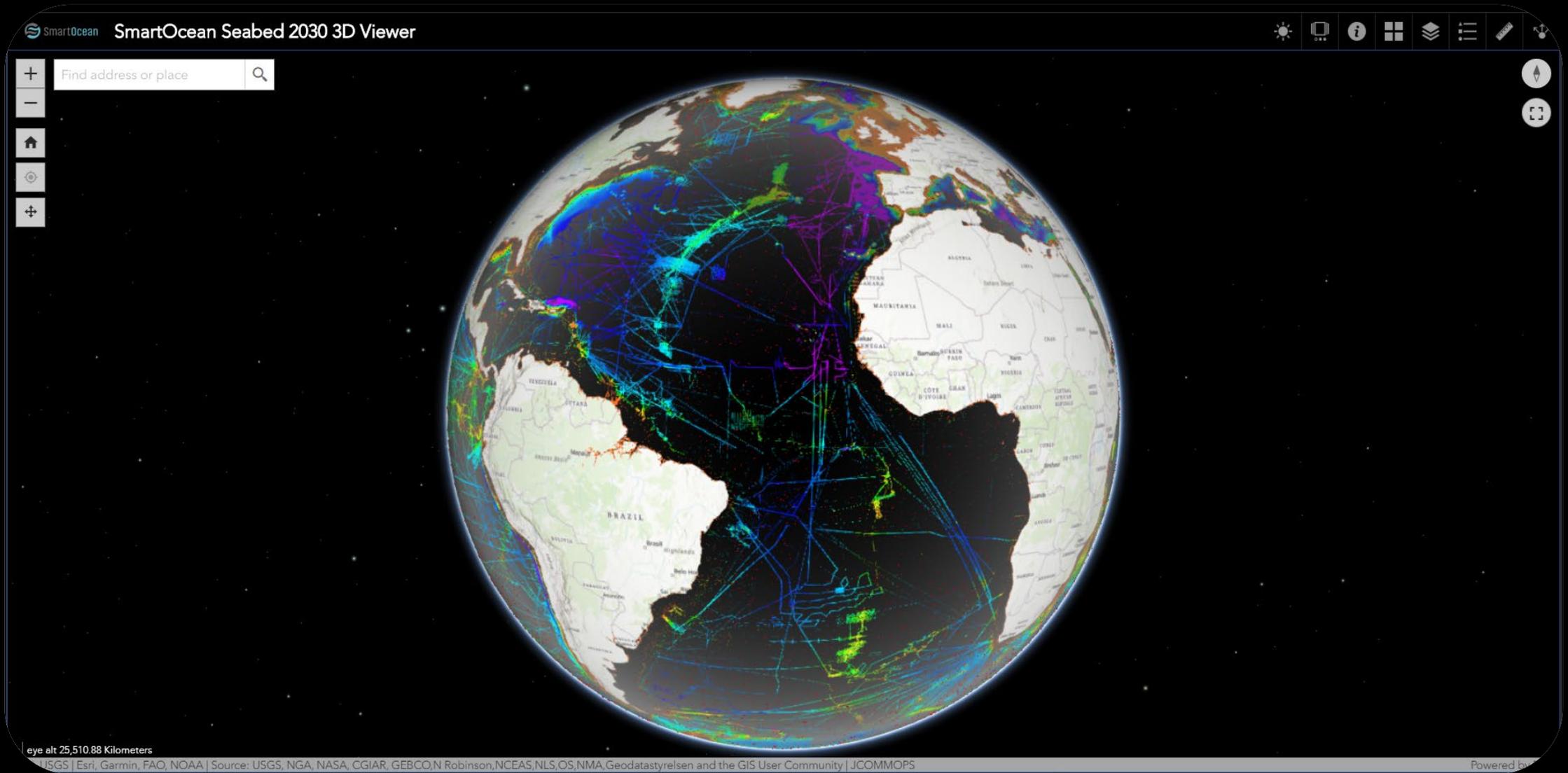
Description: Hawaii

Location: Hawaii

Scheduled By: D. Stephens

Edit | Delete | OK

There Be Beasts: Don't Sugar-Coat It



<http://arcg.is/1Pm59D>