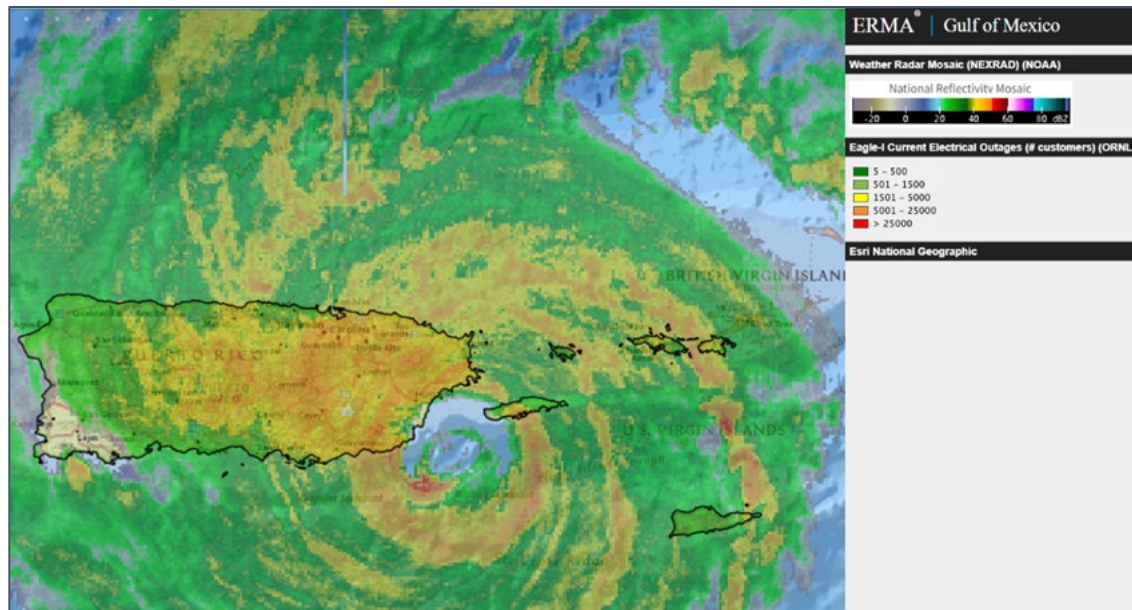


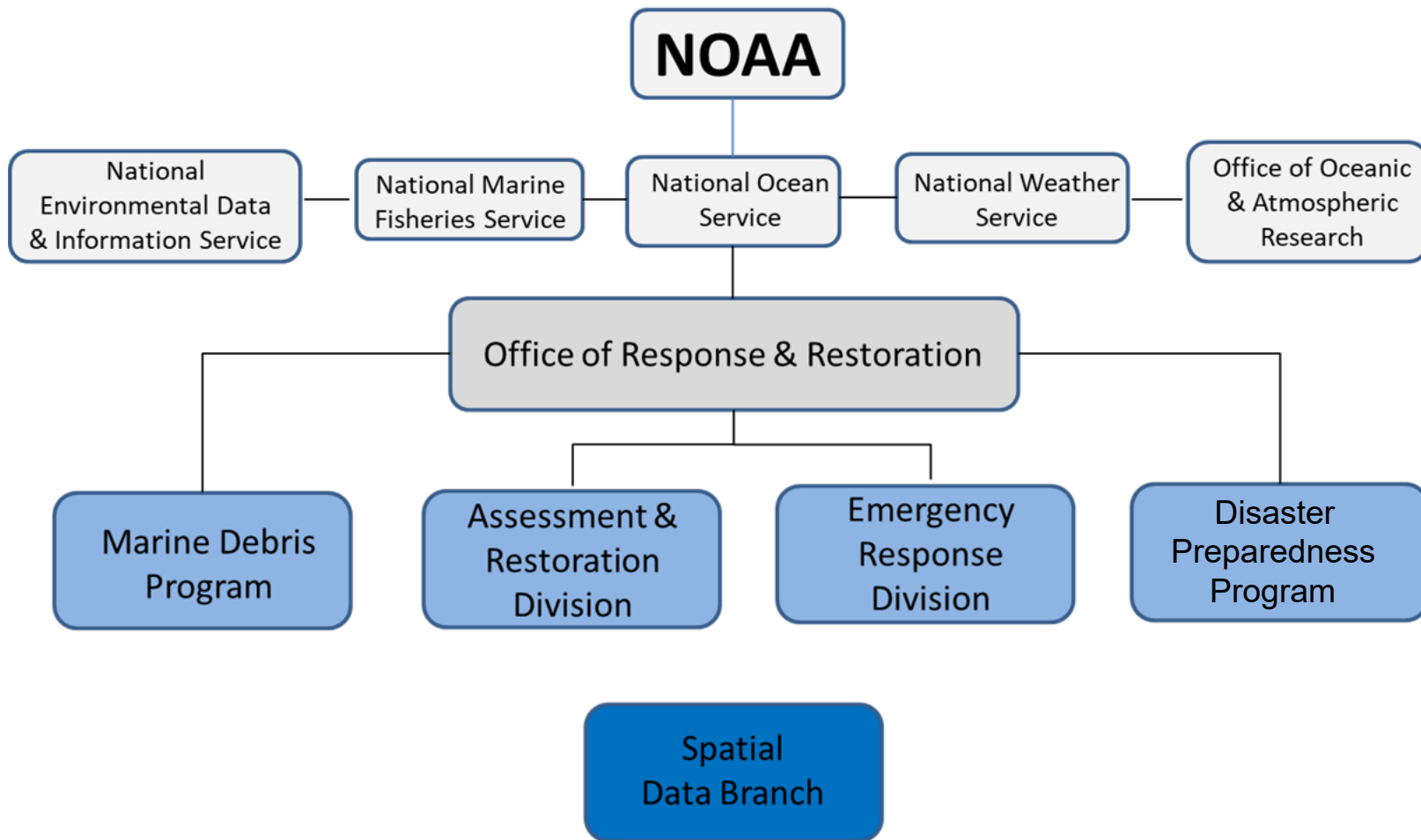
The Environmental Response Management Application ERMA®



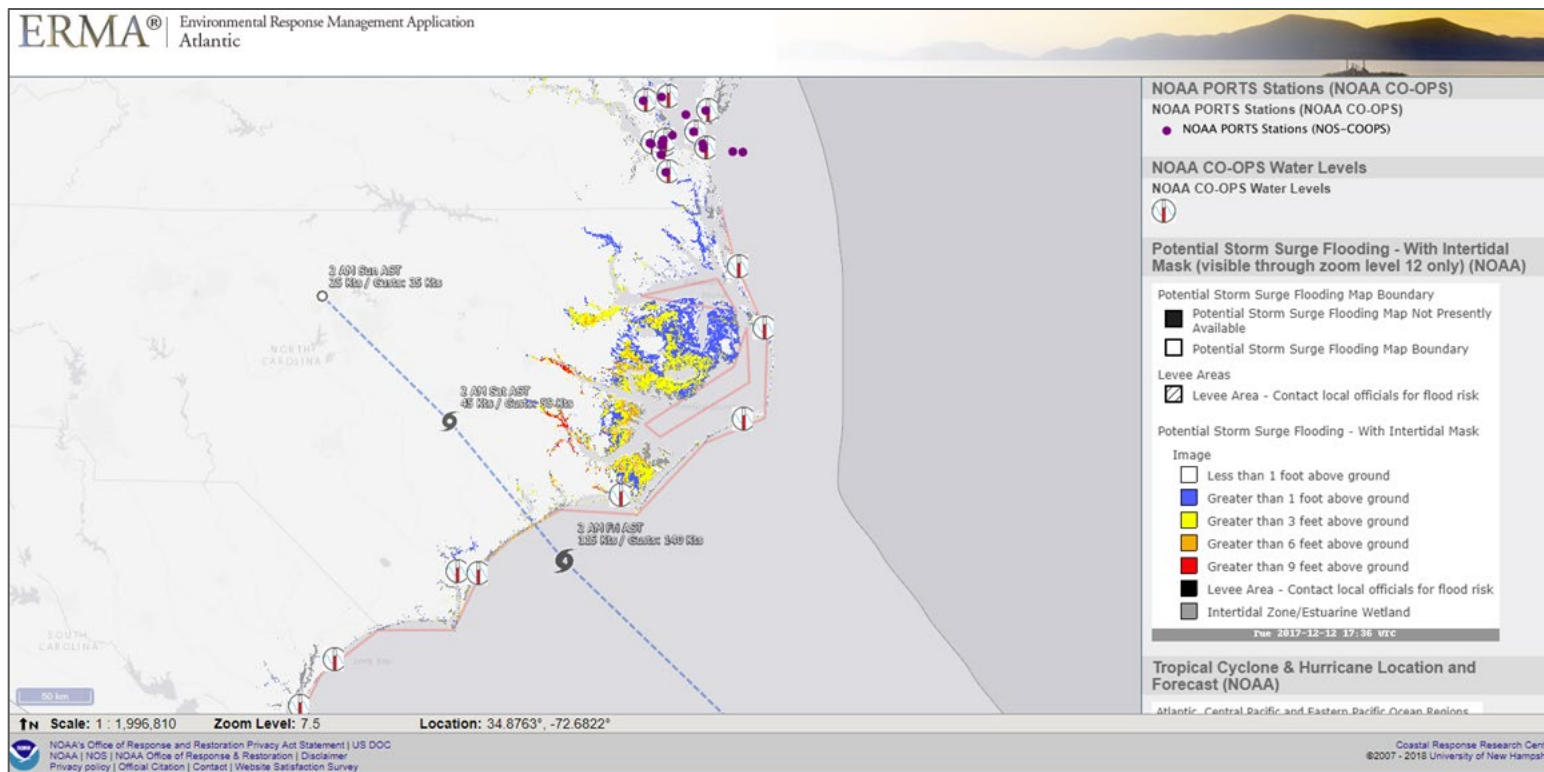
Jay Coady
Office of Response & Restoration
Assessment and Restoration Division
Spatial Data Branch

<https://erma.noaa.gov/caribbean>
response.restoration.noaa.gov





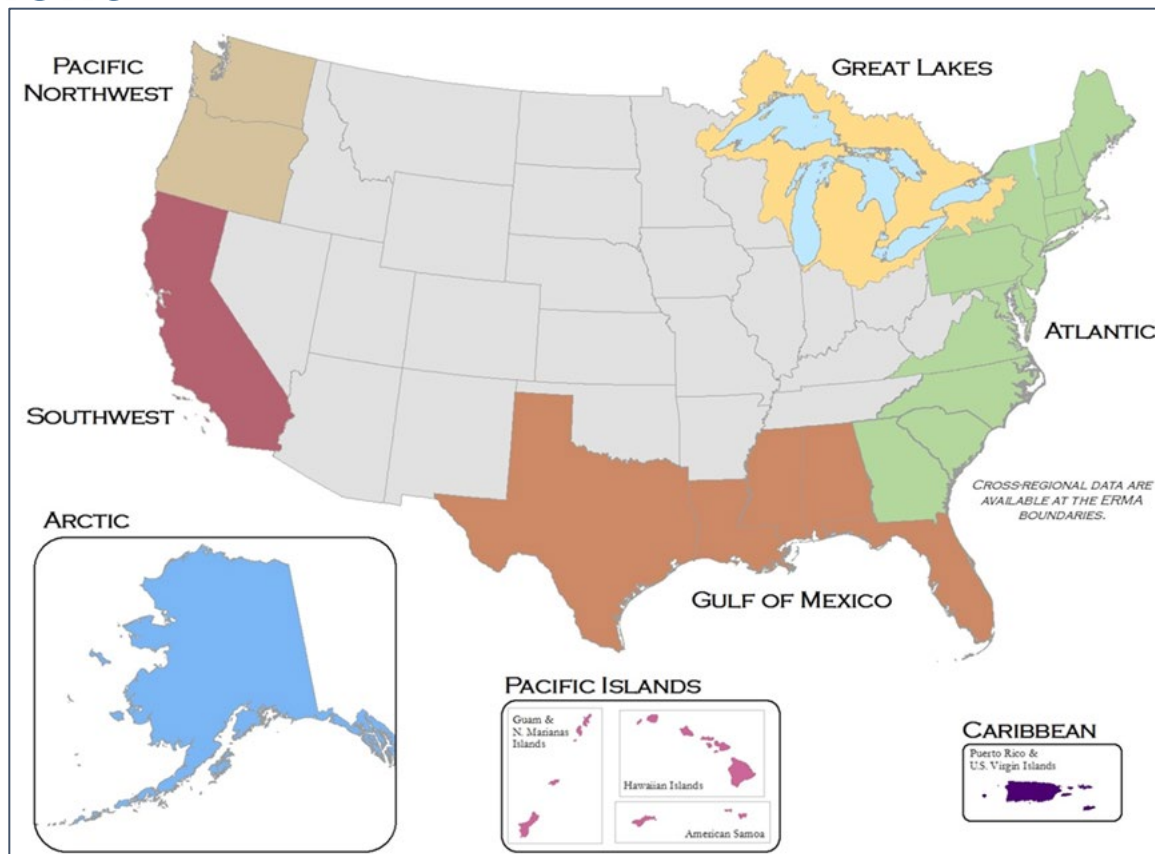
ERMA is an online mapping tool for visualizing environmental information relevant to oil spills and natural disasters.



Key Functionality

- Access ERMA via any Web browser. No special software needed.
- Provides centralized access to information
- Tiered system security that protects data.
- Standardized user interface; simplifying data uploading.
- Build customized maps using layers.
- Create and view customized sets of layers quickly with bookmarked views.
- Investigate and compare data quickly with Dashboards and

ERMA Regions



Finding Data

Search layers, folders and bookmarks

- Layers / Views / Folders
- Geographic Locations
- Latitude and Longitude
- Recent Data
- Vessel Search

- Search Tool
- Table of Contents
- Bookmark Views

ERMA[®] | Atlantic

LAYERS

Clear Layers Collapse Folders Manage

Background Layers

- Esri Street Maps
- Esri World Imagery
- Esri Ocean
- Esri National Geographic
- Esri World Topo
- Esri Light Gray Canvas
- Esri Dark Gray Canvas
- MapBox Hybrid Imagery
- OpenStreetMap
- OpenStreetMap Voyager (CARTO)

Bookmark Views: New

- My Views
 - ACP Views
 - Marine Mammal Workshop
 - USCG Training
- Shared Views
 - Admin Boundaries & Reference Features
 - default
 - Environmental Justice
 - Environmental Quality & Monitoring
 - Hazard Base Views

Scale: 1 : 149,482 Zoom: 11.1 Location: 42.17849°, -70.97418° Projection: 3857: WGS84 Web Mercator

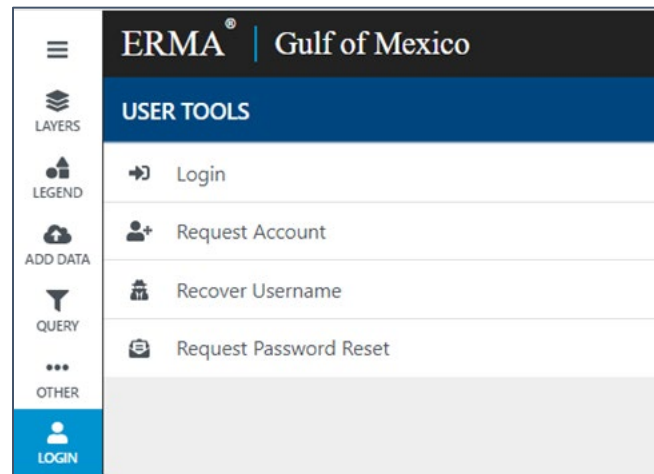


ERMA Help

The screenshot shows a web browser window with the address bar containing 'erma.noaa.gov/ermaHelp'. The page title is 'ERMA Help'. On the left, there is a vertical navigation menu with the following items: 'Welcome' (highlighted in blue), 'NAVIGATION USING THE MAP TOOLBAR', 'SEARCH BAR', 'LAYER MENU', 'LEGEND MENU', 'ADD MAP DATA MENU', 'QUERY TOOLS MENU', 'OTHER MENU', 'DASHBOARDS', 'DOWNLOAD', 'PRINT', and 'VIDEO TUTORIALS' (highlighted in yellow). The main content area features a 'Welcome to ERMA!' heading, followed by a paragraph explaining the help file's purpose and a link to the 'ERMA User's Guide (PDF file)'. Below this is a paragraph about browser compatibility. The next section is 'NAVIGATION USING THE MAP TOOLBAR', which includes three tool descriptions: 'Zoom Level Controls' (with a plus/minus icon), 'Identify Tool' (with an 'i' icon), and 'Magnifier Tool' (with a magnifying glass icon). On the right side of the browser window, there is a vertical sidebar with the 'ERMA | Atlantic' logo at the top, followed by a 'OTHER TOOLS' section containing links for 'Dashboards', 'Download', 'Help' (highlighted in yellow), 'About ERMA Atlantic', 'Disclaimer', 'Official Citation', 'Related Links', and 'Contact Us'. Below the 'OTHER TOOLS' section is a 'LOGIN' button.

ERMA Accounts

- Public access - no login required
- Restricted accounts:
 - Verified by NOAA
 - Various levels of access
 - Active incidents
 - Sensitive datasets
 - NRDA/Trustee
 - Drills
 - Password reset 90 days; inactive accounts 6 months
 - Data available only to appropriate users and use



ERMA URL: <https://erma.noaa.gov/caribbean>

Account Support: orr.ermaaccounts@noaa.gov

Response With ERMA

- Base environmental data
- Live data streams
 - Storm tracking, surge modeling, current water levels, ship locations, and more.
- Critical infrastructure
- Pre/post storm imagery
- Quick turnaround post storm data
- Live tracking of ESF-10 targets
- Tools to explore data

Environmental Sensitivity Index (ESI)

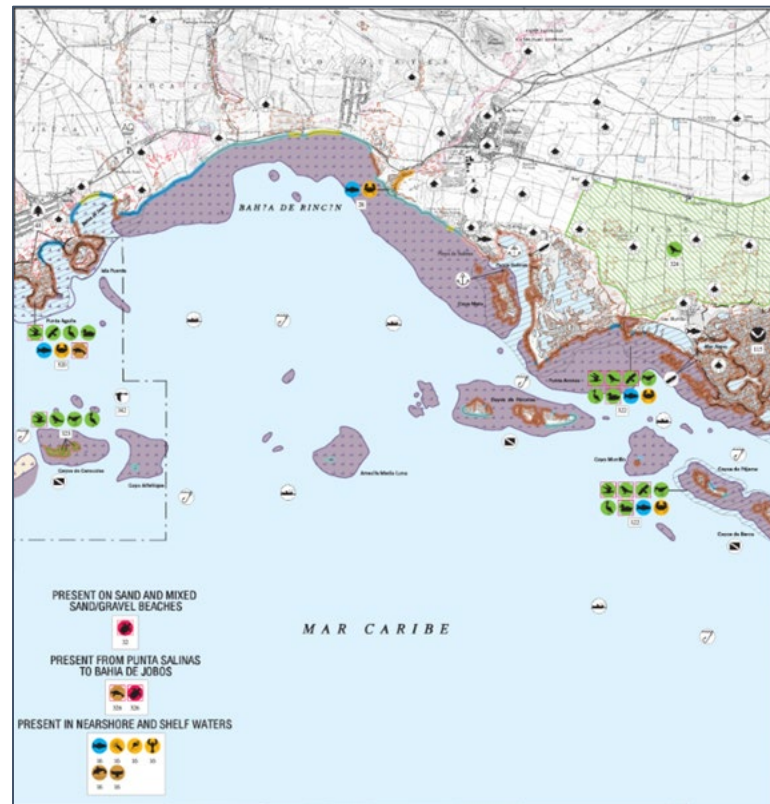
- NOAA maintains the ESIs to provide information about sensitivity to oil spills
- Spill planning, spill response
- Plants, animals, shoreline, habitats and human use data

NOAA Site:

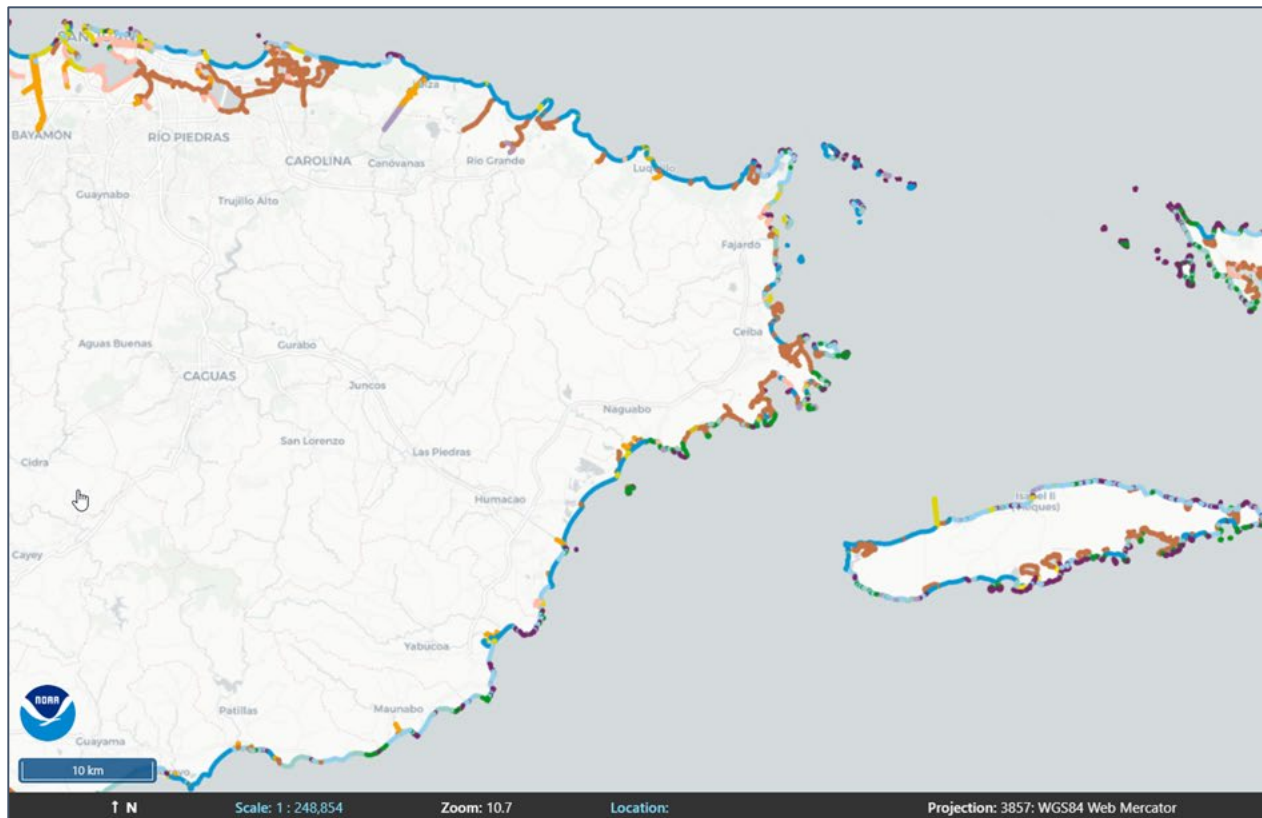
<https://response.restoration.noaa.gov/resources/environmental-sensitivity-index-esi-maps>

ERMA provides:

- [Links](#) to all pdf maps
- Map display within ERMA
- ESI custom AOI report



Environmental Sensitivity Index (ESI)



ERMA® | Caribbean

ESI Shoreline Classification (Line), Puerto Rico (NOAA)

- 1A Exposed rocky shores
Exposed rocky banks
- 1B Exposed, solid man-made structures
- 1C Exposed rocky cliffs with boulder talus base
- 2A Exposed wave-cut platforms in bedrock, mud, or clay
Shelving bedrock shores
Rocky shoals; bedrock ledges
- 2B Exposed scarps and steep slopes in clay
- 3A Fine to medium-grained sand
- 3B Scarps & steep slopes in sand
Eroding scarps in unconsolidated sediments
Exposed, eroding banks in unconsolidated sediments
- 3C Tundra cliffs
- 4 Coarse-grained sand beaches
Sand beaches
Sandy bars & gently sloping banks
- 5 Mixed sand & gravel beaches
Mixed sand & gravel bars & gently sloping banks
- 6A Gravel beaches
Gravel beaches (granules & pebbles) – SE Alaska only
Gravel bars & gently sloping banks
- 6B Riprap
Gravel beaches (cobble and boulders) – SE Alaska only
- 6D Boulder rubble
- 7 Exposed tidal flats
- 8A Sheltered scarps in bedrock, mud, or clay
Sheltered rocky shores (impermeable) – SE Alaska only
- 8B Sheltered, solid man-made structures
Sheltered rocky shores (permeable) – SE Alaska only
- 8C Sheltered riprap
- 8D Sheltered rocky rubble shores
- 8E Peat Shorelines
- 8F Vegetated, steeply-sloping bluffs
- 9A Sheltered tidal flats
Sheltered sand/mud flats
- 9B Vegetated low banks
- 9C Hypersaline tidal flats
- 10A Salt & brackish-water marsh
- 10B Freshwater marshes
- 10C Swamps

Querying ESIs

QUERY TOOLS

the polygon on the map by clicking vertices with the mouse. **Double click to stop drawing.** You may also import an existing shape from the Draw panel.

All shapes drawn on the map will be used. If you want run the query with one shape, delete the remaining shapes. You do not need to select a shape for it to be run in the query.

CREATE POLYGON

DELETE SELECTED DELETE ALL DISPLAY WKT

Step 2: Select a Query Tool

NOAA ESIs Query Tool

---- Select A Query Tool ----

NOAA ESIs Query Tool

U.S. Fish and Wildlife Service IPaC Query Tool

Jan Feb Mar Apr May Jun Jul Aug

Sep Oct Nov Dec

Puerto Rico ESI

RUN QUERY

A detailed report of the ESI data can be created using ERMA's Query Tools

- Click Query
- Click 'create polygon' and draw your AOI
- Choose "NOAA ESI Query Tool"
- Click "Run Query"

Trajectories

The screenshot shows the ERMA Atlantic web application interface. The main map area displays a coastline with a red line and black dots representing trajectories. The interface includes a search bar, navigation tools, a layers panel, and a timeline.

ERMA® | Atlantic

LAYERS

- Clear Layers
- Collapse Folders
- Manage
- Sector Boston Harbor 2023 (DRILL)
- Sector Maryland PREP 2023 (DRILL)
- Sector NC/VA PREP 2023 (DRILL)
- Sector Delaware Bay PREP 2023 (DRILL)
- SOS Gloucester 2023 (DRILL)
 - Gloucester SOS Incident Location
 - SOS Exercise / Scavenger Hunt
- Trajectories (DRILL)**
 - SOS All Trajectory Forecasts
 - Trajectories 09-11-2023 0600 (DRILL)
 - Trajectories 09-11-2023 1200 (DRILL)
 - Trajectories 09-11-2023 1800 (DRILL)
 - Trajectories 09-12-2023 0600 (DRILL)
 - Trajectories 09-12-2023 1200 (DRILL)
 - Trajectories 09-12-2023 1800 (DRILL)
 - Trajectories 09-13-2023 0600 (DRILL)
 - Trajectories 09-13-2023 1200 (DRILL)
 - Trajectories 09-13-2023 1800 (DRILL)
- NOAA UxS Applications
- ERMA Drawings
 - My Map Data

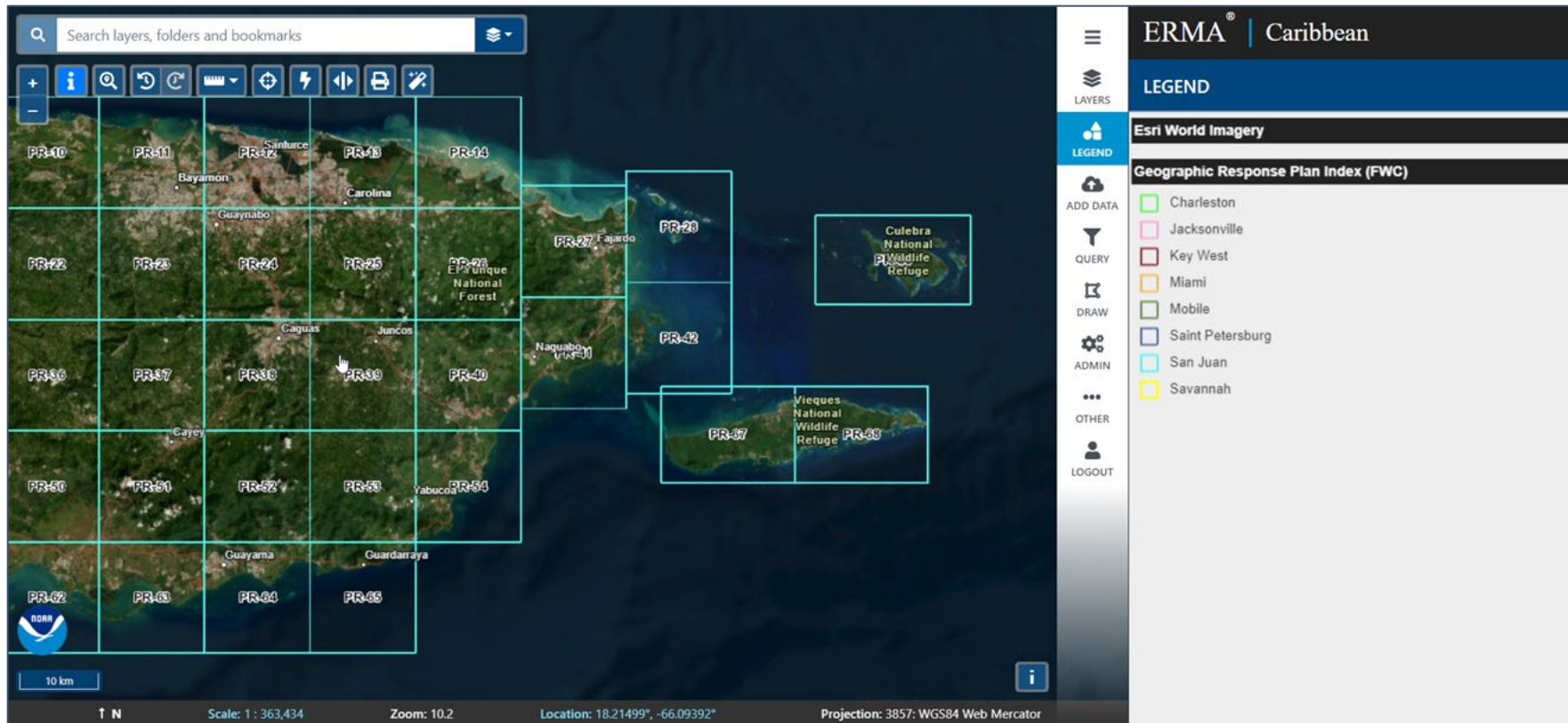
Timeline: 2023-09-11 01:00 | 2023-09-12 12:48 | 2023-09-14 00:00

Map Info: Scale: 1 : 210,499 | Zoom: 10.6 | Location: | Projection: 3857: WGS84 Web Mercator

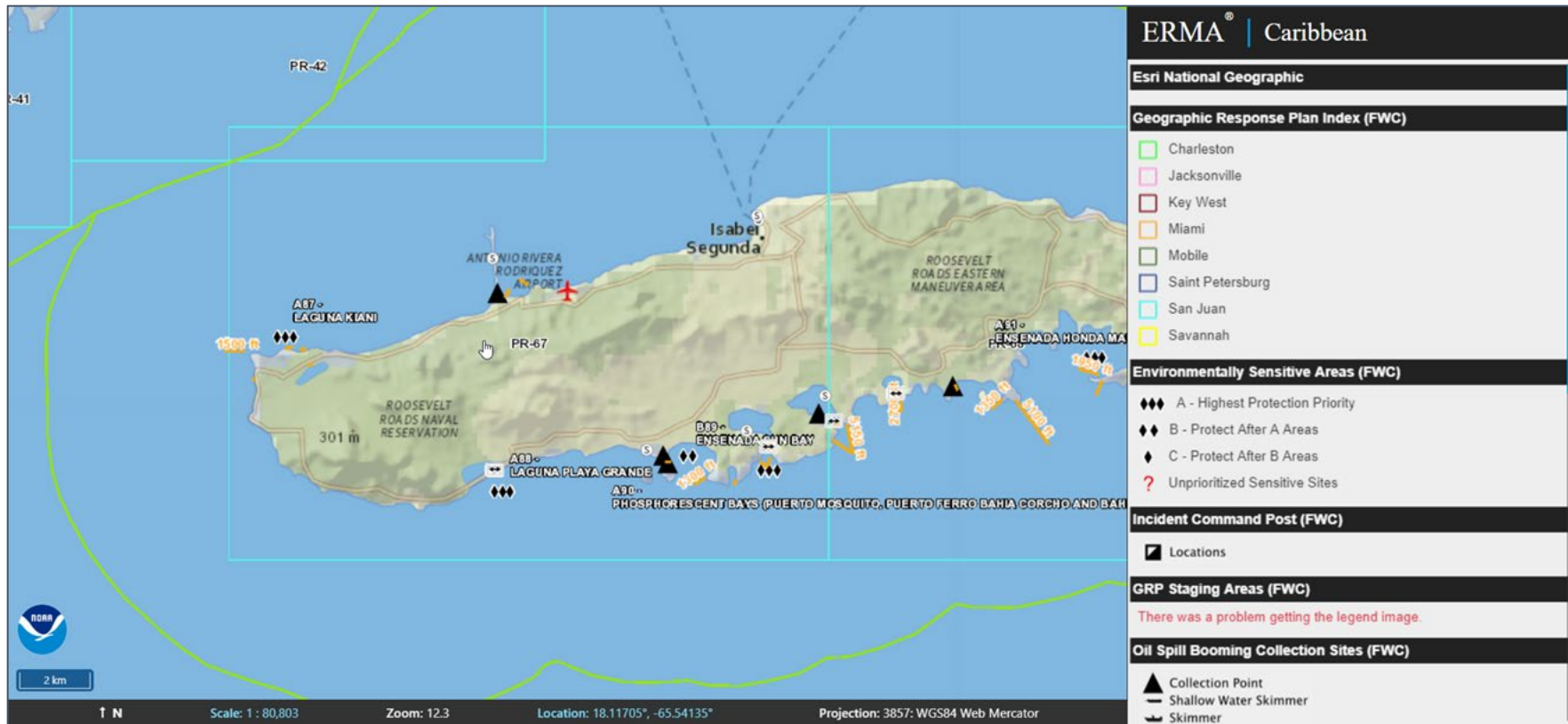
DRILL -- DRILL -- DRILL



Geographic Response Plan



Geographic Response Plan



Geographic Response Plan

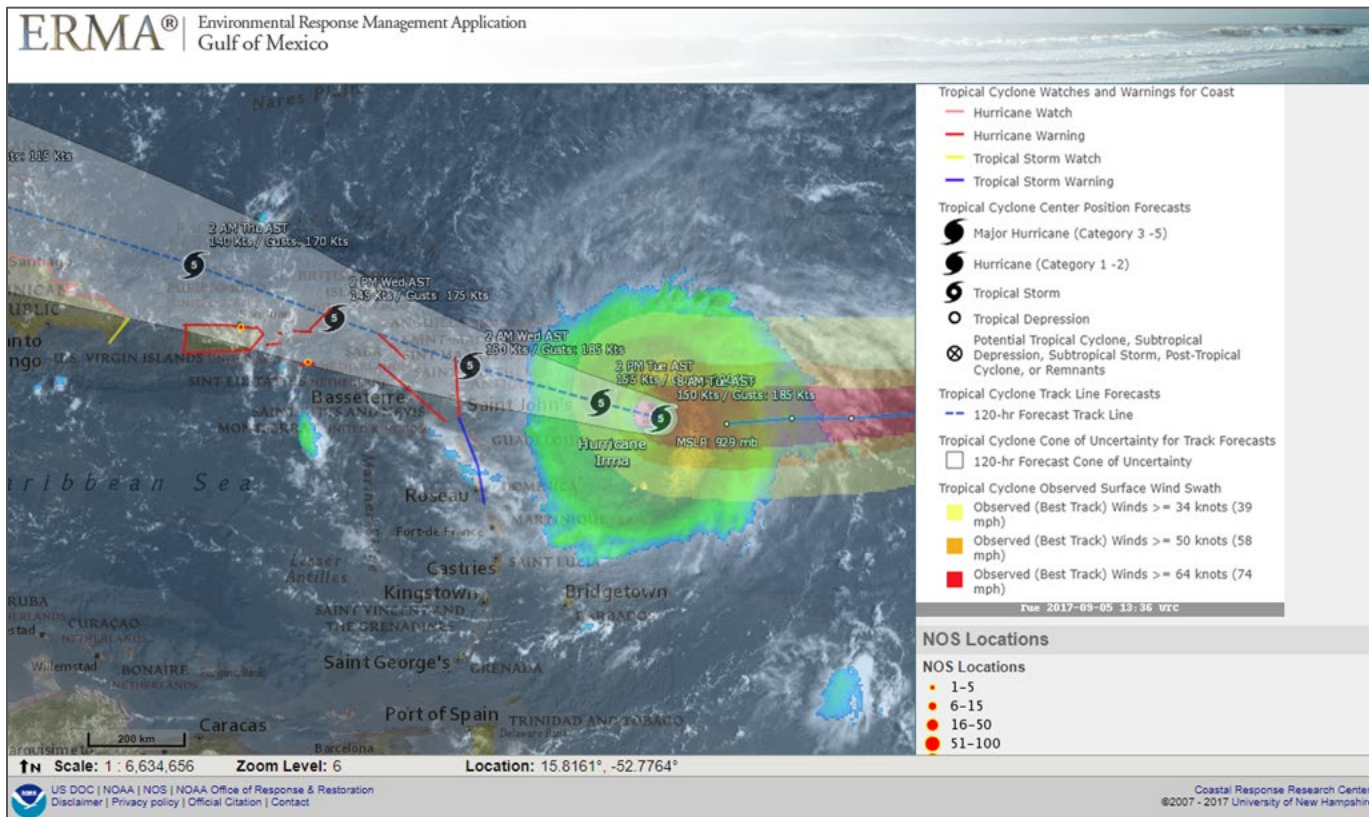
The screenshot displays the ERMA Identify web application interface. On the left, a map of Puerto Rico is overlaid with a grid of Geographic Response Plan (GRP) areas, labeled with codes such as PR-10, PR-11, PR-12, PR-22, PR-23, PR-24, PR-16, PR-17, PR-18, PR-30, PR-31, PR-32, PR-33, PR-34, PR-35, PR-36, PR-37, PR-38, PR-39, PR-40, PR-41, PR-42, PR-43, PR-44, PR-45, PR-46, PR-47, PR-48, PR-49, PR-50, PR-51, PR-52, PR-53, PR-54, PR-55, PR-56, PR-57, PR-58, PR-59, PR-60, PR-61, PR-62, PR-63, PR-64, and PR-65. A scale bar indicates 10 km, and the map includes a north arrow and a scale of 1:363,434. The zoom level is 10.2, and the location is 18.131111°, -66.30247°. The projection is 3857: WGS84 Web Mercator.

The main window displays a table of information for the selected GRP area (PR-28). The table has the following columns: OBJECTID, GRP/ESI Map Number, Alternate GRP/ESI Map Number, Tile Name, Topo Quad Name, GRP Map Link, Alternate GRP Map Link, GRP Metadata Link, and GRP Index Map Link.

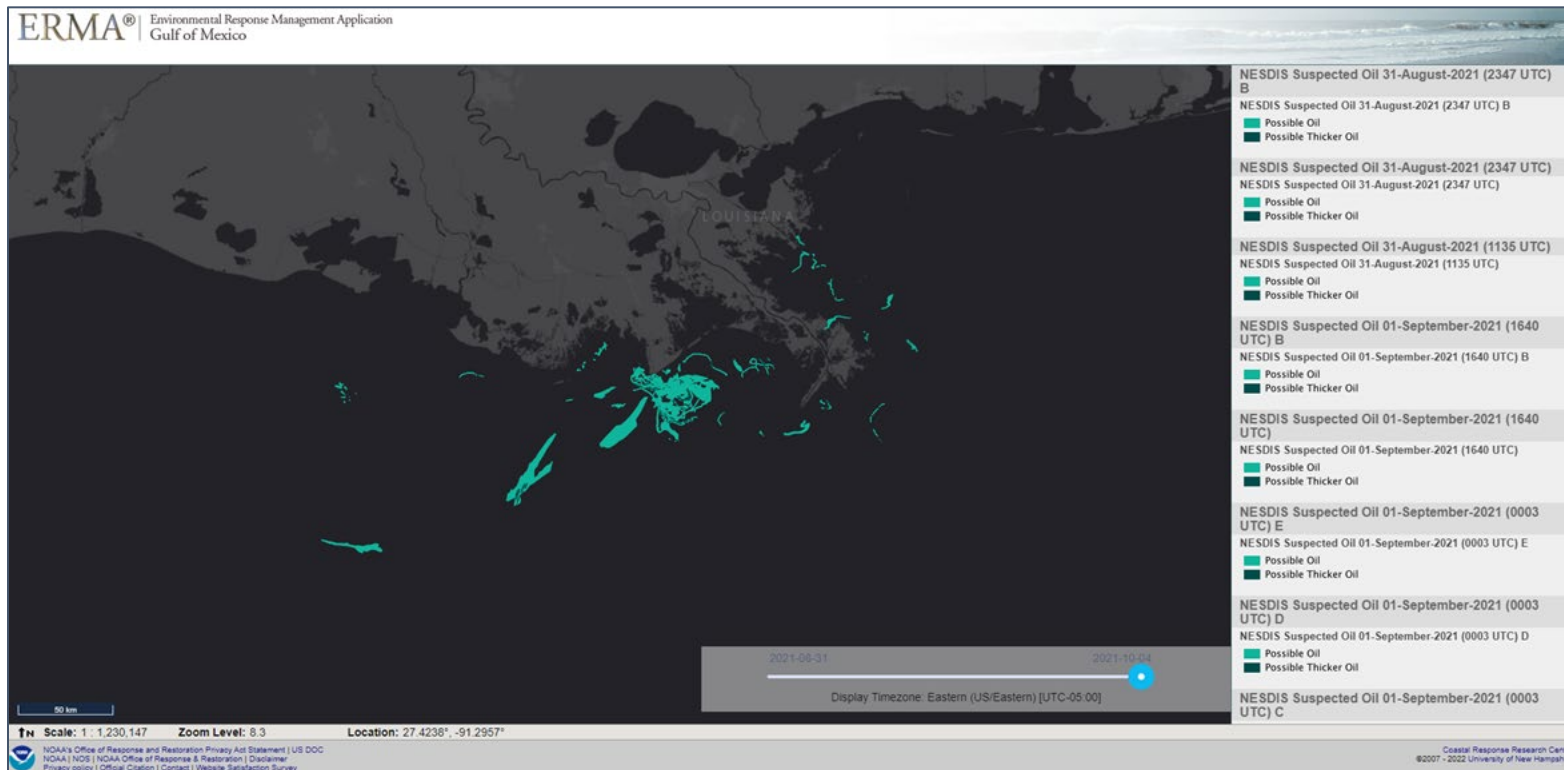
OBJECTID	GRP/ESI Map Number	Alternate GRP/ESI Map Number	Tile Name	Topo Quad Name	GRP Map Link	Alternate GRP Map Link	GRP Metadata Link	GRP Index Map Link
59	PR-28		28	Cayo Icacos, P.R.	http://ocean.floridamarine.org/ACP/SJACP/Maps/GRP_Maps/PR-28.pdf			http://ocean.floridamarine.org/ACP/SJACP/Maps/GRP_Index_Maps/PR-28.pdf

The browser window title is "ERMA Identify - Google Chrome" and the URL is "erma.noaa.gov/identify?point=18.34305,-65.58856". The interface also includes a search bar for layers, folders, and bookmarks, and a "LOGOUT" button.

Storm Tracking



Marine Pollution Surveillance Reports (MPSR)



<https://www.ospo.noaa.gov/Products/ocean/marinepollution/>

NGS Response Aerial Photography



Search layers, folders and bookmarks

Select the dynamic layers to swipe

- Right ▾ Hx Ian Aerial Photography 20220930d (NOAA NGS)
- Left ▾ Gulf of Mexico Pre-Storm Aerial Imagery 2022 (NOAA NGS)

ERMA | Gulf of Mexico

LEGEND

- Gulf of Mexico Pre-Storm Aerial Imagery 2022 (NOAA NGS)
- Hx Ian Aerial Photography 20220930d (NOAA NGS)
- MapBox Hybrid Imagery

LAYERS

LEGEND

ADD DATA

QUERY

DRAW

ADMIN

OTHER

LOGOUT

20 m

1 N

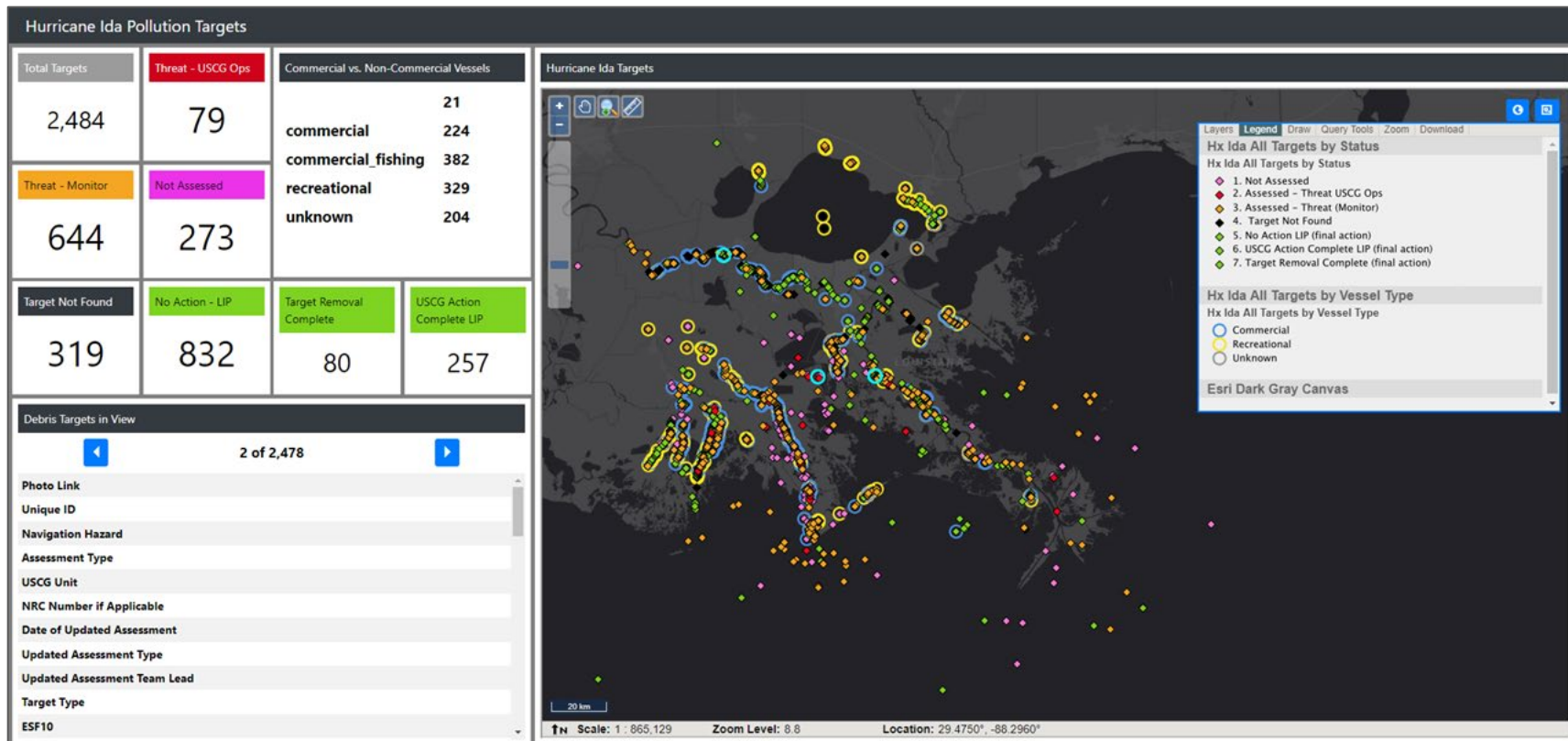
Scale: 1 : 758

Zoom: 19

Location:

Projection: 3857: WGS84 Web Mercator

Pollution Target Dashboard



ACKNOWLEDGMENTS

NOAA:

- Michele Jacobi
- George Graettinger
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Questions?

