BOEM

Bureau of Ocean Energy Management

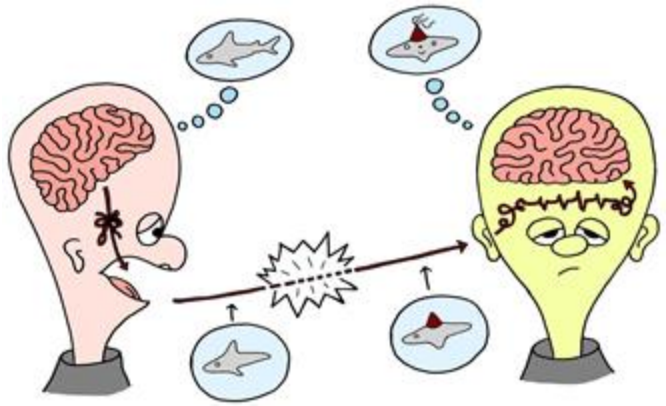
Collaboration and Decision Making with Ocean Mapping and Reporting Tools

Christine Taylor (BOEM)

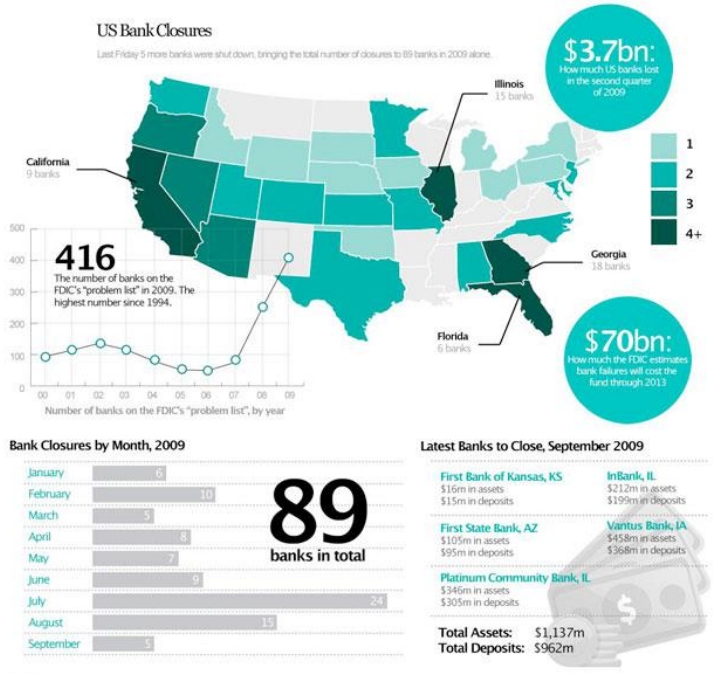
Gulf of Mexico Wind Task Force Meeting – 6/15/2021

Maps…

- Are important visuals for communications
  - Get everyone on the same page quickly
- Provide a quick way to discern multiple on the ground/in the water issues at hand
  - Best locations for a project – physical conditions, distance to a resource
  - Potential conflicts for use – physical conditions, other uses, species interactions
- Often provide data that is actionable
- Easily **shared** in a digital format and can be updated with other existing data to help tell the whole story



OR



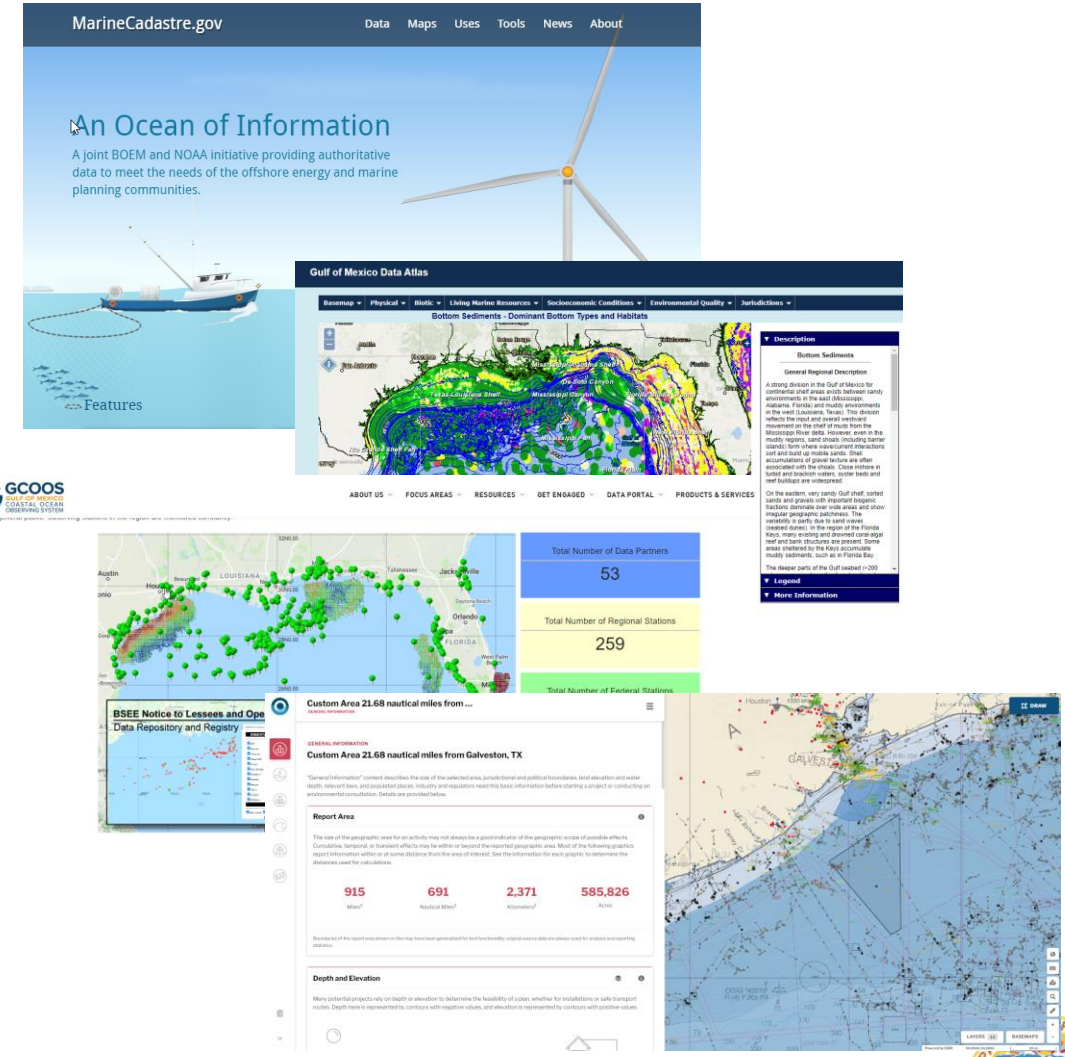
Decision Tools

- Always multiple stakeholders in any decision involving state or federally managed waters
- Best scenario is everyone is using the same and most up to date, authoritative maps and information
- States and Federal Agencies have collaborated on processes and tools to help you navigate through all the data

GETTING EVERYBODY ON BOARD

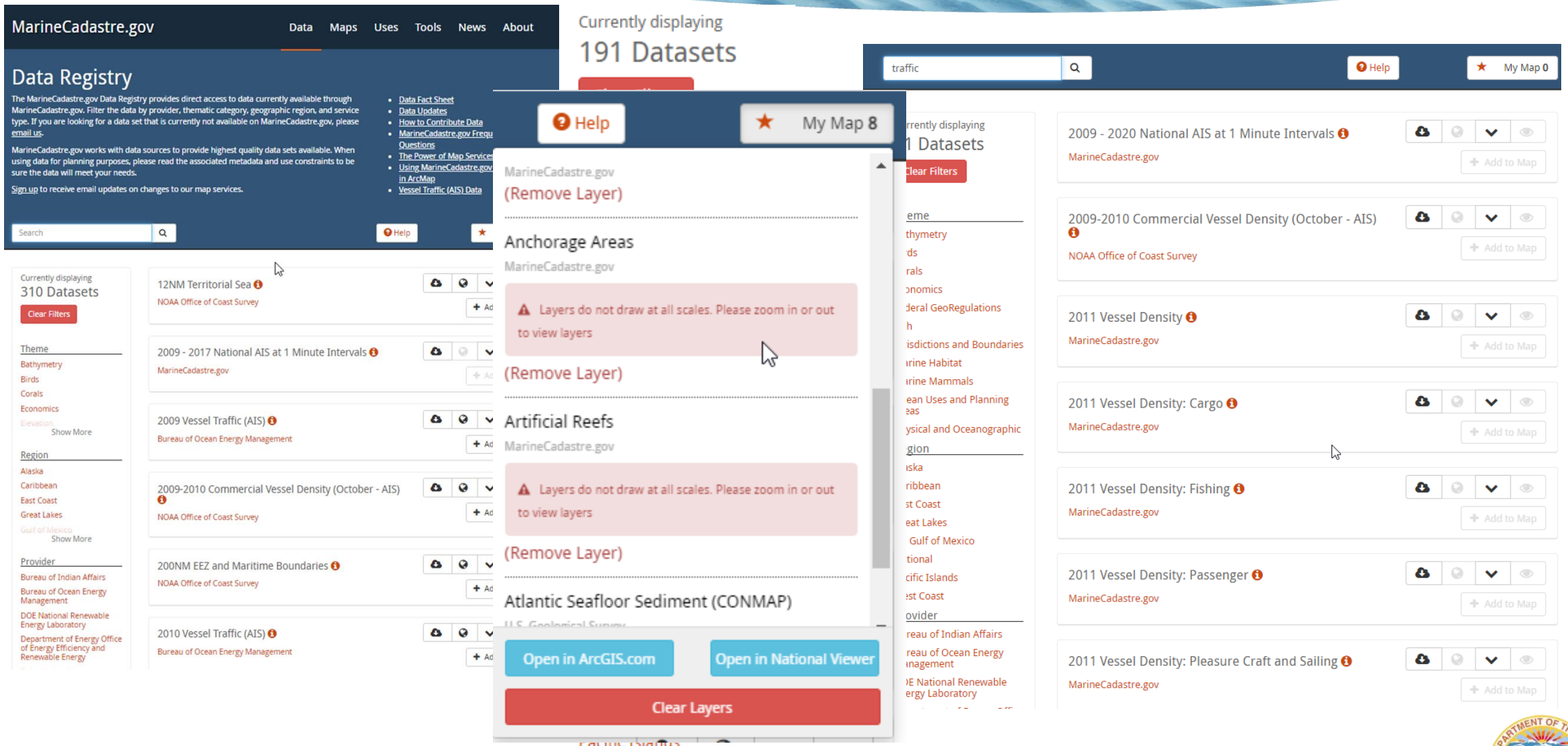
Maps & Decision Tools

- **MarineCadastre.gov**
  - Authoritative, mostly federal data
  - Map viewer/ID tools/Data download
  - Historical AIS data
- **Regional Ocean Data Portals**
  - Authoritative, federal, state, local data
  - Map viewer/ID tools/Data download
  - Maps by topic area
- **Ocean Reports**
  - Map viewer/Custom Area Report/Data download/Data from MarineCadastre.gov
  - A MarineCadastre.gov Tool

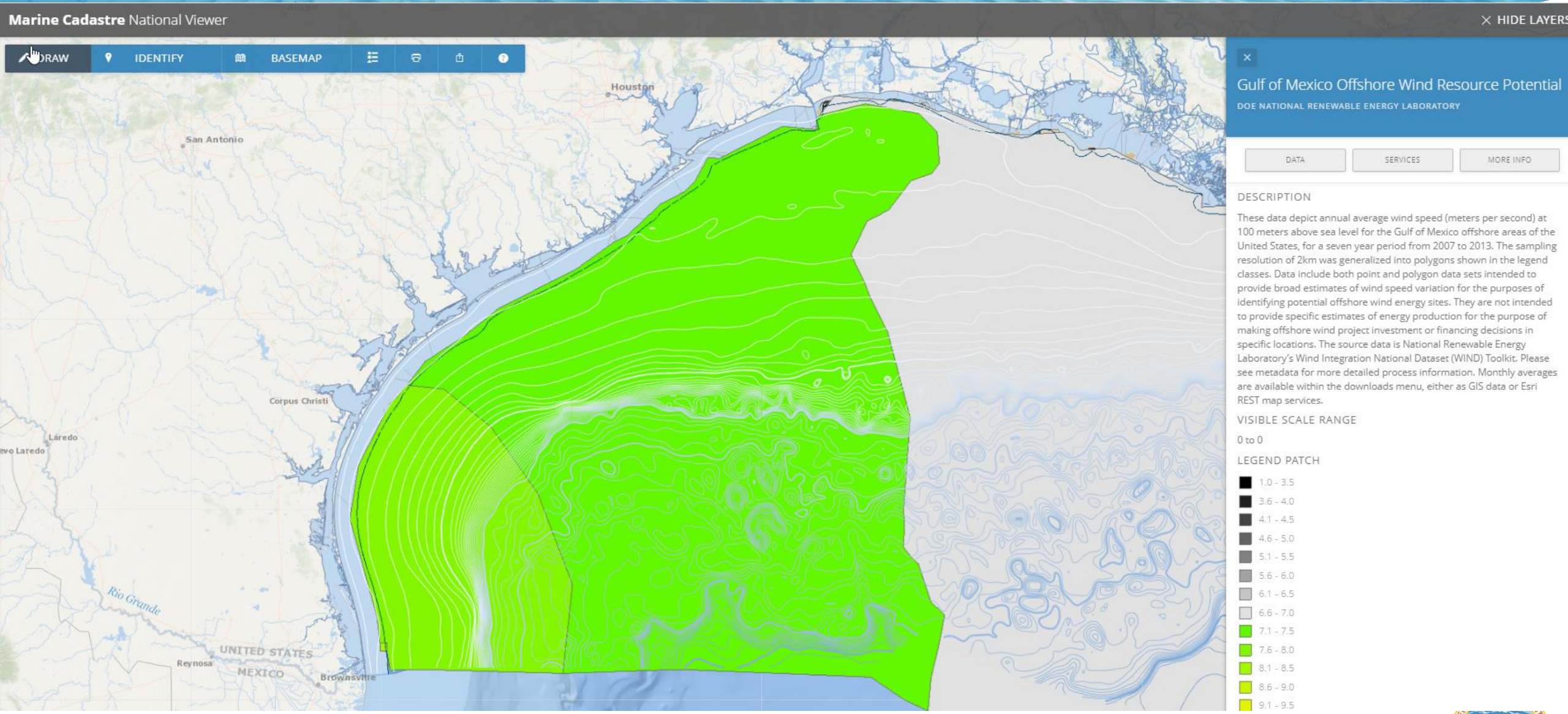


MarineCadastre.gov

MarineCadastre.gov Data Registry



MarineCadastre.gov – Map Viewer



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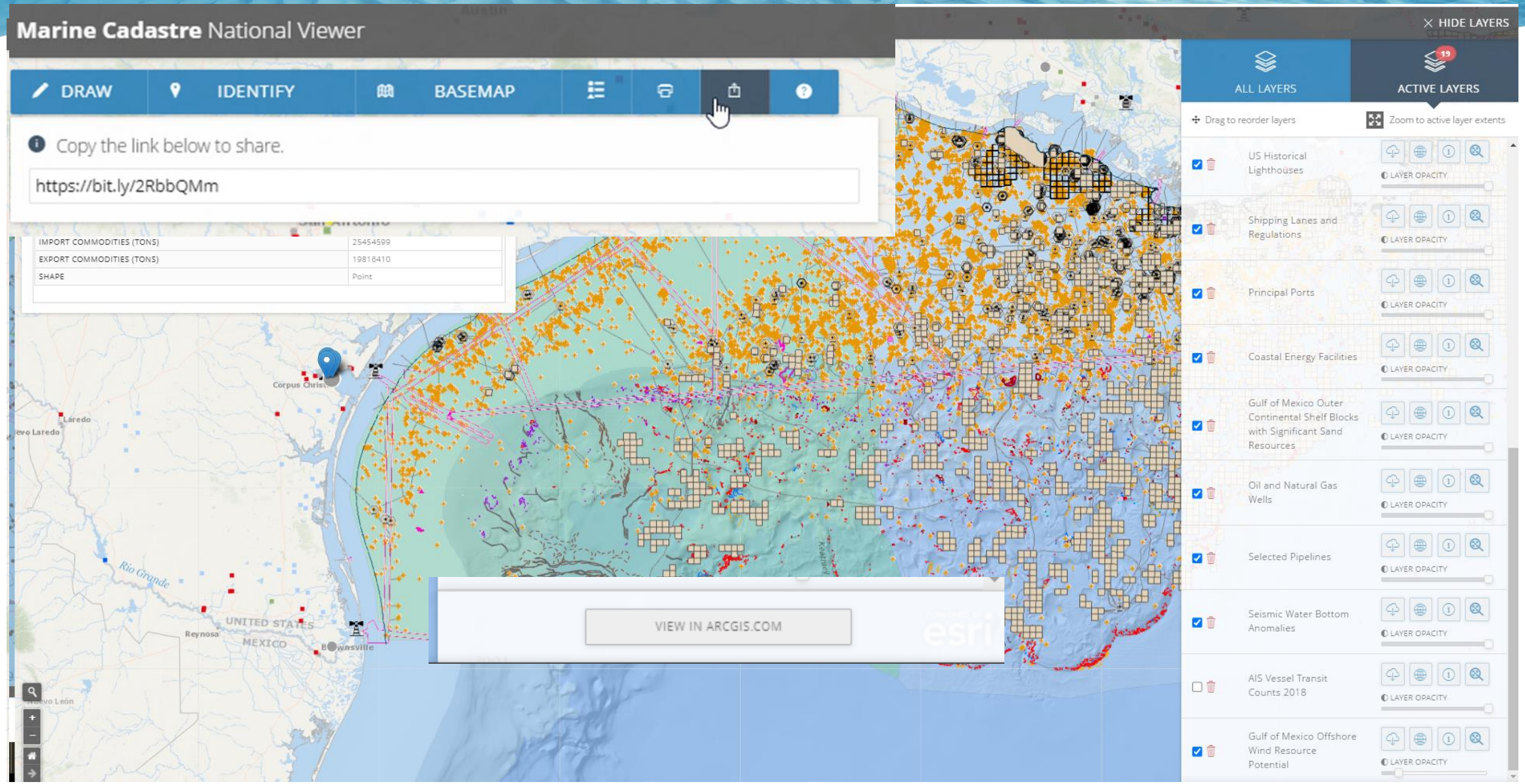

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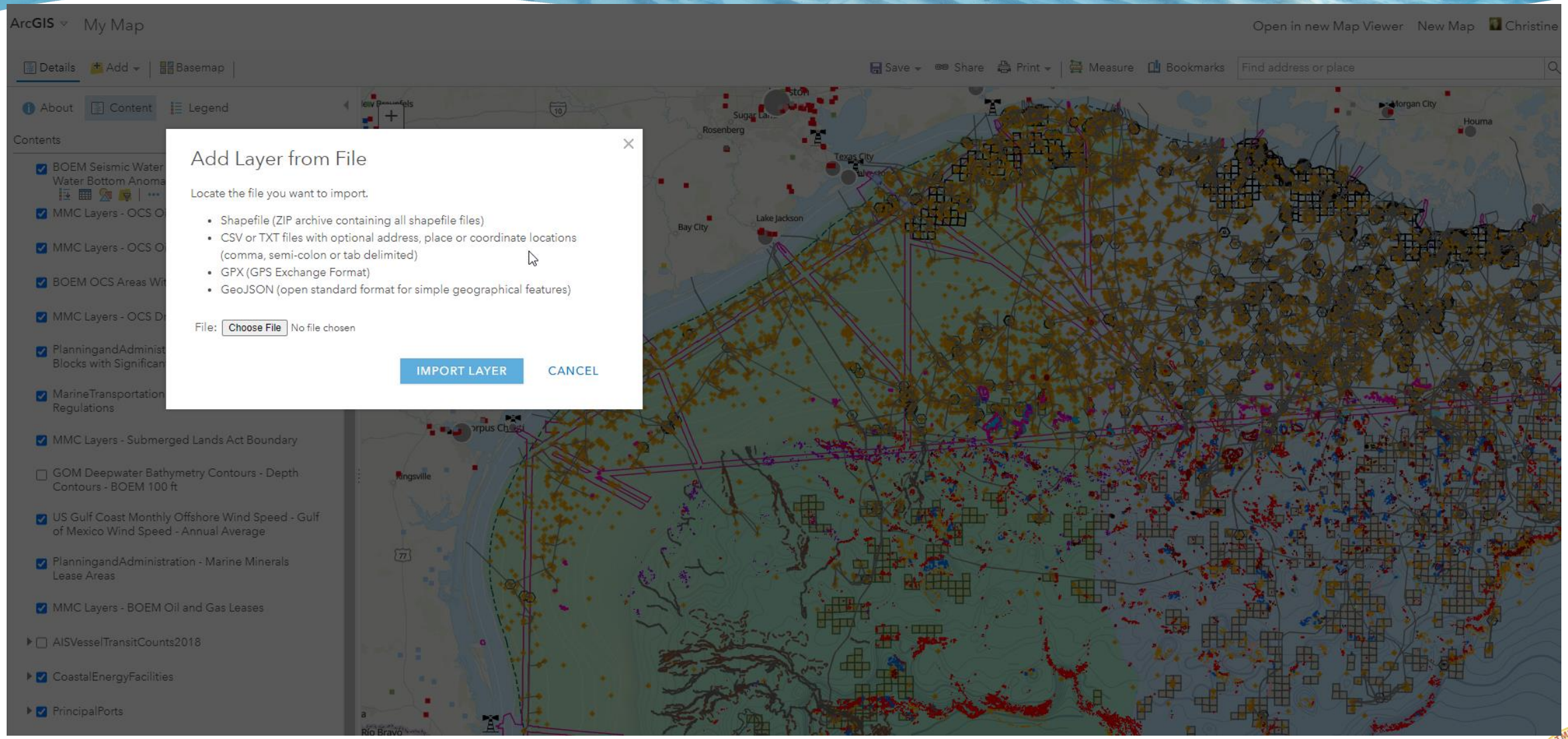
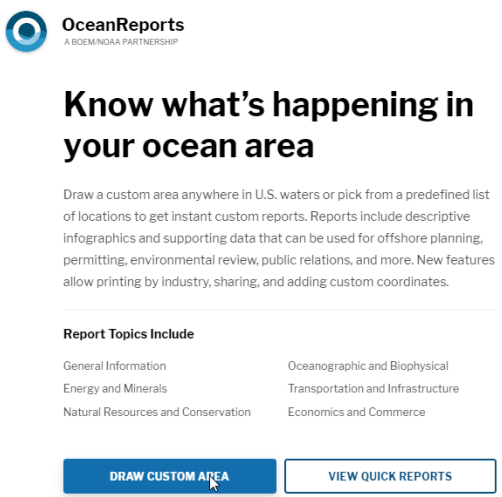
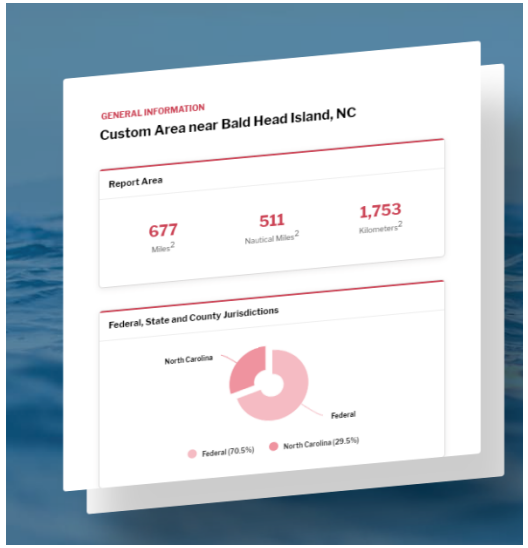


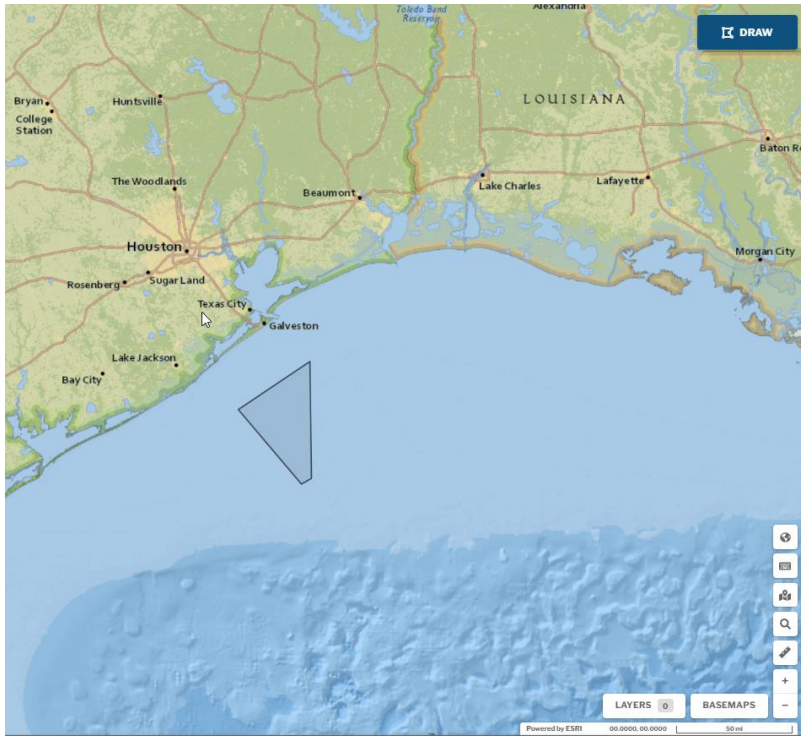

OceanReports
Unlocking Ocean Intelligence, Empowering Ocean Decisions
https://marinecadastre.gov/oceanreports

Ocean Reports Components

- **Draw your own area – results in about 2 seconds**
  - Move it around if you don't get the results you need
  - Or use known coordinates







CREATE A POLYGON WITH COORDINATES

Enter a minimum of four geographic coordinate pairs, each on their own line. The first and last pair must be the same. For example:

-70.2301, 41.8634
-70.4360, 41.8204
-70.8178, 41.4344
-70.4690, 41.2881
-70.2301, 41.8634

6 Chapters, 80+ layers, 67 infographics

Chapter Theme	Symbol	Infographic Reports Available			
General Information		Report Area Depth/Elevation Populated Places Federal/State/County Jurisdictions	Congressional and Legislative Districts Federal Statutes Tribal Lands		
Energy & Minerals		Offshore Wind Potential Offshore Wind Planning Areas Offshore Wind Energy Leases OCS Revenue Sharing Areas Oil and Gas Potential	Oil and Gas Planning Areas Oil and Gas Leases Energy Facilities OCS Blocks with Sand Resources	Beach Nourishment Projects Surficial Sediment Texture Ocean Disposal Sites Federal Sand and Gravel Leases	
Transportation & Infrastructure		AIS Vessel Count Vessel Routing N. Atlantic Right Whale Management Areas Anchorage Areas Pilot Boarding Areas	Ports Coastal Maintained Channels Danger Zones/Restricted Areas Unexploded Ordnances Formerly Used Defense Sites	Wrecks/Obstructions Cables and Pipelines Wastewater Outfalls Aquaculture Oil Lightering Zones	Deepwater Ports Oil/Gas Platforms Oil/Gas Wells
Natural Resources		Endangered Species ESA-Critical Habitat Designations Habitat Areas of Particular Concern Managed Highly Migratory Species Audubon Important Bird Areas	Protected Areas Artificial Reefs Shallow Corals Deep-sea Sponge/Coral Obs. Deep-sea Coral Habitat Suitability	Historical Lighthouses Cetacean Biologically Important Areas	
Oceanographic & Biophysical		Wave Height, Period and Direction Wind Speed and Direction Current Speed and Direction at Depths Sea Surface Height Water Temp/Salinity	Nitrates Phosphates Silicates Aragonite Light Attenuation KD PAR	Light Attenuation KD 490 Chlorophyll a Concentration	
Economics & Commerce		Ocean Job Contributions GDP of Ocean Economy Contributions by Sector	Census Statistics Fishing Economic Value (North and Mid Atlantic)		

General Information

Report Area
Depth/Elevation
Populated Places
Federal/State/County Jurisdictions
Congressional and Legislative Districts
Federal Statutes
Tribal Lands

Custom Area 21.68 nautical miles from ...

GENERAL INFORMATION

Congressional and Legislative Districts

1
Congressional Districts

5
State Districts

- US Congressional Districts +
- State Senate +
- State House +

Showing all districts within 24 nautical miles of the report area, or the closest one if none are within 24 nautical miles.

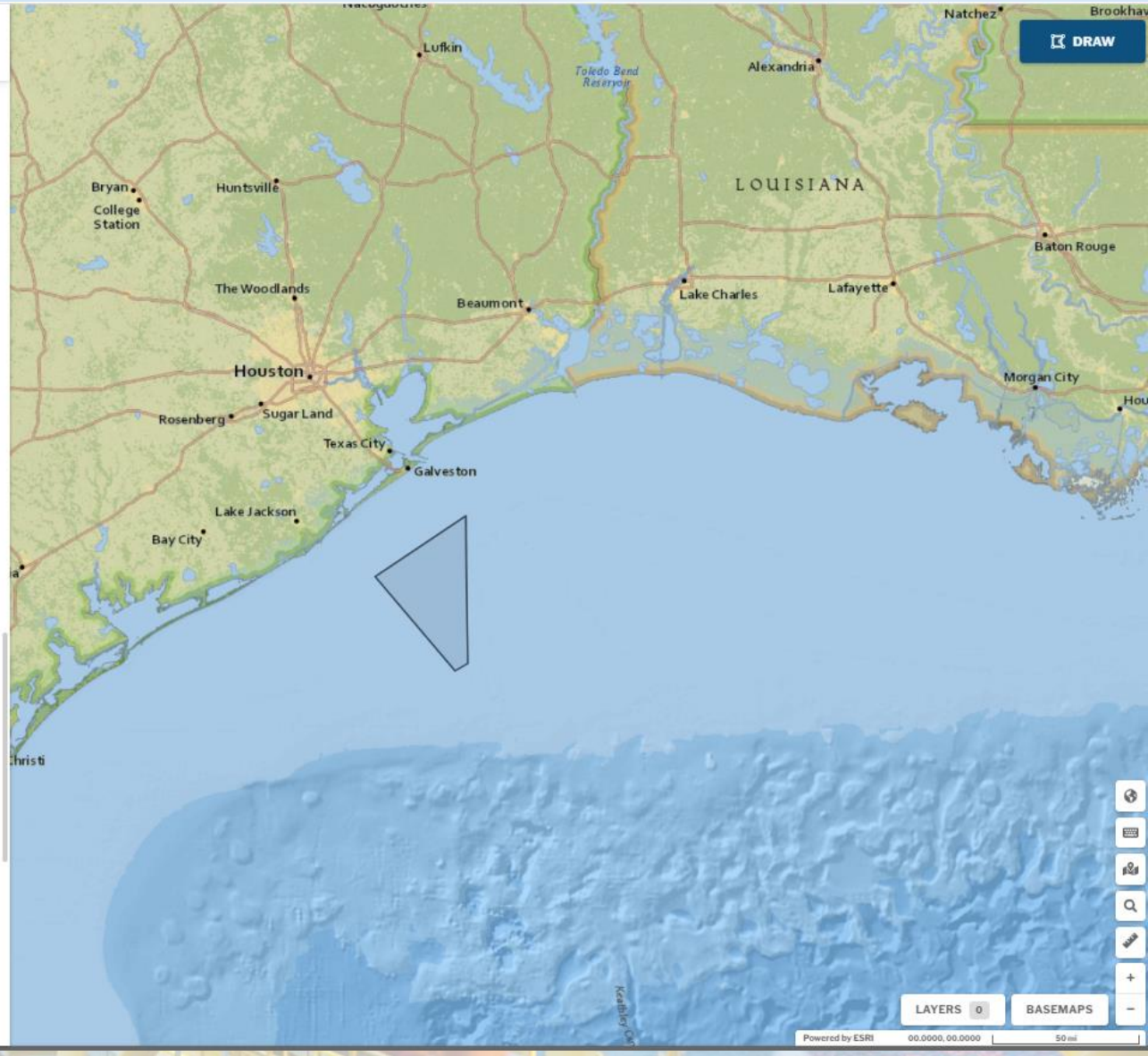
Federal Statutes

Federal statutes cover a broad variety of legal restrictions and permitted activities within state and U.S. federal waters. It is important to know these statutes and where they are applicable before planning for any activities in these waters. Those listed below apply within the area of interest outlined in this report. Please note that other federal statutes with complex or uncertain geographic boundaries may exist in the area and can be found by using the Ocean Law Search tool.

- Act to Prevent Pollution from Ships and MARPOL 73/78
- Clean Water Act
- Coastal Zone Management Act
- Comprehensive Environmental Response, Compensation, and Liability Act
- Endangered Species Act
- Energy Policy Act
- Magnuson-Stevens Fishery Conservation and Management Act
- Marine Debris Research, Prevention and Reduction Act
- Marine Mammal Protection Act
- National Environmental Policy Act
- National Historic Preservation Act
- National Marine Sanctuaries Act
- Outer Continental Shelf Lands Act

Showing federal statutes that apply inside the report area.

Indian Land Areas



Energy & Minerals

Offshore Wind Potential
Offshore Wind Planning Areas
Offshore Wind Energy Leases
OCS Revenue Sharing Areas
Oil and Gas Potential
Oil and Gas Planning Areas
Oil and Gas Leases
Energy Facilities
OCS Blocks with Sand Resources
Beach Nourishment Projects
Surficial Sediment Texture
Ocean Disposal Sites
Federal Sand and Gravel Leases

Custom Area 21.68 nautical miles from ...

ENERGY AND MINERALS

current U.S. energy needs. America's coastal and marine waters also provide sand and gravel, which is used to restore hundreds of miles of coastline and protect billions of dollars in infrastructure and ecological habitats from coastal erosion and destructive storms.

Offshore Wind Resource Potential

Areas with annual average wind speeds of 7 meters per second (m/s) and greater, at 100-meters (328-feet) heigl sufficient wind resources suitable for offshore development. Our nation's offshore wind resource potential, with development, is predicted to be more than 2,000 gigawatts of capacity per year. This is nearly double the nation' percent of the potential available areas were built by 2050, they could support 160,000 jobs, reduce power sect reduce greenhouse gas emissions by 1.8 percent. Floating wind platforms could potentially provide access to de greatest wind capacity, expanding this potential.

7.50

Weighted Average (m/s)

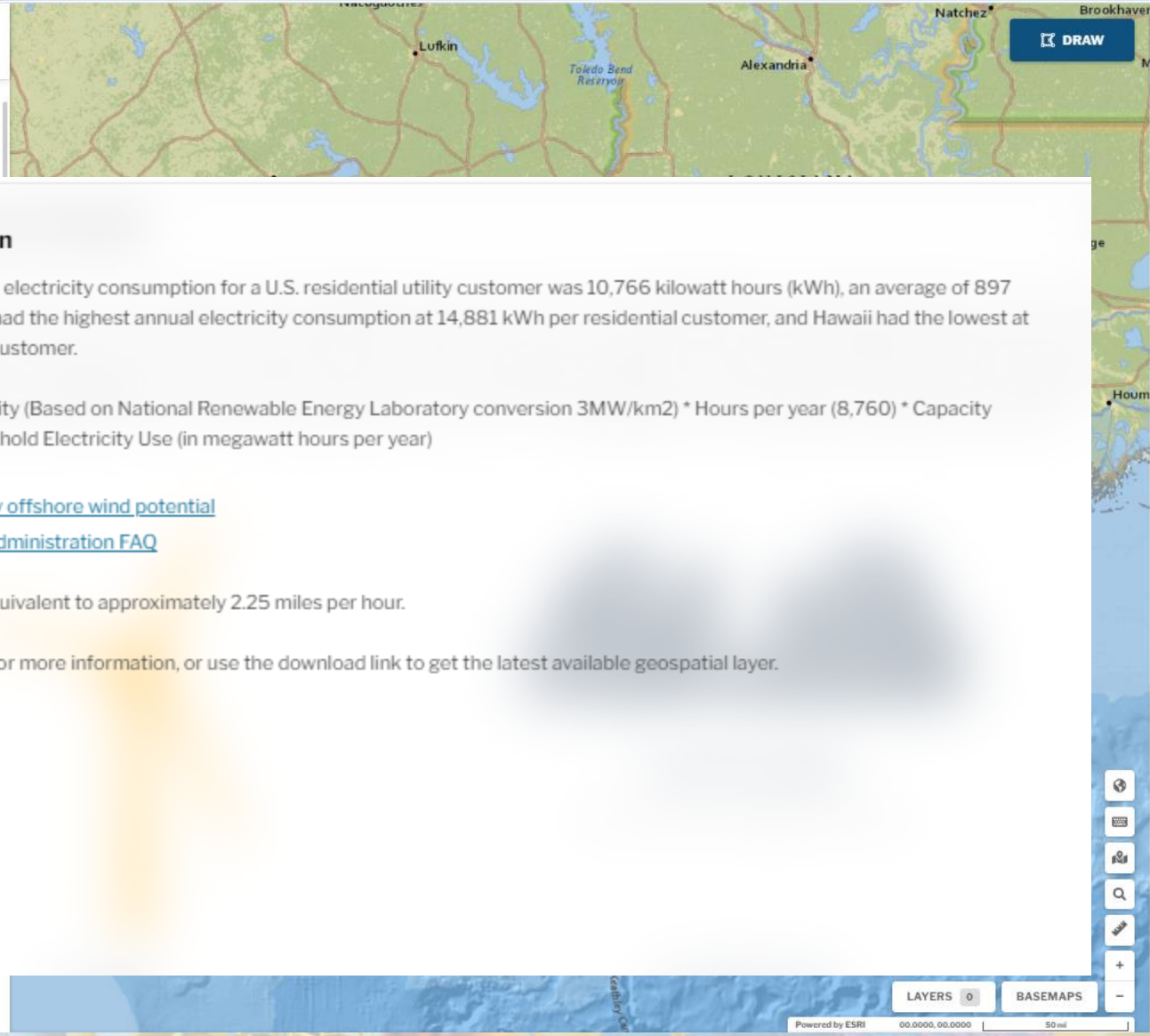
- Outstanding (9.0+)
- Superb (8.5)
- Excellent (8.0)
- Good (7.5)
- Fair (7.0)
- Unsuitable (< 7.0)

2,314,8

Potential Houses Suppo

2,370.7

Area with suitable wind r



Additional Information

In 2016, the average annual electricity consumption for a U.S. residential utility customer was 10,766 kilowatt hours (kWh), an average of 897 kWh per month. Louisiana had the highest annual electricity consumption at 14,881 kWh per residential customer, and Hawaii had the lowest at 6,061 kWh per residential customer.

(Turbine Name Plate Capacity (Based on National Renewable Energy Laboratory conversion 3MW/km2) * Hours per year (8,760) * Capacity Factor (.4)) / Average Household Electricity Use (in megawatt hours per year)

[1] U.S. Department of Energy offshore wind potential

[2] U.S. Energy Information Administration FAQ

One meter per second is equivalent to approximately 2.25 miles per hour.

Check the metadata page for more information, or use the download link to get the latest available geospatial layer.

Legend

- Outstanding (9.0+)
- Superb (8.5)
- Excellent (8.0)
- Good (7.5)
- Fair (7.0)
- Unsuitable (< 7.0)

Natural Resources

Endangered Species
ESA-Critical Habitat Designations
Habitat Areas of Particular Concern
Managed Highly Migratory Species
Audubon Important Bird Areas

Protected Areas
Artificial Reefs
Shallow Corals
Deep-sea Sponge/Coral Obs.
Deep-sea Coral Habitat Suitability

Historical Lighthouses
Cetacean Biologically Important Areas

Custom Area 21.68 nautical miles from ...

NATURAL RESOURCES AND CONSERVATION

Deep-Sea Coral Habitat Suitability

Deep-sea corals, also known as cold-water corals, create complex communities that provide habitat fo
grouper, snapper, and sea bass. The map legend indicates the likelihood of deep-sea coral habitat occu
characteristics and on observational data for individual hard and soft coral species. Verification is nece
in areas identified as suitable habitat.

DISPLAY STONY LAYER

DISPLAY SOFT LAYER

Medium

Stony Coral

Showing average suitability value inside the report area.

Historical Lighthouses

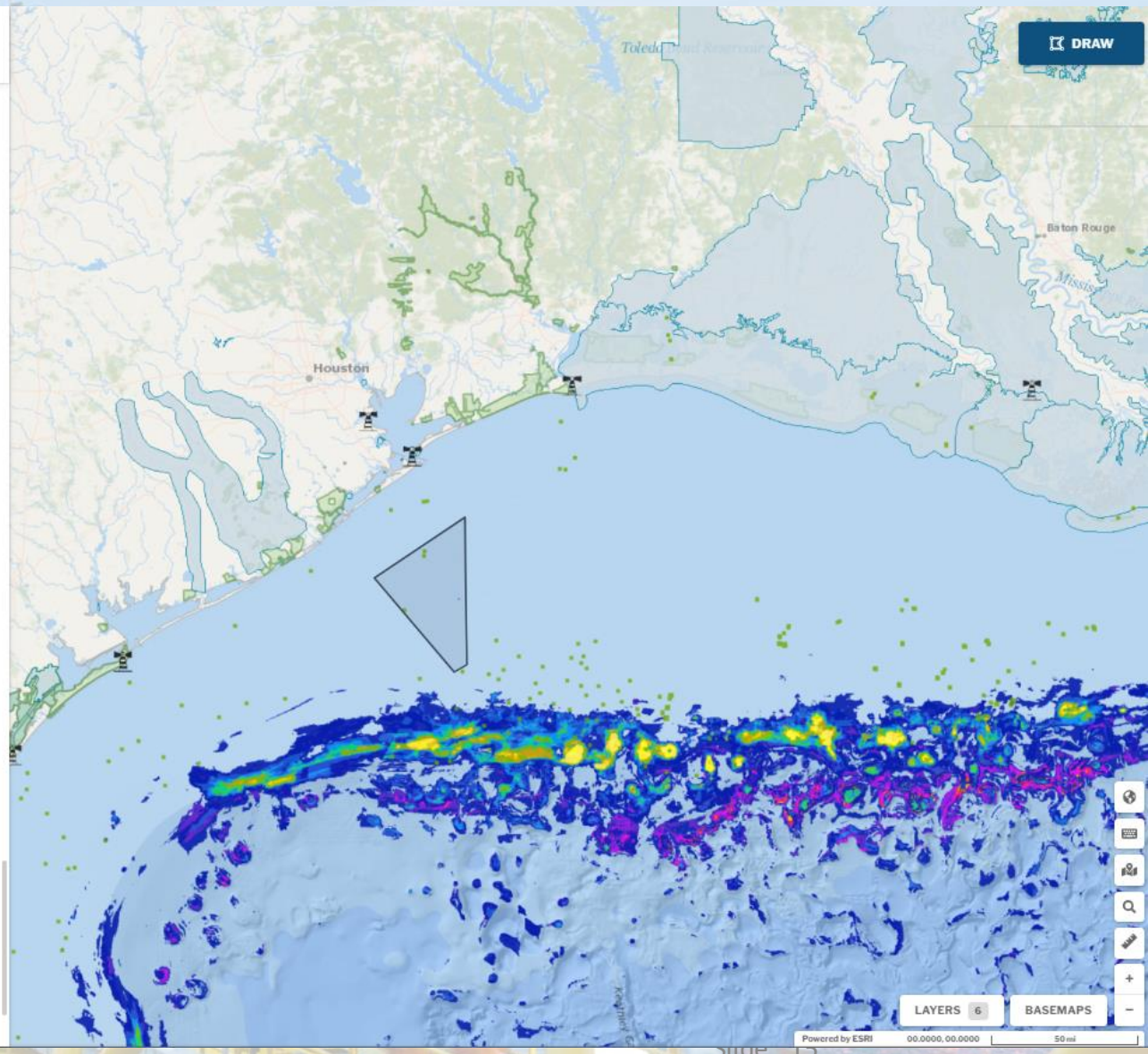
Historical lighthouses along our coasts have strong cultural significance. Many of these structures still stand, and a few are operational. Many lighthouses are protected and serve as tourist attractions. Some offer the experience of ascending to the top to look over the seascape. Planners might want to consider the view from historical buildings when considering development of structures within sight of the top of a lighthouse.

Name	Height (ft)	Distance (mi)
Bolivar Point Lighthouse Use	117	27.66

Showing the names and heights of historic lighthouses inside the report area and within 30 nautical miles.

Coastal Barrier Resource Areas

The Coastal Barrier Resources Act supports the conservation of hurricane-prone, biologically rich coastal barriers by restricting federal expenditures that encourage development, such as federal flood insurance. Relatively undeveloped coastal barriers along the Atlantic and Gulf coasts make up the John H. Chaffee Coastal Barrier Resources System. Areas within this system can be developed if private developers or other nonfederal parties bear the full cost.



Oceanographic & Biophysical

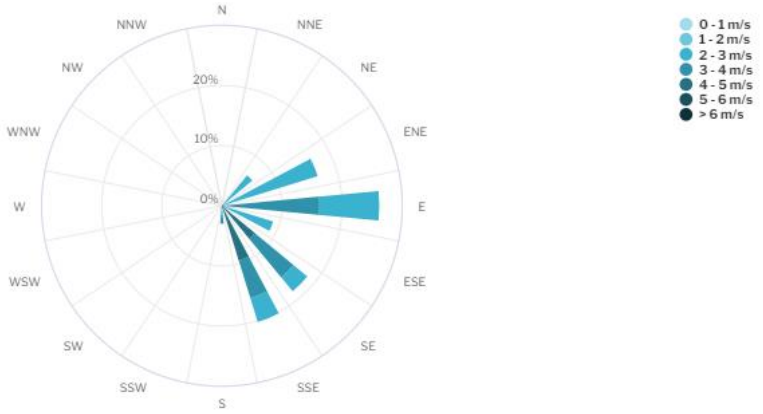
- Wave Height, Period and Direction
- Wind Speed and Direction
- Current Speed and Direction at Depths
- Sea Surface Height
- Water Temp/Salinity
- Nitrates
- Phosphates
- Silicates
- Aragonite
- Light Attenuation KD PAR
- Light Attenuation KD 490
- Chlorophyll a Concentration

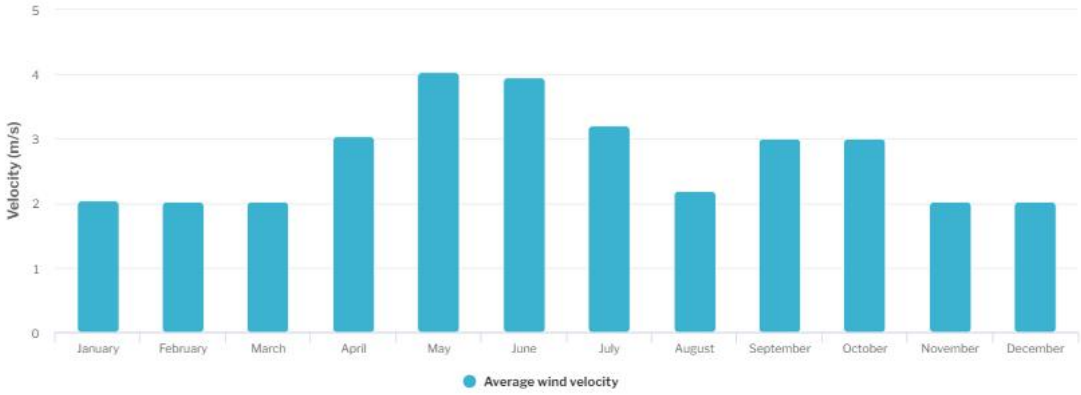
Custom Area 21.68 nautical miles from ...

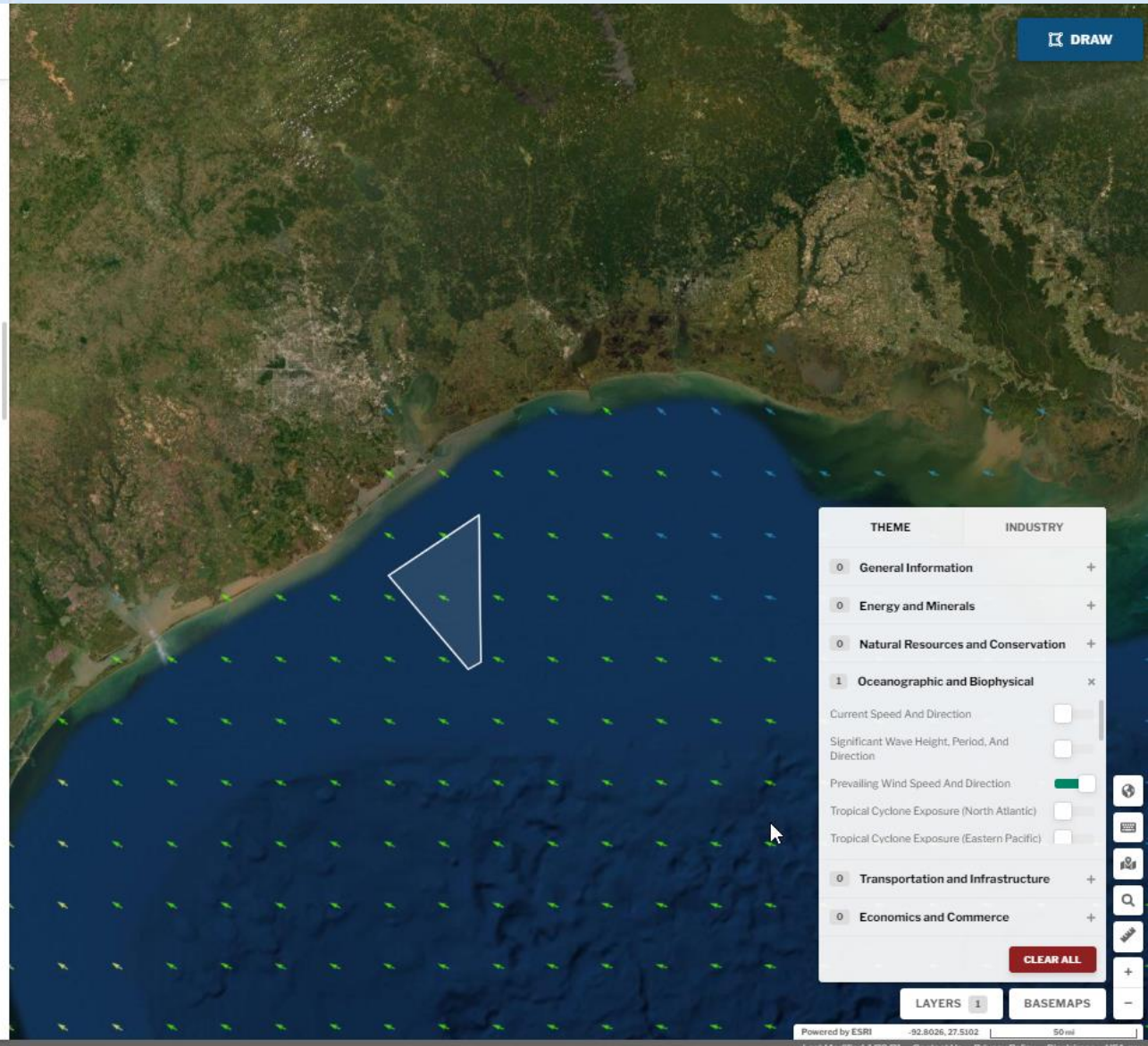
OCEANOGRAPHIC AND BIOPHYSICAL

Prevailing Wind Speed and Direction

Wind speed is presented in meters per second of wind at the surface of the ocean. Wind direction is reported by the direction from which it originates (e.g., a northerly wind blows from north to south). Knowledge of local wind conditions are important in determining vessel accessibility to a location as well as compatible areas for the design of in-water infrastructure. The wind rose and mapped wind vectors indicates the direction that wind is coming from (arrowheads on the map indicate the direction that wind is moving towards).







Transportation & Infrastructure

AIS Vessel Count
Vessel Routing
N. Atlantic Right Whale Management Areas
Anchorage Areas
Pilot Boarding Areas

Ports
Coastal Maintained Channels
Danger Zones/Restricted Areas
Unexploded Ordnances
Formerly Used Defense Sites

Wrecks/Obstructions
Cables and Pipelines
Wastewater Outfalls
Aquaculture
Oil Lightering Zones

Deepwater Ports
Oil/Gas Platforms
Oil/Gas Wells

Custom Area 21.68 nautical miles from ...

TRANSPORTATION AND INFRASTRUCTURE

Showing the number of deepwater ports inside the report area and within one nautical mile.

Oil and Gas Platforms

Oil platforms are structures or ships that are used for oil and gas exploration, drilling, extraction, storage, and processing before delivering it via pipeline or ship to a port or processing facility. Platforms are often temporary structures that are in place only as long as drilling is active. Once oil is flowing, the well pipes are extended and routed to the nearest pipeline and the platform is removed. Therefore, platforms are an indication of active oil and gas exploration. Additional consultation with Bureau of Safety and Environmental Enforcement is recommended when considering other activities in federal waters containing oil and gas platforms. States should be consulted if activities are considered in state waters containing oil and gas platforms.

Count	Status	Type
2	Active	Unknown
1	Inactive	Unknown

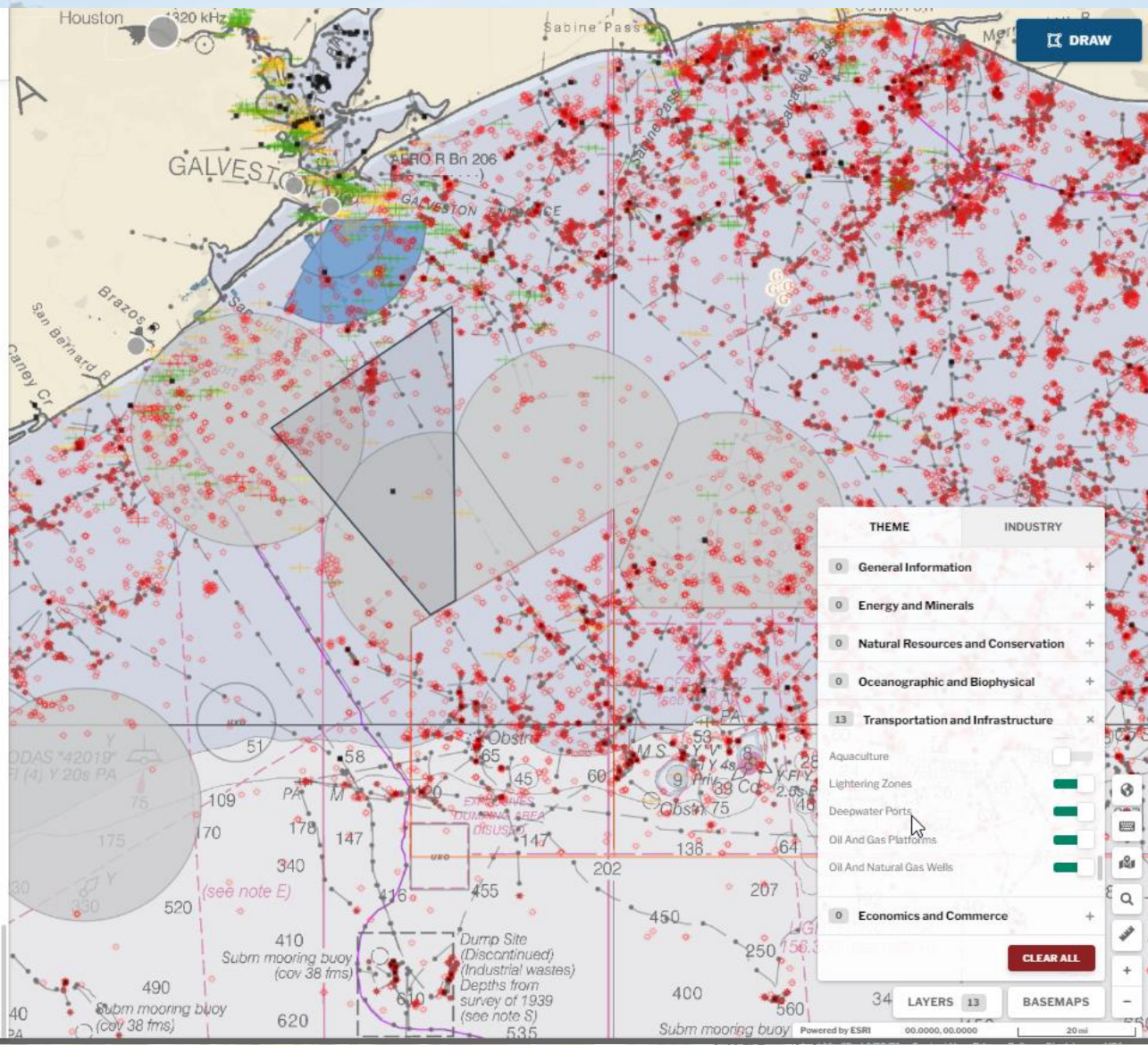
Showing the number of oil and gas platforms by status and type inside the report area and within 5 nautical miles.

Oil and Natural Gas Wells

Oil and gas wells are the holes drilled deep into the seafloor for the purpose of locating and delivering oil or gas to the surface. Well locations show wells that are active, abandoned, or in transition. It is important to know what type of well is within the area of interest. Contact the Bureau of Safety and Environmental Enforcement before beginning a project in an area around a well location. Information obtained during drilling can provide additional information about the resources around the well path.

Count	Status	Type
80	Permanently abandoned	Development
4	Borehole sidetracked	Development
103	Permanently abandoned	Exploratory
12	Borehole sidetracked	Exploratory

Showing the number of oil and natural gas wells by status and type inside the report area and within 1 nautical mile.



Economics & Commerce

Ocean Job Contributions
GDP of Ocean Economy
Contributions by Sector

Census Statistics
Fishing Economic Value (North and Mid Atlantic)

Custom Area 21.68 nautical miles from ...

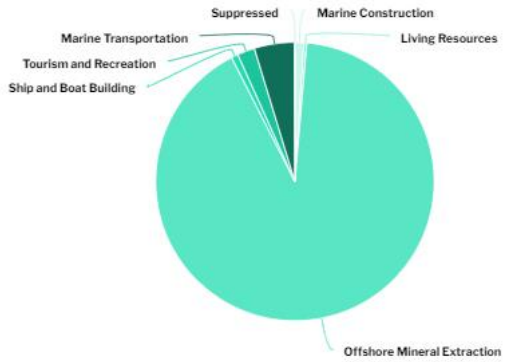
ECONOMICS AND COMMERCE

200 nautical miles.

Marine Economy Sector Breakdown

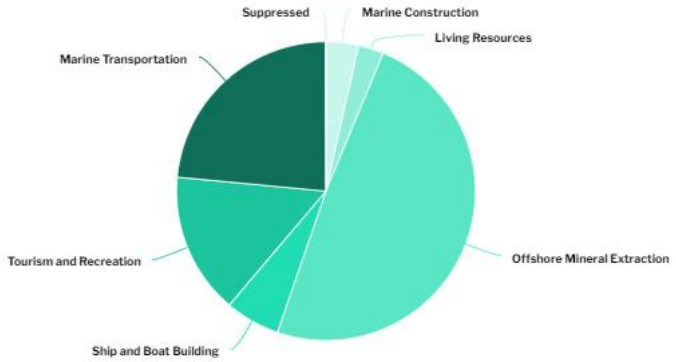
Data represent the contribution of each sector to the state marine economy. Data presented in Marine Economy Sector Breakdown are only available for U.S. states. Report statistics over territorial waters will show data from the closest states.

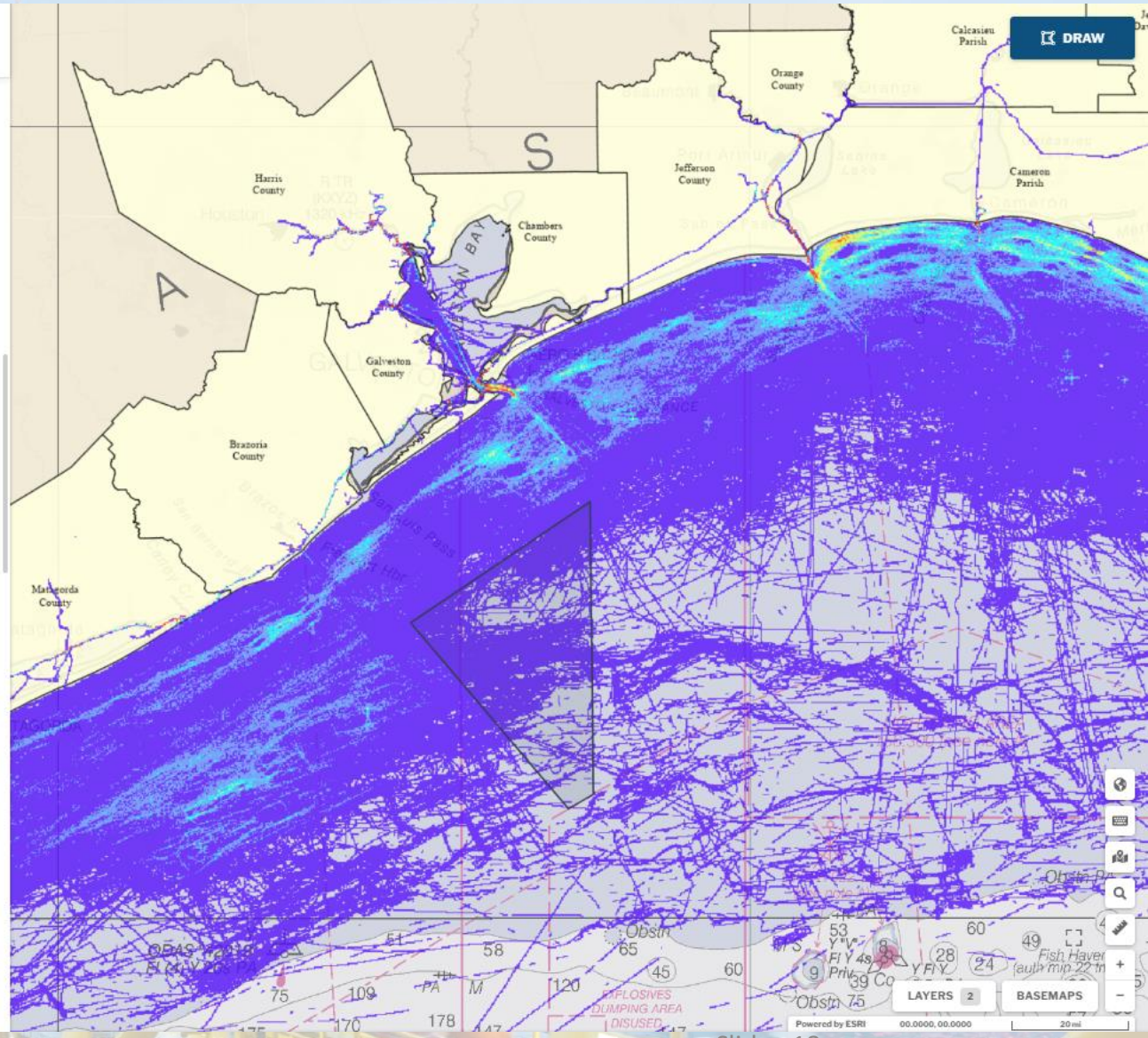
Texas



Texas

Louisiana

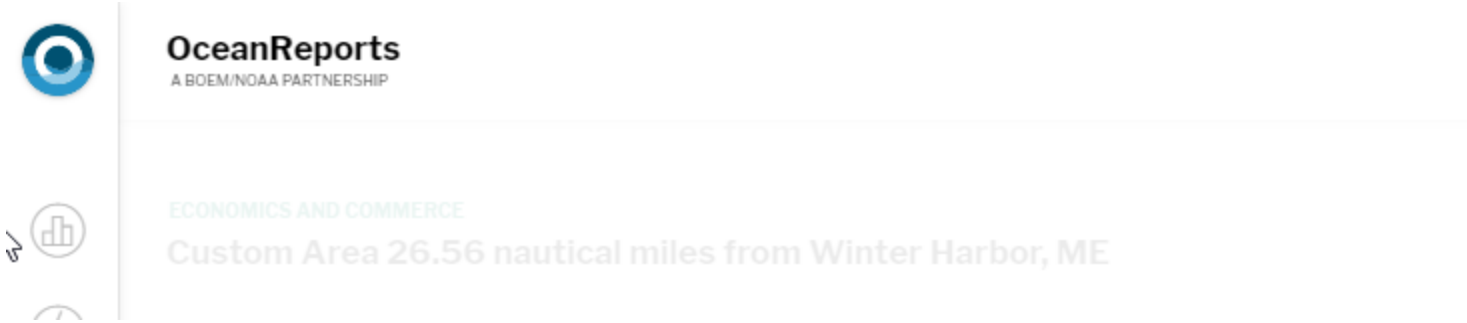




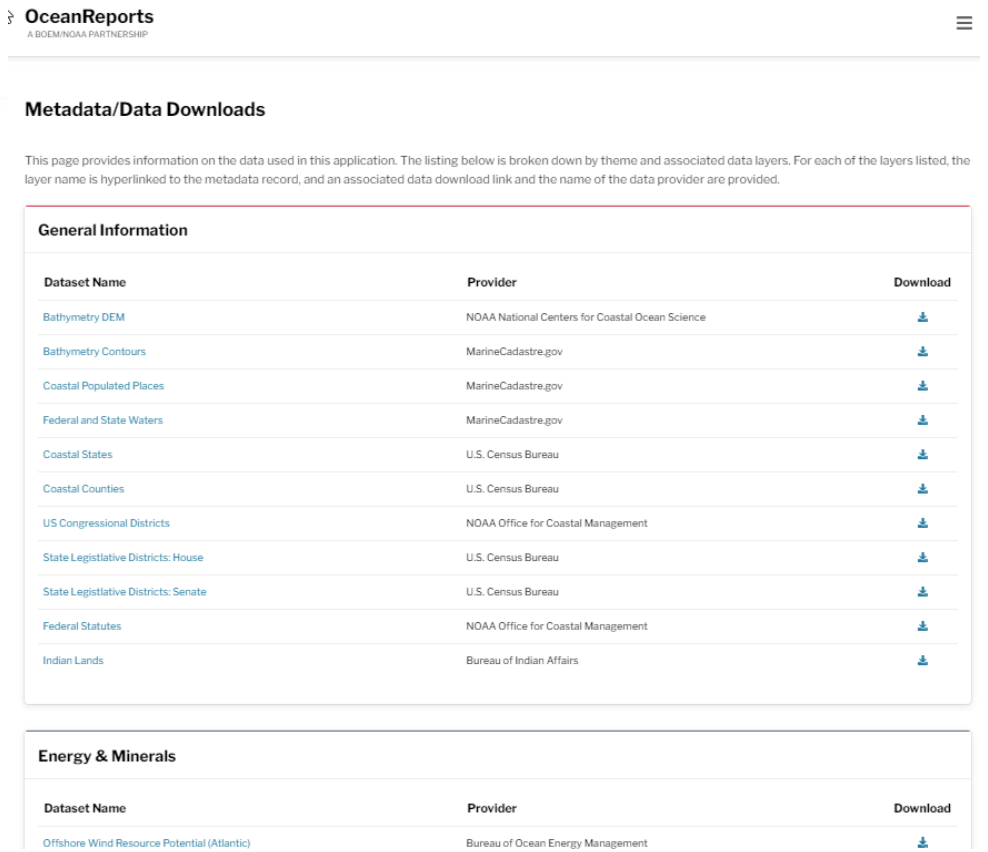
Available tools

- **Special Tools**
  - Coordinate entry
  - Return to original location on map
  - Measure distances
  - Change base maps
  - Display map layers

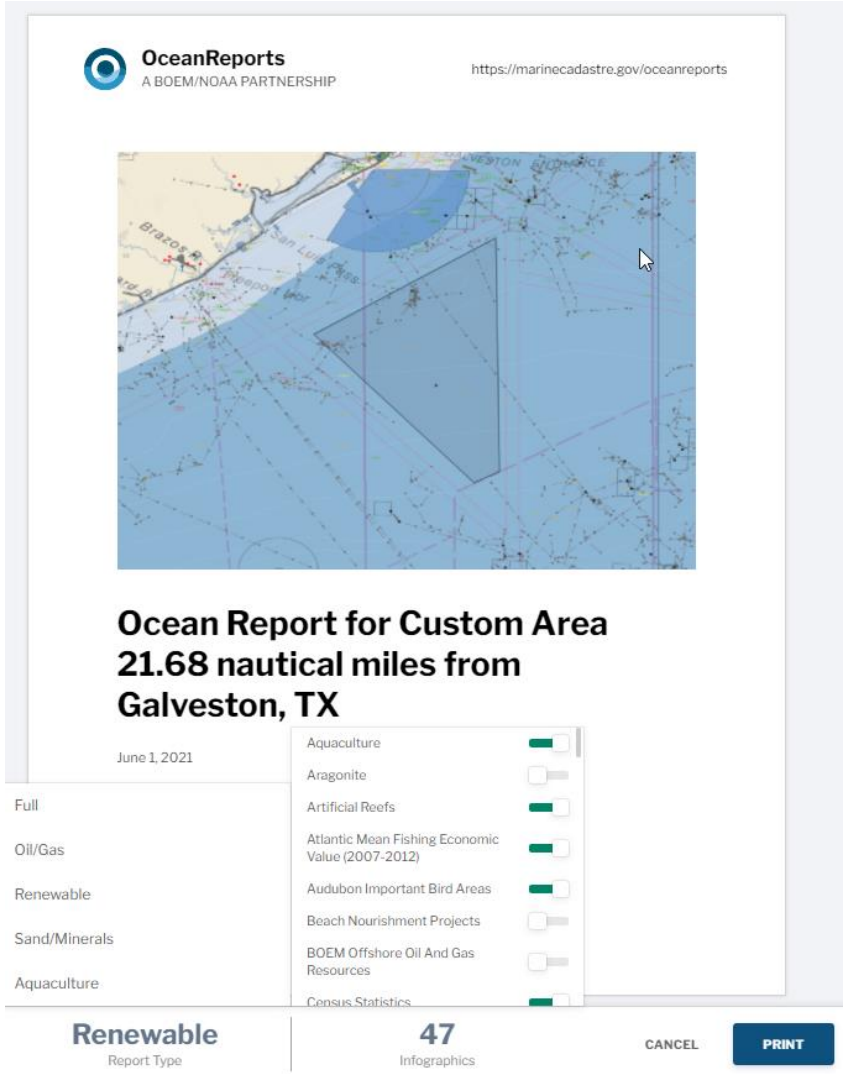
Available tools



- Print a pdf version
- Share with others/keep for later
- Investigate further (metadata, downloads)



- **Print Report**
  - Gives you all the infographics and links
  - Allows you to choose to turn off infographics you don't need
  - Or you can choose a preset grouping by industry



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