

The Multipurpose Marine Cadastre

A Tool for Planning & Decision Making
in the Marine Environment



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Bureau of Ocean Energy Management, Regulation and Enforcement

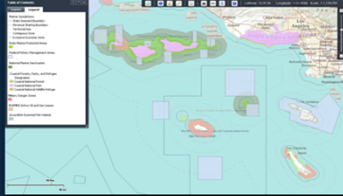
Multipurpose Marine Cadastre

Presentation Outline

- MMC Overview
- Spatial Data and Web Map Viewer
- Partnerships and Use Cases
- Future Enhancements and New Tools

MARINECADASTRE.GOV



[Home](#)
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MMC Viewer and Data Registry

The Multipurpose Marine Cadastre (MMC) is an integrated marine information system that provides authoritative and regularly updated ocean information, including offshore boundaries, infrastructure, human use, energy potential, and other data sets. The MMC is especially useful to those looking to assess suitability for ocean uses, such as energy siting. Data can be viewed in the national viewer or downloaded from its original source.

[Launch the Viewer](#)
[Access the Data](#)


Highlights

MARCO Uses the Multipurpose Marine Cadastre
Click on the Mid-Atlantic region of the In Practice map to see how the Mid-Atlantic Regional Council on the Ocean (MARCO) has used the Multipurpose Marine Cadastre (MMC), along with its planning portal, to ...

Offshore Wind Energy Data Now Available
The Department of Interior's Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) officially released Wind Energy Areas (WEA's) for New Jersey, Delaware, Maryland, and Virginia. A link to view these data is listed ...


[Read More](#)

Map Gallery



[View and create custom maps](#)

Regional Resources



[Visit regional portals and atlases](#)

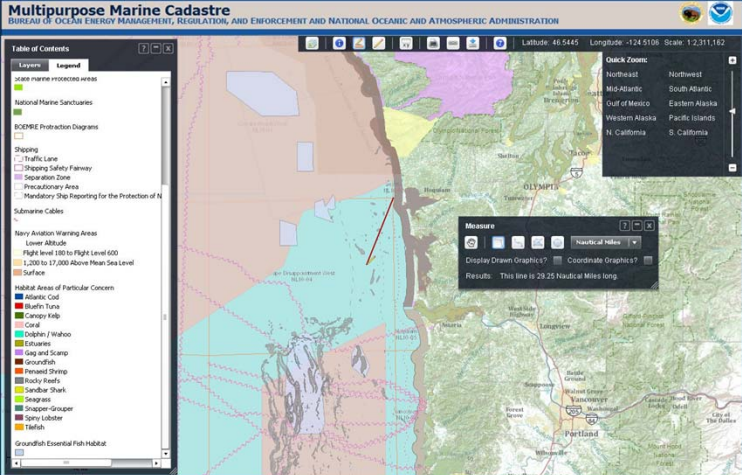
Need to Know

- [How to use the map gallery](#)
- [How to view MMC data services in ArcMap](#)
- [Tips and tricks for using the national viewer](#)

[Get other technical support](#)

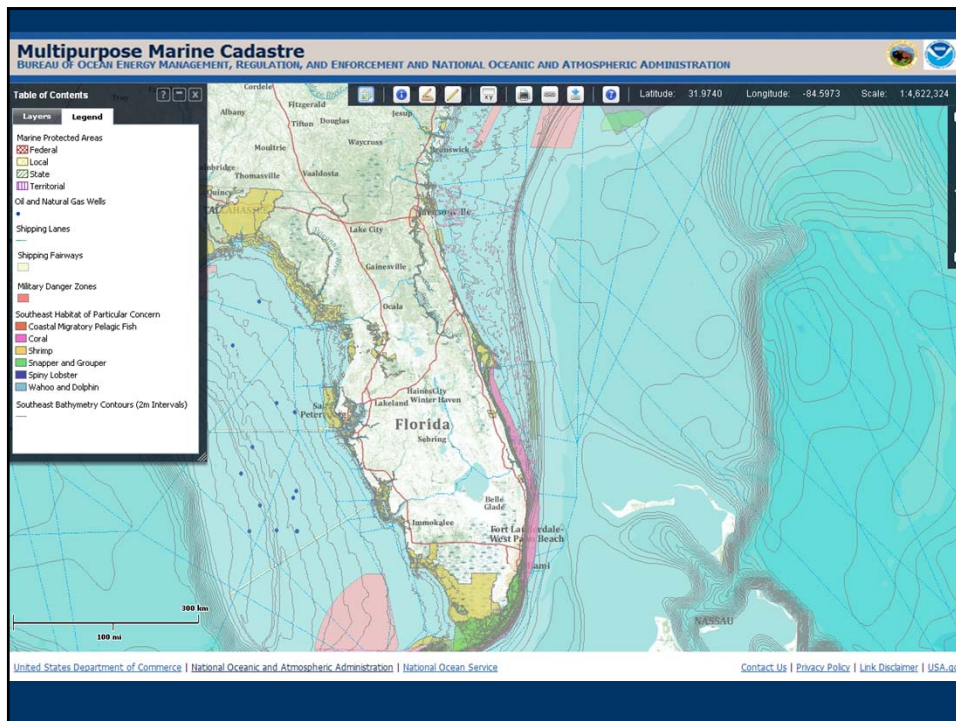
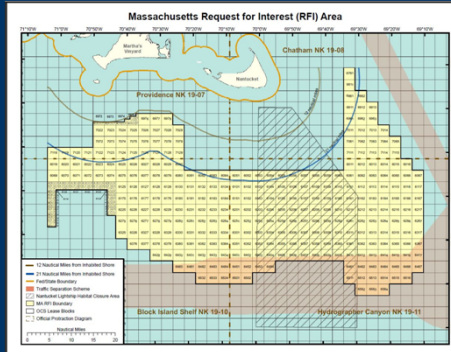
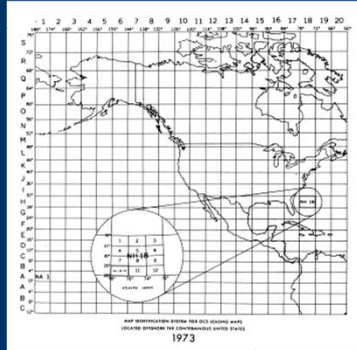
Multipurpose Marine Cadastre

A marine information system for the Outer Continental Shelf and state waters that provides a data framework to support decision making.



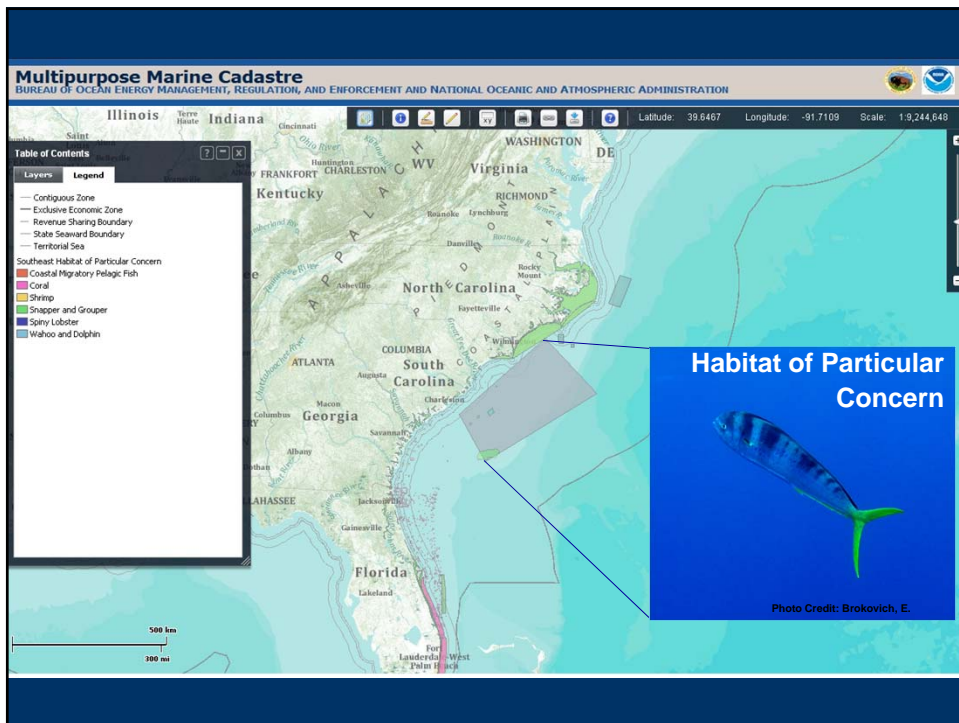
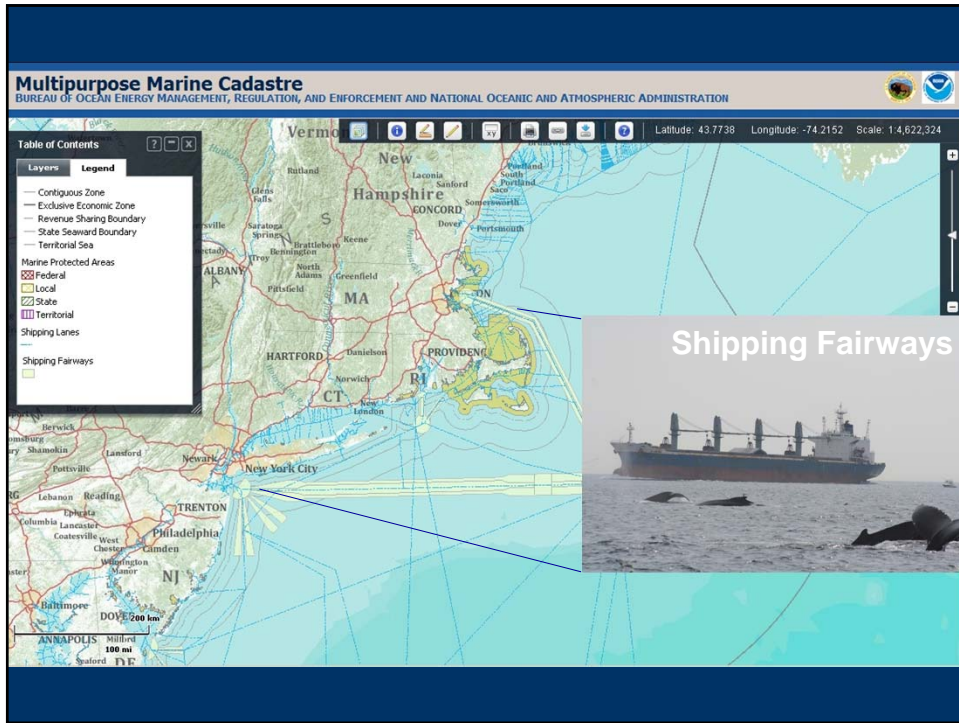
What is a Marine Cadastre?

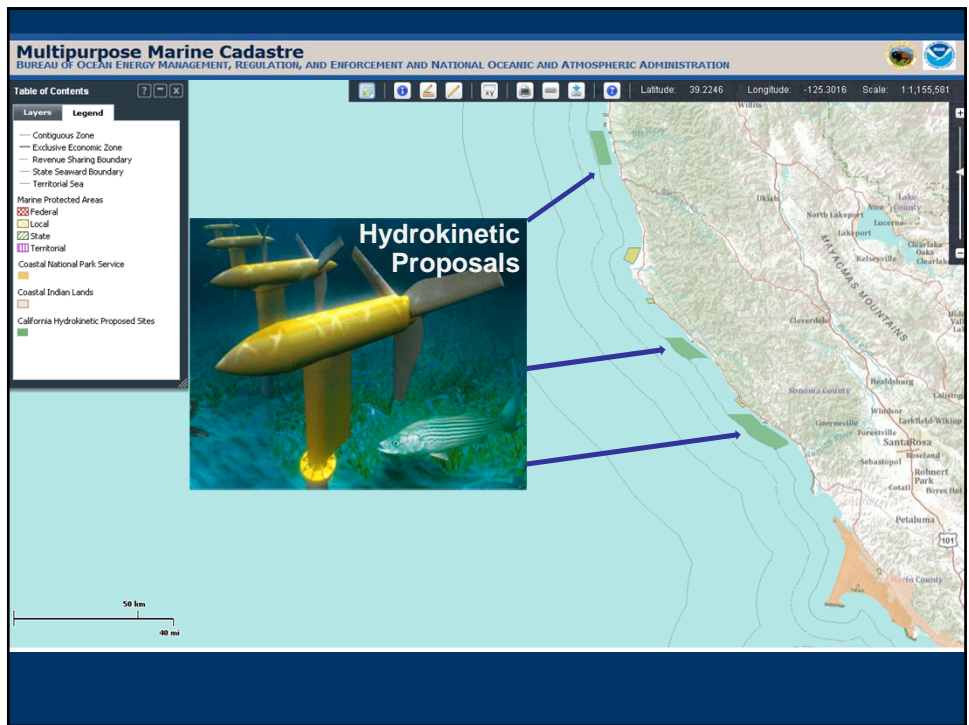
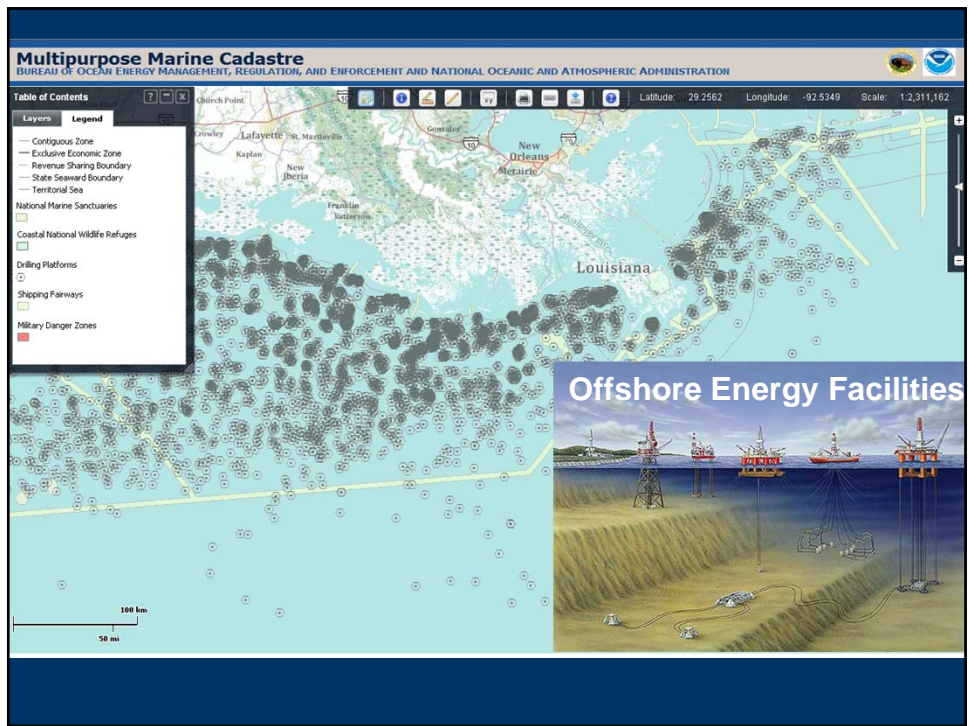
“A marine cadastre is a system to enable the boundaries of maritime rights and interests to be recorded, spatially managed and physically defined in relationship to the boundaries of other neighboring or underlying rights and interests .”
 (Robertson et al., 1999)

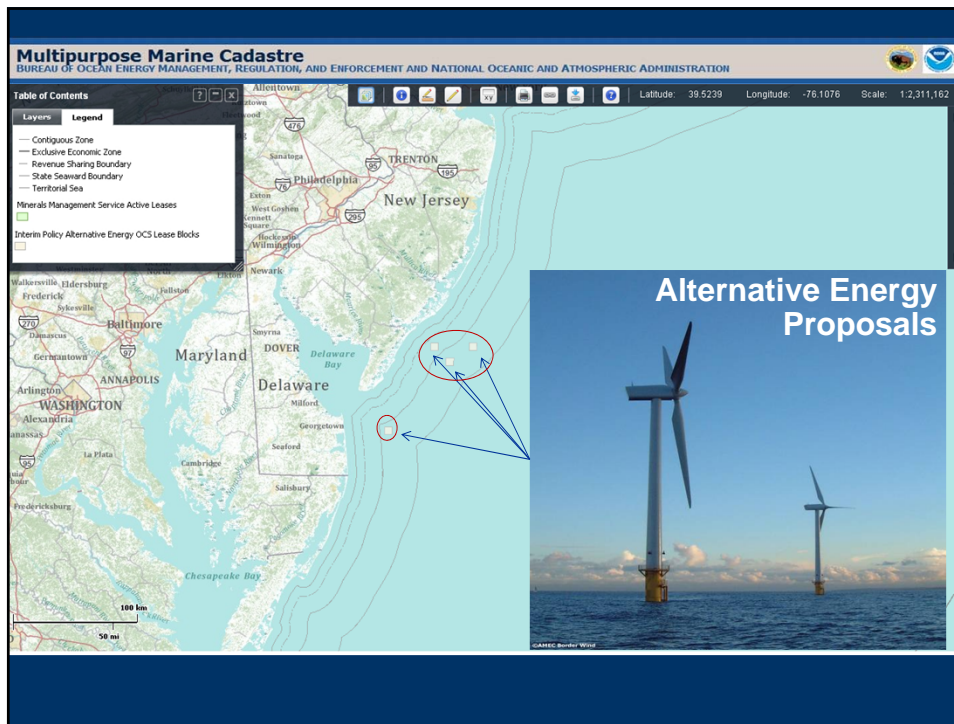


Why is the Multipurpose Marine Cadastre Important?









MMC Components

- Authoritative Spatial Data**
 - Access to authoritative federal data resources
 - Development of framework base layers
 - marine jurisdictions
 - shipping
 - regulated areas
- Web Map Viewer**
 - Data visualization
 - Map generation
 - Plotting
 - Measuring
- Technical support/consultation**
 - Code library, best practices, one-on-one support

Jurisdictional Boundaries and Limits		
Revenue Sharing Boundary	Bureau of Ocean Energy Management, Regulation and Enforcement	1/22/2009
Territorial Sea Boundary	NMFS Office of Coast Survey	2/12/2008
Contiguous Zone	NMFS Office of Coast Survey	2/12/2008
Exclusive Economic Zone	NMFS Office of Coast Survey	11/29/2010
Submerged Lands Act Boundary	Bureau of Ocean Energy Management, Regulation and Enforcement	1/22/2009
Federal Fisher Management Block	National Marine Protected Areas Center	3/24/2011
National Estuarine Research Reserve	National Estuarine Research Reserve	3/24/2011
National Marine Sanctuaries	National Marine Sanctuaries Center	1/22/2009
Coastal National Parks	National Park Service	8/6/2007
Coastal National Wildlife Refuges	U.S. Fish and Wildlife Service	12/16/2010
Coastal Order Limits	National Aids	11/20/2004
BOEMRE Protection Diagrams	Bureau of Ocean Energy Management, Regulation and Enforcement	8/30/2010
Outer Continental Shelf Lease Blocks	Bureau of Ocean Energy Management, Regulation and Enforcement	6/30/2010
Federal Outer Continental Shelf Administrative Boundaries	Bureau of Ocean Energy Management, Regulation and Enforcement	3/16/2004
Coastal National Forest	U.S. Forest Service	1/1/2007
BOEMRE Planning Areas	Bureau of Ocean Energy Management, Regulation and Enforcement	8/30/2010

MMC - Data Access and Management

- Data is managed and maintained by the authoritative /originating source
- MMC team harvests data keep viewers up to date
- Access to data is provided via marinecadastre.gov

Jurisdictional Boundaries and Limits
Federal Agency Regions
Federal Georegulations
Navigation and Marine Infrastructure
Marine Habitat and Biodiversity
Physical and Oceanographic
Human Use
Web Map Services
Marine Cadastre Spatial Database

Data Registry

This registry provides access to authoritative marine boundary data distributed by various agencies as well as data commonly used to support renewable energy siting and larger coastal and marine spatial planning efforts.

Data is organized based on the National Spatial Data Infrastructure (NSDI) themes and categories.

Click on one of the categories to explore.

Marine Cadastre Spatial Database

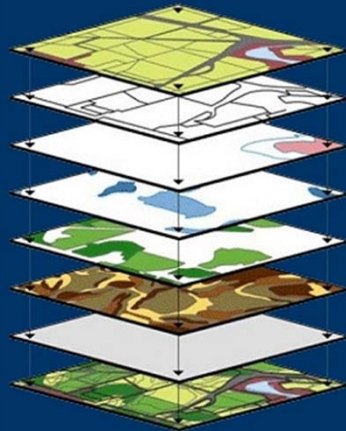
The NOAA Coastal Services Center is producing a national-scale spatial database to support planning and decision-making in the coastal and marine environment. By resolving inconsistencies in original data sources and providing standardized data in a readily useable format, the Marine Cadastre Spatial Database provides the framework data needed by coastal and marine spatial planning professionals, while reducing the costs associated with collecting and processing spatial data.

Data Providers

- Bureau of Ocean Energy Management , Regulation and Enforcement (BOEMRE)
- NOAA Office of Coast Survey
- NOAA National Marine Sanctuaries
- NOAA Marine Protected Areas
- NOAA Fisheries
- U.S. Fish and Wildlife Service
- National Park Service
- Department of Defense (DoD)
- Coast Guard
- Department of Energy
- The Nature Conservancy – (pending)



Multipurpose Marine Cadastre Data Themes



Jurisdictional Boundaries
Federal Georegulations
Federal Agency Regions
Navigation & Marine Infrastructure
Marine Habitat & Biodiversity*
Human Uses*
Physical & Oceanographic*
Basemaps

* Denotes significant gaps in data

MMC - Data

Jurisdictional Boundaries and Limits

State Seaward Boundary
Revenue Sharing Boundary
Territorial Sea Boundary
Contiguous Zone
Exclusive Economic Zone
Submerged Lands Act Boundary
Federal Fishery Management Areas
National Estuarine Research Reserves
National Marine Sanctuaries
Coastal National Forests
Coastal National Parks
Coastal Indian Lands
Coastal National Wildlife Refuges
Coastal Barrier Resources Act Zones
BOEMRE Protraction Diagrams
Outer Continental Shelf Lease Blocks
BOEMRE Planning Areas
Federal OCS Administrative Boundaries

Federal Geo-regulations

Abandoned Shipwreck Act
Clean Water Act
Coastal Zone Management Act
Endangered Species Act
Marine Debris Act
Marine Mammal Protection Act
Marine Plastics Act

Magnuson-Stevens Fishery Conservation Act
National Environmental Policy Act
Outer Continental Shelf Lands Act
Submerged Lands Act
Federal Agency Regions
Federal Agency Regions, Districts, and Planning Areas
Regional Ocean Council Boundaries
US/Canada Great Lakes Boundary

Navigation and Marine Infrastructure

Wells
Liquefied Natural Gas Sites
Offshore Energy Facilities
Transmission Lines
Ports
Shipping Lanes
Pipelines
Fairways
Wrecks and Obstructions
Military Danger Zones

Physical & Oceanographic Data

Wind Potential at 90m hub height
OCS Sand and Gravel Borrow Areas
California Bathymetry Contours
New Jersey Bathymetry Contours
Northeast Bathymetry Contours
Northwest Bathymetry Contours

Southeast Bathymetry Contours
Offshore Surficial Sediment
Atlantic and GOMEX Seafloor Geology
30-meter Depth Contour

Human Use

BOEMRE Active Leases
Alt. Energy Nominated OCS Lease Blocks
Proposed California Hydrokinetic Sites

Marine Habitat and Biodiversity

Gray Whale Migration
Pinniped Haul Outs and Rookeries
Rocky Reefs
Kelp Canopy (California)
Sea grass Beds (California)
Essential Fish Habitat Points (California)
NMFS Essential Fish Habitat
NMFS Critical Habitat
NMFS Habitat Areas of Particular Concern

Webmap Services and ArcGIS Servers

NOAA ENC WMS Service
Marine-Geo.org Bathymetry WMS Service
ESRI Geography Network ArcIMS Service
NOAA RNC ArcGIS Service
U.S. Marine Cadastre WMS Service

Official Protraction Diagrams

Bureau of Ocean Energy Management, Regulation and Enforcement



Download Data: <http://www.boemre.gov/offshore/mapping/>

View Metadata: <http://www.boemre.gov/offshore/mapping/>

Purpose/Description

This data set contains Official Protraction Diagram (OPD) outlines. OPDs are approximately 2 degrees wide by approximately one degree high (OPDs north of 48 degrees are approximately 3 degrees wide). OPDs are further subdivided into blocks. Where the OPD hits the UTM zone boundary, that zone boundary will be a geodesic line - which will appear slightly curved on the UTM plane. OPDs are numbered using the United Nations International Map of the World Numbering System, and are generally named for land or hydrographic features contained within the limits of the diagram. Further information on the historic development of OPDs can be found in OCS Report MMS 99-0006: Boundary Development on the Outer Continental Shelf. Because GIS projection and topology functions can change or generalize coordinates, these GIS files are considered to be approximate and are NOT an OFFICIAL record for the exact OPD coordinates or areas. The Official Protraction Diagrams (OPDs) and Supplemental Official Block Diagrams (SOBDs), available on the web in pdf format, serve as the legal definition for MMS offshore boundary coordinates and area descriptions.

Official Protraction Diagrams and other cadastre information the MMS produces are generated in accordance with 30 Code of Federal Regulations (CFR) 256.8 to support Federal land ownership and mineral resource management.

Common and/or other potential uses of this data set

Official Protraction Diagrams are used for determining Requests for Information, Federal Notice of Sales, bidding on potential lease areas, and final sale documentation.

- Metadata is crucial - however we have created an even more informative form in addition to standard FGDC metadata. **The Data Sheet.**

Meta Information

Publication Date: 2007

Data format(s): ESRI Shapefile

Date(s) of Data Collection:

Date of Next Update: TBD

Accuracy / Resolution:

Use Constraints / Caveats: The data was developed within the U.S. Government; proprietary rights may not be attached to them nor may they be sold to the U.S. Government as part of any procurement of ADP products or services. The GIS files are approximate and are NOT an OFFICIAL record for the exact OPD coordinates or areas. The OPDs and SOBDs on the web in pdf format serve as the legal definition for MMS offshore boundary coordinates and area descriptions.

Citation Information: Minerals Management Service, Mapping and Boundary Branch

Link(s) to related or similar data sets:

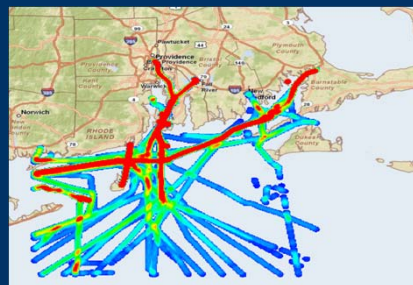
Future Data Plans

Planned Additions in FY 2011

- Disposal Areas
- Danger and Restricted Areas
- Cables (now available)
- DOD Operating Areas
- Vessel Traffic / AIS
- Selected Marine Mammal Data

External Providers / Cooperative Efforts

- Marine Mammal (Range Maps, Distribution)
- Wind, Wave, and Tidal Energy
- Seafloor Sediment / Substrate
- Human and Ocean Uses
- Raster Nautical Charts
- Avian Survey Data
- Power Transmission / Grid Connections
- Navy / DoD Operation and Range Data



Improvements for the Near Future

- Improve current tools, and provide new tools based on user feedback (reporting, select by, add WMS, add data to map)
- Links to data not available on the viewer (too complex for the viewer)
- Links to other similar portals
- Community of practice (standards, how to's, etc)
- Links to other Decision Support Tools
- AIS converter and specialized output tools (stand alone for ArcMap users)
- Special apps – provided by ESRI

Looking Forward...

ESRI – Developing an online decision support tool for assessing site suitability in the marine environment

- Spiral Development Project



Going Regional - Support the development of regional CMSP. 9 planning bodies.

- Data, Tools, Templates, Mashups/Map gallery and Tech Support



Use Cases

Partner: NOAA NMFS Habitat Conservation Division

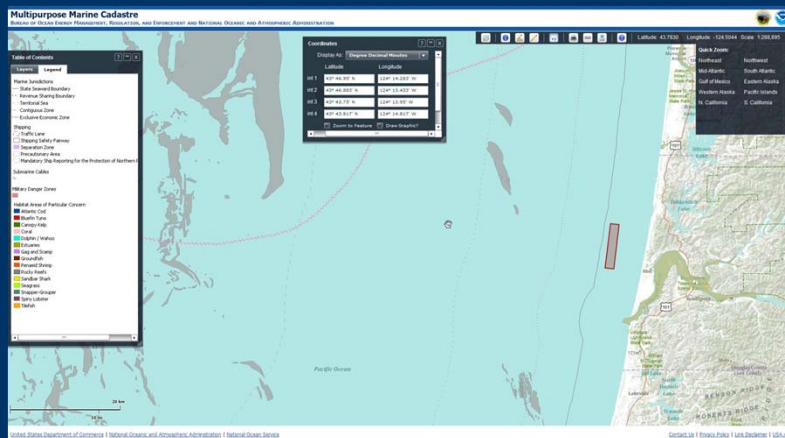
Issue: Need system to support hydrokinetic project permit review

Task: Map critical habitat data

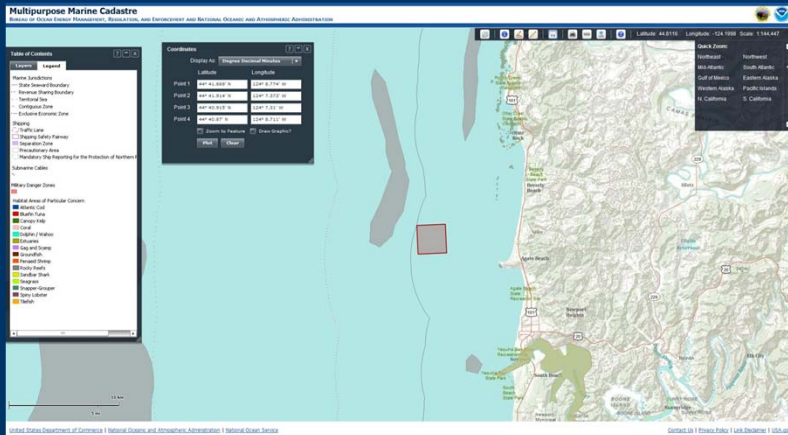
Status: Ongoing - exploring work with other NMFS regions



Reedsport OPT Wave Park Offshore Wave Power Plant Site



NNMREC Newport Open Ocean Wave Energy Test Site



Who's Using the Multipurpose Marine Cadastre?

	Spatial Data	Visualization	Process
BOEMRE	*	*	?
NOAA NMFS		*	*
NROC Portal	*		
MARCO Portal	*		
Navy EIMS	*		
Marine Map	*		
NCDENR	*	*	*
Others	*	*	

Why is the MMC Important?

- All the pertinent boundaries is already provided to get planning in offshore areas started
- All boundaries are from the authoritative source so you know you are using the correct and most up to date geospatial data if you need to update or make new boundaries
- It can be ingested into other data viewers or servers
- It isn't just for Renewable Energy projects but can be used for other siting projects, navigational rerouting, enforcement planning, gap analysis

MMC Summary

The screenshot shows the Marine Cadastre website with a navigation menu (MMC Home, About, Partnerships, Data, In Practice, Support). The main content area features a 'Multipurpose Marine Cadastre' section with a map and a 'Launch the Viewer' button. Below this is a 'Multipurpose Marine Cadastre (MMC) Version 2.0 Now Available' announcement, followed by 'Data', 'Support', and 'In Practice' sections.

Authoritative Framework Data

- Web Portal
- Web Services

National Viewer

- Web mapping
- Data Analysis
- Map production

Regional and State Support

- Best Practices
- Templates and code
- Consultation

Thank You

MarineCadastre.gov

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