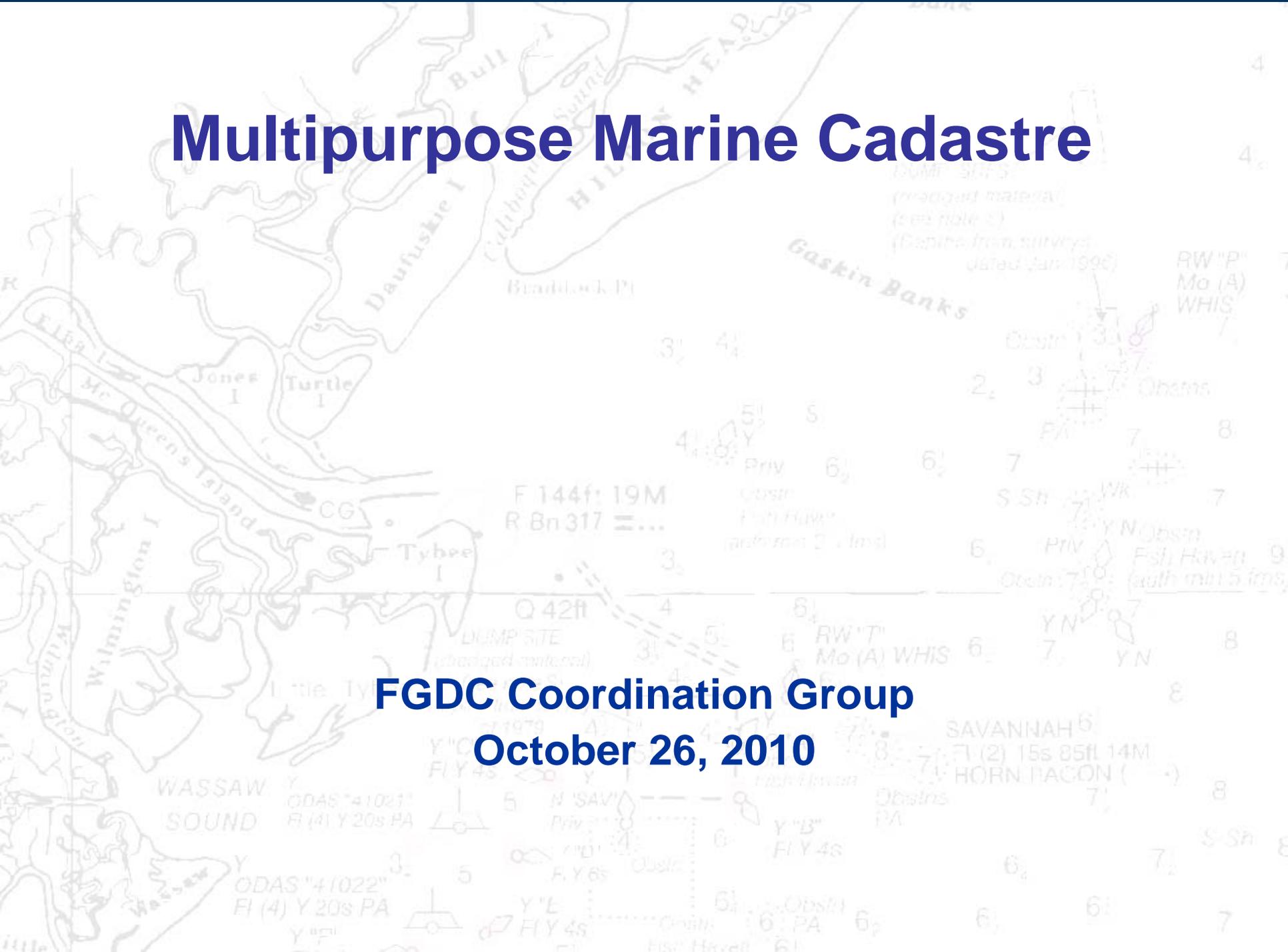


Multipurpose Marine Cadastre

FGDC Coordination Group
October 26, 2010

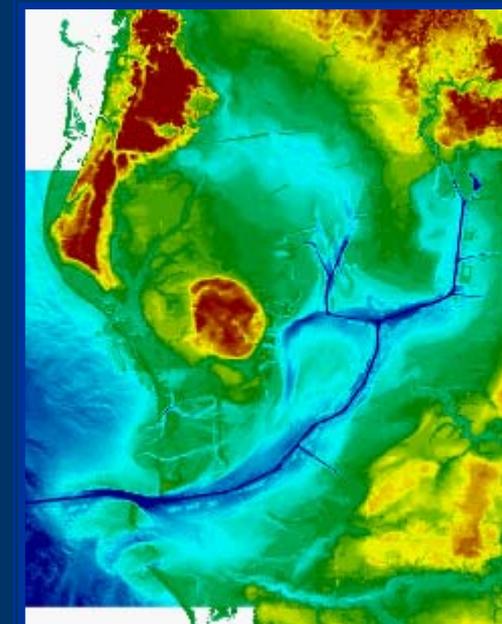


FGDC Marine and Coastal Spatial Data Subcommittee Mission

**To advance and implement the Marine and
Coastal National Spatial Data Infrastructure,
working to develop strategic partnerships,
relevant standards, and enhance access to and
utility of coastal and ocean framework data**

• Subcommittee Objectives

- Promote standards in marine and coastal spatial data financed in whole or in part by Federal funds
- Exchange information on technological improvements for collecting marine and coastal spatial data
- Encourage the Federal and non-Federal community to identify and adopt standards and specifications for marine and coastal spatial data
- Engage in partnerships to develop marine and coastal data



Sample of Themes and Datasets of Interest

Themes

- Baseline/Maritime Zones
- Cadastral – Offshore
- Elevation – Bathymetric
- Marine Boundaries
- Outer Continental Shelf
- Shoreline
- Transportation – Marine

Data Sets

- Nautical Charts
- Shoreline
- Bathymetry
- EEZ & Territorial Sea
- 8(g) Zone
- Marine Cadastre
- Environmental Sensitivity Index
- Coastal Change Analysis Land Cover
- Marine Protected Areas
- Fisheries
- Submerged Lands

Selected Activities – Ocean and Coastal Mapping Integration Act

H.R. 146 – Omnibus Public Lands Management Act

Title XII/Subtitle B

Ocean and Coastal Mapping Integration Act

***“A bill to establish a coordinated and comprehensive
Federal ocean and coastal mapping program/plan”***

Digital Coast

- **Approach:** Bring the geospatial and coastal management communities together
- **Outcome:** A constituent-driven, integrated, enabling platform supporting coastal resource management

The screenshot shows the Digital Coast website in a Windows Internet Explorer browser window. The address bar displays the URL <http://www.csc.noaa.gov/digitalcoast/>. The website header includes the Digital Coast logo and navigation links for Home, Data, Tools, Training, Approaches, and In Action. A search bar is located in the top right corner. The main content area features a large banner with the text "More than just data..." and a description of the Digital Coast's mission. Below the banner, there are three columns of featured resources: Data, Tools, Training, In Action, Approaches, and Featured Resources. The Data column includes links for "Data", "Tools", "Training", and "In Action". The Approaches column includes links for "Approaches", "Coastal Inundation Toolkit", "Offshore Renewable Energy Planning", and "Mississippi Geospatial Clearinghouse". The Featured Resources column includes links for "Featured Resources", "State of the Coast", "Building Resilient Coastal Communities", and "Mississippi Geospatial Clearinghouse". At the bottom of the page, there is a "Recent Updates" section with three thumbnail images and a "Testimonials" section with a quote from a participant.

Digital Coast
NOAA Coastal Services Center

Home Data Tools Training Approaches In Action

More than just data...

The Digital Coast also provides the tools, training, and information needed to turn these data into the information most needed by coastal resource management professionals. [Read more...](#)

Welcome to the new Digital Coast. If you have questions or comments, please [take a video tour](#) or [contact us](#).

Data
Learn more about the kinds of data available and download data.

Tools
Use these tools to turn data into the useful information your organization needs.

Training
Update your skills by participating in one of these training programs.

In Action
See how data and tools are used to address coastal management issues.

Approaches
In this section, Digital Coast resources are packaged in a way that best assists coastal communities working to address a specific issue.

Coastal Inundation Toolkit
Understand the basics and get the tools that will help make your community more resilient.

Offshore Renewable Energy Planning
Get the data and tools needed to make siting decisions.

Featured Resources

State of the Coast
Get a state-level view of how coastal ecosystems, economies, and communities are connected.

Building Resilient Coastal Communities
See how coastal counties can use Digital Coast to build resilient communities.

Mississippi Geospatial Clearinghouse
A comprehensive spatial information warehouse for use by government, academia, and the private sector.

Recent Updates [Sign up for updates](#) [Subscribe to RSS feed](#)

Testimonials

“ I use Digital Coast all the time to find lidar data. ”

Participant, geographic information system conference

Selected Activities

- Shoreline Website
- OCMIA
- Digital Coast
- ICAN

Selected Activities

- Shoreline Website
- OCMIA
- Digital Coast
- ICAN

Selected Activities

- Shoreline Website
- OCMIA
- Digital Coast
- ICAN

Coastal and Marine Ecological Classification Standard (CMECS)

Version III

Marine and Coastal Spatial Data Subcommittee



CMECS Structure: Five aspects of the marine environment in one framework

Water Column Component



The structure, pattern, and processes

Benthic Biotic Component



of the water column and Biological composition and coverage of the benthos

Surface Geology Component



composition of the near-surface substrate

Sub-Benthic Component



Character of the sediment and of biogenic substrates (e.g. coral reefs)

GeoForm Component



below the substrate surface Major geomorphic or structural

character of the coast or seafloor

Ocean Policy Task Force

“To succeed in protecting the oceans, coasts, and Great Lakes, the United States needs to act within a unifying framework under a clear national policy, including a comprehensive, ecosystem-based framework for the long-term conservation and use of our resources.”

President Barack Obama, June 12, 2009
Creation of the Ocean Policy Task Force



Ocean Policy Task Force

“To succeed in protecting the oceans, coasts, and Great Lakes, the United States needs to act within a unifying framework under a clear national policy, including a comprehensive, ecosystem-based framework for the long-term conservation and use of our resources.”

President Barack Obama, June 12, 2009
Creation of the Ocean Policy Task Force



CMSP Defined



- A comprehensive, adaptive, integrated, ecosystem-based, and **transparent** spatial planning process, based on sound **science**, for analyzing current and anticipated **uses** of ocean, coastal, and Great Lakes areas.
- Identifies areas **most suitable** for various types of activities. Goals of the process are to: reduce conflicts among uses, reduce environmental impacts, facilitate **compatible uses**, and **preserve** critical ecosystem services.

The President's National Ocean Policy Building Blocks



THE WHITE HOUSE COUNCIL ON ENVIRONMENTAL QUALITY

*Final Recommendations
Of The
Interagency Ocean Policy
Task Force
July 19, 2010*

National Ocean Council
National Priority Objectives
Framework for Coastal and Marine
Spatial Planning
Regional Planning Bodies

CMSP National Information Management System

- **Charge** – Development of a national system dedicated to coastal and marine scientific data and information products to meet the diverse needs of CMSP
 - Compatibility with existing systems
 - Standards based
 - Multi-sector input
 - Central or regional portals
 - Lead Agency or entity- TBD
 - Guidance for the NIMS within 9 months of NOC forming; Prototype Portal operational
 - System developed in 2 yrs

CMSP National Information Management System

CMSP Data Access, Management, and Interoperability

- Data accessed through a common interface
- Federated approach to data and metadata management
- Data provided through standard-based interoperable formats

Presentation, Visualization, and Analytics

- Provide visualization options of CMSP data through web mapping technologies
- Enable integration of spatial data into visualization tools

Web-based Technologies

- Utilize Web 2.0 technologies
- Web services to improve interoperability and data exchange

Scalable and Flexible IT Infrastructure

Documentation and Management

- Publish and make available all technical documentation
- Use OMB FEA methodologies to document system processes

NOAA CMSP Website



Coastal and Marine Spatial Planning
National Oceanic and Atmospheric Administration

Home Latest Updates Resources

National Framework

NOAA's Role

Data and Tools

Examples



Ocean Policy Task Force

On June 12, 2009, President Obama signed a memorandum establishing an Interagency Ocean Policy Task Force, led by the White House Council on Environmental Quality. On July 19, 2010 the Task Force released a set of final recommendations that set a new direction for improved stewardship of the ocean, our coasts, and the Great Lakes. The recommendations provide: (1) our Nation's first ever national ocean policy; (2) a strengthened governance structure to provide sustained, high-level, and coordinated attention to ocean, coastal, and Great Lakes issues; (3) a targeted implementation strategy that identifies and prioritizes nine categories for action that the United States should pursue; and (4) a framework for effective coastal and marine spatial planning. These documents are available on their website. [Learn more...](#)

What is coastal and marine spatial planning?

The Ocean Policy Task Force defines coastal and marine spatial planning as a comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean, coastal, and Great Lakes areas. Coastal and marine spatial planning identifies areas most suitable for various types or classes of activities in order to reduce conflicts among uses, reduce environmental impacts, facilitate compatible

About This Website

The purpose of this website is to provide users with coastal and marine spatial planning information related to national level policies, NOAA's role, and to help managers, policy makers, and all those who use and appreciate the ocean, to understand the concept of coastal and marine spatial planning and advance its implementation in real-world settings.

Coastal and marine spatial planning is a rapidly

Latest News

[Notify me of news postings](#)

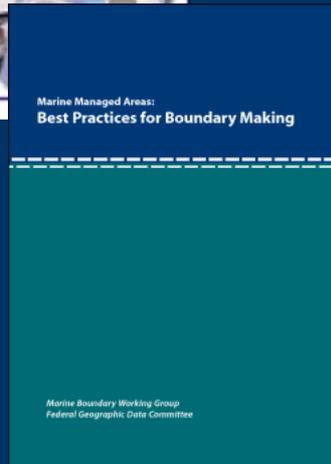
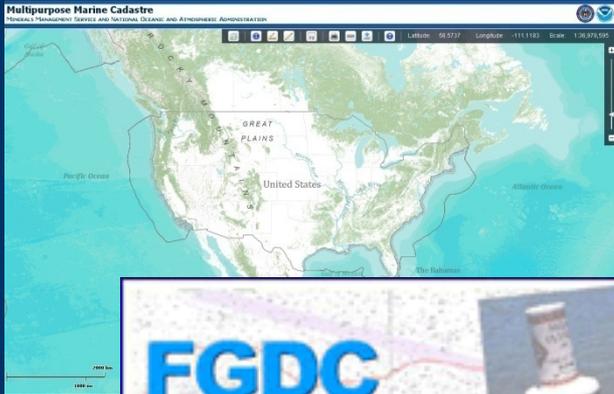
Obama Administration Unveils New National Policy for Our Oceans, Coasts and Great Lakes

July 19, 2010 – The National Policy for the Stewardship of Our Oceans, Coasts and Great Lakes sets the nation on a clear path for the sustainable use of our oceans and coastal lands. Heralded as a significant achievement, the new policy adopts the final recommendations of the president's Interagency Ocean Policy Task Force and states clearly and loudly that healthy oceans matter.

Lubchenco, Sutley Publish Article on U.S. Ocean Policy in Science

June 18, 2010 – *Science* magazine featured an article entitled "Proposed U.S. Policy for Ocean, Coast, and Great Lakes Stewardship" by Dr. Jane Lubchenco, under secretary of commerce for oceans and atmosphere and administrator of NOAA, and Ms. Nancy Sutley,

Marine Boundary Working Group



Marine Boundary Stewardship

- Interagency coordination
- Data dissemination
- Best practices
- Standardization
- Data development
- Partnerships
- Innovation

Major Accomplishments

MBWG chartered
by FGDC; 20 active
members; 10 agencies

Worked with Cadastral
SC to incorporate
marine elements in the
FGDC CDCS

Marine Boundaries Best
Practices Handbook was
published

Web Services for
authoritative
boundaries published

2001

2002

2003

2005

2006

2007

2009

2010

Developed web based
inventory of authoritative
marine boundaries and
associated legislation
(data portal)

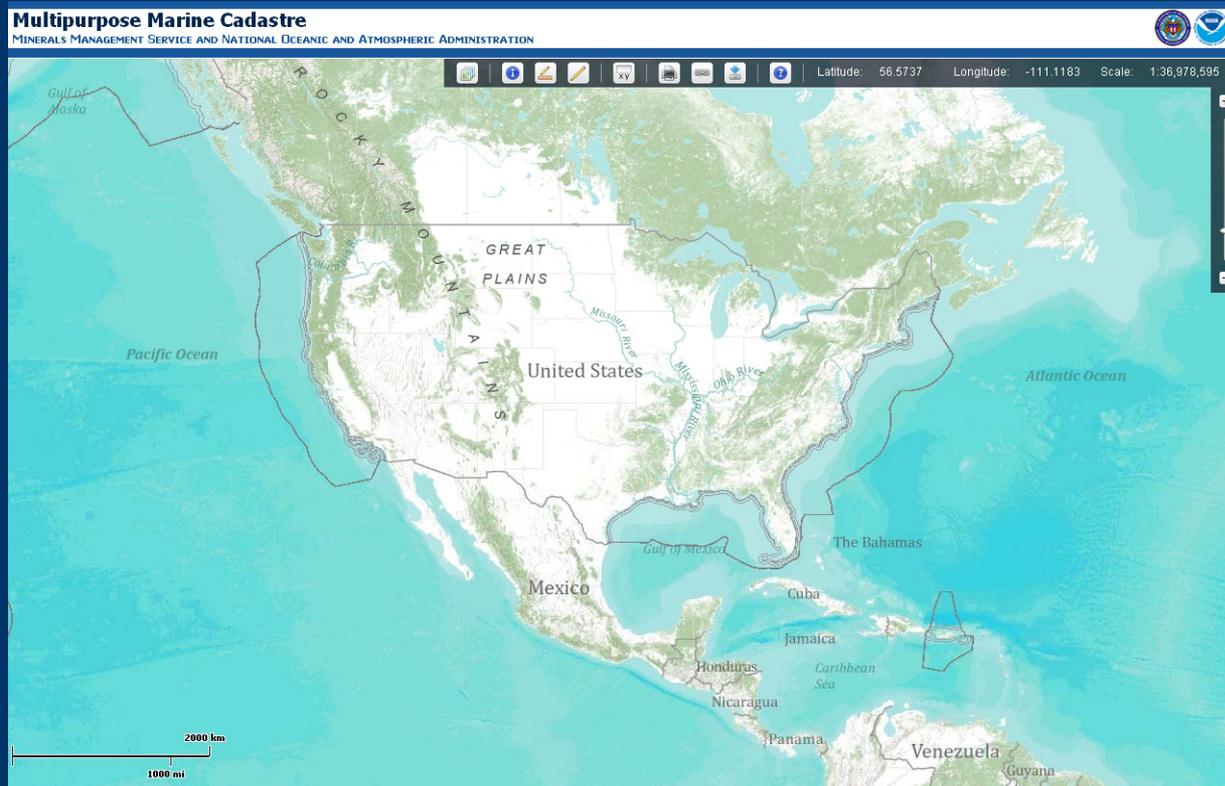
EPACT 2005 was
enacted – called for
mapping system for OCS

MMC project plan
developed; MOU
signed; Prototype
released

MMC Version 2.0
released

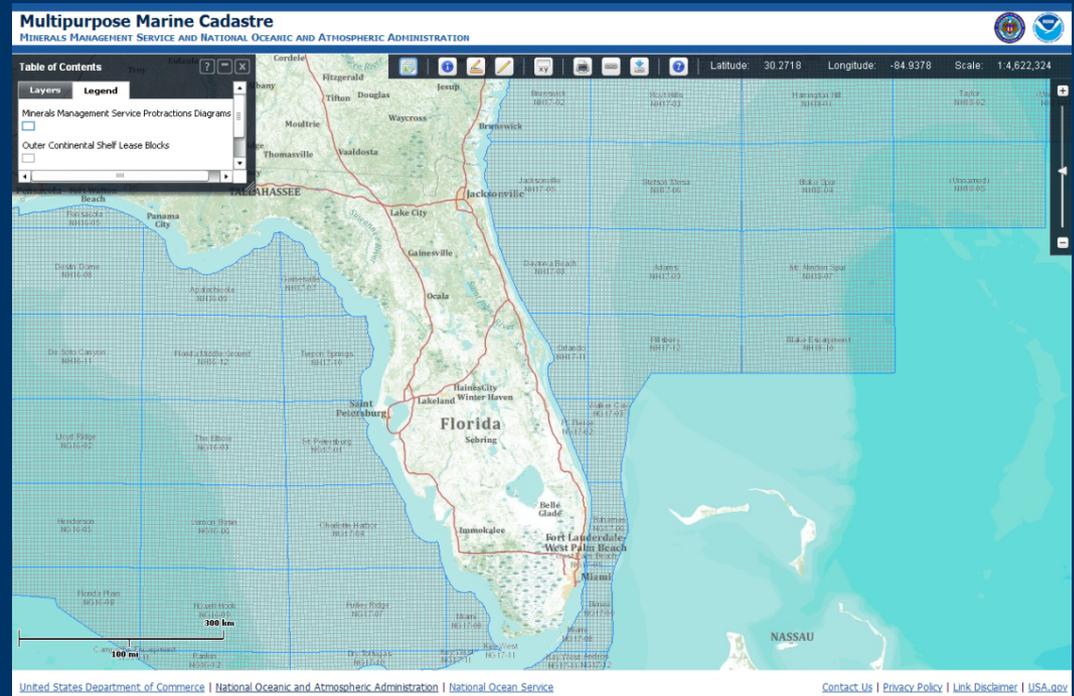
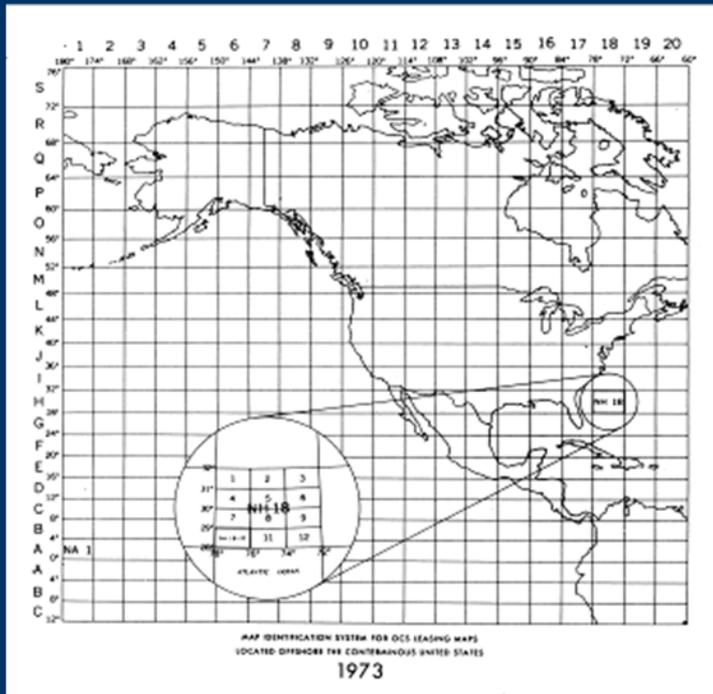
Multipurpose Marine Cadastre

A marine information system for the outer continental shelf and state waters that provides a data framework to support decision making.

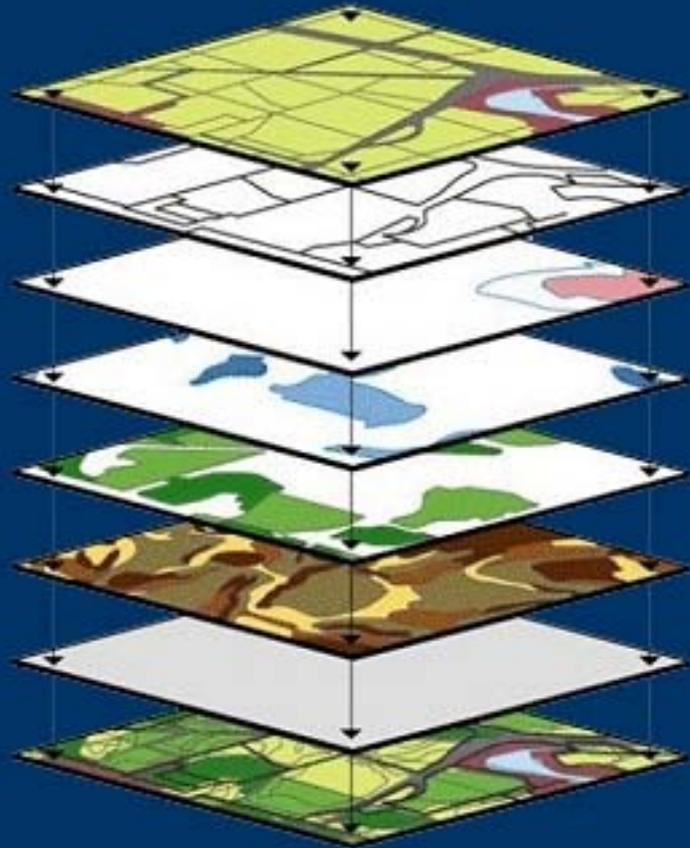


What is a Marine Cadastre?

“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)



Multipurpose Marine Cadastre Data Themes



Jurisdictional Boundaries

Georegulations

Navigation & Marine Infrastructure

Marine Habitat & Biodiversity*

Human Uses*

Geology and Sea Floor*

Basemaps

* Denotes significant gaps in data

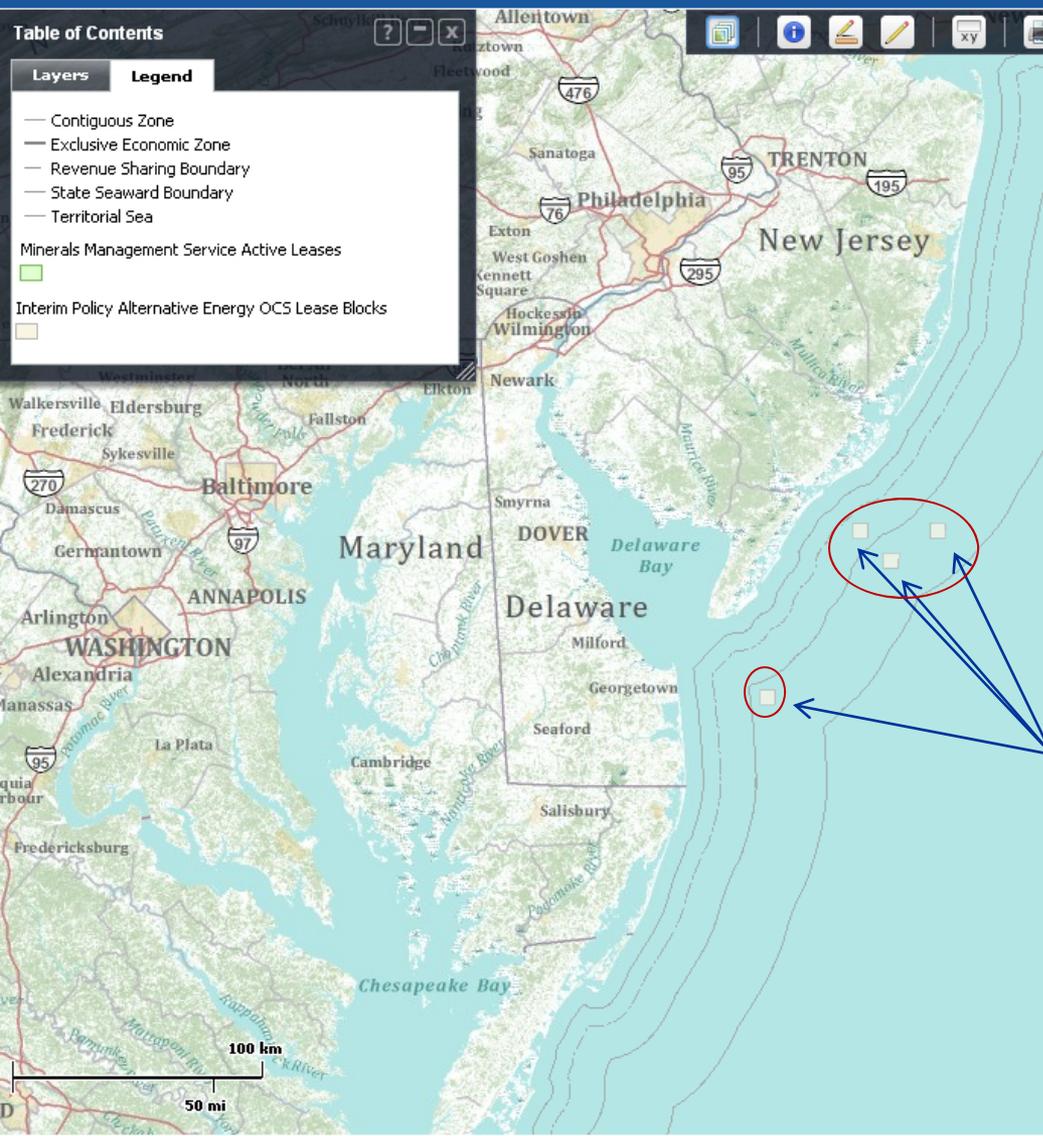
Multipurpose Marine Cadastre

MINERALS MANAGEMENT SERVICE AND NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



Table of Contents

Layers	Legend
—	Contiguous Zone
—	Exclusive Economic Zone
—	Revenue Sharing Boundary
—	State Seaward Boundary
—	Territorial Sea
■	Minerals Management Service Active Leases
■	Interim Policy Alternative Energy OCS Lease Blocks



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
MMS Protractions Diagrams
Outer Continental Shelf Lease Blocks
MMS Planning Areas
Federal OCS Administrative Boundaries

Federal Georegulations

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
Drilling Platforms
Transmission Lines
Ports
Shipping Lanes
Pipelines
Fairways
Wrecks and Obstructions
Military Danger Zones

Geology and Seafloor Data

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

MMS 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)
Seagrass 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

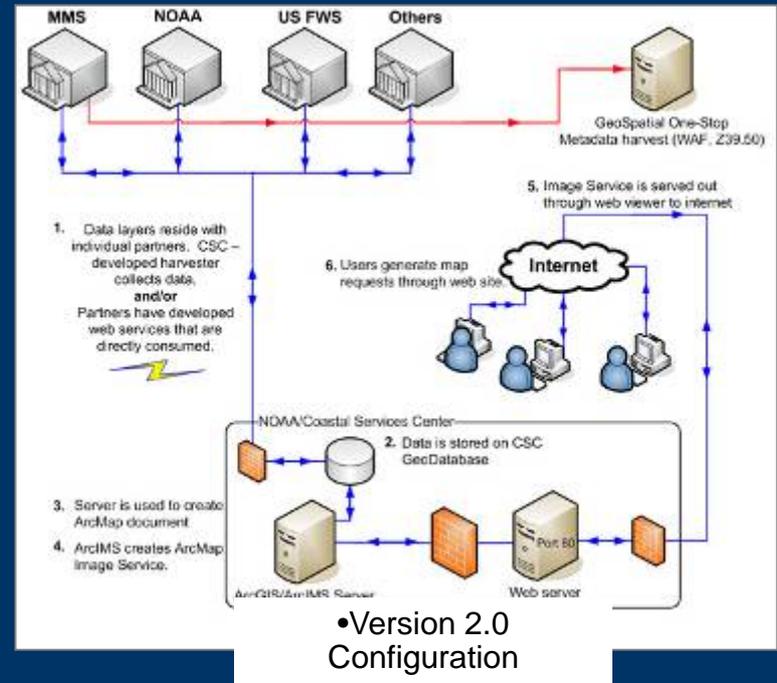
Data Providers

- 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
- Federal Energy Regulatory Commission



MMC - Data Access and Management

- Data is managed and maintained by the authoritative source
- CSC harvests on a periodic basis to keep the viewers up to date
- Access to data is provided via the Marine Boundary Working Group data portal
- Working on a series value added data services
 - Core marine cadastre
 - Marine Infrastructure
 - Georegulations



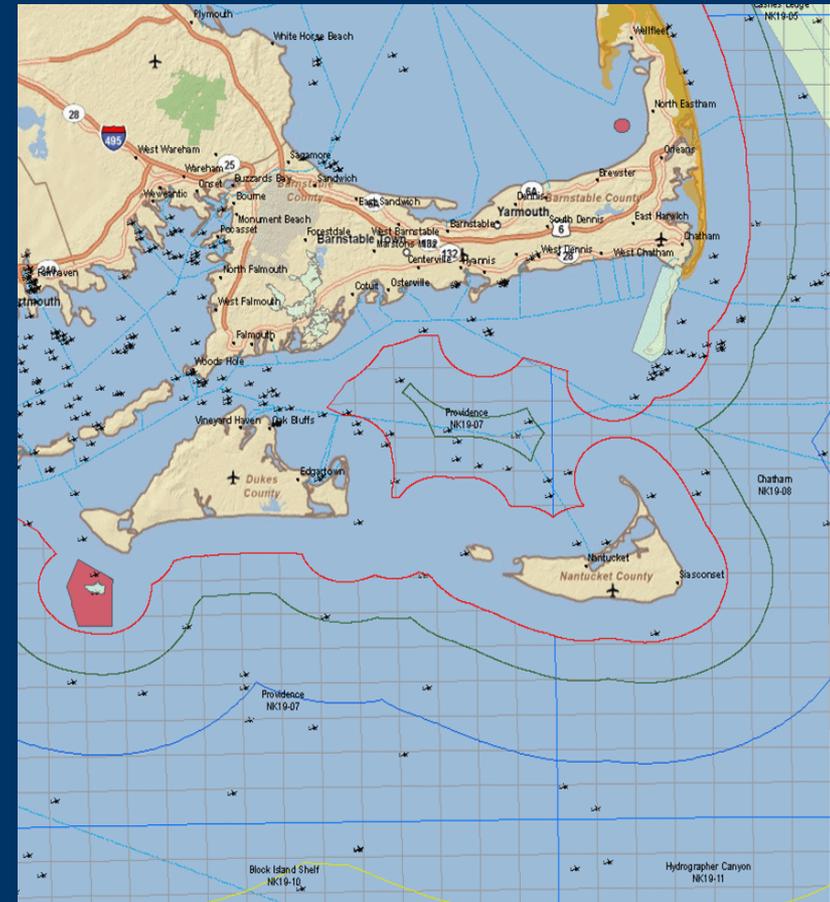
Use Cases

Partners: Bureau of Ocean Energy Management and NOAA CSC

Issue: Alternative Energy Development on the OCS

Task: Develop mapping applications to support energy planning and regulations

Status: Ongoing effort



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

The screenshot displays the 'Multipurpose Marine Cadastre' web application. The interface includes a header with the title and logos for the Minerals Management Service and the National Oceanic and Atmospheric Administration. A large background image of a brown bear is visible. On the left, a 'Table of Contents' panel lists various layers such as 'Revenue Sharing bo...', 'State Seaward Bour...', 'Territorial Sea', 'Marine Protected Areas' (with sub-categories: Federal, Local, State, Territorial), 'National Marine Sanctuar...', 'Outer Continental Shelf', 'Shipping Lanes', 'Shipping Fairways', 'California Hydrokinetic P...', 'Gray Whale Migration (C...', 'Pinniped Haul Outs (Call...', 'Rookeries (California)', 'Groundfish Essential Fish', and 'Groundfish Essential Fis...'. The main map area shows a satellite view of a coastal region with a scale of 1:577,790. A legend on the right side of the map shows 'Physical' and 'Satellite' options. The footer contains navigation links: 'United States Department of Commerce | National Oceanic and Atmospheric Administration | National Ocean Service | Contact Us | Privacy Policy | Link Disclaimer | USA.gov'.

Summary

The screenshot shows the Marine Cadastre website with a dark blue header. The header includes the NOAA logo, the text "Marine Cadastre", and navigation links: "MMC Home", "About", "Partnerships", "Data", "In Practice", and "Support". The main content area features a large heading "Multipurpose Marine Cadastre" and a sub-heading "Your Source for Authoritative Ocean Data". Below this are three bullet points: "View and explore national-scale boundary, cadastral, and other ocean data", "Analyze data, produce and share a map", and "Download data from its original source". A prominent orange button labeled "Launch the Viewer" is positioned below the text. To the right of the text is a screenshot of a web map interface showing a coastal area with various colored overlays and a legend. Below the main content is a section titled "Multipurpose Marine Cadastre (MMC) Version 2.0 Now Available". This section contains a paragraph describing the new version's features, a sub-heading "What's New in Version 2.0?", and three bullet points: "Better performance using ArcServer and Flex", "Additional marine habitat and seafloor data", and "More intuitive and useful tool design". A "Launch the Viewer »" link is provided. At the bottom of the page are three columns: "Data" (Access and download data layers contained within the MMC. More »), "Support" (Explore frequently asked questions and other supporting documents. More »), and "In Practice" (See how the MMC is currently being used. More »).

Authoritative Framework Data

- Web Portal
- Web Services

National Viewer

- Web mapping
- Data Analysis
- Map production

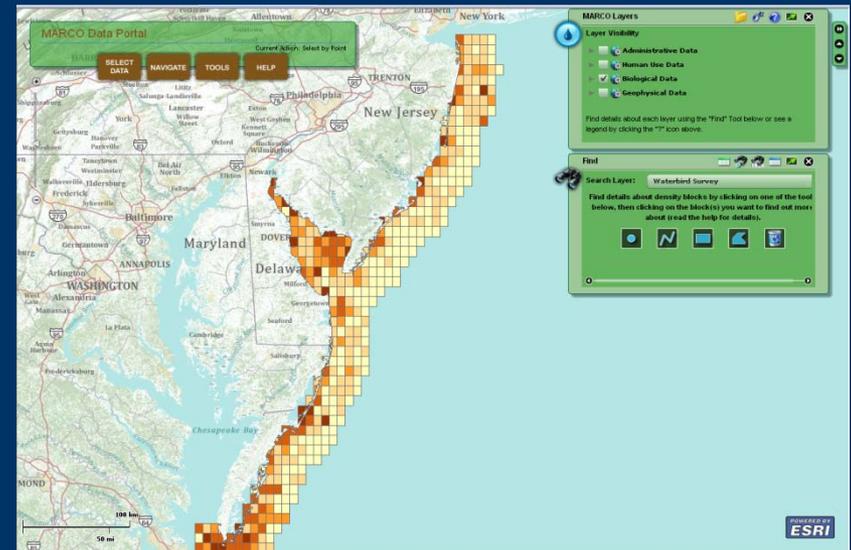
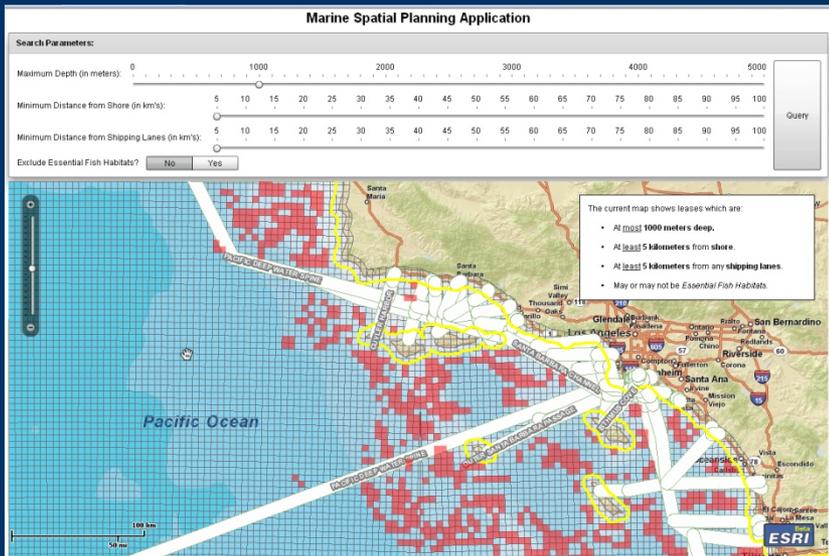
Regional and State Support

- Best Practices
- Templates and code
- Consultation

Looking Forward...

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

Going Regional - Support the development of regional CMSP. 9 planning bodies.
- Data, Tools, Templates, and Tech Support



MMC – Future Activities

- Work to achieve our vision of a distributed system
- Integrate biology, benthic, and human use data
- Marine Basemaps
- Capitalize on emerging partnership opportunities
- Engage in demonstration projects
- Focus group workshop planned for winter 2011

MMC – Future Activities

- Work to achieve our vision of a distributed system
- Integrate biology, benthic, and human use data
- Capitalize on emerging partnership opportunities
- Engage in demonstration projects
- Focus group workshop planned for winter 2011

Contacts

- Christine Taylor, BOEMRE – Christine.Taylor@boemre.gov
- David Stein, NOAA CSC – Dave.Stein@noaa.gov
- Web access:
www.marinecadastre.gov