

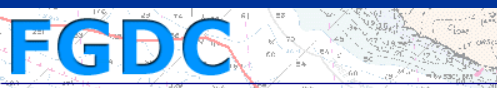
The Energy Policy Act of 2005 (EpAct)

Amended the Outer Continental Shelf Lands Act (OCSLA) by granting the Department of the Interior (DOI) new authority to regulate Federal offshore renewable energy and alternate uses of the Outer Continental Shelf (OCS)

Authorizes the DOI to act as “lead” agency for certain renewable and alternate energy-related uses on the OCS

DOI designated the authority to MMS (as co-chair of Marine Boundary Working Group)

Directed the Secretary of the Interior, in cooperation with the Secretary of Commerce, the Commandant of the Coast Guard, and the Secretary of Defense to establish an OCS Mapping Initiative to assist in decision making related to alternative energy uses on the OCS.



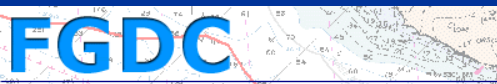
Participants

Core Participating Agencies:

- DOI/MMS
- DOC/National Oceanic and Atmospheric Administration (NOAA)
- DOI/Fish and Wildlife Service (FWS)

Seeking input from:

- Department of Defense
- U.S. Coast Guard



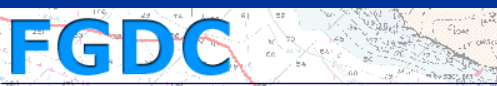
FGDC's Marine Boundary Working Group (MBWG)

- Provides a venue for communicating and coordinating on marine boundary activities
- Fosters integrated approaches to legal and geospatial descriptions of marine boundaries.
- Maximizes use of public resources to avoid duplication of effort
- Develops marine boundary dissemination mechanisms
- Develops data content standards and standardized methodologies to produce more complete, accurate, and usable marine boundary data

What is the MBWG Doing to Respond to the EpAct?

As part of its 2007 work plan, the MBWG will facilitate this effort by:

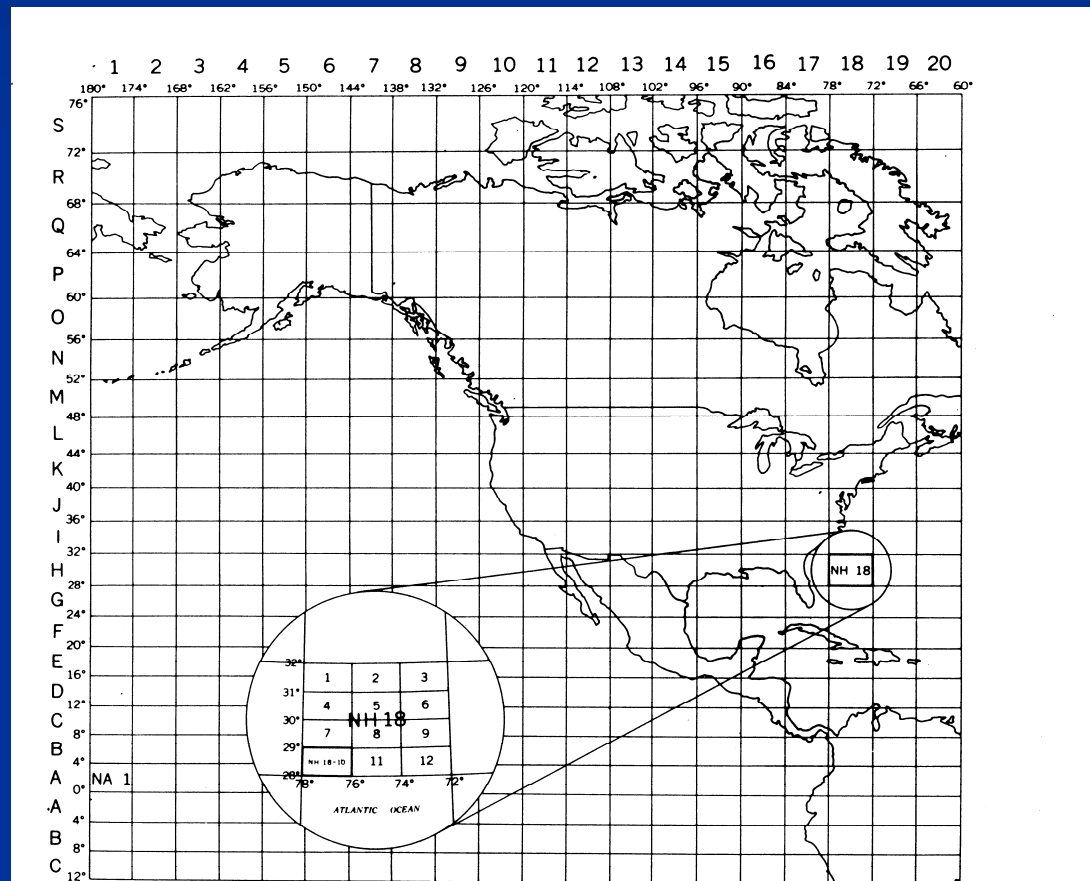
- Developing a comprehensive list of marine boundary data, restrictions and encumbrances, agencies of responsibility, and associated legislation and regulations
- Continuing to make data and information accessible through the Web and the E-Gov Geospatial One-Stop Portal.
- Coordinating with the Marine Protected Areas (MPA) Initiative to ensure that marine boundary source data are accessible through their inventory.
- Develop minimum requirements for accessible data.
- Developing and implementing a project plan for the mapping component of the Digital Mapping Initiative which we're calling the Multipurpose Marine Cadastre.



What is a Marine Cadastre?

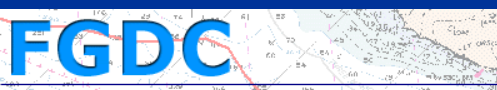
“A marine cadastre is a system to enable the boundaries of maritime rights and interests to be recorded, spatially managed and physically defined in relationship to the boundaries of other neighboring or underlying rights and interests .”

(Robertson et al, 1999)



MAP IDENTIFICATION SYSTEM FOR OCS LEASING MAPS
LOCATED OFFSHORE THE CONTERMINOUS UNITED STATES

1973

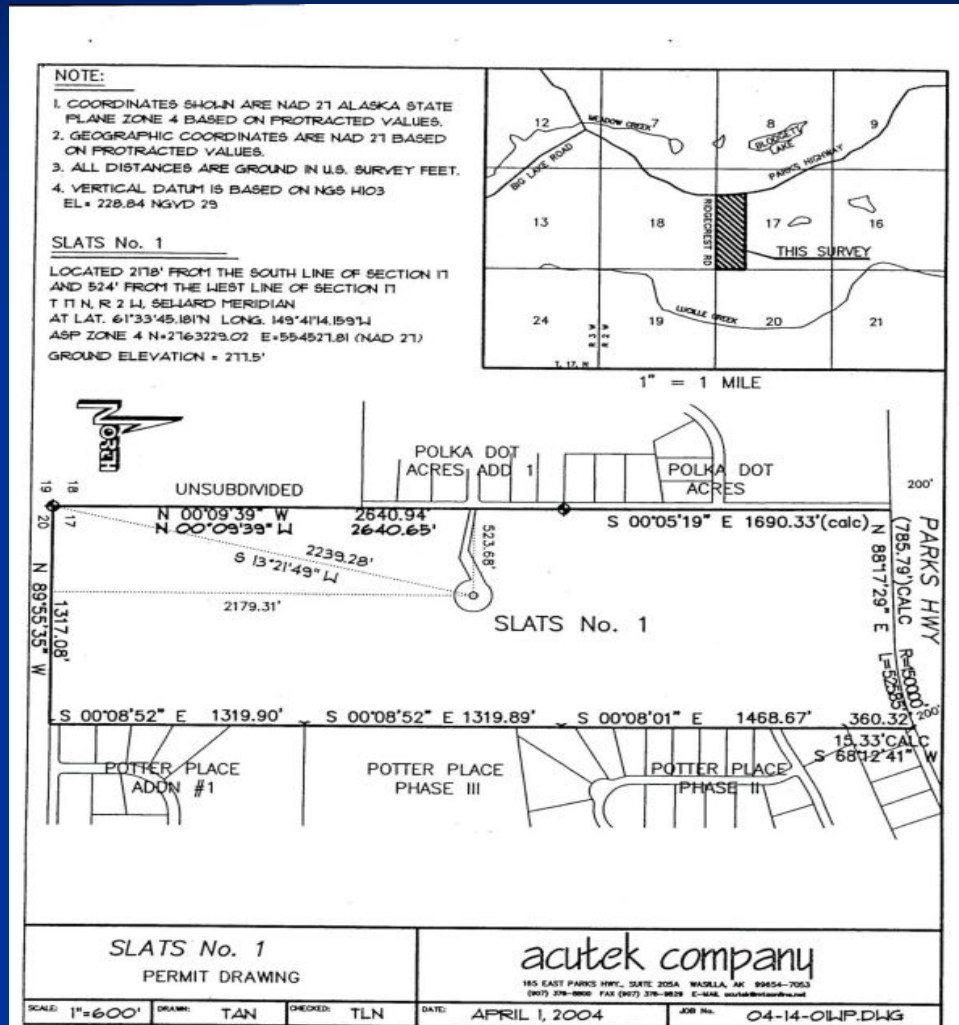


What is a Marine Cadastre?

“Marine cadastre is a marine information system, encompassing both the nature and spatial extent of interests and property rights, with respect to ownership and various rights and responsibilities in the marine jurisdiction.”

(University of New Brunswick, Canada, 2000)

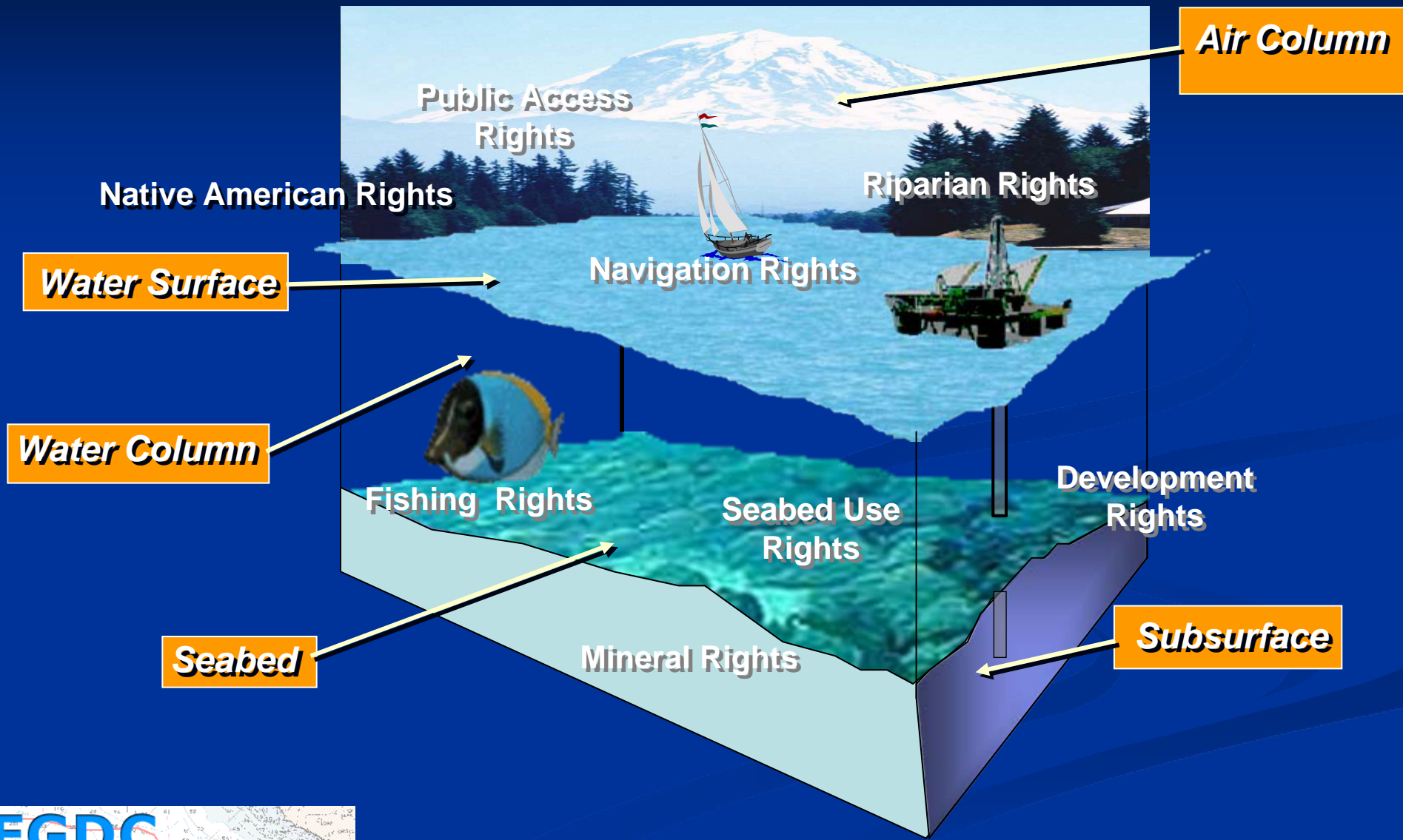
It's like a survey plat – the spatial data in the cadastre gives legal rights and ownership.



Why Build a Multipurpose Marine Cadastre?

- Provide for a comprehensive spatial data infrastructure to assess, administer and manage rights and interests, restrictions, and responsibilities in the marine environment.
- Provide decision makers at the highest levels of government, both Federal and State with the types of quality information necessary to make informed decisions in a timely manner.
- *“Good Ocean Governance!!”*

Marine Cadastre = A Marine Information System



Sutherland, 2003

What will the Multipurpose Marine Cadastre Encompass?

- OCS locations of Federally-permitted activities;
- Obstructions to navigation;
- Submerged cultural resources;
- Undersea cables;
- Offshore aquaculture projects;
- and any area designated for the purpose of safety, national security, environmental protection, or conservation and management of living marine resources.

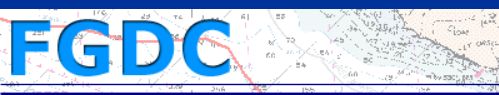
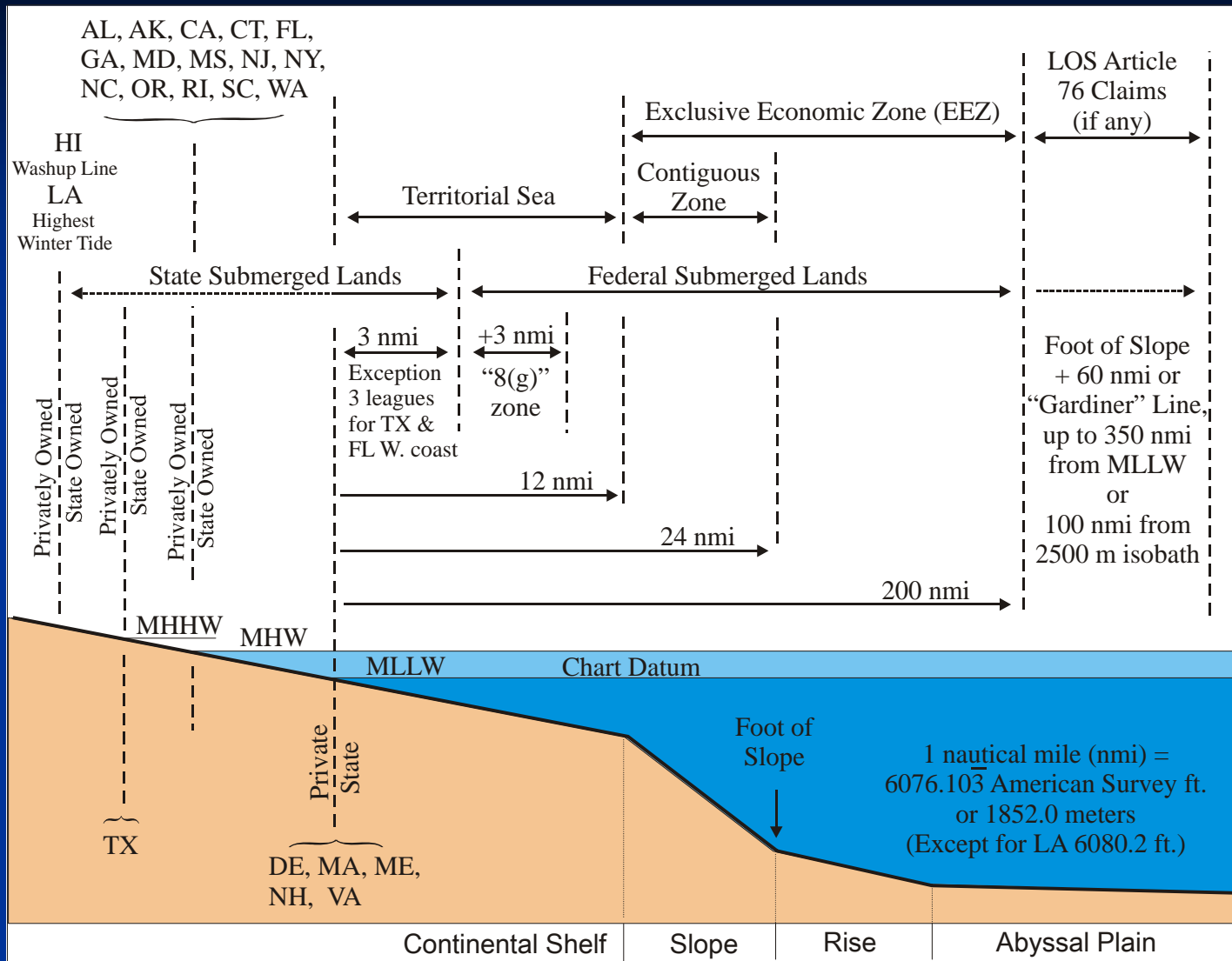
Land vs. Marine Cadastre

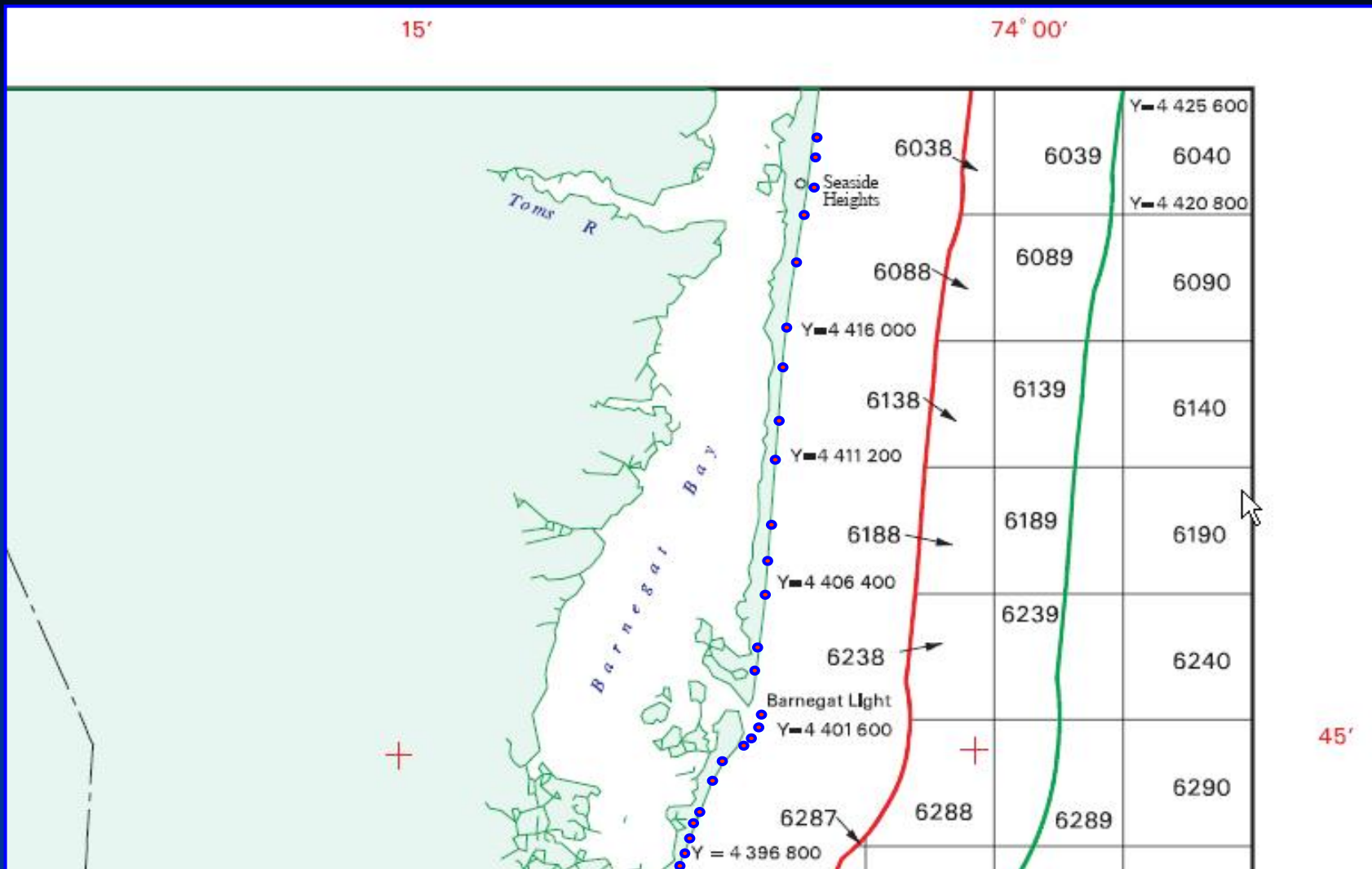
Similar issues

- A record of the nature and extent of interests in land
- Adjudication
- Survey
- Bundle of rights

Dissimilar issues

- Mapping the shoreline has increased significance
- Many lines are ambulatory
- Delimited, not demarcated

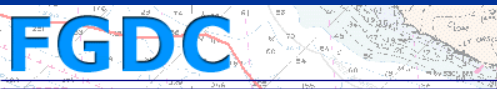
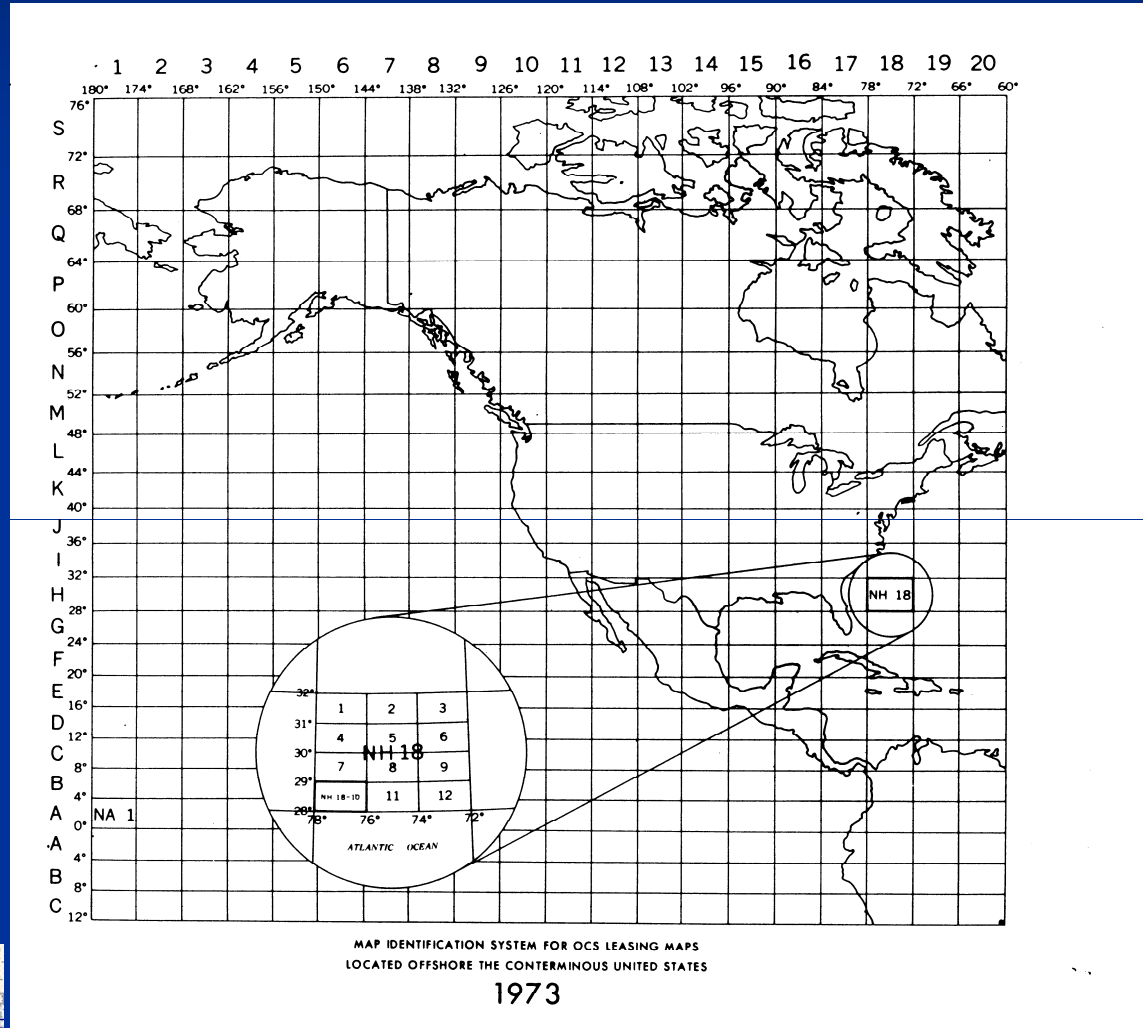




For example, here is an area off the coast of New Jersey. The small dots on the shore are coastline points from which the red Submerged Lands Act Boundary and green Limit of '8(g) Zone' are projected.

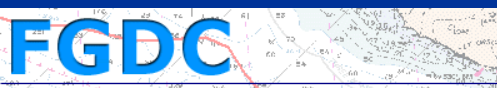
What is the Basis of the Multipurpose Marine Cadastre?

It will be based on a grid (UTM shown as an example)



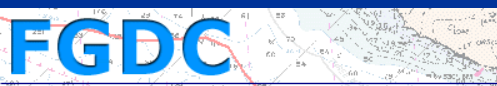
Primary Data Themes

- UTM Grid System
- Coastline Points (*term used in Submerged Lands Act*)
- Submerged Lands Act and OCS Lands Act boundaries
 - Submerged Lands Act boundary
 - Limit of “8(g) Zone”
- Official Protraction Diagrams/Leasing Maps
- Maritime Boundaries
- Baseline Points (*term used in Law of the Sea Convention*)
- Maritime Zones
 - Three Nautical Mile Line
 - Territorial Sea
 - Contiguous Zone
 - Exclusive Economic Zone
 - Extended Continental Shelf Claims
- Marine Managed Areas
- Marine Protected Areas
 - National Marine Sanctuaries
 - National Parks
 - Wildlife Refuges
 - National Monuments
 - Ecological Reserves
 - Etc.



Supporting Data Themes

- Coast line/Shore line
- Sand Borrow Sites
- Pipelines
- Fiber Optic Cables
- Artificial Reef Sites
- Shipping Fairways and Anchorage Areas
- Military Restricted Areas
- Platform Locations
- Wind, Wave, and Tidal Energy Sites
- Archeological Sites
- Coastal State Administrative boundaries
- Aquaculture Sites
- MMS Leases
- Liquid Natural Gas (LNG) Sites
- Bathymetry
- Much more...

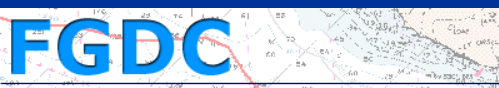


So, things like:



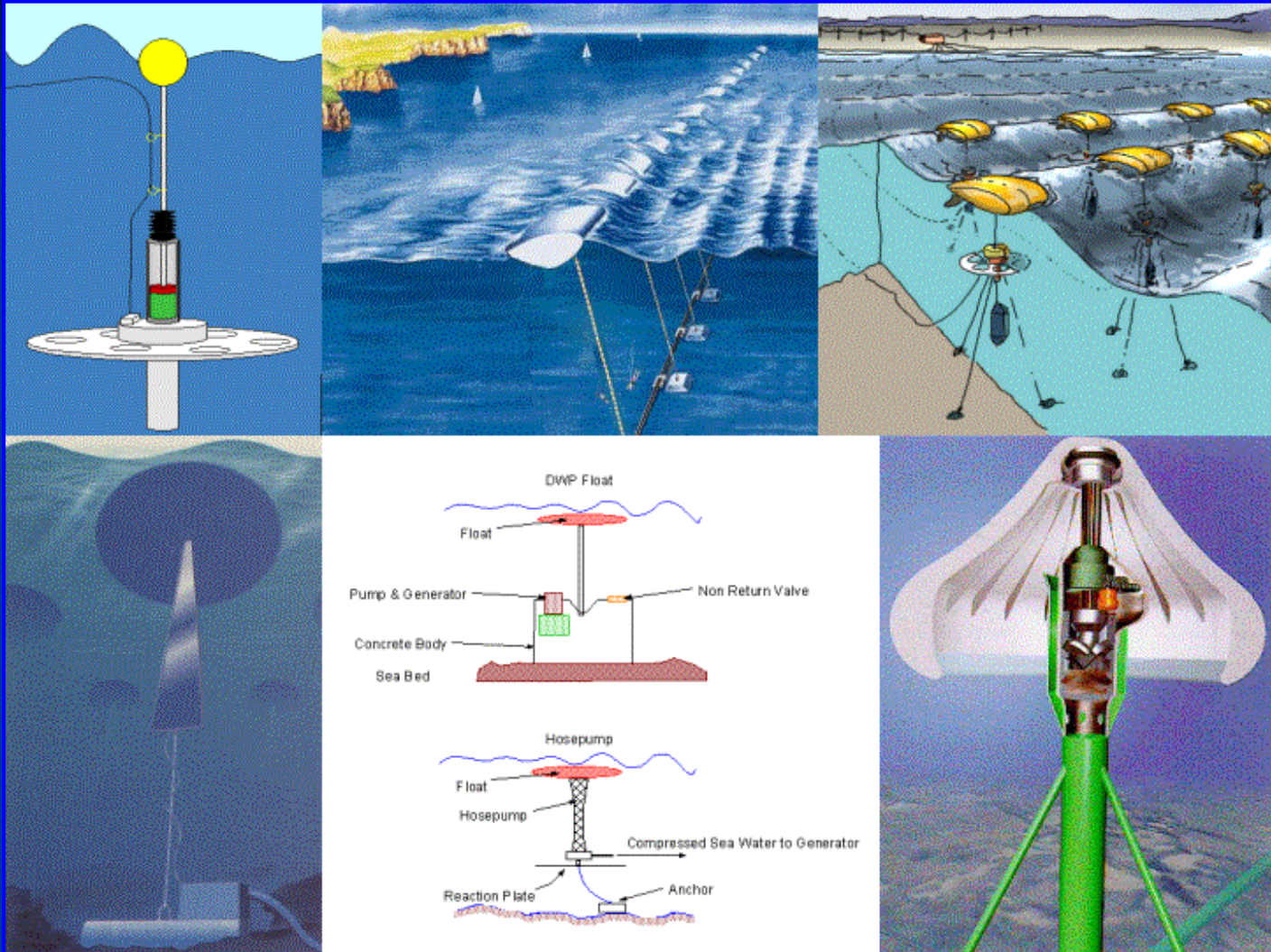
©AMEC Border Wind

Offshore Wind Farms



MARINE BOUNDARY WORKING GROUP

Or:



Alternative forms of wave energy

Layers served on an Open Geospatial Consortium (OGC) web map viewer that will ingest Web Map Services (WMS) from participating partners

Each partner will be the provider of the WMS for their own Agency of Responsibility (AOR). For example:

- MMS will provide the Submerged Lands Act (SLA) and Limit of the '8(g) Zone' Boundaries, among others
- NOAA will provide the limits of the Maritime Zones and Boundaries
- U.S. Fish and Wildlife Service will provide the National Wildlife Refuge marine boundaries, among others
- and the list goes on.....

Why is this Project Important?

There are many individual places one can go to see these data layers. For example, MMS provides the SLA and 8g boundary lines, NOAA can provide the 200 mile Exclusive Economic Zone, etc., **BUT:**

- There is no one portal that brings all the data layers together in a seamless fashion that enables one clear, concise view of the rights and ownership on the OCS.
- It's this one “big picture” that will enable decision-makers to make better, more informed, and timely decisions to better manage the ocean environment.

Multipurpose Marine Cadastre Implementation Criteria:

- Integrate with existing systems, e.g. Geospatial One Stop (GOS)
- Template based on existing viewer
- Open source standards (interoperability)
- Simple, clean interface
- Data must reside with the AOR
- Data in viewer must be up-to-date

Geospatial One-Stop (GOS)

Communities Help - □

Hurricanes

- [General Information](#)
- [Hurricanes in 2005](#)
- [Hurricanes in 2006](#)

Special Interest

- [Fire Mapping](#)
- [GIS for the Nation](#)
- [Geographic Names](#)
- [Homeland Security](#)
- [Indian Ocean Disaster](#)
- [Lewis and Clark](#)
- [Recreation](#)
- [The National Map](#)

Data Categories

- [Administrative Boundaries](#)
- [Agriculture](#)
- [Atmosphere](#)
- [Biology](#)
- [Business](#)
- [Cadastral](#)
- [Demographic](#)
- [Elevation](#)
- [Environment](#)
- [Facilities](#)
- [Geology](#)

Search geodata.gov Help - □

What: (e.g. River)

Where: (e.g. Harrison, NY)




[Show Advanced Search Options](#)

Fire Mapping Help - □

Fire Mapping

[Western Wildfires](#) [Key Resources](#) [Discussion](#) [Library](#) [What's New](#)

[GeoMAC Wildfire Information](#) [USFS Active Fires Map](#) [NOAA Fire Detection Map](#)

Current Wildfires in Southern California

The map shown on the left uses the three services above to show current Southern California Wildfires in the San Bernardino

Quick Start - □

Welcome to geodata.gov

Your One Stop for Finding and Using Geographic Data

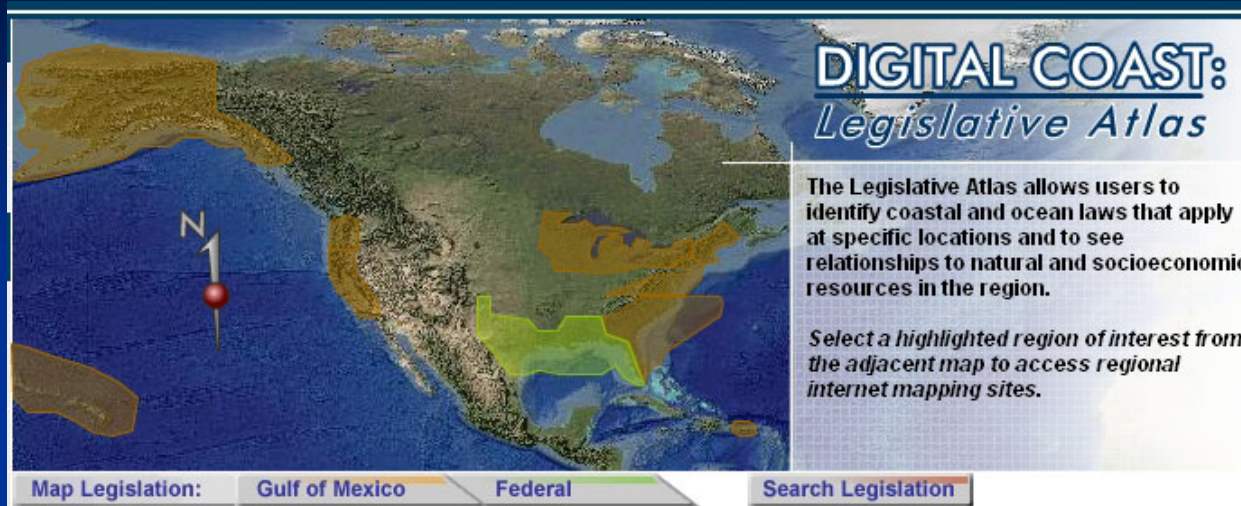
geodata.gov will help you:

- [Find Data or Map Services](#)
- [Make a Map](#)
- [Browse Community Information](#)
- [Cooperate on Data Acquisitions](#)

Save searches, maps, and your favorite geography to re-use later. A simple [registration process](#) opens up these

Internet

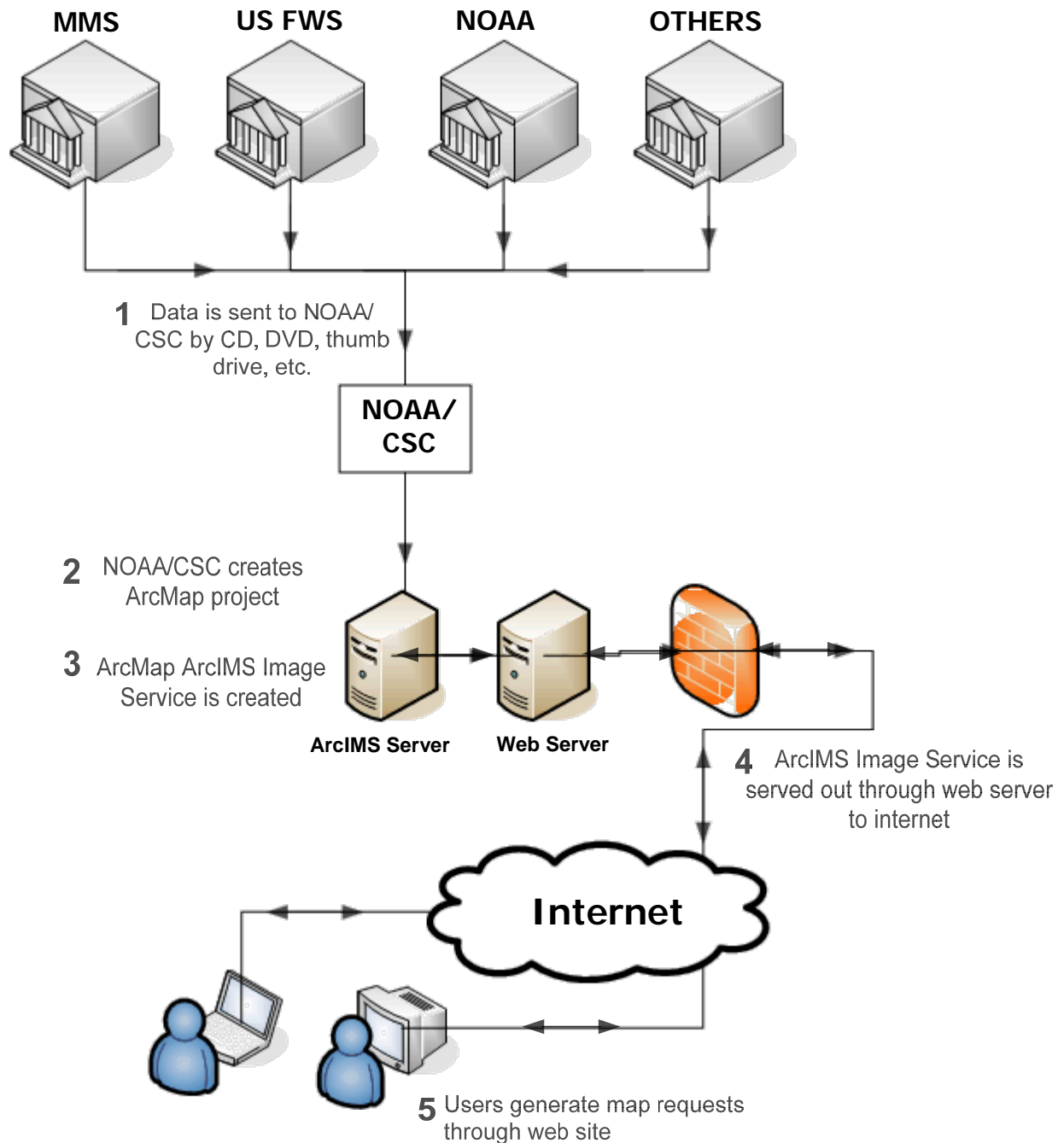
Existing Template



<http://www.csc.noaa.gov/legislativeatlas/>

- Will use NOAA Legislative Atlas ArcIMS template as initial viewer
- Functionality will include:
 - standard “out of the box”
 - data download
 - metadata display
 - select by attribute
 - map printing
 - report generation

Initial Configuration (Prototype)



Multipurpose Marine Cadastre Demo Viewer

FGDC
MARINE BOUNDARY WORKING GROUP

Multipurpose Marine Cadastre Prototype

Project Home

Legend Find Results Print Help Info

Show Advanced Tools Zoom In

MMC Data Layers

- All Layers
- Legislative Atlas Data
 - U.S. Exclusive Economic Zone
- NOAA Office of Coast Survey
 - Contiguous Zone
 - Territorial Sea
- USFWS
 - Coastal Refuge Boundaries
- National Marine Fisheries
 - National Marine Sanctuaries
- MMS Data
 - SLA Boundary
 - Limit of '10(g) Zone'
 - Lease Blocks
 - Planning Areas
 - Protraction Diagrams
- Base Layers
 - States - High Resolution
 - States - Low Resolution
 - BathyTopo_1m
 - BathyTopo_30s
 - BathyTopo_4m

Refresh Map

Auto Refresh

Data Download

Toggle All Symbology

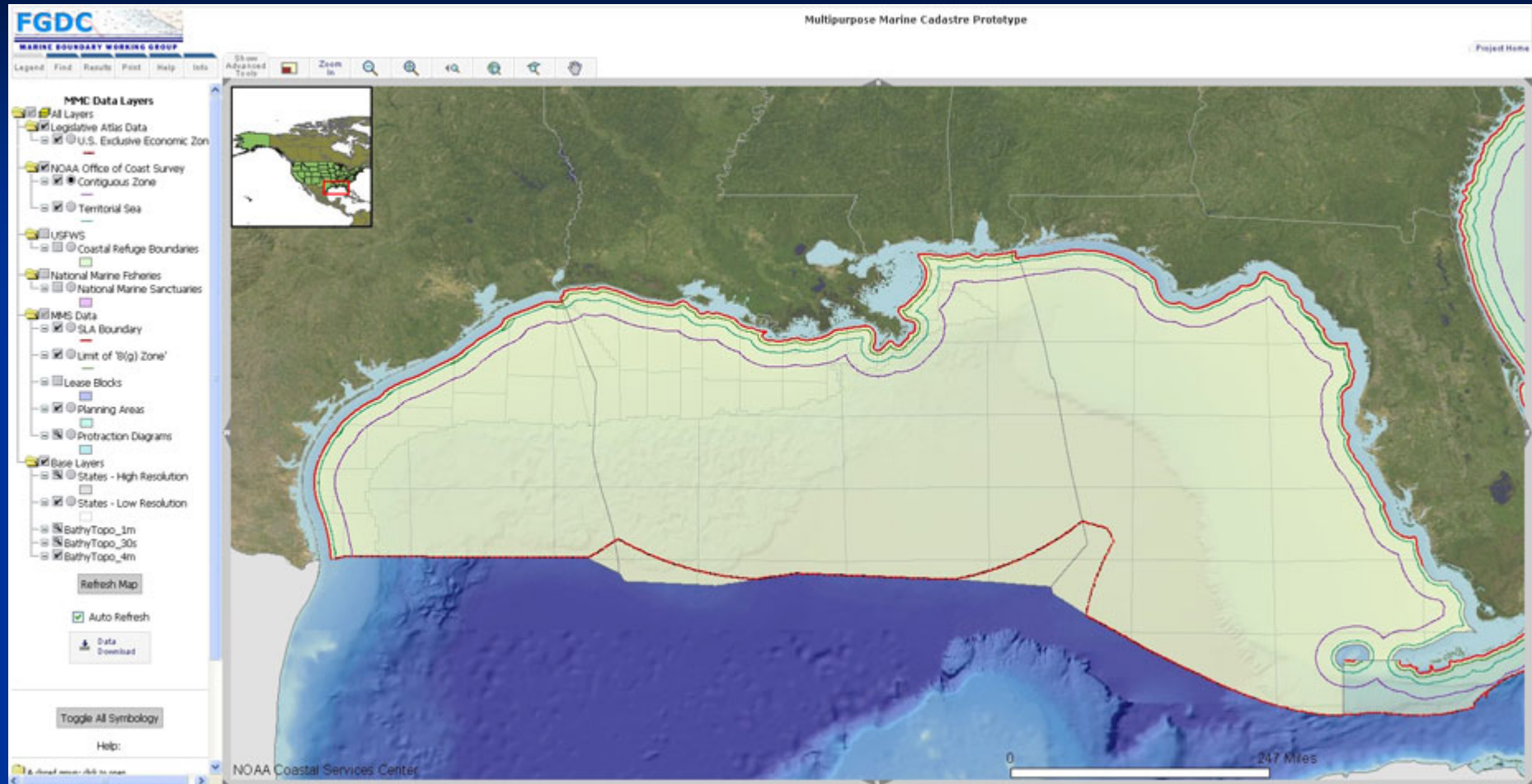
Help:

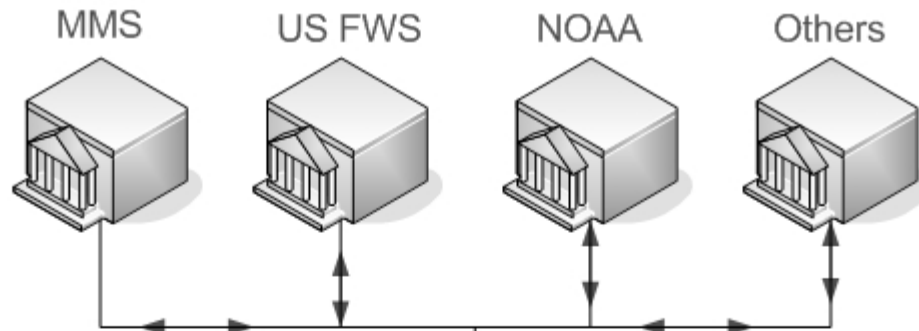
NOAA Coastal Services Center

USCGC | NOAA | HSC
NOAA Coastal Services Center

Privacy policy
Questions or Comments? Contact CSC
Updated on February 9, 2004

Gulf of Mexico Protraction Diagrams

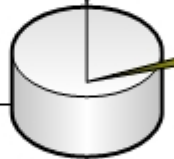




1 Data layers reside with individual partners. CSC – developed harvester collects data and/or Partners have developed web services that are directly consumed

NOAA
CSC

2 Data is stored on Geodatabase



The metadata links can be harvested by GOS for inclusion

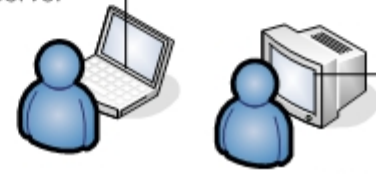
Geospatial One-Stop
(metadata harvesting
Z39.50/WAF)

3 NOAA/CSC creates ArcMap project and an ArcMap ArcIMS Image Service is created



Web server

4 ArcIMS Image Service is served out through web server to internet



Users

5 Users generate map requests through web site

Issues to consider:

- Projections/datum
- Remember – this is a graphical view of the data, NOT the data itself!
- Metadata
- Security and Sensitive Data
- OGC (Open Geospatial Consortium) compliant service
- Data are not in compatible formats
- The multi-dimensional nature of the marine environment (both physical and legal)
- Inadequate spatial coverage
- Budgetary concerns

Multipurpose Marine Cadastre: Next Steps

Challenges:

- Partner Participation
- Continued staffing/funding

Future Development:

- Add more partner data layers to complete the U.S. marine cadastre
- Increase functionality of map viewer
- Enhanced data download - KML
- Permanent hosting and infrastructure/staffing
- Adding Web Feature Services, analysis tools

Multipurpose Marine Cadastre: Next Steps

FY 2008 Timeline:

- Transfer current application to MMS for Alternative Energy RFI
- Publish MMC Web site – December 31, 2007
- Publish Version 1.0 of data viewer – December 31, 2007
- Publish best practices for data providers – January 31, 2008
- Finalize data model for marine boundary data – March 31, 2008
- Develop WMS for core data – May 31, 2008
- Out-year project plan – May 31, 2008

Take Home Messages

- Authoritative source for national marine boundaries (marine cadastre)
- Data (within portal and on viewer) are provided by AORs
- Will include supporting ocean framework data
- Utility of the MMC will be demonstrated via case studies and partnerships
 - Alternative Energy
 - Conservation
 - Human use
- Multi-year endeavor

References:

1 Energy Policy Act of 2005, Section 388 (2005)

<http://thomas.loc.gov/cgi-bin/query/F?c109:6:./temp/~c109Pne4Nu:e496969>

2 Implementation Plan for the Multipurpose Marine Cadastre. (March 2006)

<http://www.mms.gov/ld/PDFs/MappingInitiative.pdf>

3 Marine Boundary Working Group. *FY 07 Work Plan* (2007)

<http://www.fgdc.gov/participation/working-groups-subcommittees/mbwg/07workplan>

4 Robertson, B., Benwell, G. and Hoogsteden, C. (1999), 'The Marine Resource: Administration Infrastructure Requirements',

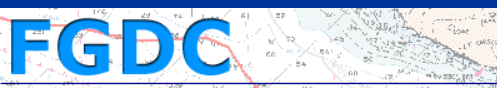
UN-FIG Conference on Land Tenure and Cadastral Infrastructures for Sustainable Development, Melbourne, Australia.

5 Nichols, S., Monahan, D. and Sutherland, M. (2000), Good Governance of Canada's Offshore and Coastal zone:

Towards an Understanding of the Marine Boundary Issues, *Geomatica*, 54 (4) 415-424.

6 United States Department of Commerce–NOAA: National Oceanic and Atmospheric Administration (2002).

7 Sutherland, M. D. (2005). "Marine Boundaries and the Governance of Marine Spaces". Ph.D. Dissertation (University of New Brunswick) and University of New Brunswick technical paper, 2005.



Thank You!

Questions? Interested in Participating?

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Dave.Stein@noaa.gov

