

Massachusetts Ocean Plan



One State's Approach to Marine Spatial Planning

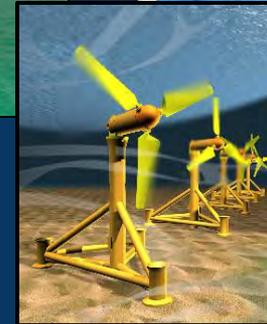


Priscilla M. Brooks
Conservation Law Foundation
MPA FAC – Santa Barbara, CA

November 2010

Intensifying Uses of MA Oceans

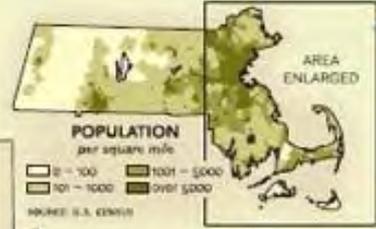
- Renewable Energy
- Aquaculture
- Sand/Gravel Mining
- Whale Watching/Tourism
- LNG Terminals/Pipelines/Cables
- Sewage Outfall
- Desalination Plants
- Docks and moorings
- Oil and gas drilling



SELECTED MASSACHUSETTS OCEAN PROJECTS

-  Desalination plant
 -  Liquid Natural Gas terminal
 -  Nuclear facility
 -  Off-shore pipeline
 -  Sand mining
 -  Tidal energy
 -  Waste disposal
 -  Wind farm
- 0 10 miles

NOTE: Unless otherwise noted, all projects shown are currently under proposal.



For more information go to: www.MassOceanPlan.org

Source: Massachusetts Ocean Plan, www.mass.gov

Massachusetts Ocean Management Initiative

- Governor Romney Announces Initiative in March 2003
- 23 Member Task Force Appointed in June
- Met over 30 times
- Final Report and Recommendations
 - March 2004: *Waves of Change*
 - Call for comprehensive plan and new legislation



MA Oceans Act of 2008



May 28, 2008



The plan shall:

- I. set forth the Commonwealth's goals, siting priorities and standards for ensuring effective stewardship of its ocean waters held in trust for the benefit of the public;
- II. adhere to sound management practices, taking into account the existing natural, social, cultural, historic and economic characteristics of the planning areas;
- III. preserve and protect the public trust;
- ★ IV. reflect the importance of the waters of the Commonwealth to its citizens who derive livelihoods and recreational benefits from fishing;
- V. value biodiversity and ecosystem health;
- ★ VI. identify and protect special, sensitive or unique estuarine and marine life and habitats;
- VII. address climate change and sea-level rise;
- VIII. respect the interdependence of ecosystems;
- IX. coordinate uses that include international, federal, state and local jurisdictions;
- X. foster sustainable uses that capitalize on economic opportunity without significant detriment to the ecology or natural beauty of the ocean;
- XI. preserve and enhance public access;
- XII. support the infrastructure necessary to sustain the economy and quality of life for the citizens of the commonwealth;
- XIII. encourage public participation in decision-making;
- XIV. adapt to evolving knowledge and understanding of the ocean environment; and
- ★ XV. identify appropriate locations and performance standards for activities, uses and facilities allowed under the Ocean Sanctuaries Act, including but not limited to renewable energy facilities, aquaculture, sand mining for beach nourishment, cables, and pipelines.

Key Drivers of MA Oceans Act of 2008

- Directs Secretary to establish ocean plan by December 31, 2009 – 18 month development process
 - Implemented through existing regulations
 - All state licenses, permits and approvals must be consistent with the plan
 - Secretary of Environment given authority to enforce plan consistency
- Allows for the first time renewable energy of appropriate scale in ocean sanctuaries if in accordance with plan
- Commercial fishing is an “allowable activity” with regulations remaining under jurisdiction of MA Marine Fisheries (or federal plans)

Key Drivers of MA Oceans Act of 2008

- Plan must establish siting priorities and standards for:
 - Renewable energy facilities
 - Pipelines
 - Cables
 - Sand extraction for beach nourishment
 - Aquaculture
- Plan must identify and protect *special, sensitive, or unique* estuarine and marine life and habitats

Ocean Plan Development Process



- **May 28th 2008**: Governor Signs Oceans Act— Ocean Advisory Commission and Science Advisory Council, 18 Public Listening Sessions, Hundreds of 1-on-1 Stakeholder Meetings & 5 Public Workshops, Science Working Groups (EEA and MOP supported).
- **June 30th 2009**: Draft Plan Release, 5 Public Hearings and 300+ Comments, Continued Science Work (EEA and MOP), Draft Revisions.
- **January 4th 2010**: Final Plan Release.

The MA Ocean Management Plan

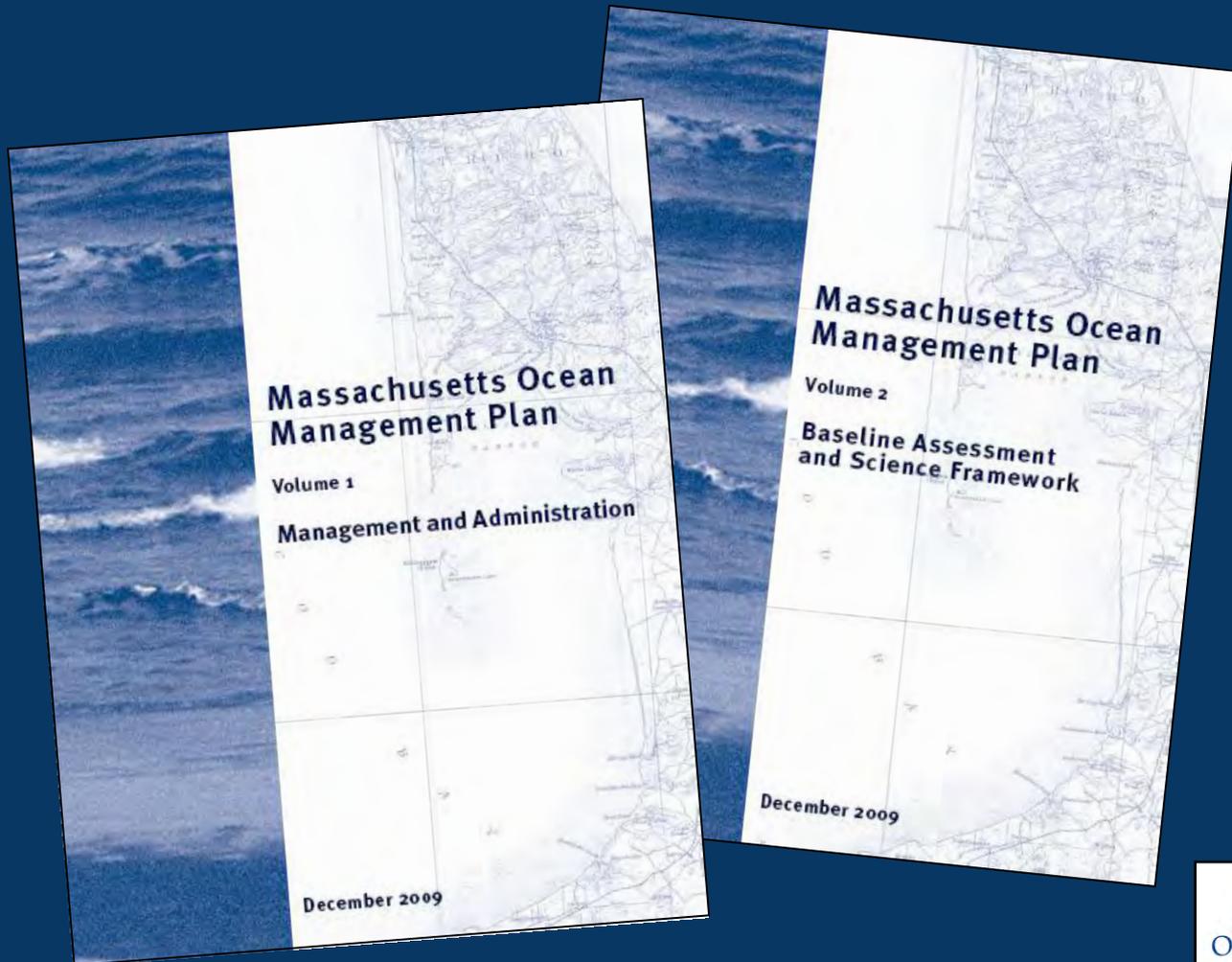
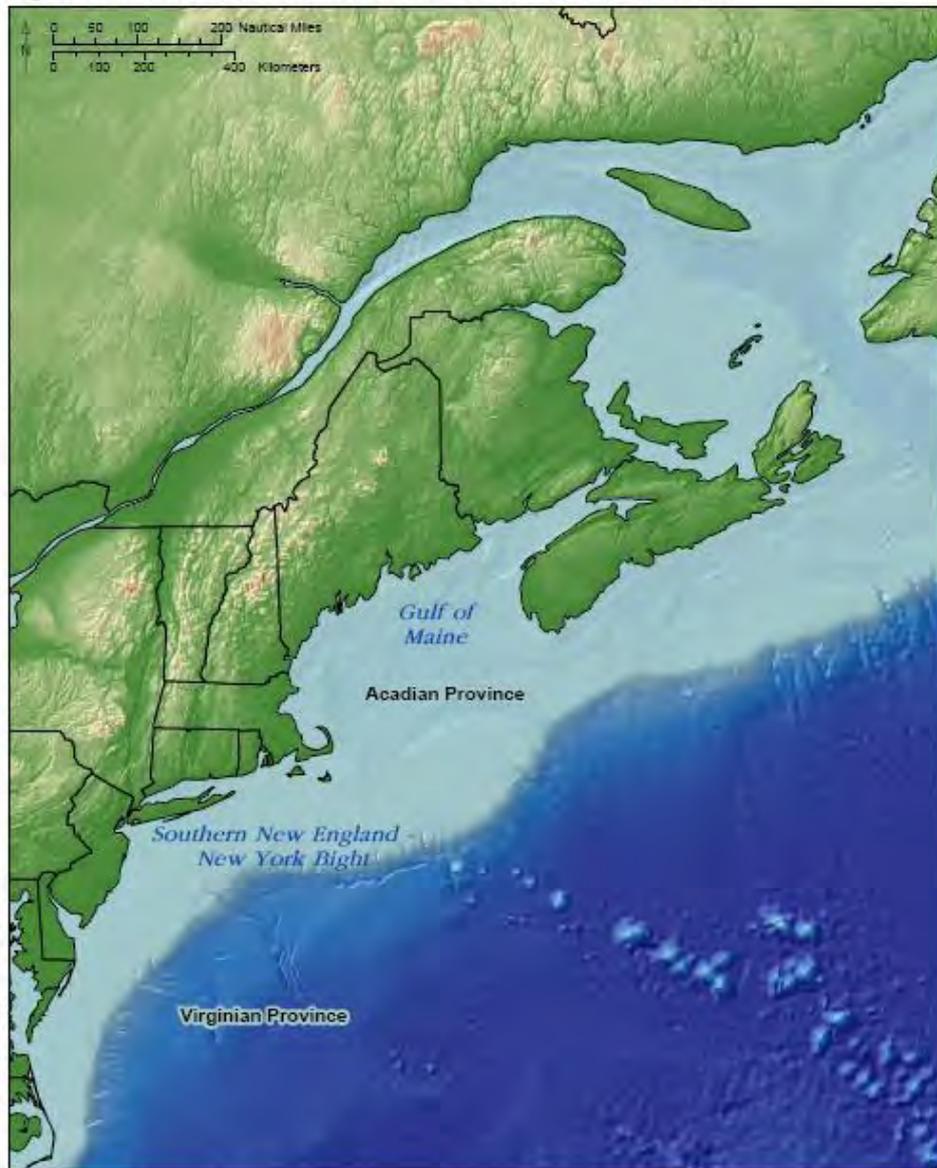


Figure 1.3 Major biogeographic regions within the Massachusetts ocean management planning area



Data source: ¹Grante, C. and B.W. Eakin, ETOPO1 1 Arc-Minute Global Relief Model: Procedures, Data Sources and Analysis NOAA Technical Memorandum NESDIS NSDC-04, 19 pp, March 2009.



Map projection: World Geodetic System 1984 (WGS 84), Mercator Projection.

The Broader Ecosystem

Figure 1.1 The Massachusetts ocean management planning area



MA Ocean Plan
Planning Area –
starts 1500 feet
offshore



Massachusetts ocean management planning area¹
Bathymetry (depth in meters)¹

Above 15	25 to 40	90 to 200
15 to 25	40 to 90	Below 200

Data source: Massachusetts Office of Coastal Zone Management.



Map coordinate system: North American Datum of 1983 (NAD83), Massachusetts State Plane Coordinate System, Mainland Zone (FIPS zone 5001), meters.

Figure 1.2 Municipalities adjacent to the Massachusetts ocean management planning area



Bordered by 53 Coastal Communities



 Massachusetts ocean management planning area boundary¹
 Municipality adjacent to the Massachusetts ocean management planning area²

Data sources: ¹Massachusetts Office of Coastal Zone Management, ²Massachusetts Office of Geographic and Environmental Information (MassGIS).



Map coordinate system: North American Datum of 1983 (NAD83), Massachusetts State Plane Coordinate System, Mainland Zone (FIPS zone 2001), meters.

The MA Ocean Management Plan

Prohibited-13%

Renewable Energy-2%

Multi-use-85%

Figure 2-1 Management areas

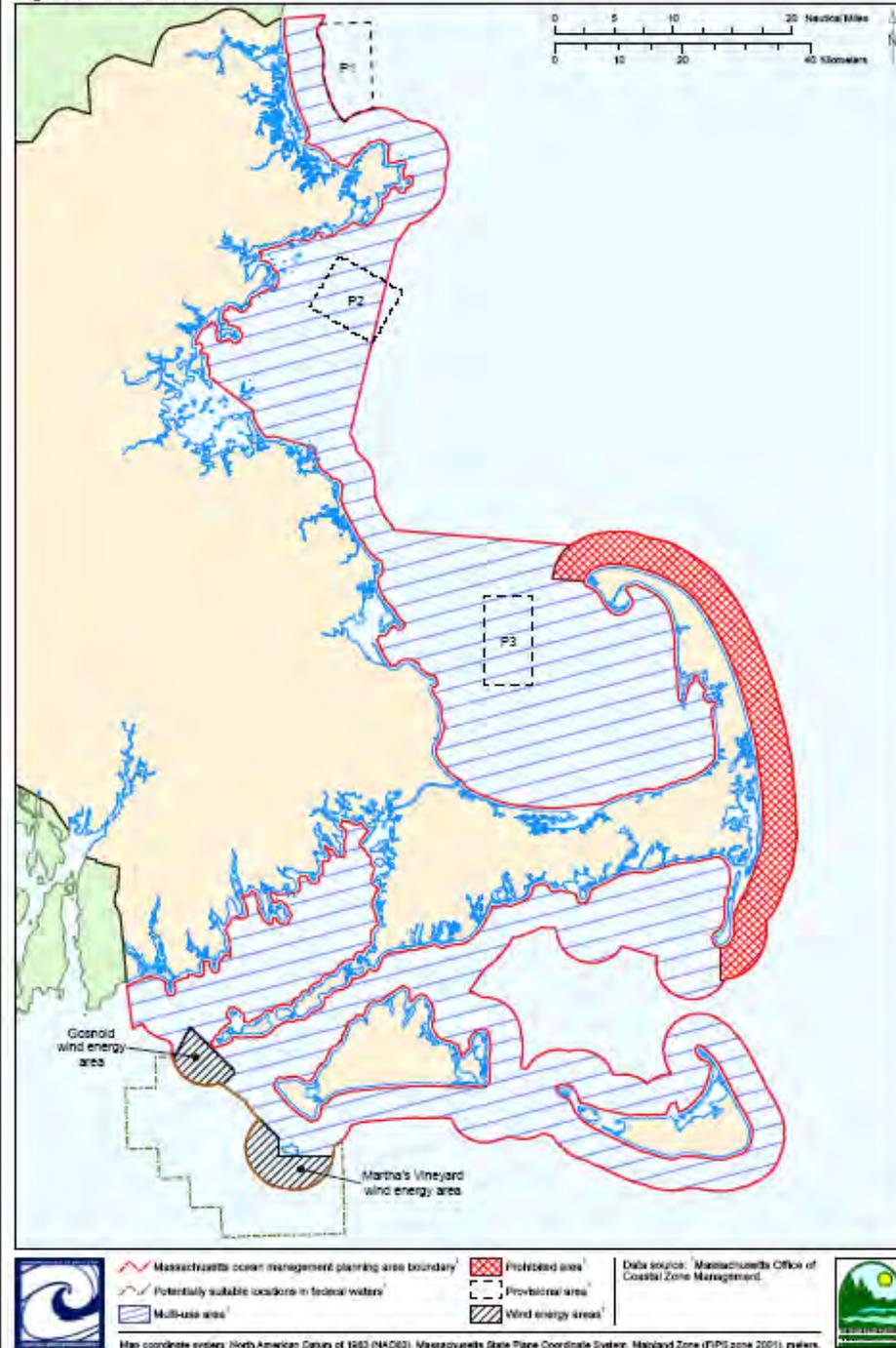
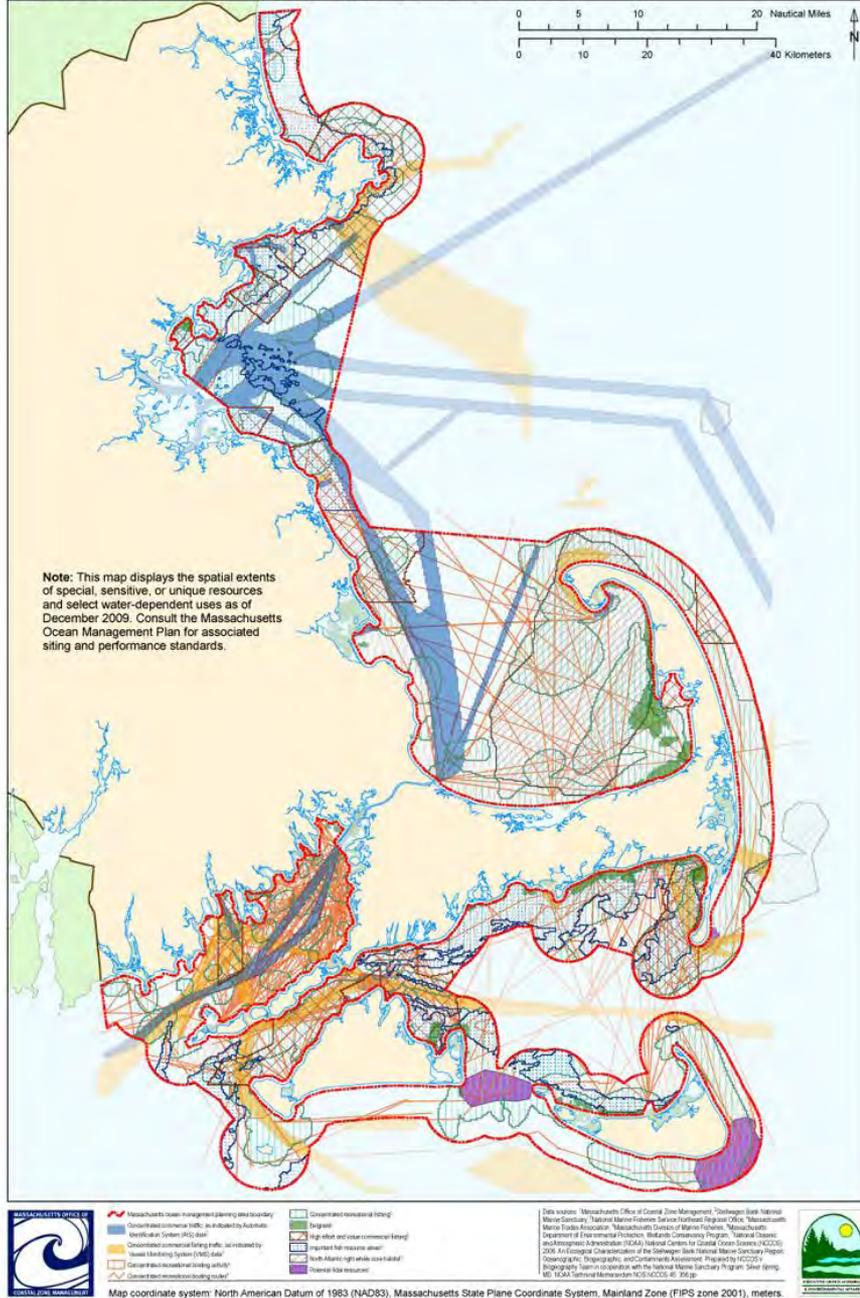


Figure 2-21 Commercial-scale tidal energy special, sensitive, or unique resources and existing water-dependent uses



Resources and uses for commercial tidal energy facilities

- Massachusetts ocean management planning area boundary¹
- Concentrated commerce traffic, as indicated by Automatic Identification System (AIS) data²
- Concentrated commercial fishing traffic, as indicated by Vessel Monitoring System (VMS) data³
- Concentrated recreational boating activity⁴
- Concentrated recreational boating routes⁴
- Concentrated recreational fishing⁵
- Eelgrass⁶
- High effort and value commercial fishing⁵
- Important fish resource areas⁵
- North Atlantic right whale core habitat⁷
- Potential tidal resources¹

•SSU Estuarine and Marine Life and Habitats – 11 Resource Areas Designated

- Northern Right Whale
- Humpback Whale
- Fin Whale
- Roseate Tern
- Terns
- Long-tailed ducks
- Leach's storm petrel
- Colonial water birds
- Colonial water birds
- Eelgrass
- Intertidal flats
- Complex/hard bottom



Figure 2-2 Special sensitive or unique resource: North Atlantic right whale core habitat



SSU: North Atlantic Right Whale Core Habitat

Figure 2-5 Special, sensitive, or unique resource: Roseate Tern core habitat



Massachusetts coastal managed planning area boundary

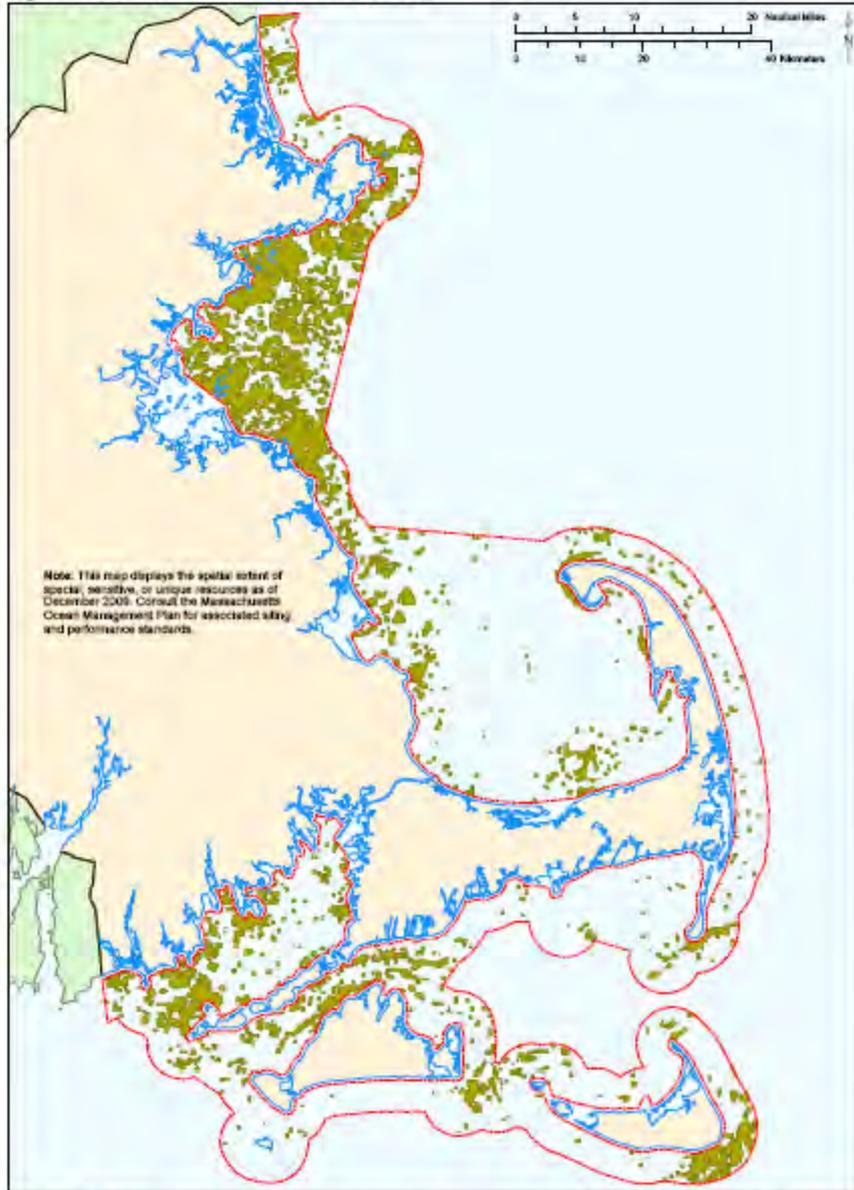
Roseate Tern core habitat

Data sources: Massachusetts Office of Coastal Zone Management, Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program.

Map coordinate system: North American Datum of 1983 (NAD83), Massachusetts State Plane Coordinate System, Millard Zone (FIPS zone 2601), UTM.

SSU: Roseate Tern Core Habitat

Figure 2-10 Special, sensitive, or unique resource: hard/complex seafloor

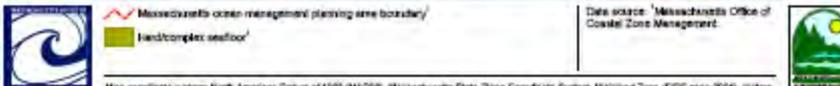


Note: This map displays the spatial extent of special, sensitive, or unique resources as of December 2009. Consult the Massachusetts Ocean Management Plan for associated siting and performance standards.

Massachusetts ocean management planning area boundary
hard/complex seafloor

Data source: Massachusetts Office of Coastal Zone Management

Map coordinate system: North American Datum of 1983 (NAD83), Massachusetts State Plane Coordinate System, Millinet Zone (FIPS zone 2001), (State)



SSU: Hard Complex Seafloor

Figure 2-13 Special, sensitive, or unique resource: important fish resource areas



SSU: Important Fish Resource Areas

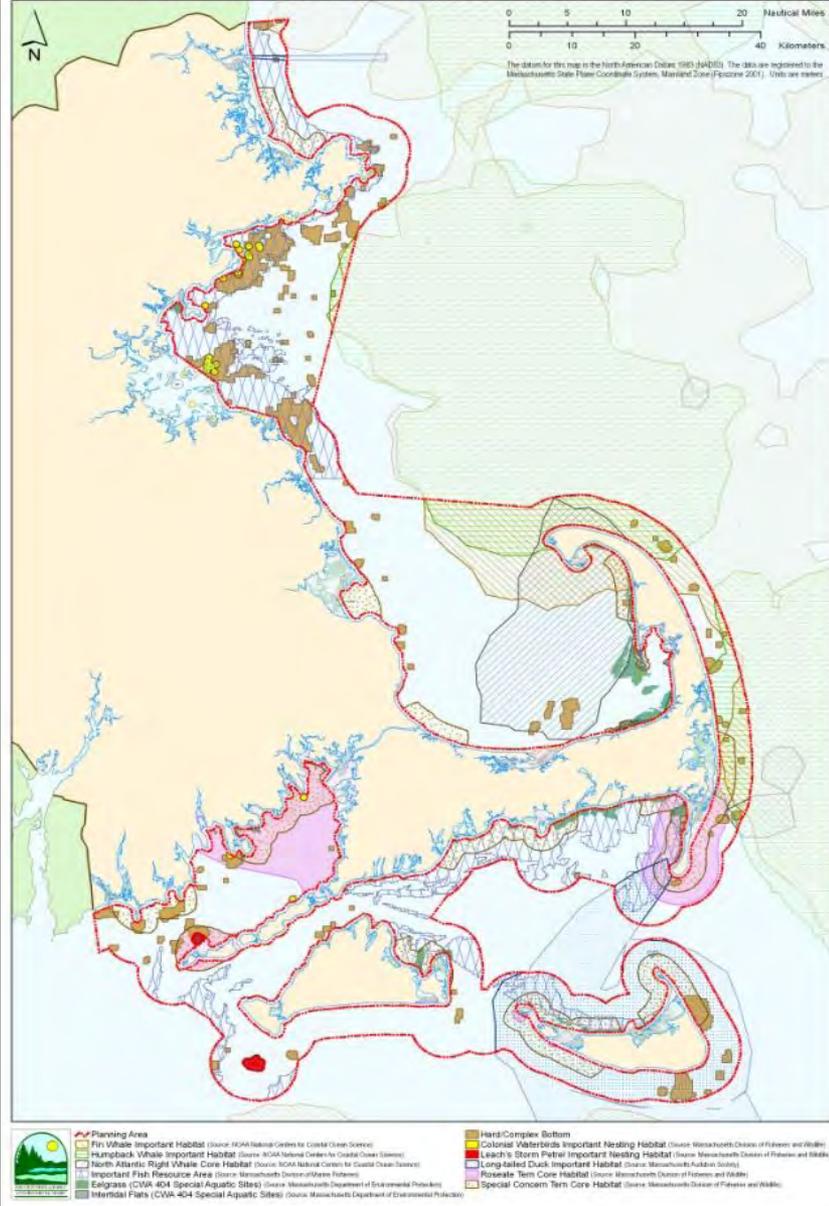
 Massachusetts ocean management planning area boundary
 Important fish resource area

Data source: Massachusetts Office of Coastal Zone Management, Massachusetts Division of Marine Fisheries



SPECIAL, SENSITIVE, OR UNIQUE MARINE AND ESTUARINE LIFE AND HABITATS

DRAFT



Special, Sensitive or Unique Resources -- All

- Marine mammals
- Avifauna
- Seafloor features
- Fish, crustaceans and shellfish

Special, Sensitive or Unique Resources

New regulatory siting standard under MEPA:

Specified uses presumptively excluded; presumption may be overcome by a clear demonstration:

- No less environmentally damaging practicable alternative, or
- Project will cause no significant alteration of the resource, or
- Clear and convincing evidence that SSU mapping was erroneous – plan does not accurately characterize the resource

Special, Sensitive or Unique Resources

New performance standards

- Public benefits associated with the proposed project clearly outweigh the public detriment to the SSU resource
- Demonstrate all practicable steps have been taken to avoid damage to the SSU resource
- No significant alteration of SSU resource or values



Areas of Existing Water Dependent Uses

- Commercial fishing
- Recreational fishing
- Shipping and fishing transit routes
- Recreational boating



Figure 2-14 Areas of existing water-dependent uses: high commercial fishing by effort and value



Areas of Existing Water Dependent Uses – Commercial Fishing



Massachusetts ocean management planning area boundary

High effort and value commercial fishing

Data sources: Massachusetts Office of Coastal Zone Management, Massachusetts Division of Marine Fisheries.



Map coordinate system: North American Datum of 1983 (NAD83); Massachusetts State Plane Coordinate System, Millinet Zone (FIPS zone 2001), datum.

Figure 2-15 Areas of existing water-dependent uses: concentrated recreational fishing



Massachusetts ocean management planning area boundary
Concentrated recreational fishing

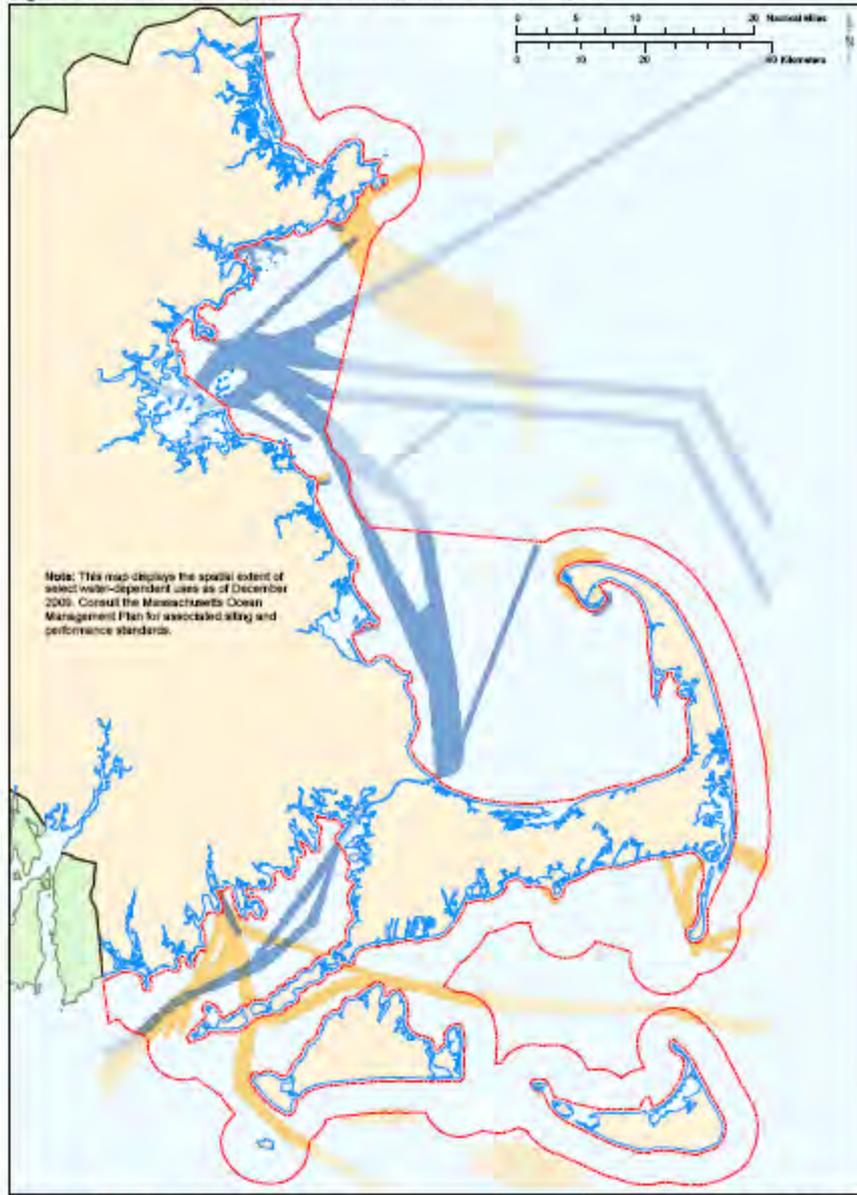
Data sources: Massachusetts Office of Coastal Zone Management, Massachusetts Division of Marine Fisheries



Map coordinate system: North American Datum of 1983 (NAD83), Massachusetts State Plane Coordinate System, Mollard Zone (FIPS zone 2601), meters

Areas of Existing Water Dependent Uses – Recreational Fishing

Figure 2-16 Areas of existing water-dependent uses: concentrated commerce and commercial fishing traffic



Areas of Existing Water Dependent Uses – Shipping and Fishing Traffic



Massachusetts ocean management planning area boundary

Concentrated commerce traffic, as indicated by Automatic Identification System (AIS) data¹

Concentrated commercial fishing traffic, as indicated by Vessel Monitoring System (VMS) data²

Data sources: ¹Massachusetts Office of Coastal Zone Management, ²Stellwagen Bank National Marine Sanctuary, ³National Marine Fisheries Service Northeast Regional Office.



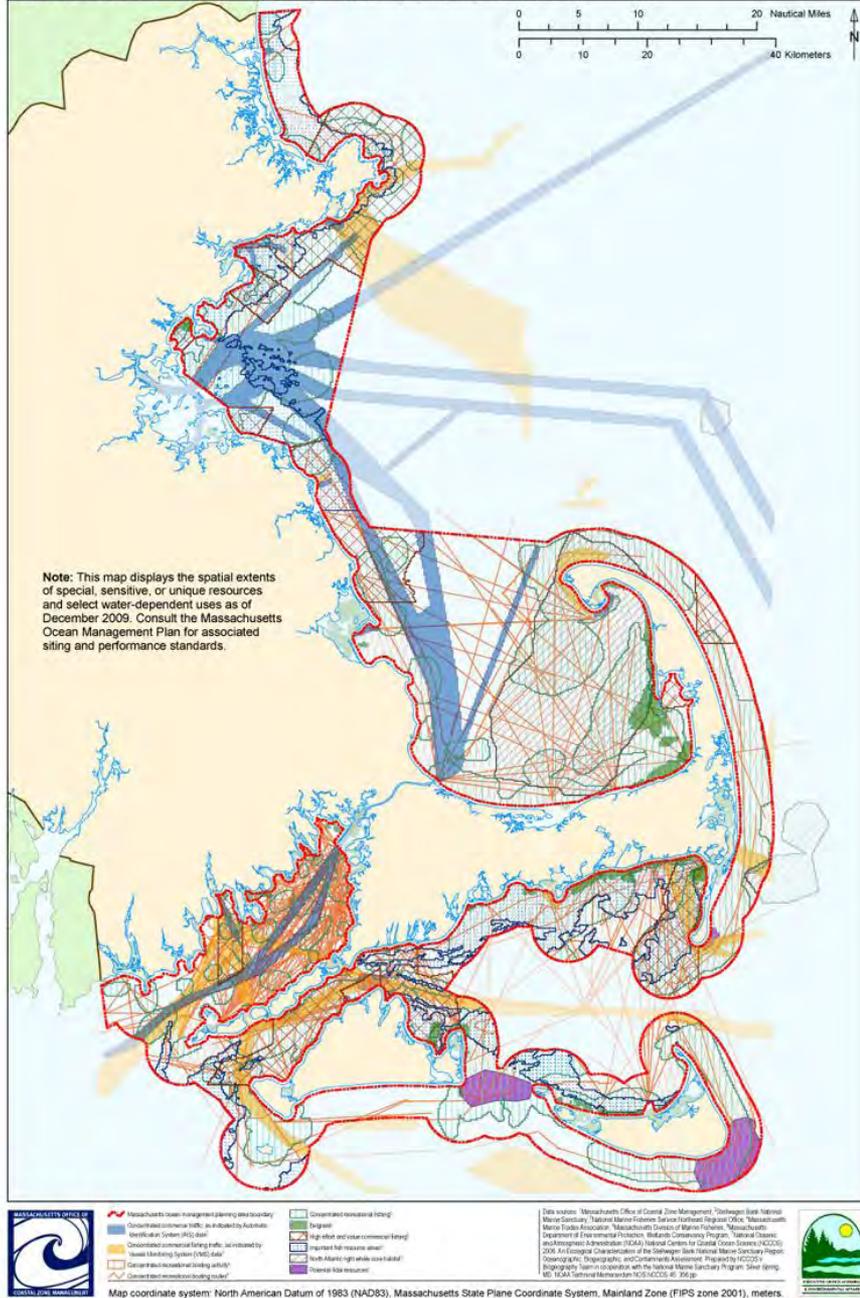
Map coordinate system: North American Datum of 1983 (NAD83), Massachusetts State Plane Coordinate System, Modified Zone (FIPS zone 2601), meters.

Areas of Existing Water-Dependent Uses: Review Standard

- Avoid, minimize and mitigate impacts to the maximum extent practicable



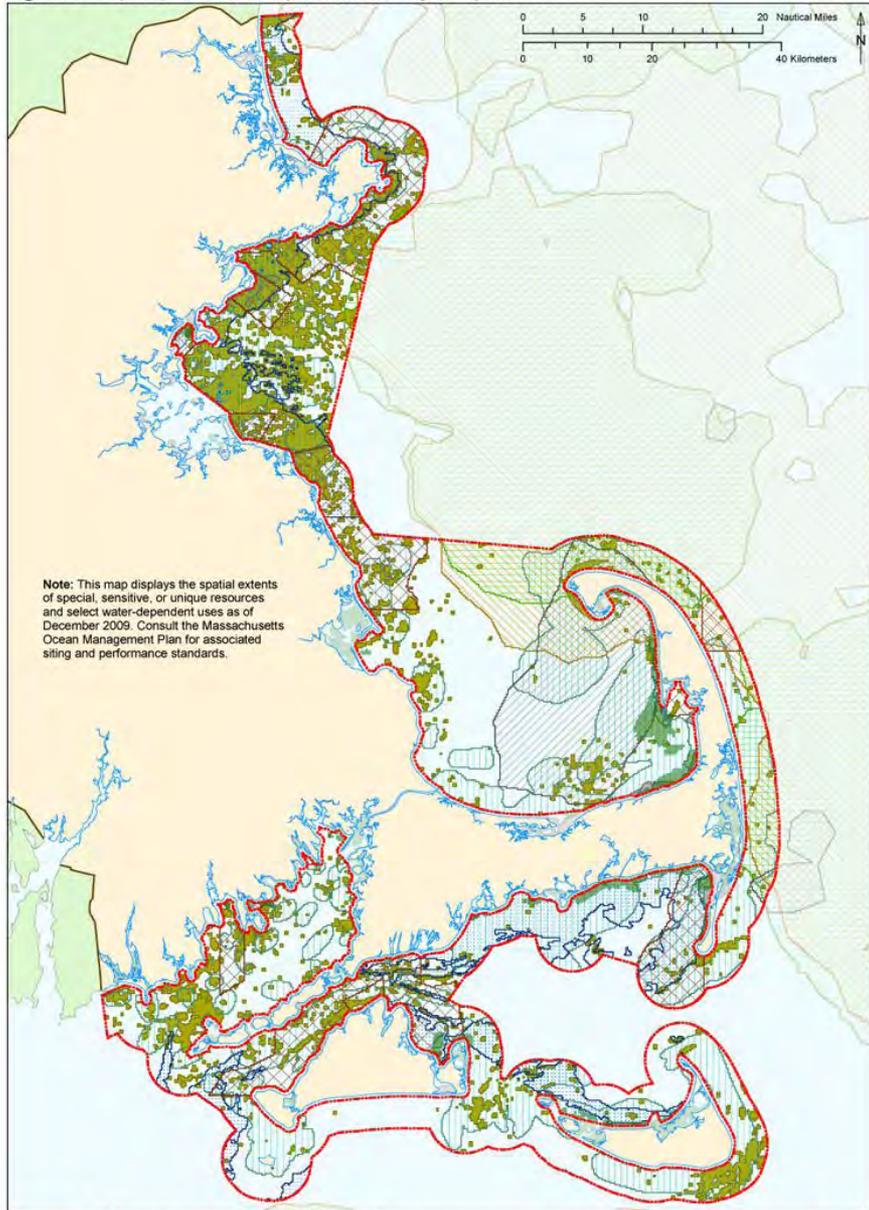
Figure 2-21 Commercial-scale tidal energy special, sensitive, or unique resources and existing water-dependent uses



Resources and uses for commercial tidal energy facilities

- Massachusetts ocean management planning area boundary¹
- Concentrated commerce traffic, as indicated by Automatic Identification System (AIS) data²
- Concentrated commercial fishing traffic, as indicated by Vessel Monitoring System (VMS) data³
- Concentrated recreational boating activity⁴
- Concentrated recreational boating routes⁴
- Concentrated recreational fishing⁵
- Eelgrass⁶
- High effort and value commercial fishing⁵
- Important fish resource areas⁵
- North Atlantic right whale core habitat⁷
- Potential tidal resources¹

Figure 2-24 Pipeline special, sensitive, or unique resources and existing water-dependent uses



Note: This map displays the spatial extents of special, sensitive, or unique resources and select water-dependent uses as of December 2009. Consult the Massachusetts Ocean Management Plan for associated siting and performance standards.

Resources and uses for pipelines

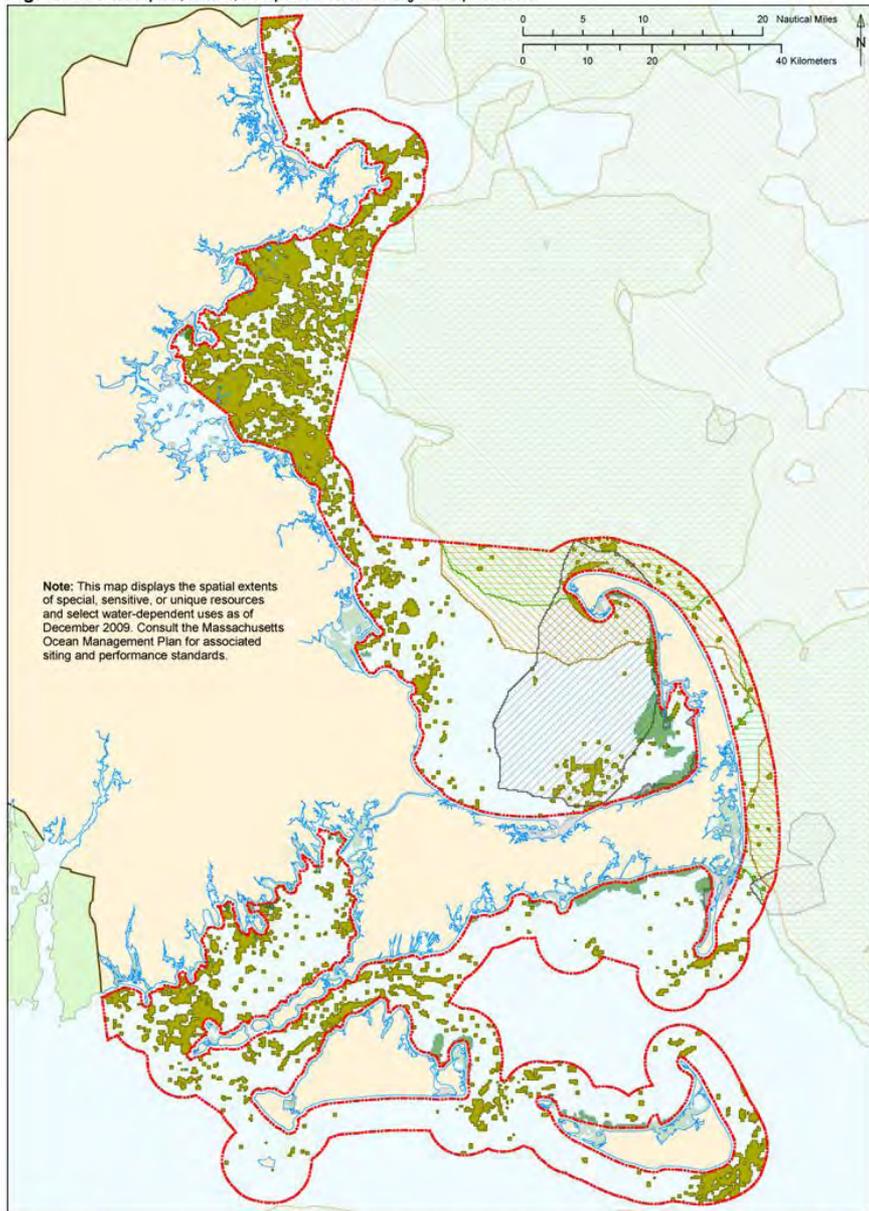
- | | |
|--|---|
| Planning Area | Concentrated Recreational Fishing* |
| Eelgrass (CWA 404 Special Aquatic Sites) | Important Fish Resource Area |
| Intertidal Flats (CWA 404 Special Aquatic Sites) | Fin Whale Important Habitat** |
| Hard/Complex Bottom | Humpback Whale Important Habitat** |
| High Commercial Fishing by Effort and Value | North Atlantic Right Whale Core Habitat** |

Massachusetts ocean management planning area boundary
 Concentrated recreational fishing*
 Eelgrass
 Fin whale core habitat*
 Hard/complex seafloor*
 High effort and value commercial fishing*
 Humpback whale core habitat*
 Important fish resource areas*
 Intertidal flats*
 North Atlantic right whale core habitat*

Data sources: Massachusetts Office of Coastal Zone Management; Massachusetts Division of Marine Fisheries; Massachusetts Department of Environmental Protection; Wetlands Conservation Program; National Oceanic and Atmospheric Administration (NOAA) National Centers for Coastal Ocean Science (NCCOS) 2009; An Ecological Characterization of the Delaware State National Marine Sanctuary Report: Oceanographic, Biogeographic, and Contaminant Assessment. Prepared by NCCOS's Biogeography Team in cooperation with the National Marine Sanctuary Program, Silver Spring, MD. NOAA Technical Memorandum NOS NCCOS 45, 36pp.

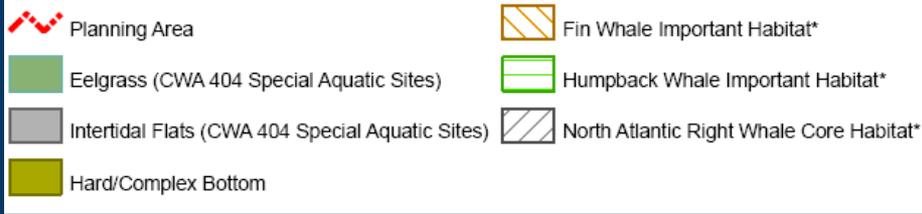
Map coordinate system: North American Datum of 1983 (NAD83), Massachusetts State Plane Coordinate System, Mainland Zone (FIPS zone 2001), meters.

Figure 2-23 Cable special, sensitive, or unique resources and existing water-dependent uses



Note: This map displays the spatial extents of special, sensitive, or unique resources and select water-dependent uses as of December 2009. Consult the Massachusetts Ocean Management Plan for associated siting and performance standards.

Resources and uses for telecommunication & electric cables



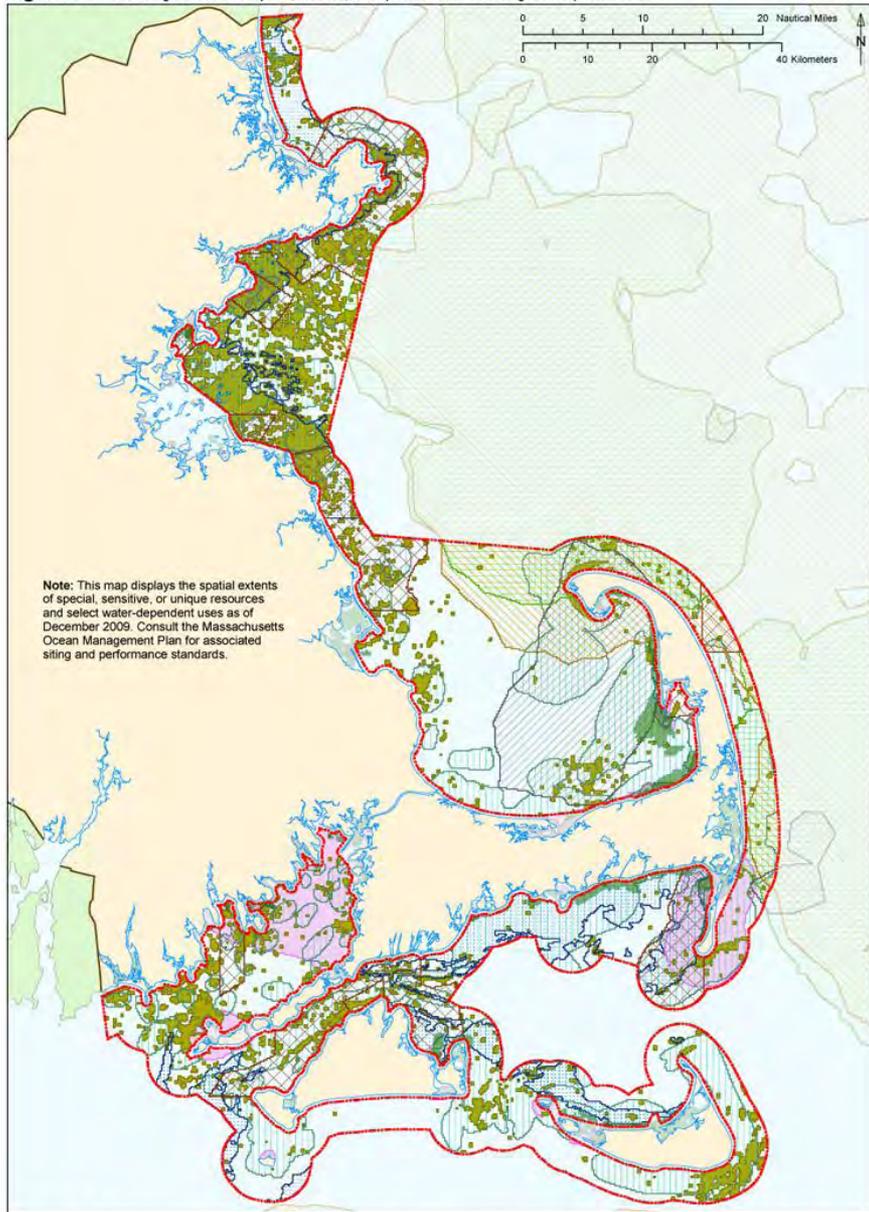
-  Massachusetts ocean management planning area boundary
-  Eelgrass
-  Fin whale core habitat*
-  Hard/complex seafloor*
-  Humpback whale core habitat*
-  Intertidal flats*
-  North Atlantic right whale core habitat*

Data sources: Massachusetts Office of Coastal Zone Management; Massachusetts Department of Environmental Protection; Wetlands Conservation Program; National Oceanic and Atmospheric Administration (NOAA) National Centers for Coastal Ocean Science (NCCOS) 2006; An Ecological Characterization of the Southwest Bank National Marine Sanctuary Region; Oceanographic, Biogeographic, and Contaminants Assessment. Prepared by NCCOS's Biogeography Team in cooperation with the National Marine Sanctuary Program. Silver Spring, MD: NOAA. National Marine Sanctuaries Report NCCOS-06-009.



Map coordinate system: North American Datum of 1983 (NAD83), Massachusetts State Plane Coordinate System, Mainland Zone (FIPS zone 2001), meters.

Figure 2-22 Sand and gravel extraction special, sensitive, or unique resources and existing water-dependent uses



Note: This map displays the spatial extents of special, sensitive, or unique resources and select water-dependent uses as of December 2009. Consult the Massachusetts Ocean Management Plan for associated siting and performance standards.

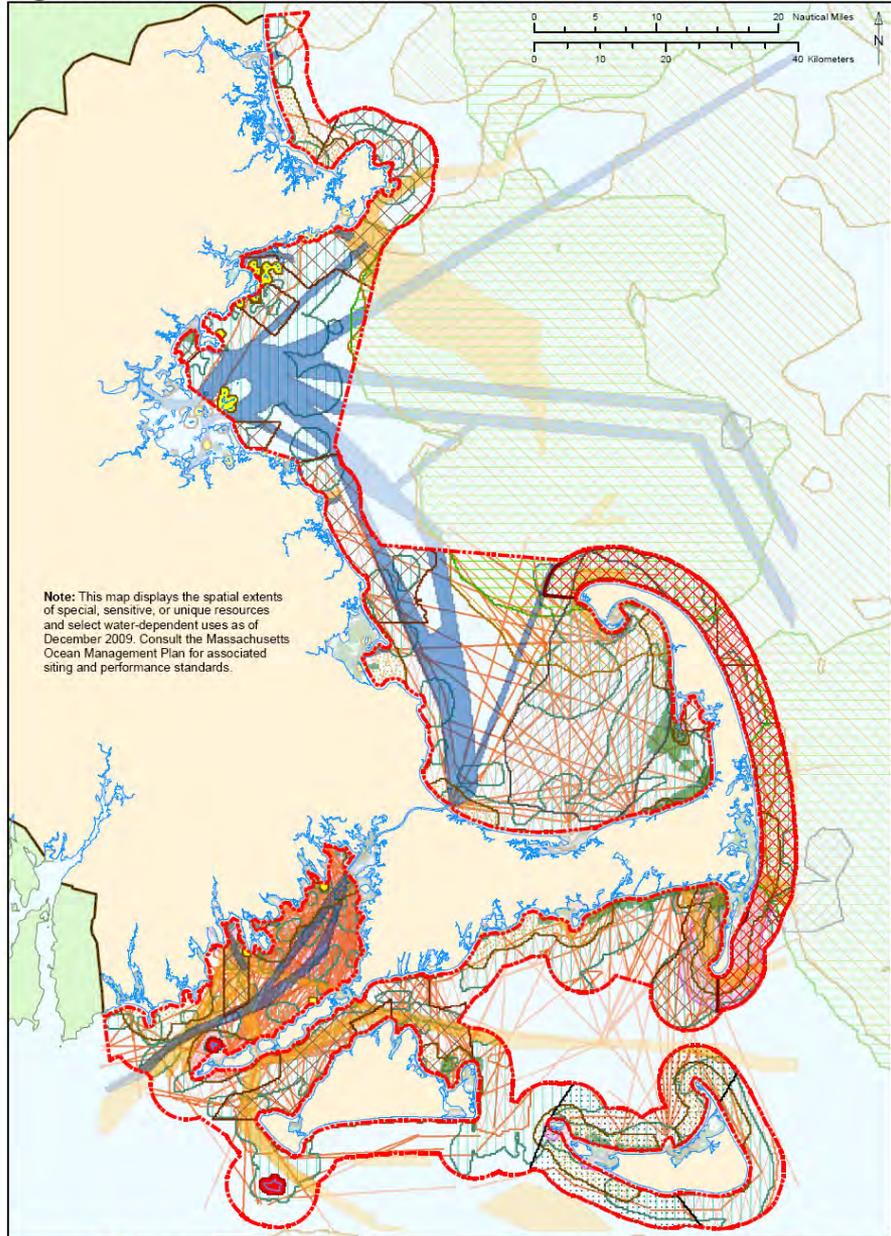
Resources and uses for sand/gravel extraction

- Planning Area
- Important Fish Resource Area
- Eelgrass (CWA 404 Special Aquatic Sites)
- Fin Whale Important Habitat**
- Intertidal Flats (CWA 404 Special Aquatic Sites)
- Humpback Whale Important Habitat**
- Hard/Complex Bottom
- North Atlantic Right Whale Core Habitat**
- Concentrated Recreational Fishing*
- Roseate Tern Core Habitat
- High Commercial Fishing by Effort and Value

Map coordinate system: North American Datum of 1983 (NAD83), Massachusetts State Plane Coordinate System, Mainland Zone (FIPS zone 2001), meters.

Data sources: Massachusetts Office of Coastal Zone Management; Massachusetts Division of Marine Fisheries; Massachusetts Department of Environmental Protection, Wetlands Conservancy Program; National Oceanic and Atmospheric Administration (NOAA) National Centers for Coastal Ocean Science (NCCOS), 2008. An Ecological Characterization of the Stellwagen Bank National Marine Sanctuary Region. Oceanographic, Biogeographic, and Conservation Assessment. Prepared by NCCOS's Biogeography Team in cooperation with the National Marine Sanctuary Program. Dover Spring, NH. NOAA Technical Memorandum NOS NCCOS-43. 266 pp. Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program.

Figure 2-20 Community-scale wind energy special, sensitive, or unique resources and existing water-dependent uses



Note: This map displays the spatial extents of special, sensitive, or unique resources and select water-dependent uses as of December 2009. Consult the Massachusetts Ocean Management Plan for associated siting and performance standards.

Resources and uses for community-scale wind

- | | |
|---|--|
| Massachusetts ocean management planning area boundary ¹ | High effort and value commercial fishing ⁹ |
| Colonial waterbirds important nesting habitat ² | Humpback whale core habitat ² |
| Concentrated commerce traffic, as indicated by Automatic Identification System (AIS) data ³ | Intertidal flats ⁶ |
| Concentrated commercial fishing traffic, as indicated by Vessel Monitoring System (VMS) data ⁴ | Leach's Storm-Petrel important nesting habitat ² |
| Concentrated recreational boating activity ⁵ | Long-tailed Duck core habitat ^{2,8} |
| Concentrated recreational boating routes ⁵ | North Atlantic right whale core habitat ² |
| Eelgrass ⁸ | Prohibited area |
| Fin whale core habitat ⁷ | Roseate Tern core habitat ² |
| | Special concern (Arctic, Least, and Common) Tern core habitat ² |



- Massachusetts ocean management planning area boundary¹
- Colonial waterbirds important nesting habitat²
- Concentrated commerce traffic, as indicated by Automatic Identification System (AIS) data³
- Concentrated commercial fishing traffic, as indicated by Vessel Monitoring System (VMS) data⁴
- Concentrated recreational boating activity⁵
- Concentrated recreational boating routes⁵
- Eelgrass⁸
- Fin whale core habitat⁷
- High effort and value commercial fishing⁹
- Humpback whale core habitat²
- Intertidal flats⁶
- Leach's Storm-Petrel important nesting habitat²
- Long-tailed Duck core habitat^{2,8}
- North Atlantic right whale core habitat²
- Prohibited area
- Roseate Tern core habitat²
- Special concern (Arctic, Least, and Common) Tern core habitat²

Data sources: ¹Massachusetts Office of Coastal Zone Management; ²Massachusetts Division of Fisheries and Wildlife; ³National Heritage and Endangered Species Program; ⁴Shelburne State National Marine Sanctuary; ⁵National Marine Fisheries Service Northeast Regional Office; ⁶Massachusetts Marine Trade Association; ⁷Massachusetts Department of Environmental Protection; ⁸Wildlife Conservation Program; ⁹National Oceanic and Atmospheric Administration (NOAA) National Centers for Coastal Ocean Science (NCCOS) 2006. An Ecological Characterization of the Stellwagen Bank National Marine Sanctuary Region. Coastal Geology, Biogeography, and Contaminant Assessment. Prepared by NCCOS's Biogeography Team in cooperation with the National Marine Sanctuary Program. June 2006. 102. NOAA Technical Memorandum NOS NCCOS 40. 356 pp. Massachusetts Division of Marine Fisheries; ¹⁰Massachusetts Audubon Society.

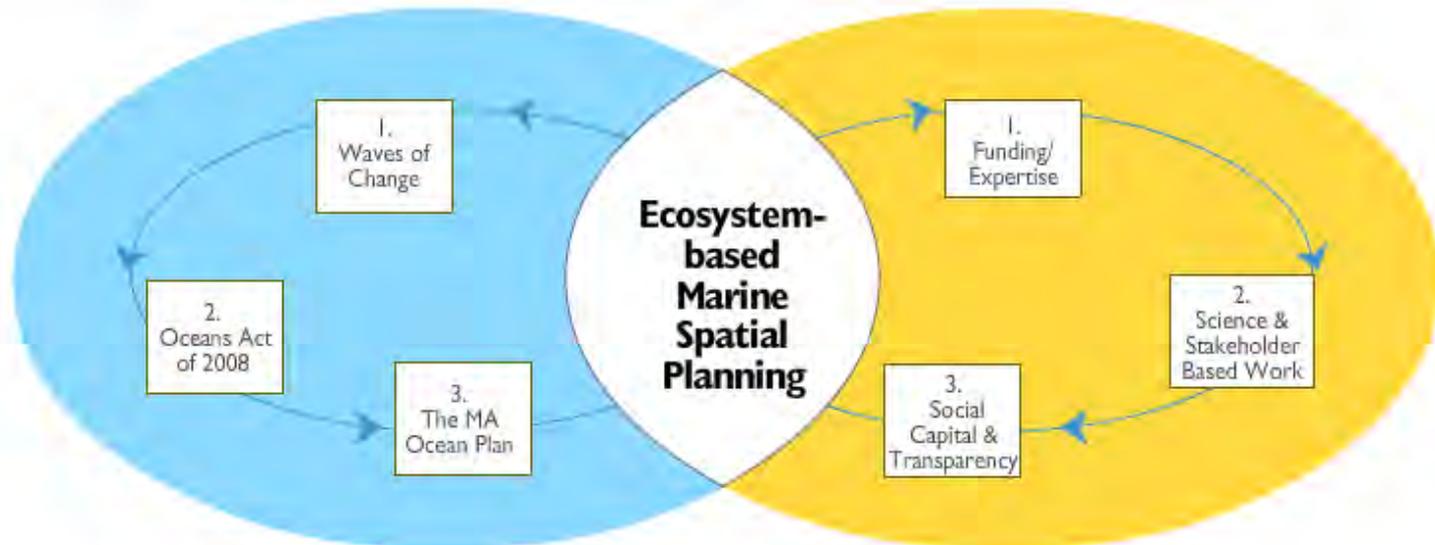


Map coordinate system: North American Datum of 1983 (NAD83), Massachusetts State Plane Coordinate System, Mainland Zone (FIPS zone 2001), meters.

Massachusetts Ocean Partnership

A Public-Private Partnership Model

The Massachusetts Ocean Partnership has forged a productive working relationship with the Massachusetts Executive Office of Energy and Environmental Affairs (EEA) to materially advance ecosystem-based marine spatial planning in MA state waters.



EEA:

- Authority;
- Legislative/Political Acumen;
- Regulatory coordination;
- Organization, staffing and technical expertise

MOP:

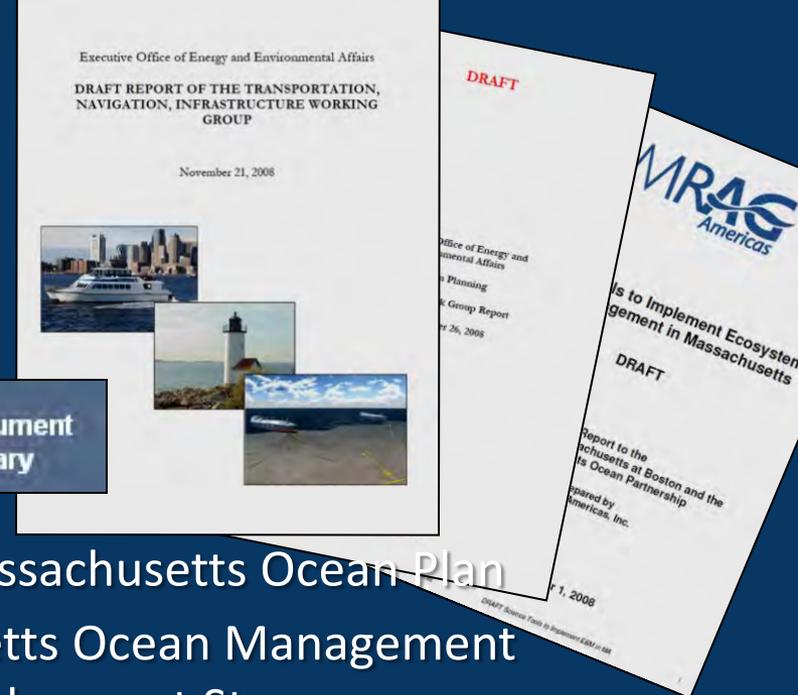
- Resources;
- Scientific & Stakeholder Expertise;
- Enhanced transparency;
- Nimbleness

MOP Science in Plan

Some Reports—



- Planning Framework Options for the Massachusetts Ocean Plan
- Stakeholder Participation in Massachusetts Ocean Management Planning: Observations on the Plan Development Stage
- Characterization of Community-Specific Spatial and Socio-Economic Linkages to Massachusetts Waters
- Developing a Framework for Compensatory Mitigation Associated with Ocean Use Impacts on Commercial Fisheries
- Science Tools to Implement Ecosystem Based Management in Massachusetts
- Compatibility Determination: Considerations for Siting Coastal and Ocean Uses
- Indicators Report





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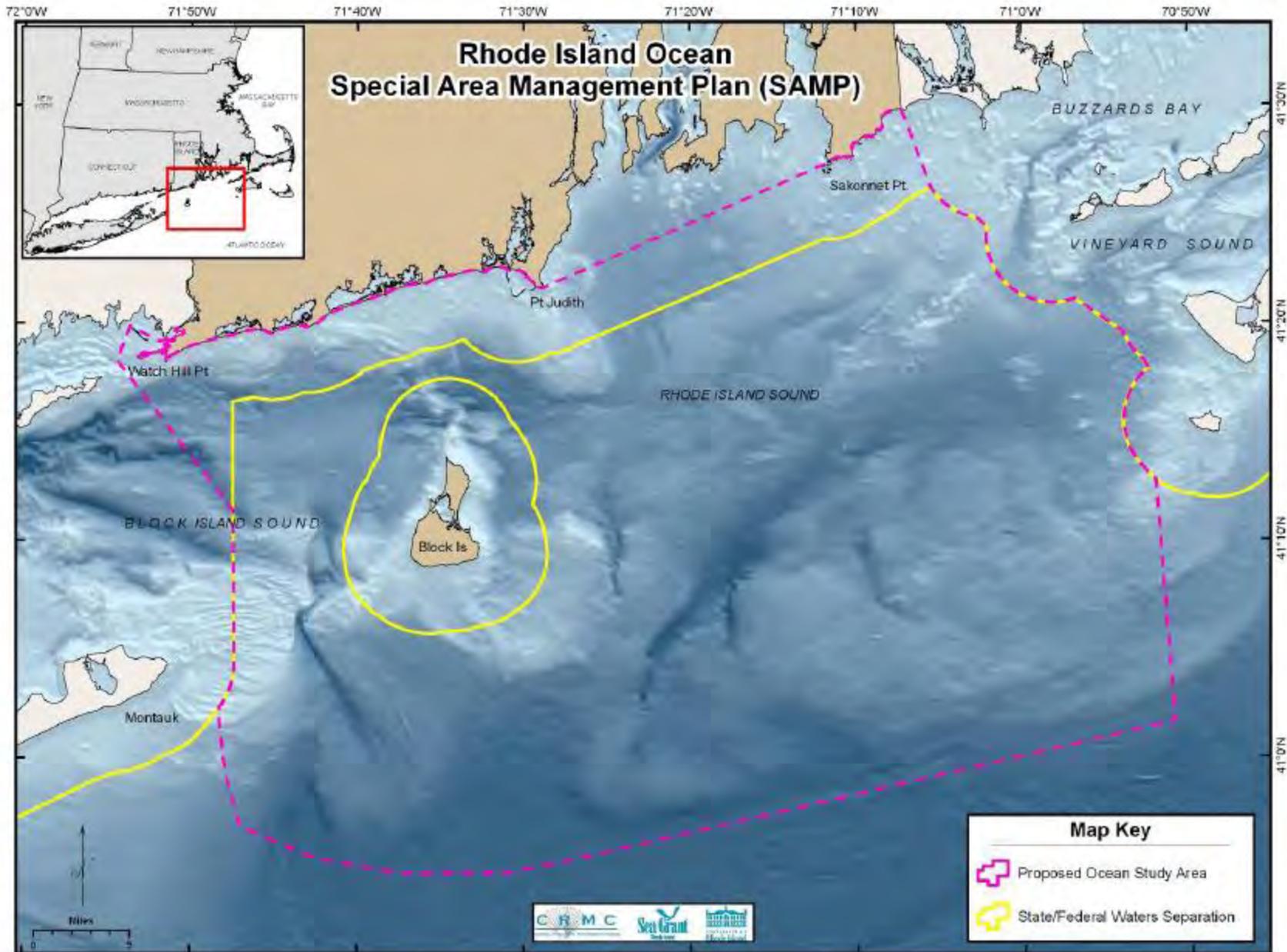


Document Type



- [White House National Ocean Council Official Website](#) 
- [07-19-10 The Interagency Ocean Policy Task Force](#)  DR
- [07-19-10 Final Recommendations Of The Interagency Ocean Policy Task Force](#)  DR
- [07-19-10 A National Policy for the Stewardship of the Ocean, Coasts, and Great Lakes – Memo](#)  DR
- [06-01-10 MA Recreational Boating Survey 2010 – Flyer \(PDF\)](#)  DOC
- [06-01-10 MA Recreational Boating Survey 2010 – Survey FAQs \(PDF\)](#)  DOC
- [02-08 & 02-09-10 Workshop in the Economics of Ecosystem-Based Management – Holland, Spatial Management for Marine Ecosystems \(PDF\) \[1 MB\] \(02-09-10\)](#)
- [02-08 & 02-09-10 Workshop in the Economics of Ecosystem-Based Management – Johnston, How NOT to Use Economics \(PDF\) \[1.0 MB\] \(02-09-10\)](#)  DOC
- [02-08 & 02-09-10 Workshop in the Economics of Ecosystem-Based Management – Mazzotta, Interdisciplinary Methods and Decision Support Tools \(PDF\) \[4 MB\] \(02-09-10\)](#)  DOC
- [02-08 & 02-09-10 Workshop in the Economics of Ecosystem-Based Management – Economic Analysis for EBM of Ocean and Coastal Resources – An Introduction \(PDF\) \[3 MB\]](#)  DOC

-  **WE** Workshop Event
-  **PE** Partners Event
-  **WS** Working Session
-  **GB** MOP Board Meeting
-  **EEA** EEA Meeting
-  **SE** Special Event
-  **PLS** Public Listening Session
-  **PH** Public Hearing
-  **DR** Document Release
-  **DOC** Document
-  **PROG** Progress Report
-  **SUM** Meeting Summary
-  **N** News
-  **P** Photos



Rhode Island Ocean Special Area Management Plan (SAMP)

71°50'W 71°40'W 71°30'W 71°20'W 71°10'W 71°0'W 70°50'W

Map Key

Interpreted Geologic Units

Stone & Borns, 1986

Adapted from Stone and Borns, 1986.
Modified by Boothroyd, 2009.

Late Pleistocene

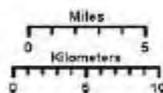
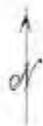
-  End Moraine - Blocky
-  End Moraine - Boulder
-  End Moraine - Boulder, Cobble, Sand

Additional map information from:

Needell and Lewis, 1984
Needell, O'Hara and Knobel, 1983
Schafer and Hartshorn, 1965
Srin, 1982

Side-Scan Surveys, 2009

-  End Moraine - Boulder



Coordinate System

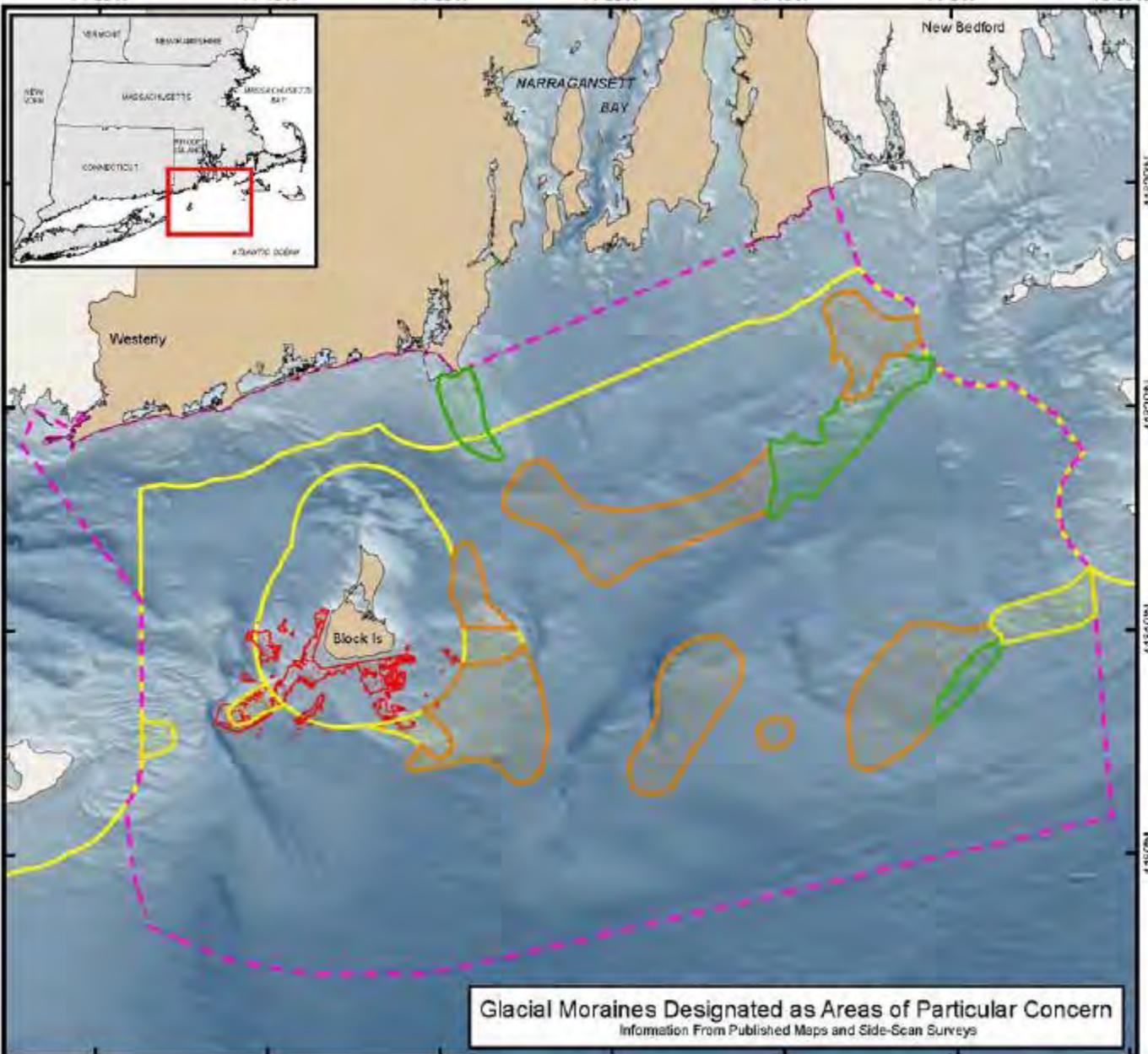
Projection: RI Stateplane
Units: Feet
FIPS Zone: 3803
Datum: NAD83

Map Base Data

State Borders: RIGIS, MAGIS, CTGIS
SAMP Study Area: RI SAMP Database
State Waters: NIMS SLA Boundary
Bathymetry: Interpreted from NOS Soundings

For Project Background Information:
<http://seagrant.gso.uri.edu/oceansamp>

For Project Map and Data Products:
<http://www.narrabay.org/projects/oceansamp>



Glacial Moraines Designated as Areas of Particular Concern
Information From Published Maps and Side-Scan Surveys

Rhode Island Ocean Special Area Management Plan (SAMP)

71°42'W 71°40'W 71°38'W 71°36'W 71°34'W 71°32'W 71°30'W 71°28'W

Map Key

- State/Federal Waters Separation
- Ferry Routes
- Potential Sea Duck foraging (20m)
- Offshore Dive Sites
- Sailing Areas of Concern
- Renewable Energy Zone
- ENC Navigation Areas

Interpreted Geologic Units
Stone & Borns, 1986
 Adapted from Stone and Borns, 1986.
 Modified by Boothroyd, 2009.

Late Pleistocene

- End Moraine - Blocky
- End Moraine - Boulder
- End Moraine - Boulder, Cobble, Sand

Additional map information from:
 Needell and Lewis, 1984
 Needell, O'Hara and Knebel, 1983
 Schaefer and Hartshorn, 1965
 Sirin, 1982

Side-Scan Surveys, 2009

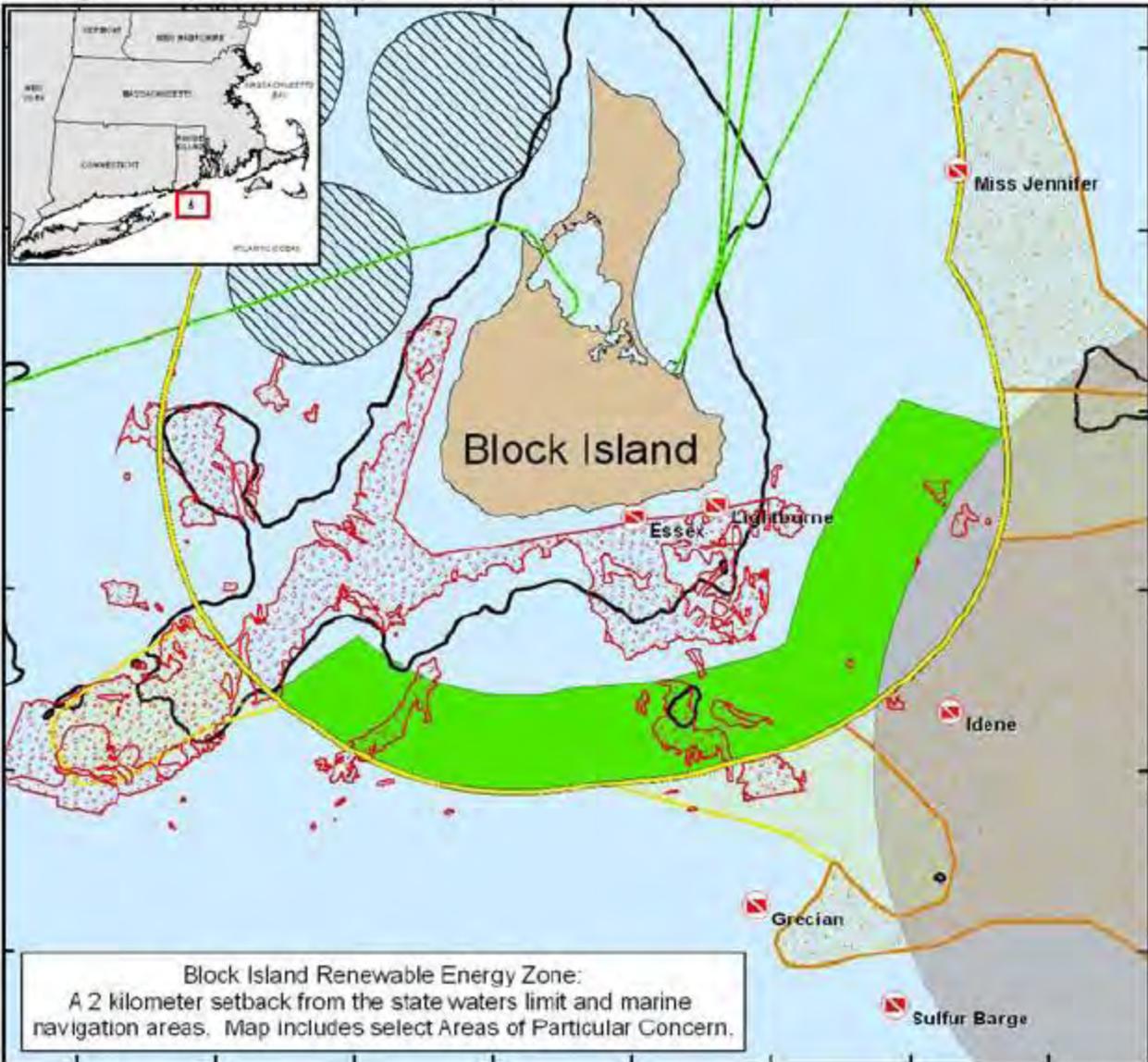
- End Moraine - Boulder

Miles
 0 1 2
 Kilometers
 0 1 2

Coordinate System:
 Projection: NAD83
 Units: Feet
 NAD83 Zone: 1800
 Datum: NAD83

For Project Background Information:
<http://seagrant.gso.uri.edu/ri/sampsamp>

For Project Map and Data Products:
http://www.narrbay.org/d_projects/sampsamp



Block Island Renewable Energy Zone:
 A 2 kilometer setback from the state waters limit and marine navigation areas. Map includes select Areas of Particular Concern.

41°14'N
 41°12'N
 41°10'N
 41°08'N
 41°06'N
 41°04'N

Rhode Island Ocean Special Area Management Plan (SAMP)

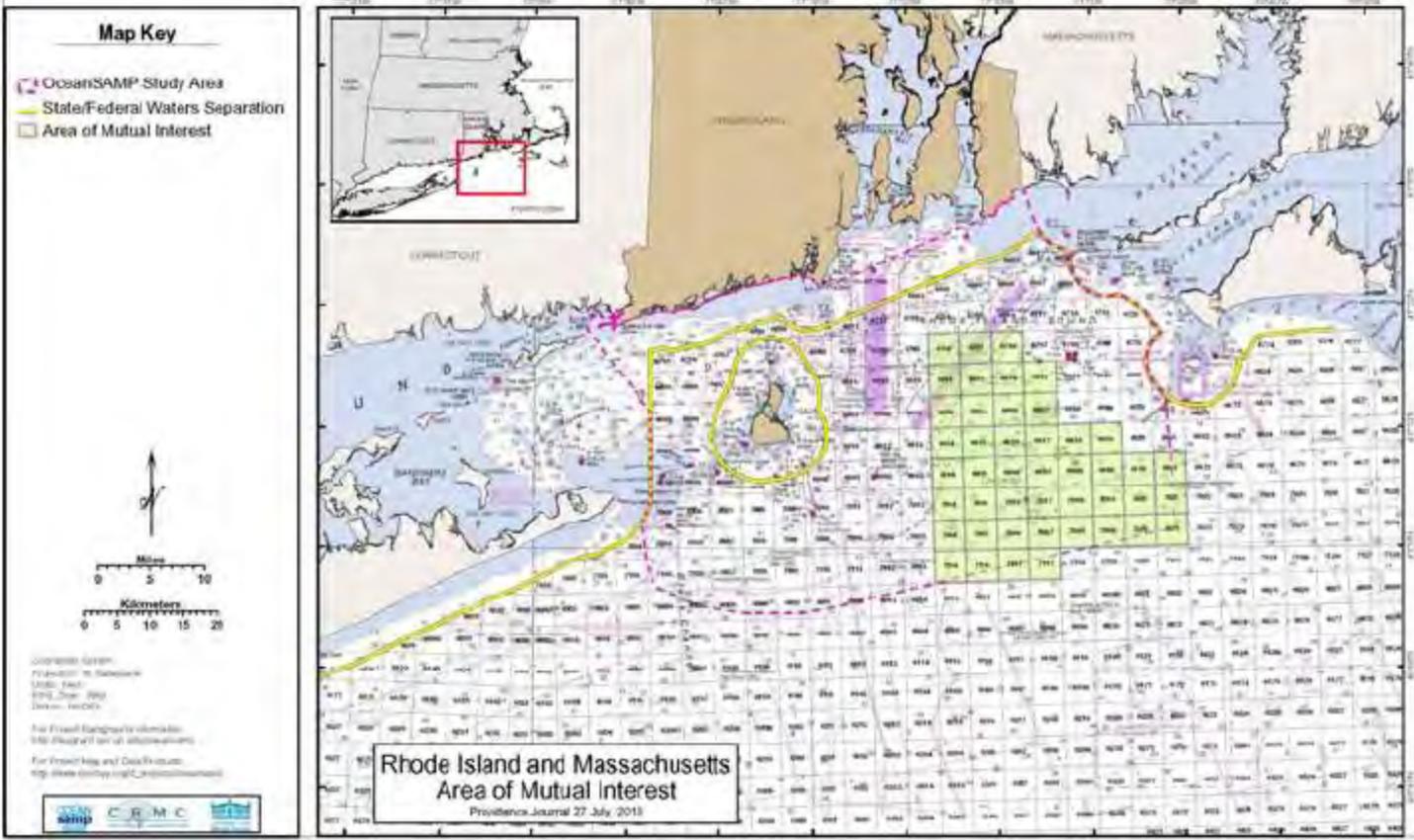
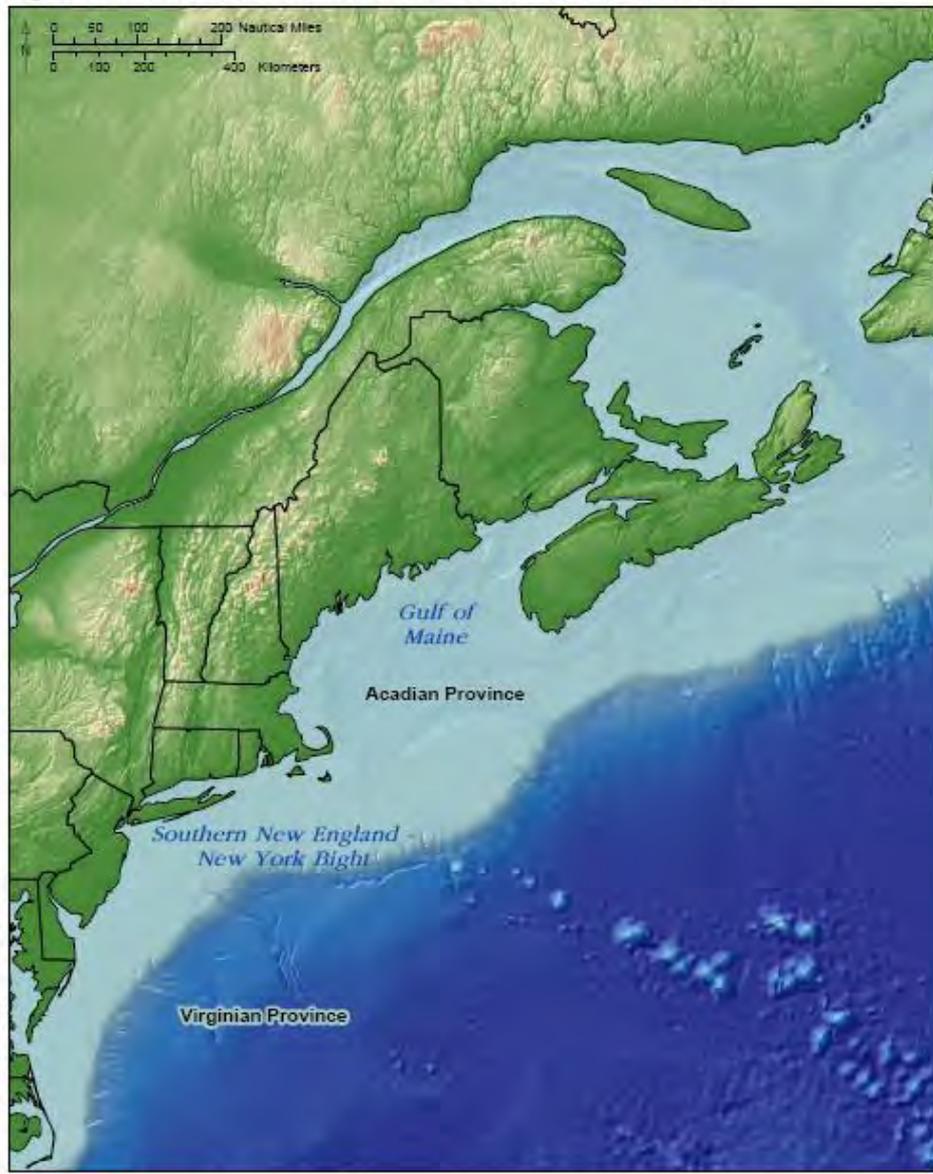


Figure 1.3 Major biogeographic regions within the Massachusetts ocean management planning area



Data source: ¹Grante, C. and B.W. Eakin, ETOPO1 1 Arc-Minute Global Relief Model: Procedures, Data Sources and Analysis NOAA Technical Memorandum NESDIS NSDC-04, 19 pp, March 2009.



Map projection: World Geodetic System 1984 (WGS 84), Mercator Projection.

Northeast Region Planning Area

NE Regional Ocean Council

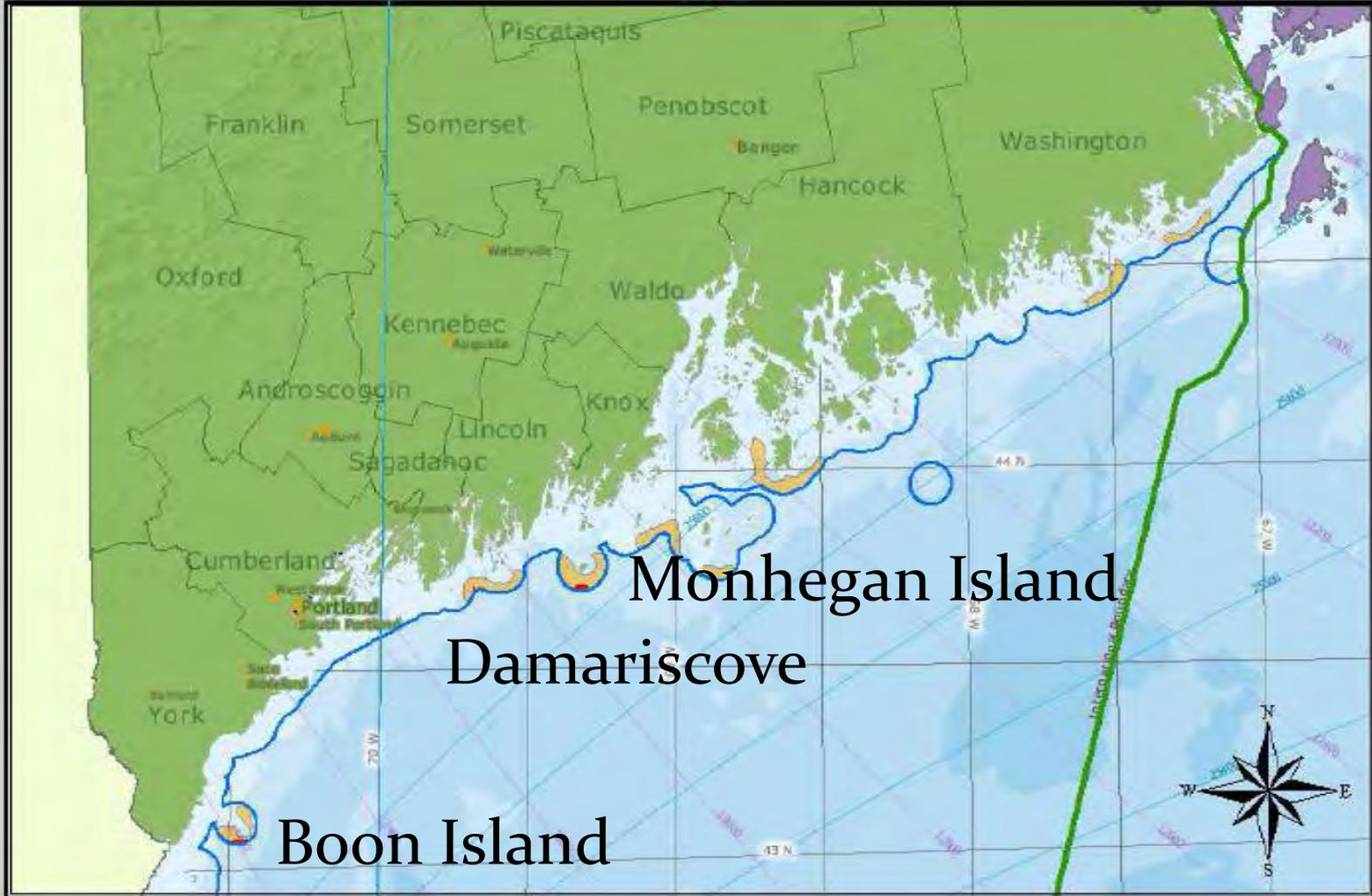
2010 CMSP Draft Goals:

- Achieve state and regional renewable energy goals
- Strive for healthy, resilient marine ecosystems, including protection of ecologically significant areas
- Enable sustainable coastal economies, pursue shared goals such as the protection of fishery resources and fisheries economy from non-fishing activities that adversely impact fisheries
- Facilitate multiple uses while minimizing conflict among uses and between uses and natural resources

Thank You



MAP D



Monhegan Island

Damariscove

Boon Island

- State Marine Boundary
- US/Canadian Boundary
- Planning Areas
- Test Sites

MAINE OCEAN ENERGY
PLANNING AREAS AND
TEST SITES



Map by Matthew K. Cox
Maine State Planning Office
Sources: ME SPD, ME DMR,
ME DEP, ME IFW, ME GIS,
NOAA, US FWS, BUEP



Translating the Oceans Act into an Ocean Plan

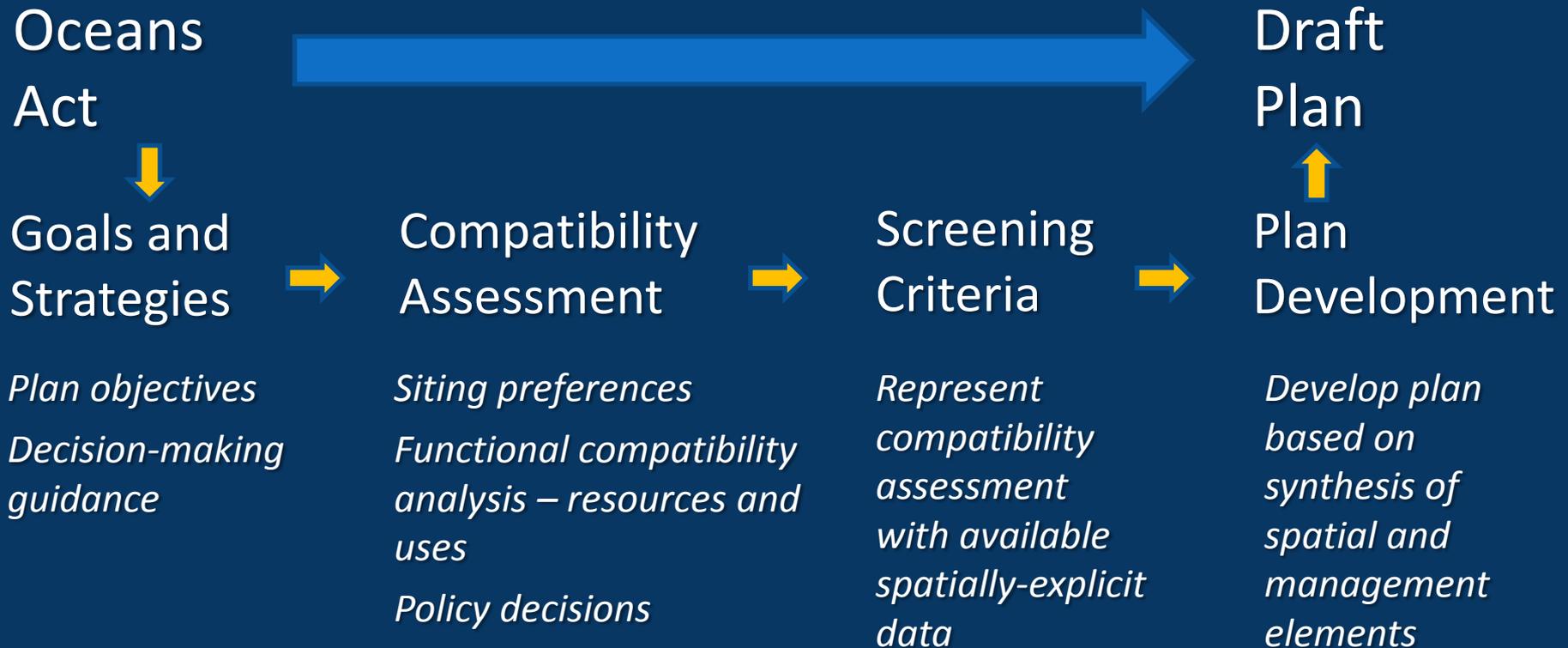
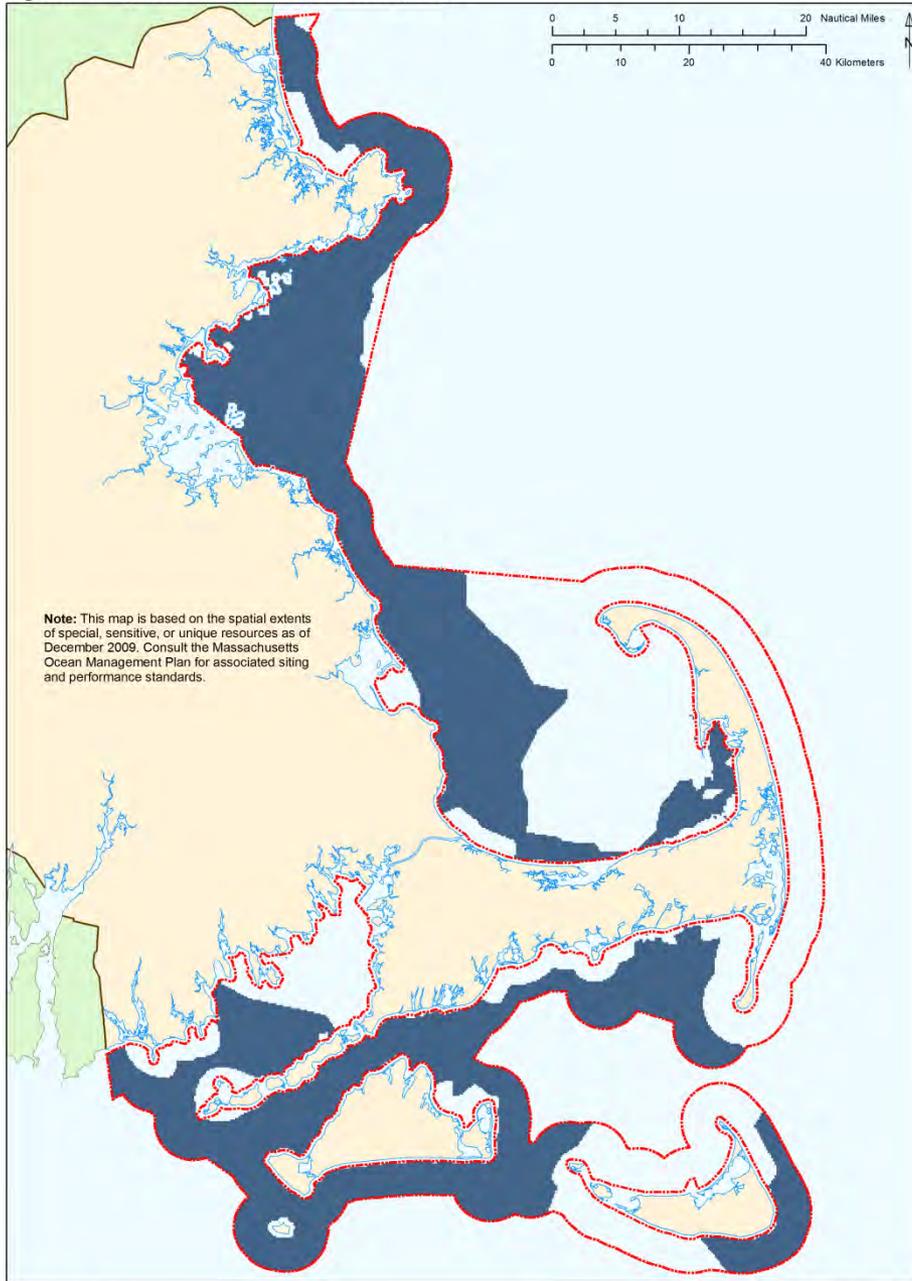


Figure Community-scale wind energy conditionally allowed development areas



Conditionally allowed community-scale wind locations



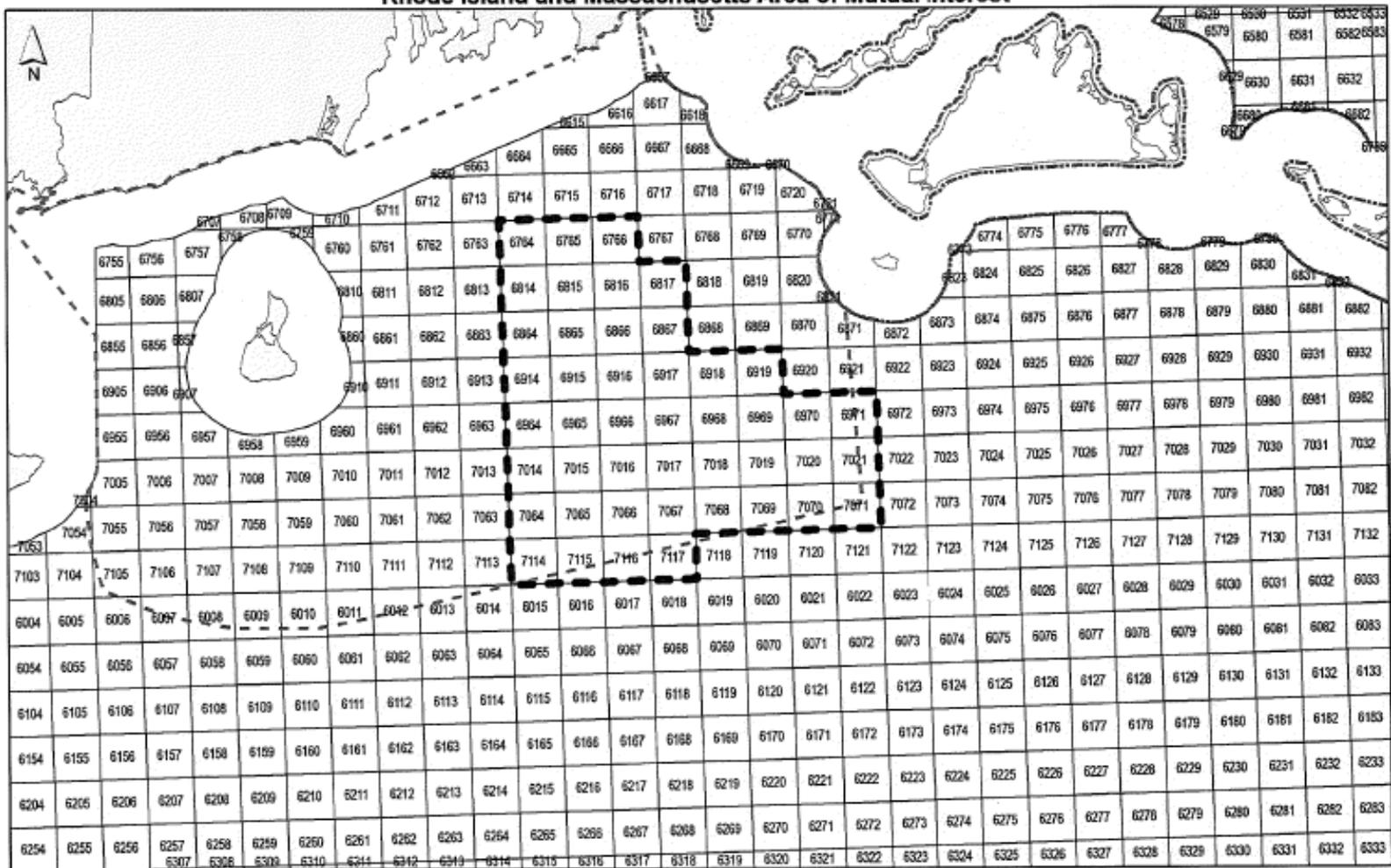
Massachusetts ocean management planning area boundary¹
Community-scale wind energy conditionally allowed development areas²

Data sources: ¹Massachusetts Office of Coastal Zone Management.



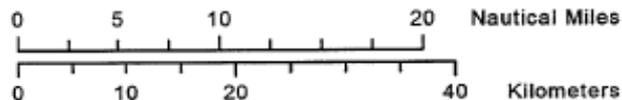
Map coordinate system: North American Datum of 1983 (NAD83), Massachusetts State Plane Coordinate System, Mainland Zone (FIPS zone 2001), meters.

Rhode Island and Massachusetts Area of Mutual Interest



-  Massachusetts Ocean Management Planning Area
-  RI/MA Area of Mutual Interest Boundary
-  OCS Lease Block
-  RI Ocean SAMP Study Area

The datum for this map is the North American Datum 1983 (NAD83). The data are registered to the Massachusetts State Plane Coordinate System, Mainland Zone (Fipszone 2001). Units are meters.



Rhode Island Ocean Special Area Management Plan (SAMP)

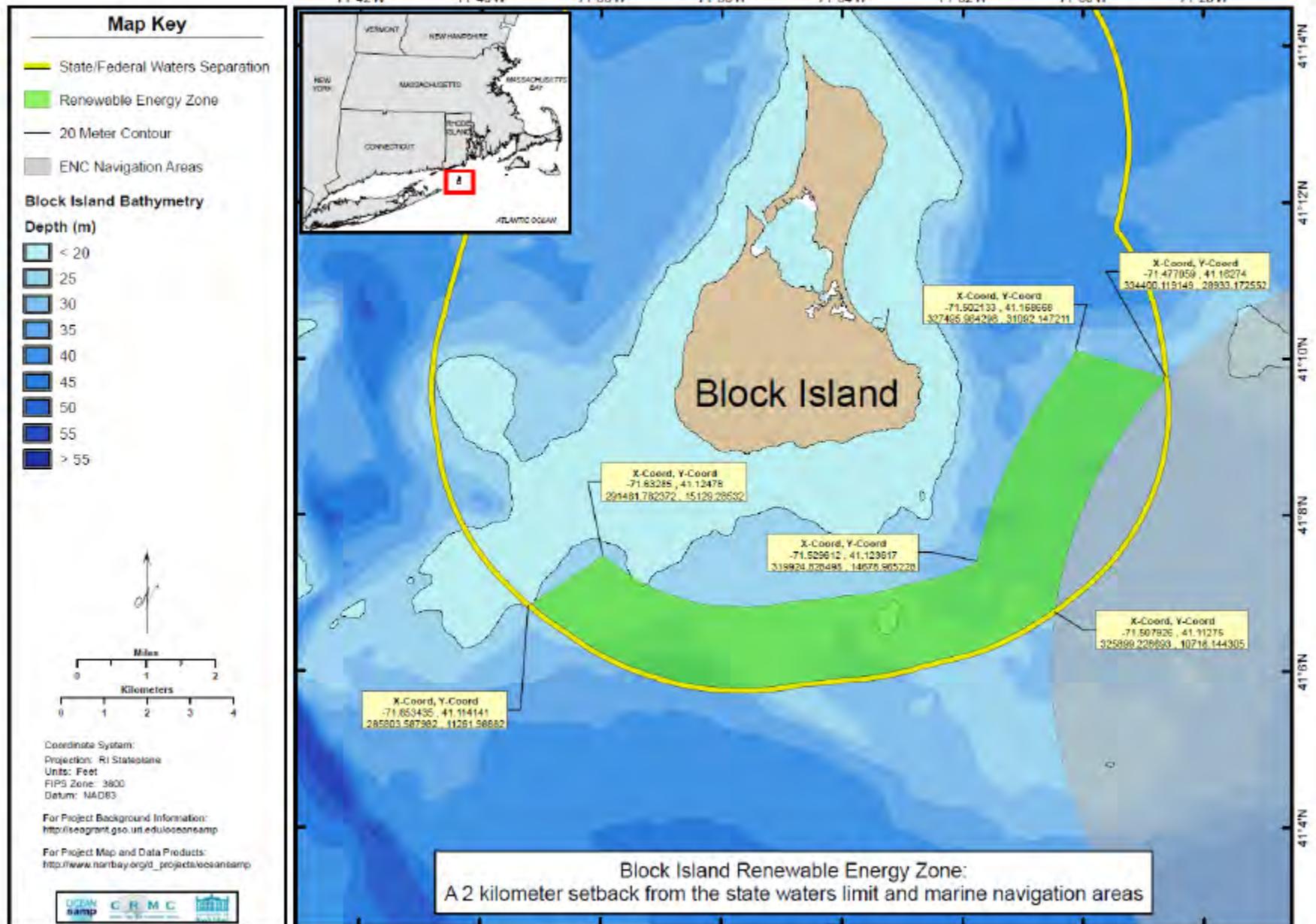


Figure 11.1 Renewable Energy Zone.