

# Marine spatial planning in Massachusetts: Development of a comprehensive Ocean Plan

NOAA Program Managers Meeting  
February 24, 2009



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MA Office of Coastal Zone Management

# Outline

- Oceans Act of 2008
- Overview of ocean planning process
- Data / information acquisition: ocean resource and use Work Groups
- Habitat Work Group overview and maps
- Maps from other Work Groups
- Touch on next steps

# Oceans Act of 2008

- Confirms Secretary (EEA) as trustee of Commonwealth oceans
- Directs Secretary to establish an Integrated Ocean Management Plan by December 31, 2009
- Plan to be submitted to legislature and formal public hearings required at least 6 months prior
- Creates two consultative bodies:
  - Ocean Advisory Commission
  - Ocean Science Advisory Council

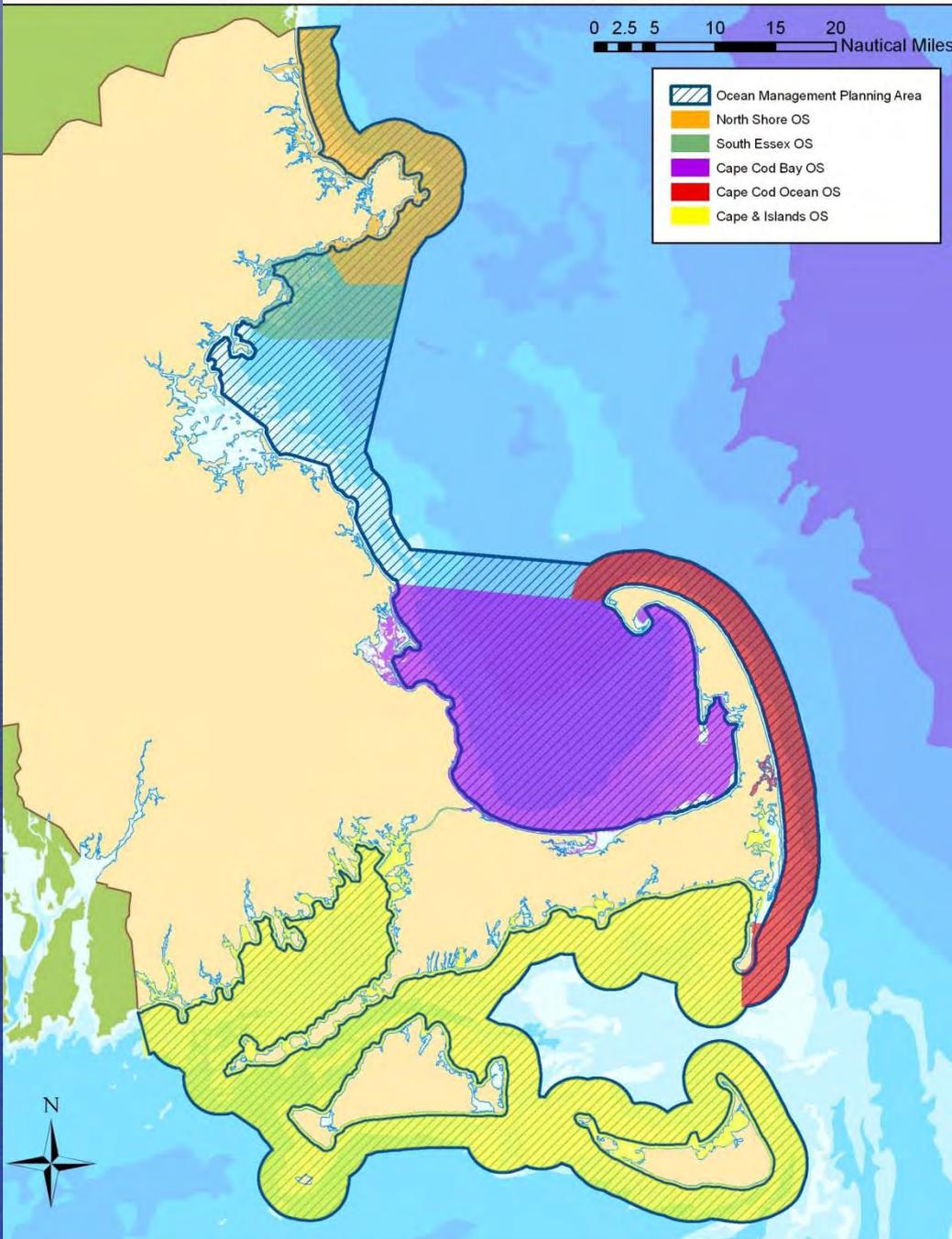
# Oceans Act of 2008

- Act mandates that the Integrated Ocean Plan address 15 requirements
- The Plan must contain goals, siting priorities, and standards for specific uses, including:
  - Energy facilities, including “appropriate-scaled” renewable energy
- The Plan must identify and protect *special, sensitive, and unique* estuarine and marine life and habitats

# Oceans Act of 2008

- The Plan must coordinate uses including federal, state, and local jurisdictions
- Requires all state approvals to be consistent with the Plan
- Directs that the Plan be incorporated in the Coastal Zone Management program
- Stipulates fishing is exclusive jurisdiction of state Marine Fisheries (or federal plans) BUT shall be integrated to *maximum extent practicable* with Plan

# Massachusetts Ocean Management Planning Area and Massachusetts Ocean Sanctuaries



Ocean  
Planning  
Area

# Planning process

- Plan Phases

1. Acquire data, information, and public comment
2. Synthesize and integrate into working plan; conduct additional stakeholder meetings
3. Formal legislative review and public hearings; promulgation

- Products

- Operational plan with spatial components and defined management measures
- Framework for ongoing, dynamic plan evolution

# Phase 1: Public and stakeholder participation

- August through October: 18 “listening” sessions
- 70+ consultations with stakeholder groups and individuals
  - Federal, state, regional, local governments
  - Conservation organizations
  - Marine trade organizations
  - Commercial and recreational fishermen
  - Academia
  - Etc...

# Phase 1: Spatial data / info

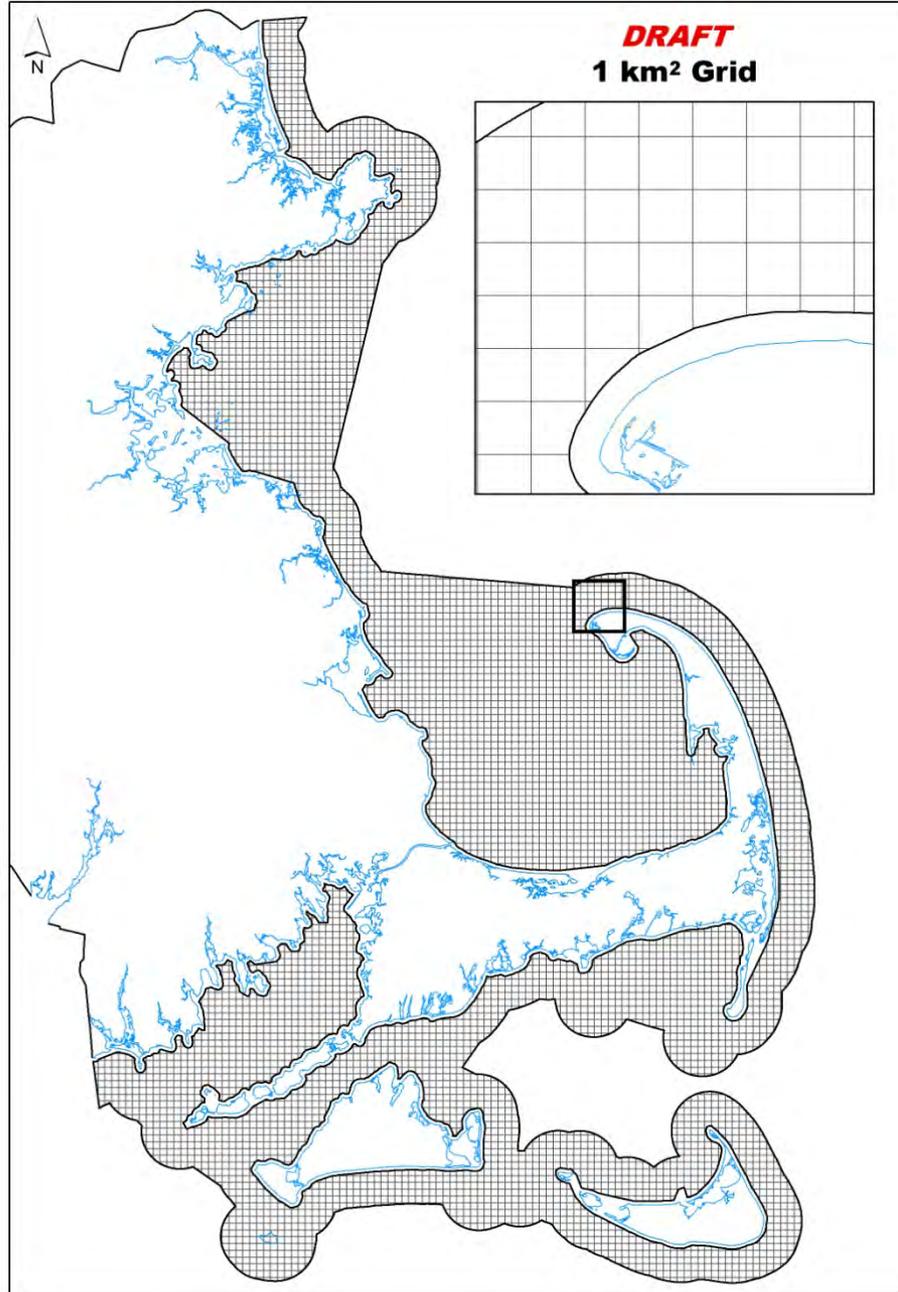
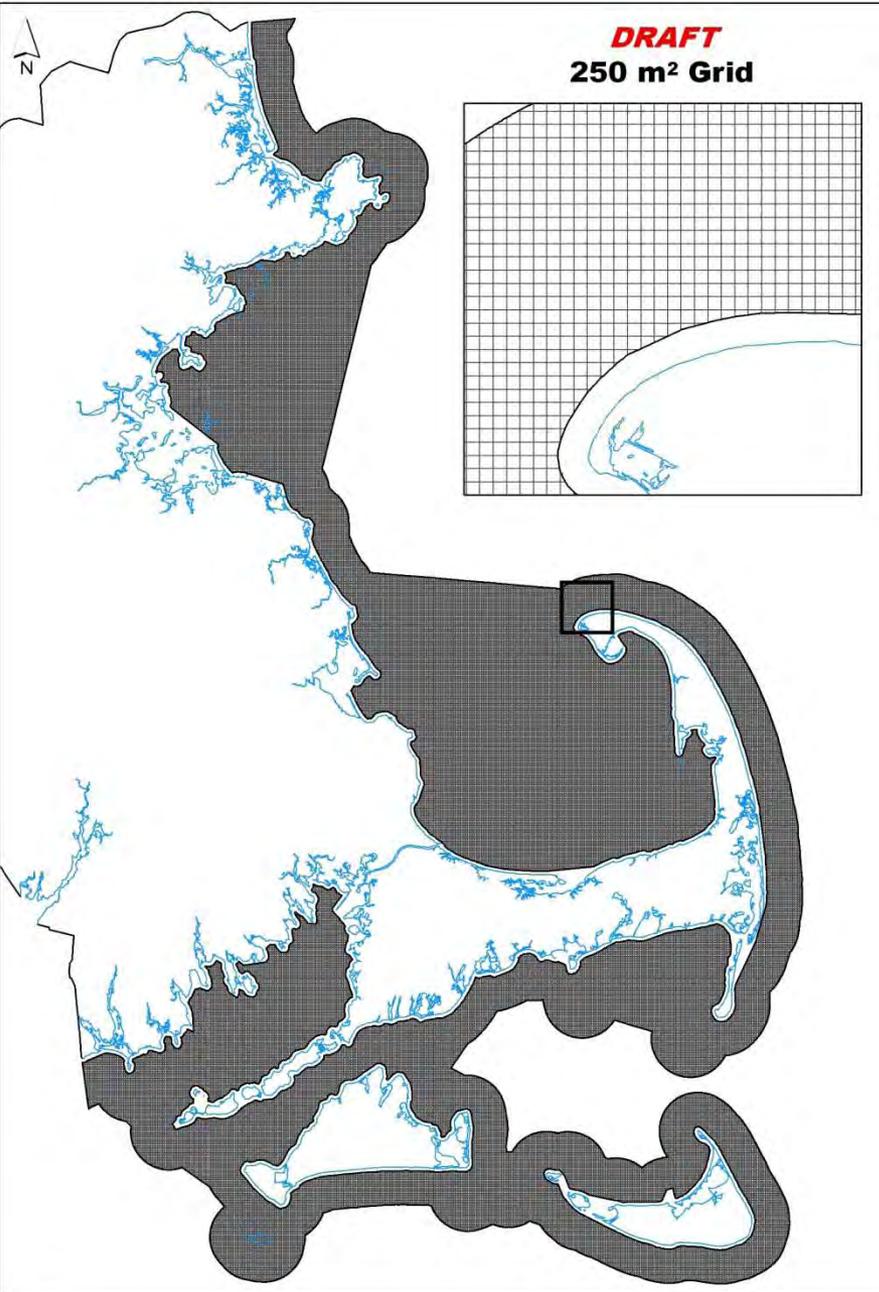
- Ocean use and resource Work Groups
  - Habitat
  - Commercial and Recreational Fishing
  - Renewable Energy
  - Navigation and Infrastructure
  - Sediment Management
  - Social, Cultural and Historic
- Focus on spatial data and information
- Started as internal; expanded to include outside expertise

# Habitat Work Group

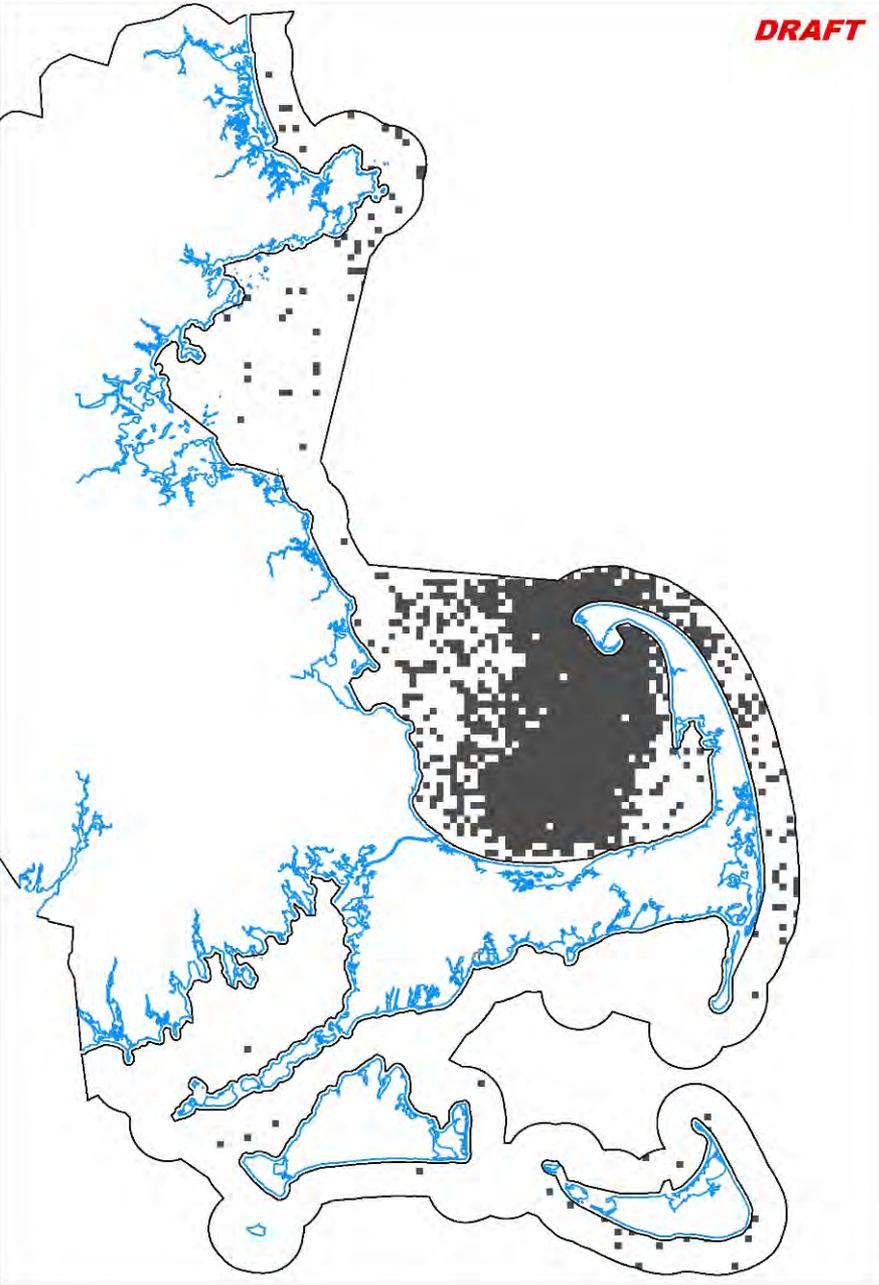
- Charge: Identify, characterize, and rank priority areas for marine life and habitat irrespective of other ocean uses or resources
- Biotic track:
  - Habitat critical to or providing specific life stage support for important species
- Abiotic track:
  - Unique and/or sensitive habitats as indicated by abiotic parameters

# Biotic focus

Species / Marine life	Status
Colonial coastal water birds (Petrels, Skimmers, Egrets, Herons)	Included
Marine avifauna (Long-tail ducks, eiders, scoters)	Included
Terns (Roseate, Arctic, Common, Least)	Included
Whales (Northern Right, Humpback, Fin, Sei)	Included
Seals (Gray, Harbor, Harp)	Included
Submerged aquatic vegetation (Eelgrass, widgeon grass)	Included
Sea Turtles (Loggerhead, Green, Kemp's Ridley, Leatherback)	Pending
Primary / Secondary productivity	Pending



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# Northern Right Whales

 Ocean Management Planning Area

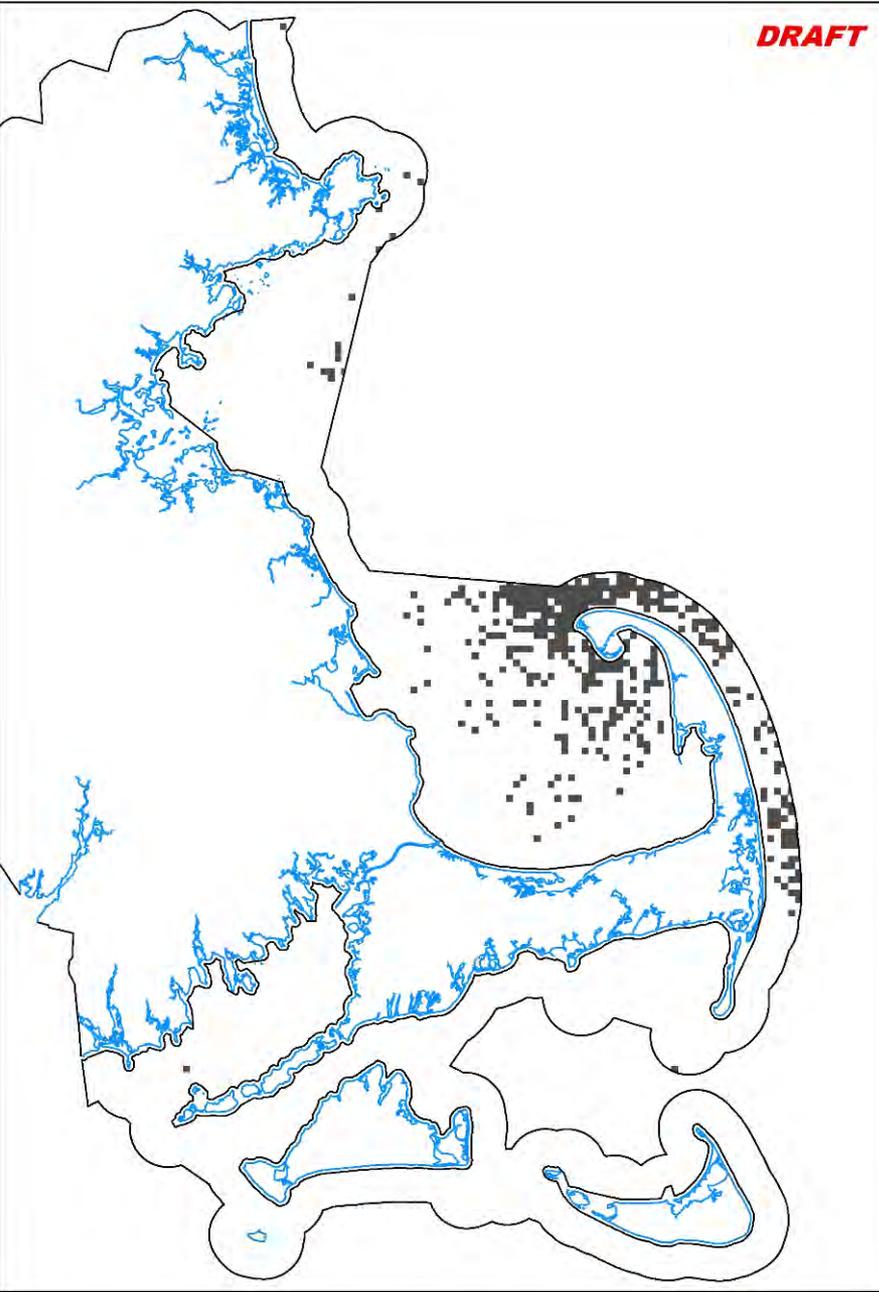
 North Atlantic Right Whale Sightings



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.

0 2.5 5 10 15 20 Nautical Miles

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# Humpback Whales

— Ocean Management Planning Area

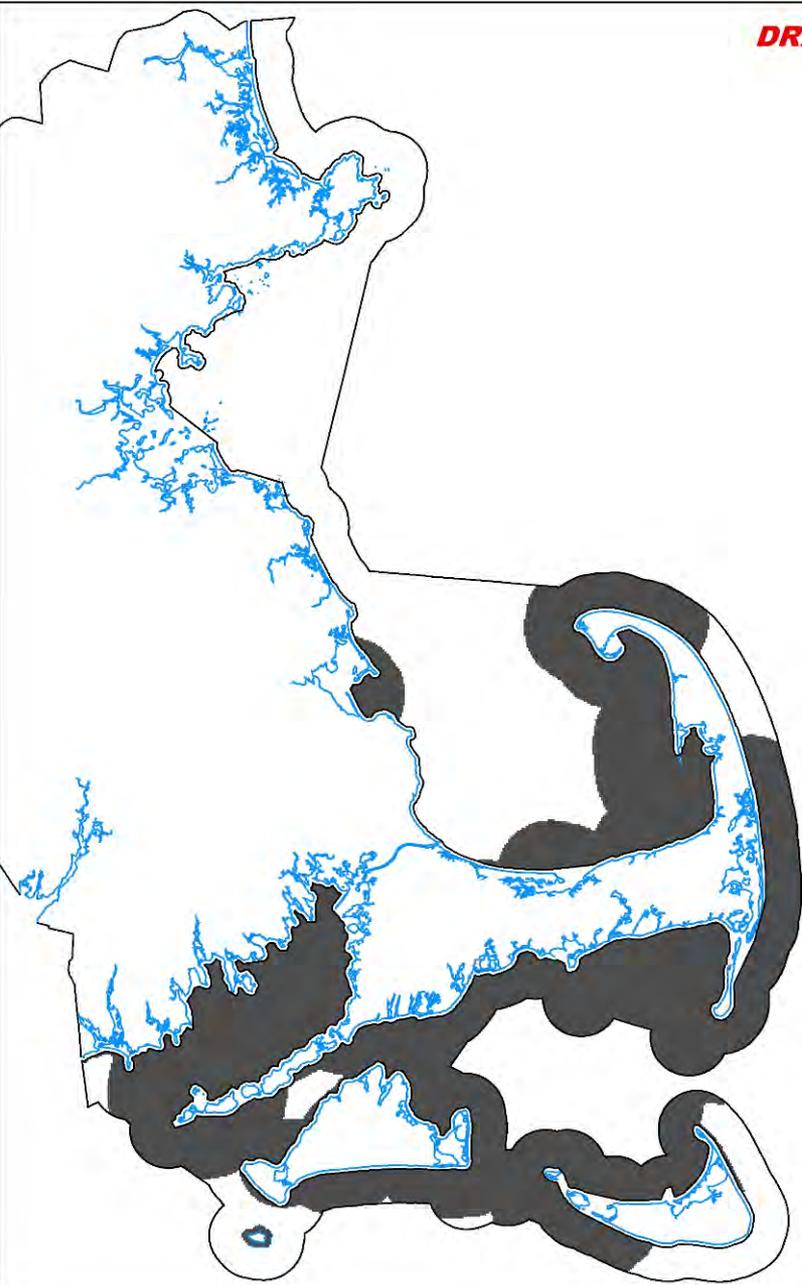
■ Humpback Whale Sitings



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# Roseate Terns

 Ocean Management Planning Area

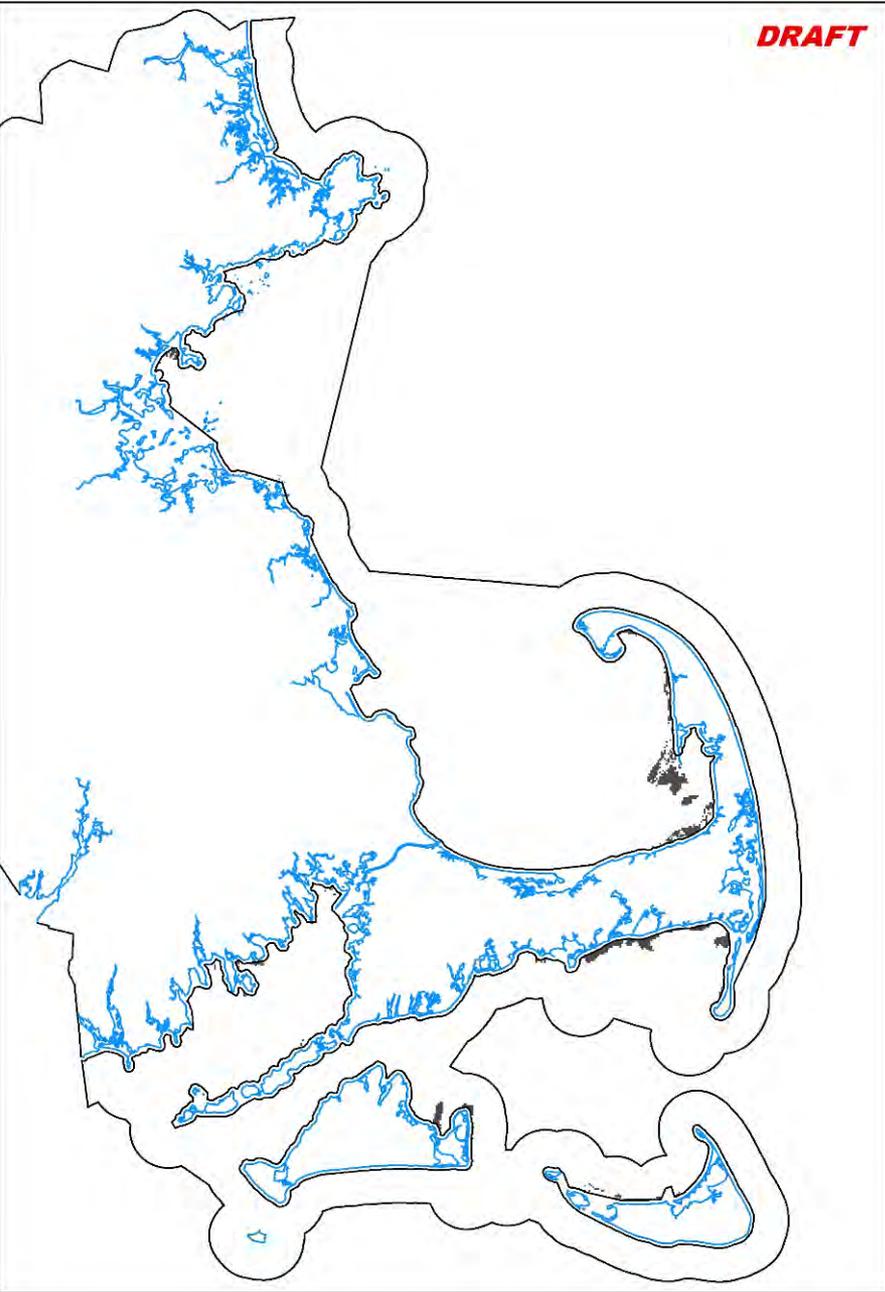
 Important Roseate Tern Foraging Sites



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0 2.5 5 10 15 20  
Nautical Miles

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# Eelgrass Areas

 Ocean Management Planning Area

 Eelgrass and Widgeon Grass Beds

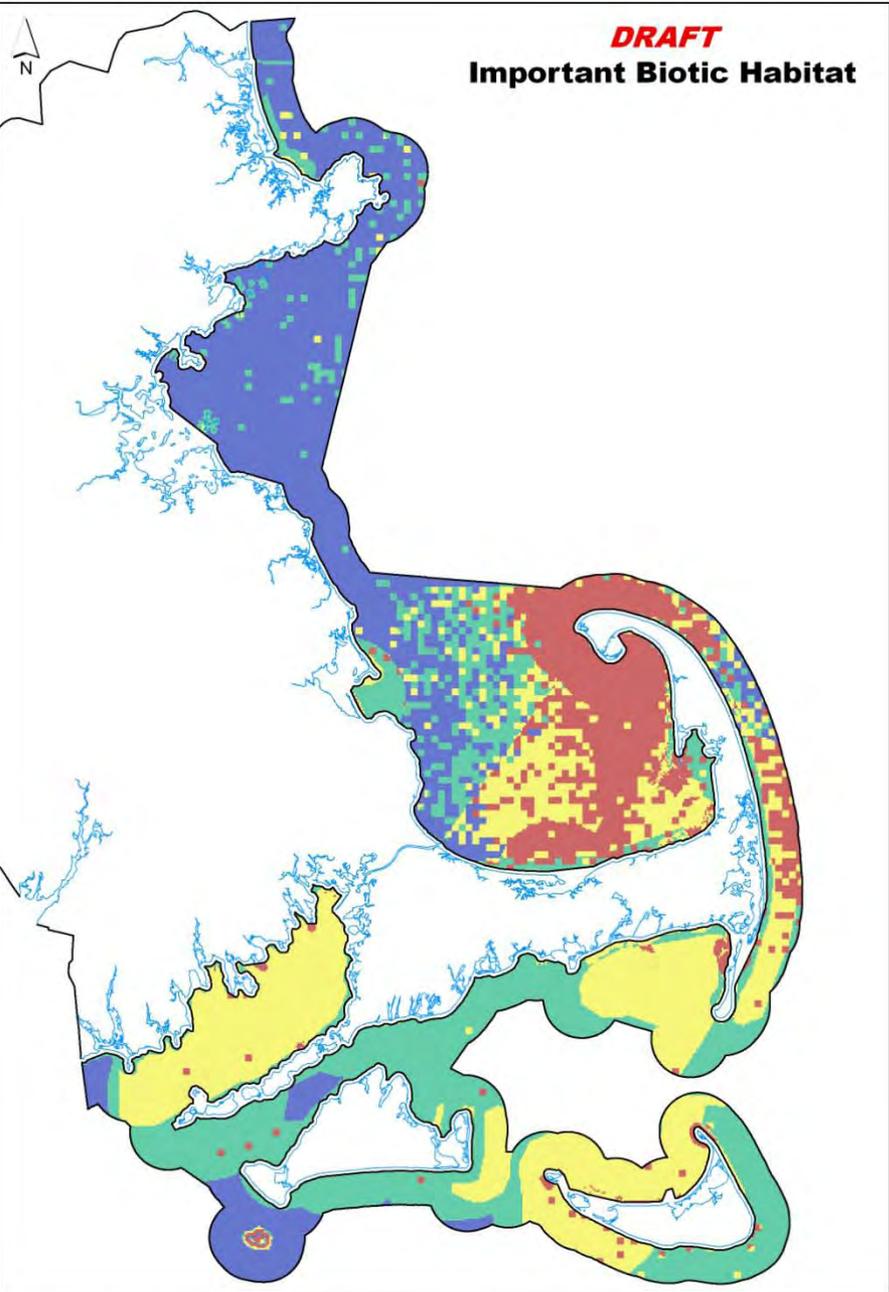


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0 2.5 5 10 15 20 Nautical Miles

# Species habitat ranking

<b>Standard / Condition</b>	<b>Score</b>
Rare, unique, and/or sensitive habitat. Identified as critical habitat for endangered or threatened species (e.g., nesting, staging) where there are no or very few other areas exist that provide similar structure or function.	3
Exceptional and somewhat unique habitat and/or habitat with high vulnerability. These are habitat areas where few others exist providing similar structure or function.	2
Important habitat and/or habitat or resources susceptible to adverse impacts. Identified as areas that support endangered, threatened, or special concern species or other important species, but where use is general or occurs over large geographic areas. These could be general or transient habitats or areas where some others exist providing similar structure or function.	1

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**Important Biotic Habitat**



Important  
biotic habitat



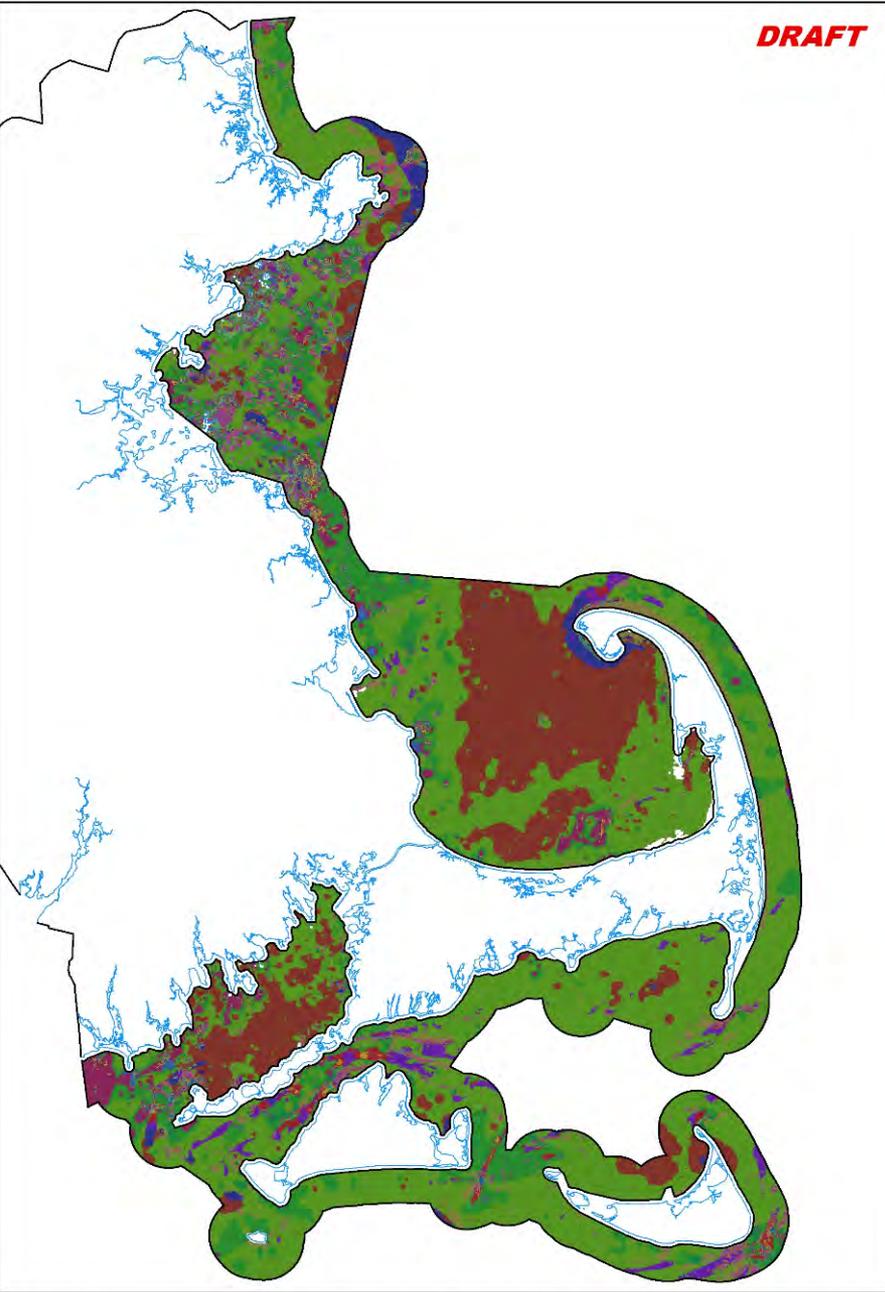
— Ocean Management Planning Area  
— Low  
— Medium  
— High  
— Critical

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0 2.5 5 10 15 20  
Nautical Miles

# Abiotic focus

<b>Abiotic parameters</b>	<b>Status</b>
Depth/bathymetry	Included
Seafloor topography	Included
Sediment grain size	Included
Temperature / salinity fronts	Pending
Currents	Pending
Wave base	Pending
Light attenuation	Pending
Near bed sheer stress	Pending

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# Seafloor habitat classes

 Ocean Management Planning Area

 Colors represent unique combinations of seafloor terrain, rugosity, and seabed sediments

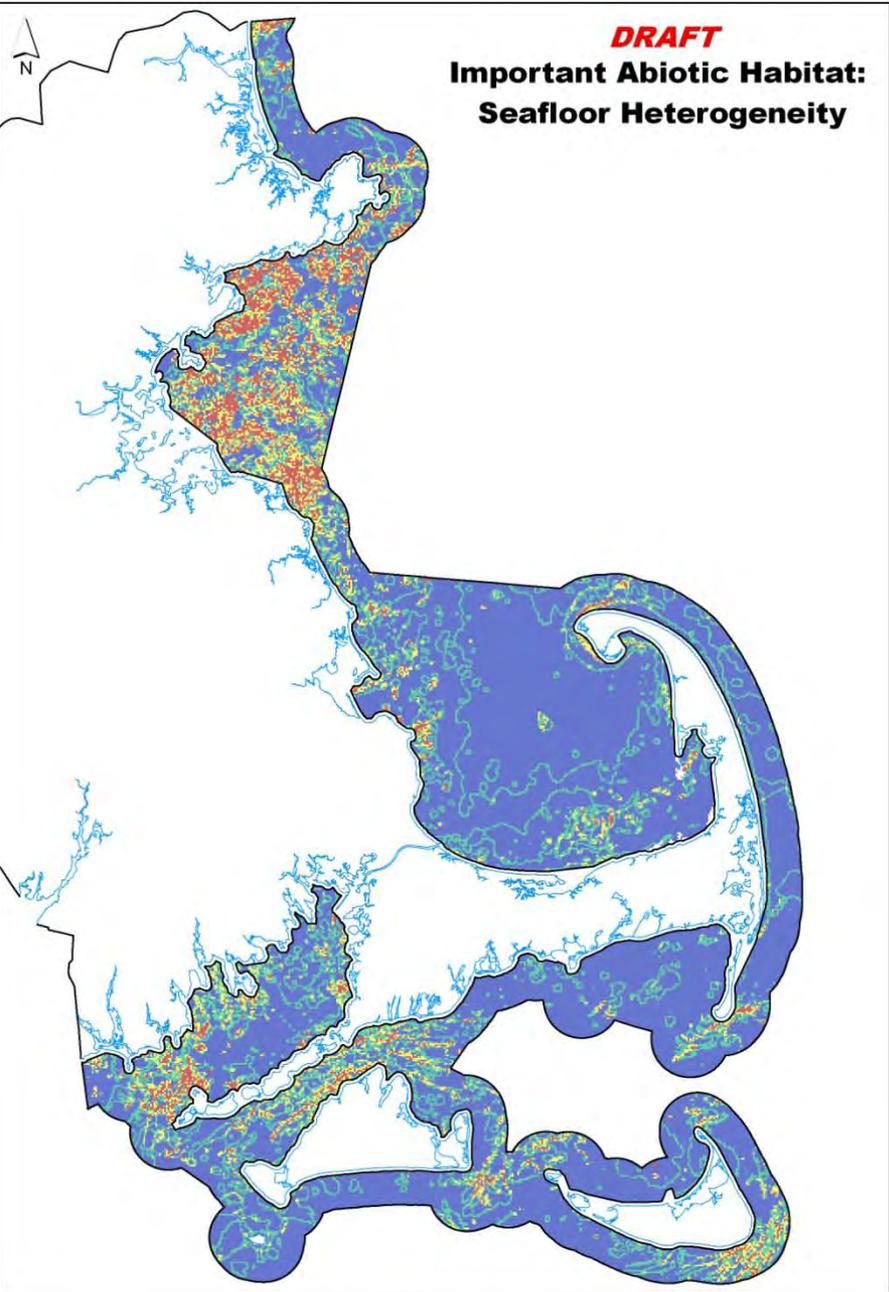


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 Nautical Miles

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**Important Abiotic Habitat:  
Seafloor Heterogeneity**



Seafloor  
habitat  
heterogeneity  
(variety per grid)

  Ocean Management Planning Area  Medium Variety  No Variety  High Variety  Low Variety

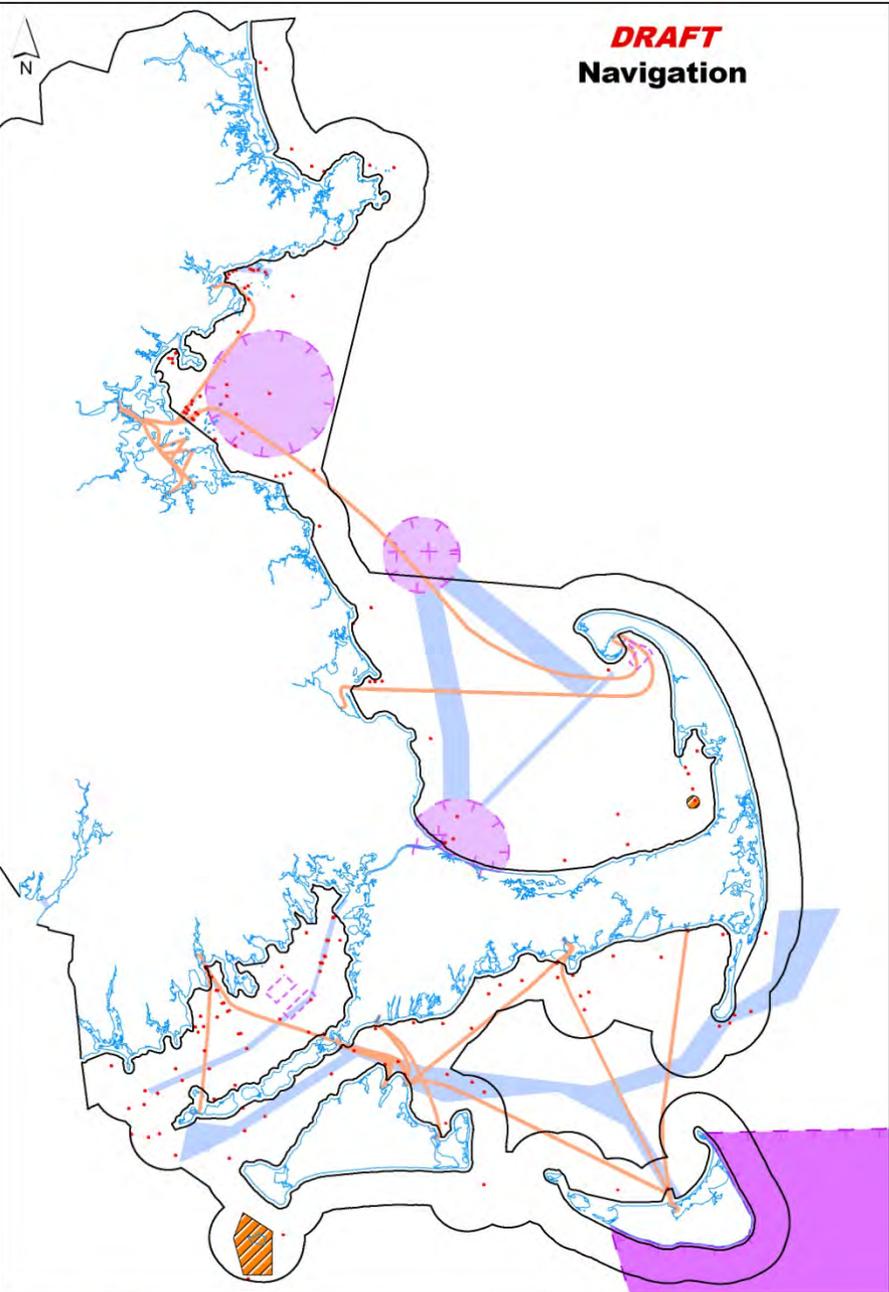
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0 2.5 5 10 15 20 Nautical Miles

# Other Work Group maps

- Navigation
- Fishing Resource
- Fishing Effort / Value
- Infrastructure
- Underwater archaeological resources
- Wind energy

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**Navigation**



# Navigation Areas

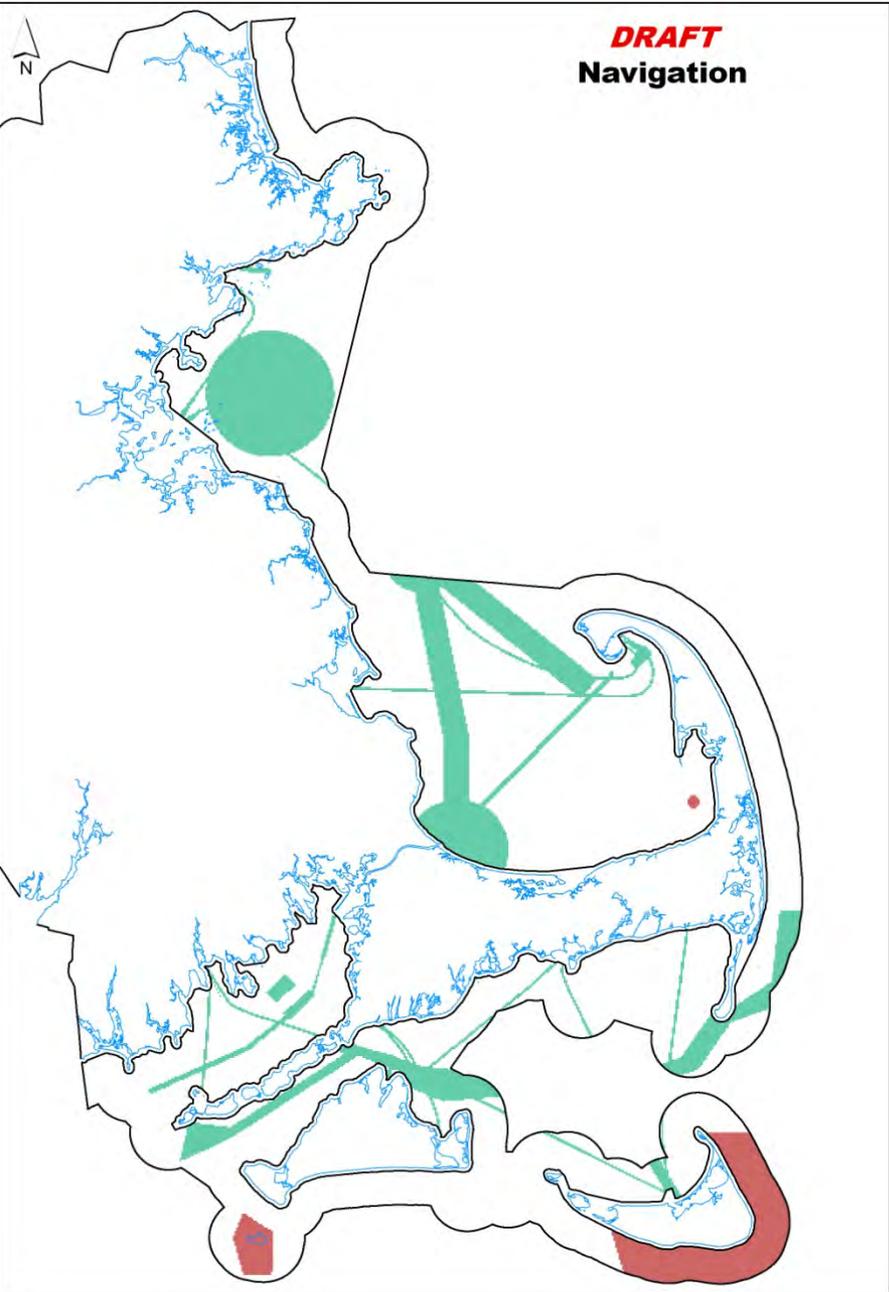


- Aids to Navigation
- Precautionary Areas
- Anchorage Areas
- Prohibited Areas
- Areas to be Avoided
- Shipping Channels
- Ferry Routes

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0 2.5 5 10 15 20  
Nautical Miles

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**Navigation**

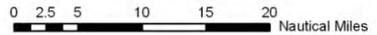


# Navigation Areas (gridded)



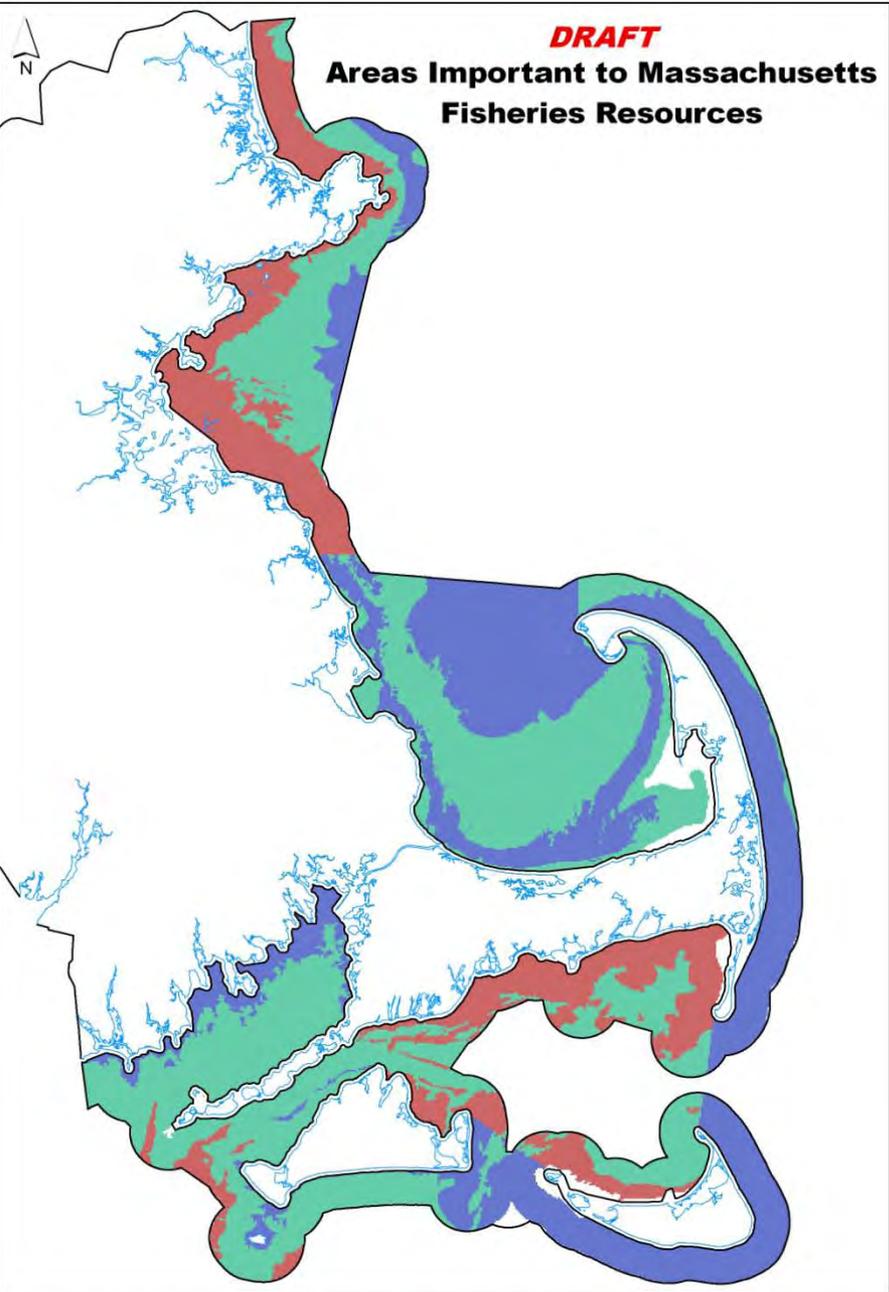
- Ocean Management Planning Area
- Areas Highly Suitable / Reserved for Navigation
- Areas Not Suitable for Navigation

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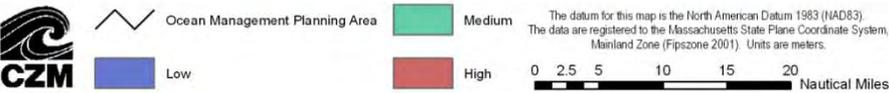


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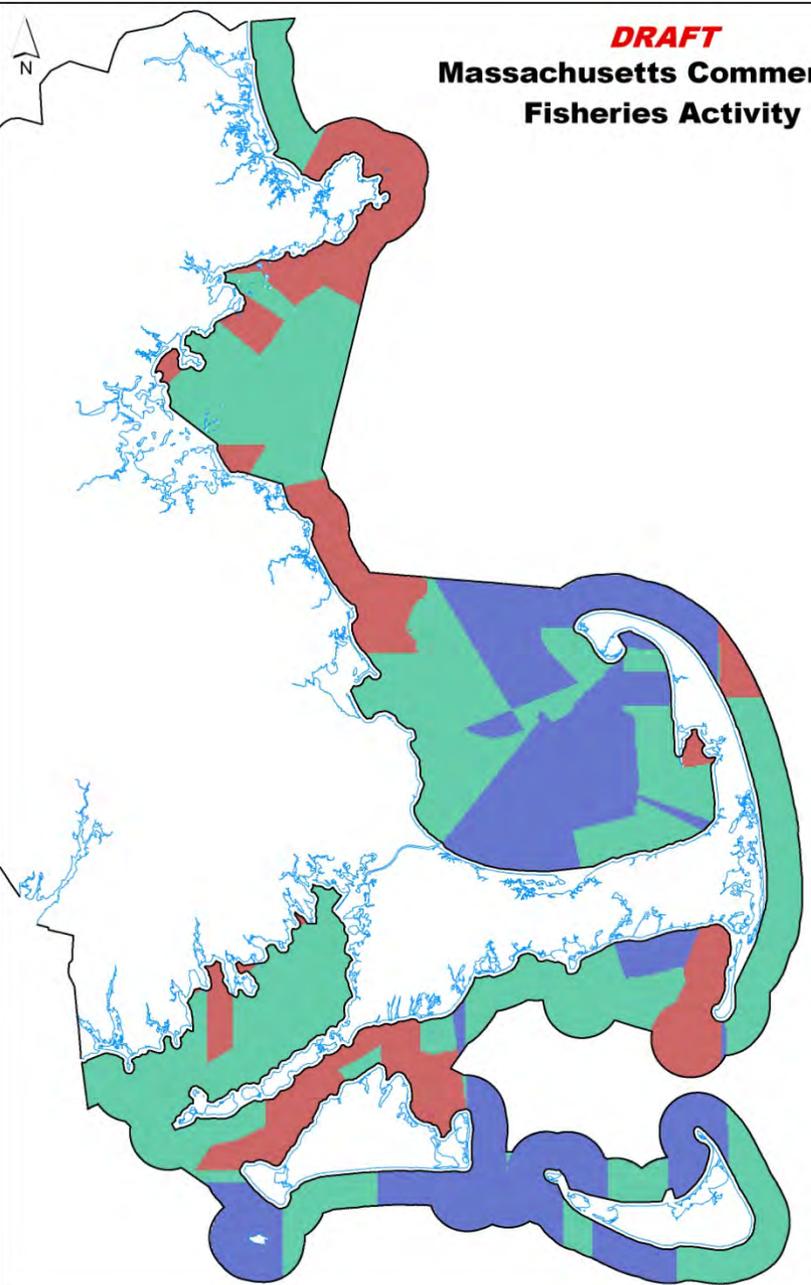
## Areas Important to Massachusetts Fisheries Resources



# Fisheries resources



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**Massachusetts Commercial  
Fisheries Activity**



Commercial  
fishing effort  
and value

  Ocean Management Planning Area

 Low

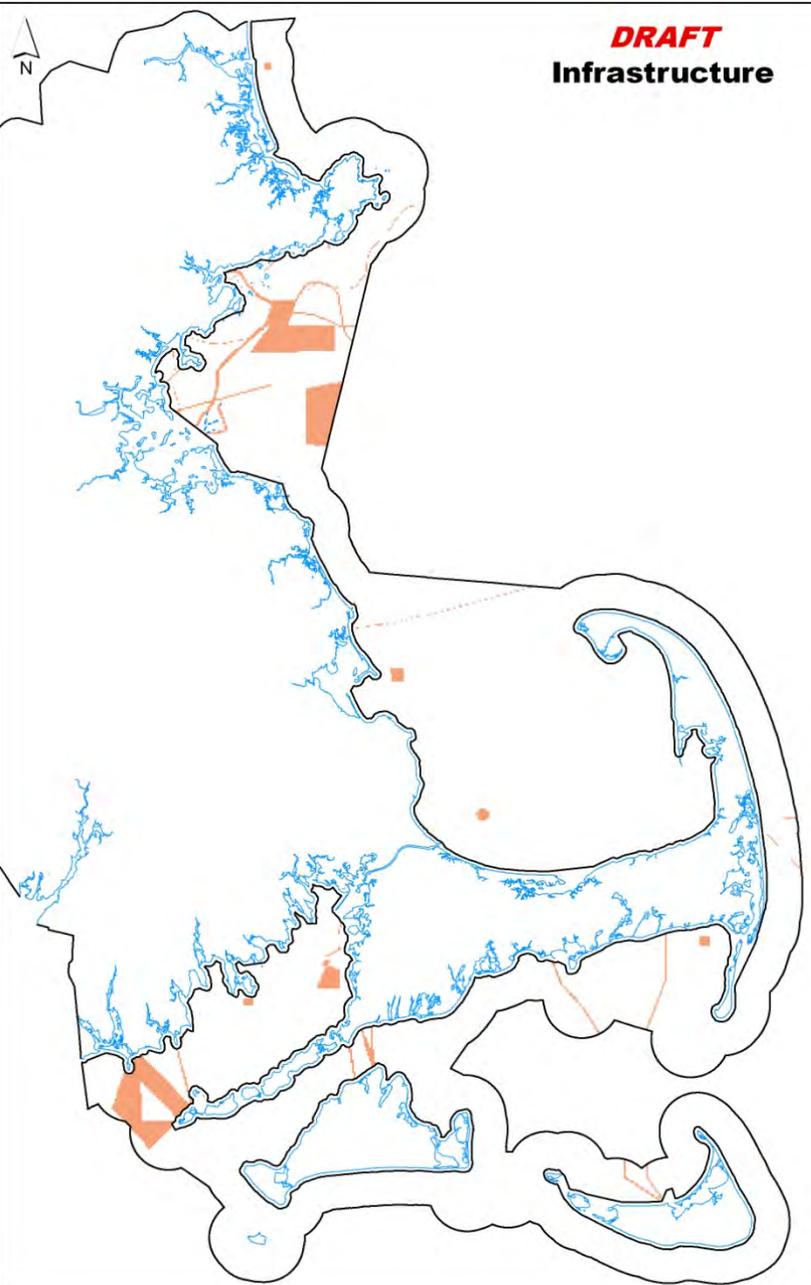
 Medium

 High

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0 2.5 5 10 15 20  
Nautical Miles

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**Infrastructure**



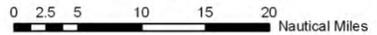
Infrastructure  
(cables,  
pipelines, etc)



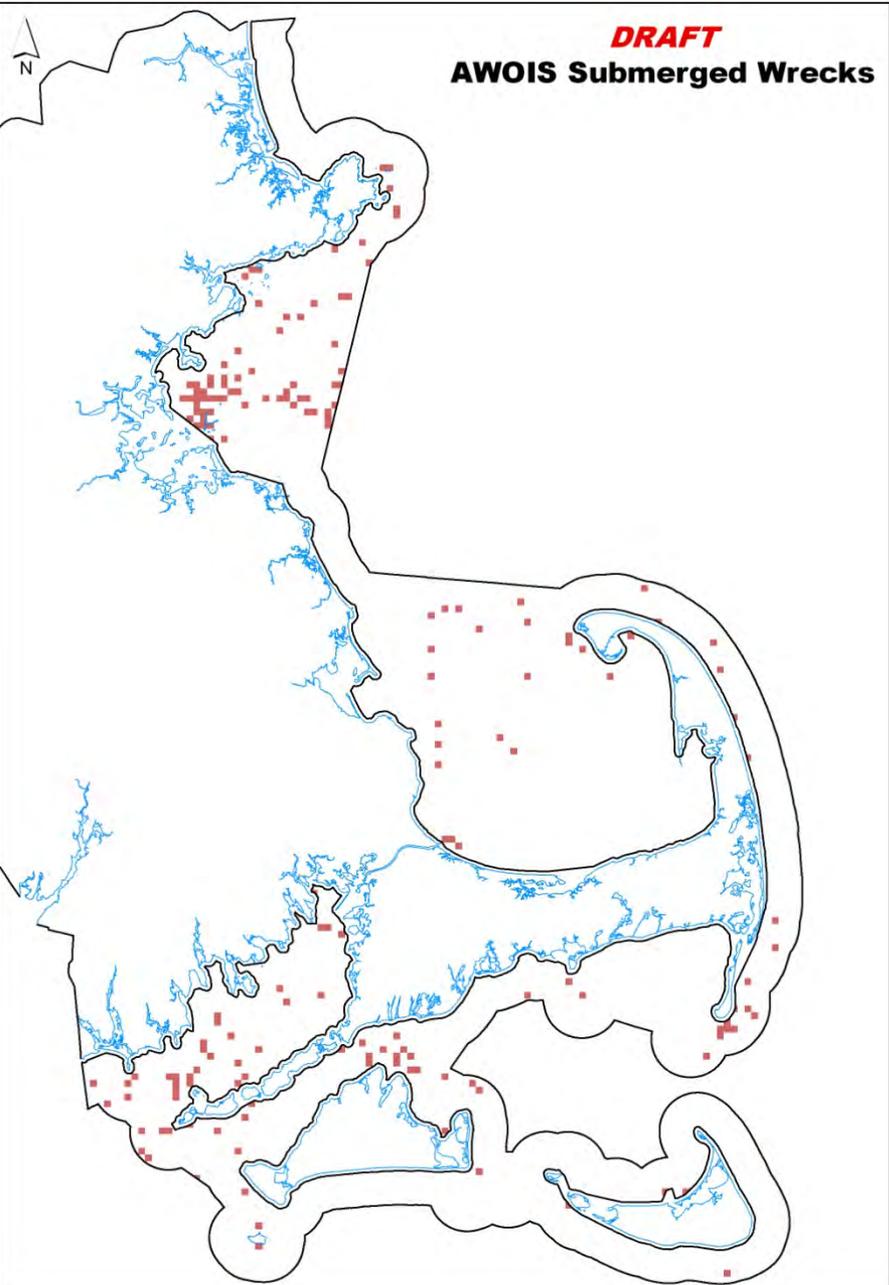
 Ocean Management Planning Area

 Infrastructure

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**AWOIS Submerged Wrecks**



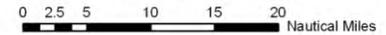
Underwater  
archaeological  
resources  
(wrecks)



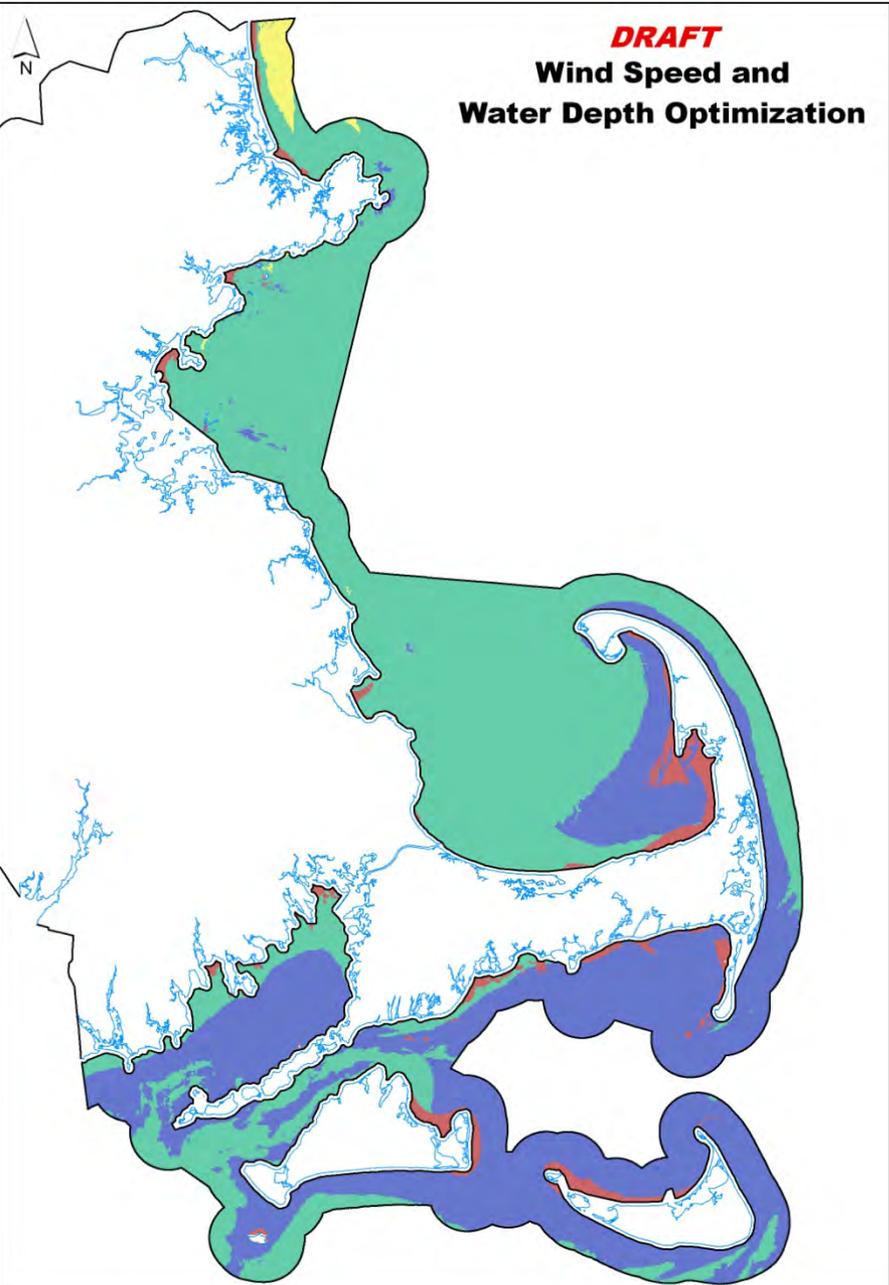
— Ocean Management Planning Area

■ AWOIS Submerged Wrecks

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**Wind Speed and  
Water Depth Optimization**



Wind energy  
optimization



- Ocean Management Planning Area
- Not Suitable
- Low
- Medium
- High

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Nautical Miles

# Next steps:

- Fill specific data gaps
  - Water column and hydrodynamics
  - AIS and VIMs vessel traffic
  - Recreational boating / fishing
- Examining other regional and national ocean management and spatial planning efforts
- Spatial data analysis: compatibility and conflict

# Next steps:

- Identify areas suitable for different kinds of uses and protections
  - Ecological valuation index: First cut of special, sensitive and unique areas
  - First cut use / development areas
  - Performance standards & management measures
- Characterizing federal waters
- Developing draft of Science plan

For more information:



<http://www.mass.gov/czm/>

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