

7. Habitat – April 24 – 26, 2012 – M
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Deep-sea coral protection zones and management measures

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Information provided

- Recent meeting summaries – Habitat Committee (2/23, 4/06 - DRAFT), Habitat Plan Development Team (3/7), Enforcement Committee (3/22) (Doc 1)
- Background document (Doc 2) with additional information about the coral species found in the region, bathymetry/habitat suitability analysis, fishing impacts on corals, coral presence data, etc.
- Decision document (Doc 3) with describing management alternatives, including the areas proposed as deep-sea coral zones and the range of fishing restrictions that might be associated with those zones



General background about deep-sea corals



- For these measures, and also for the purposes of NOAA's coral program, deep-sea corals are defined as those species that live at 50 m (27.3 fathoms) or deeper
- There are a few different types in our region:
 - Hard/stony corals
 - Gorgonians and soft corals
 - Sea pens
 - Black corals, which have only been documented on seamounts thus far
- There is variation in shape, size, flexibility, substrate affinity, and distribution between groups; corals in our area are not reef builders
- Coral protection zones and associated fishing restrictions focus on:
 - Structurally complex corals thought to be more susceptible to physical damage from fishing gear interactions
 - Coral that require hard substrates for attachment, since these substrates seem to occur in limited areas of the continental slope

Habitat Areas of Particular Concern

- During Phase 1 of Omnibus Amendment, EFH and Habitat Area of Particular Concern designations were updated
- HAPC proposals were solicited from the public – many of these proposals focused on deep-sea coral habitats in canyons and on seamounts
 - HAPCs are by definition a subset of EFH
 - Council approved 11 canyon HAPCs (some with multiple canyons) and a seamount HAPC (Bear and Retriever) in 2007
 - These have yet to be implemented, pending completion of the full amendment
 - Phase 2 (ongoing) includes review of adverse effects of fishing on EFH throughout region, including within HAPCs, and development of measures to minimize adverse effects as necessary

Discretionary provisions

- In 2007, the Magnuson Stevens Act was reauthorized to include deep-sea coral discretionary provisions
- These discretionary provisions offer more flexibility in terms of defining spatial areas for coral protection because no links to EFH designations are required
 - Maximum depths associated with proposed NEFMC EFH designations are 1500 m on the slope (witch flounder) and 2000 m on the seamounts (deep-sea red crab)
 - DSC do provide structural habitat for some species of fish, but implementing coral protection measures via discretionary provisions does not rely on making this case explicitly

Consultation with Mid-Atlantic Council

- Since development of coral measures began, NEFMC has been consulting with MAFMC via Habitat PDT and Committee membership
 - PDT - Tom Hoff, currently transitioning to Jessica Coakley
 - Committee – formerly Gene Kray, currently Peter deFur
 - Also, PDT has consulted with a range of coral experts (NOAA, academic, NGO) to identify data sources and develop discrete zone recommendations
- MAFMC discussed the issue at their April 2012 meeting:
 - NEFMC staff gave an overview presentation on coral alternatives
 - MAFMC is seeking development of a Memorandum of Understanding between New England, Mid-Atlantic, and South Atlantic councils on broad scale coral protection measures
 - MAFMC plans to initiate a coral-related management action

Two management frameworks

(based on MSA discretionary provisions)

Broad areas

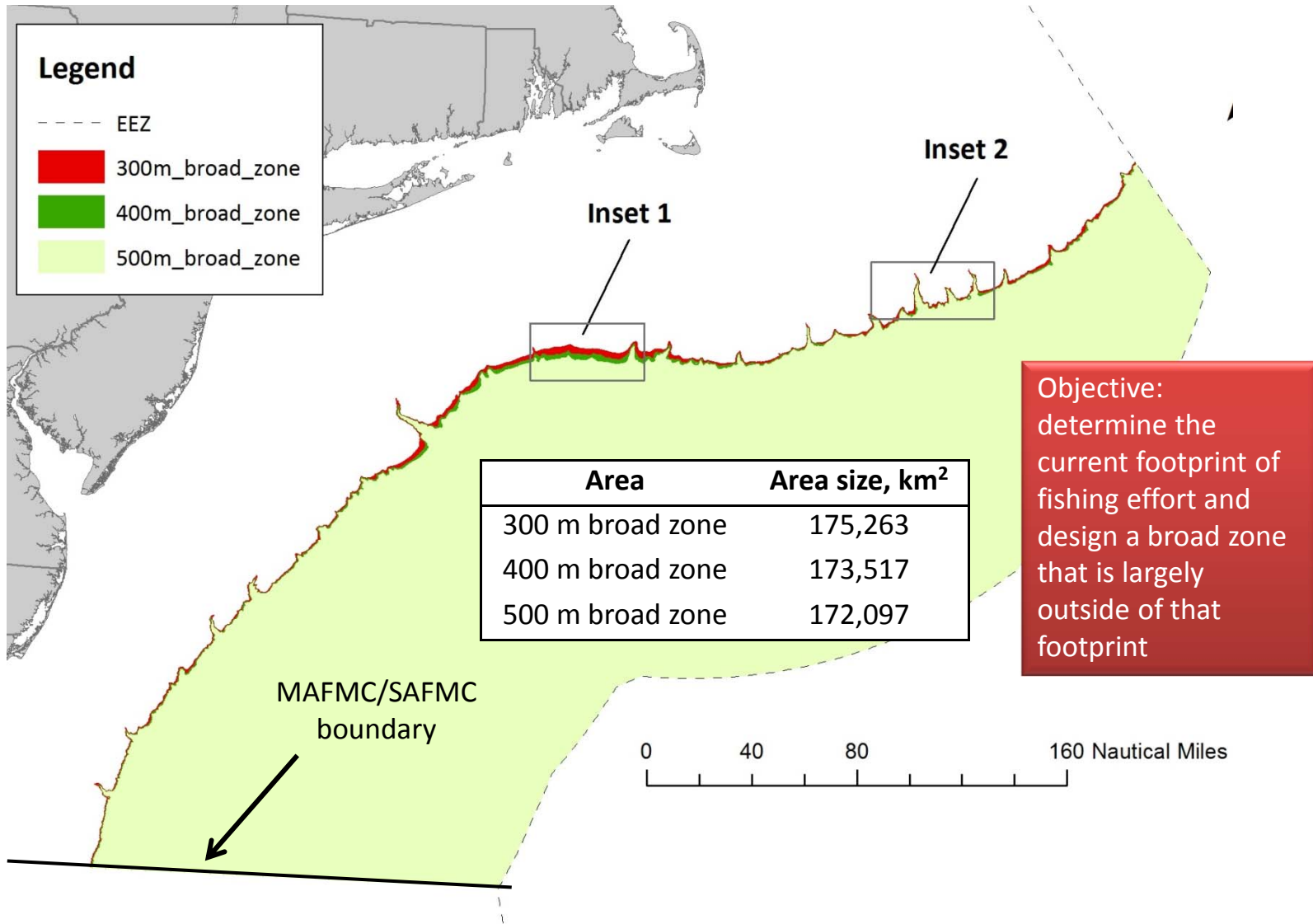
- **Objectives:** protect corals from fishing impacts while preserving fishing opportunities and managing expansion of fishing into new areas
- **Data:** Bathymetry data to define shelf/slope boundary and minimum depth for area; fishing effort data from VTRs, VMS, observers
- **Design:** a large area along the shelf/slope boundary extending to the EEZ, developed based on a selected depth contour (300, 400, or 500 m)
- **Fishing restrictions:** either no mobile bottom tending gears or no bottom tending gears, with exemptions via LOA or EFP

Discrete areas

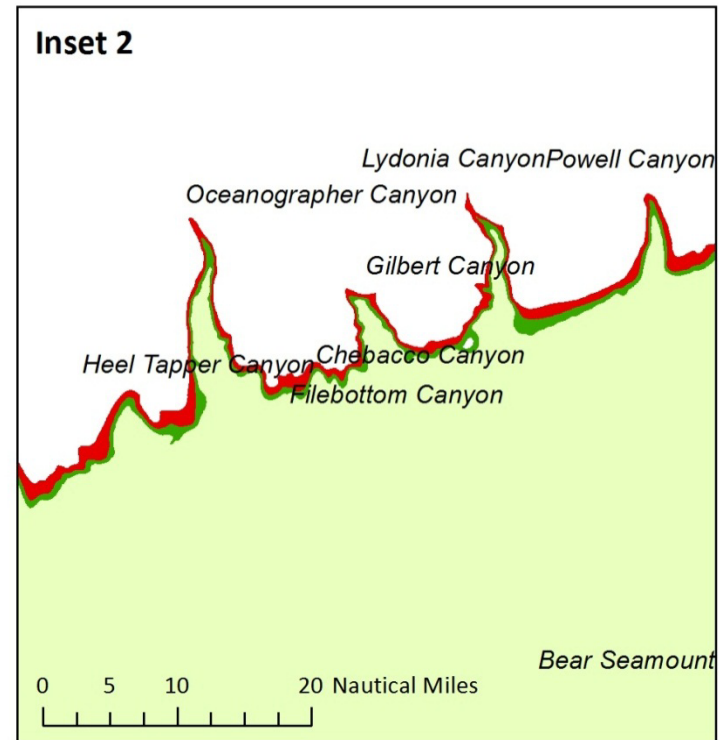
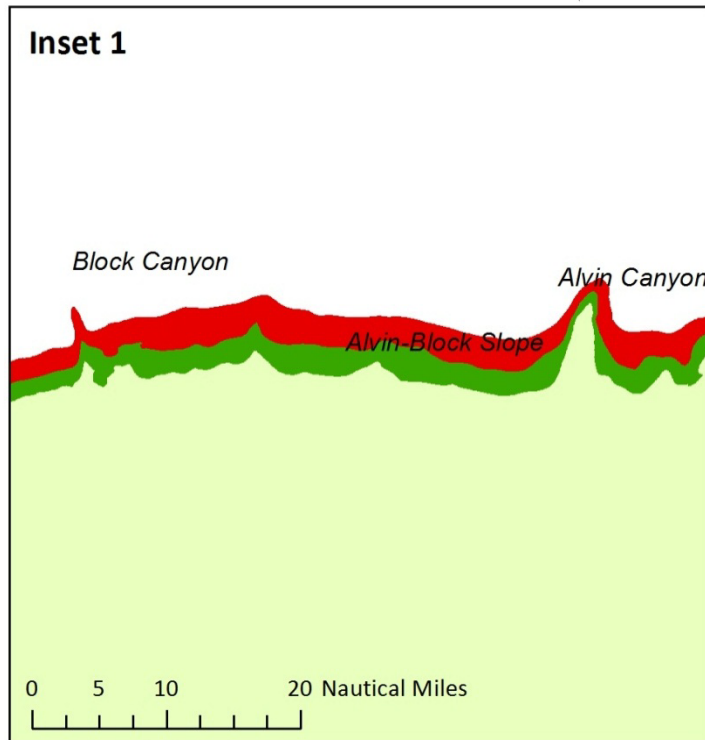
- **Objectives:** Identify smaller areas with known corals or likely to contain suitable coral habitats and minimize possible interactions between corals and fishing gear in those locations
- **Data:** Literature review of coral surveys and geological information; examination of coral presence records (Cold Water Coral Geographic database); quantitative analysis of bathymetry data to infer areas of suitable habitat.
- **Design:** Area boundaries based on bathymetry, slope, and coral distributions
- **Fishing restrictions:** either no mobile bottom tending gears or no bottom tending gears, with exemptions via LOA or EFP

Both frameworks could be implemented simultaneously

Spatial extent of broad zones

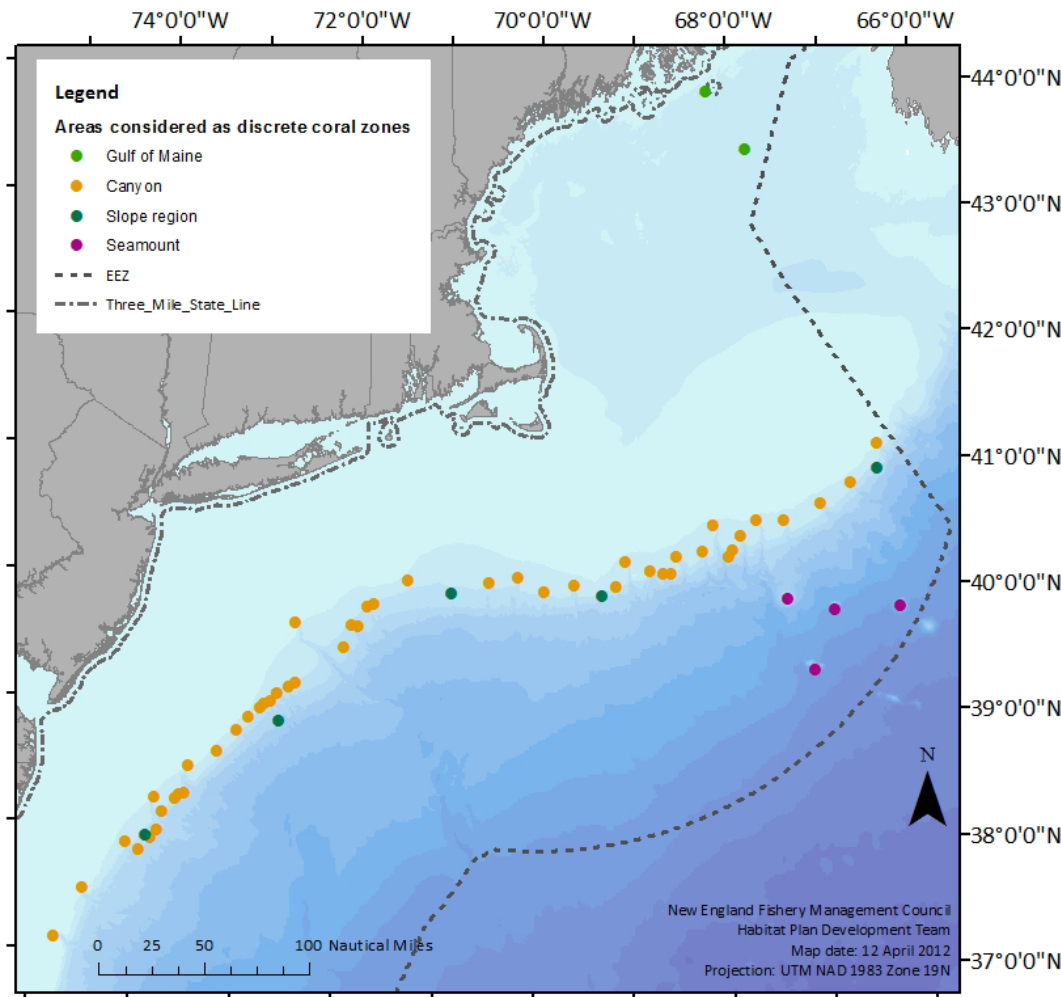


Closer view of broad zone boundaries



- *Highly irregular boundary because canyons incise the shelf anywhere from 0-20 km, sometimes more.*
- *NEFMC Habitat Committee recommended use of actual depth contour as the boundary, rather than an approximation using a series of straight line segments*
- *Boundaries of the different options are further apart in more gently sloping areas, as shown on the left.*

Discrete areas investigated as coral zones



Total number of areas evaluated (shown on figure):

- 48 canyons
- 5 slope areas
- 4 seamounts
- 2 areas in the Gulf of Maine

Total number of areas recommended:

- 22 canyons (6 coral data, 16 habitat suitability)
- 1 slope area
- 4 seamounts
- 2 areas in the Gulf of Maine

Basis for recommending discrete areas as coral zones

For each area, coral presence data and habitat suitability were evaluated:

	Coral presence relatively well assessed	Coral presence has not been assessed, or has been relatively poorly assessed.
Coral zone recommended	Coral presence <u>has</u> been documented	Geological and/or bathymetric data <u>do</u> support the inference of suitable habitat.
Coral zone not recommended	Coral presence <u>has not</u> been documented.	Geological and/or bathymetric data <u>do not</u> support the inference of suitable habitat.

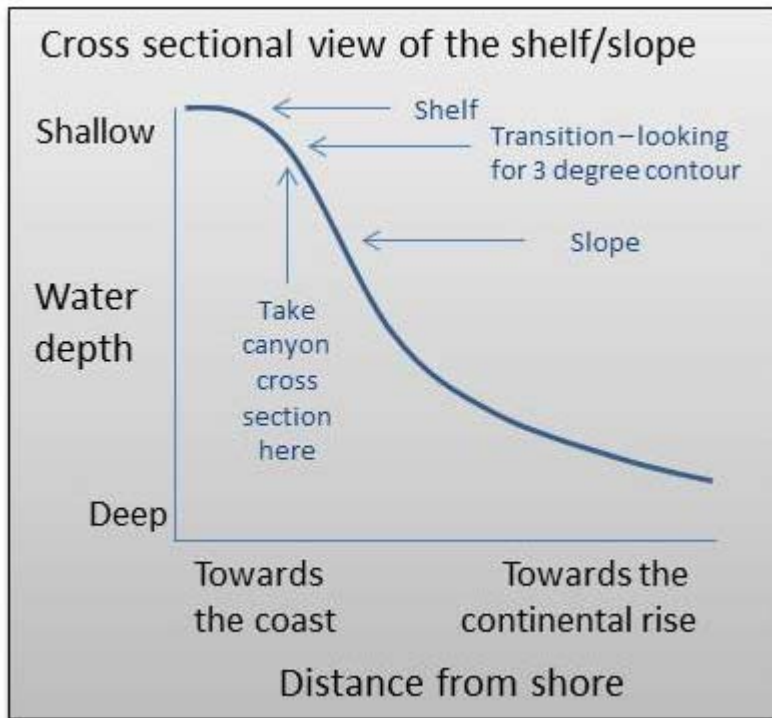
Habitat suitability analysis

(potential canyon zones only)

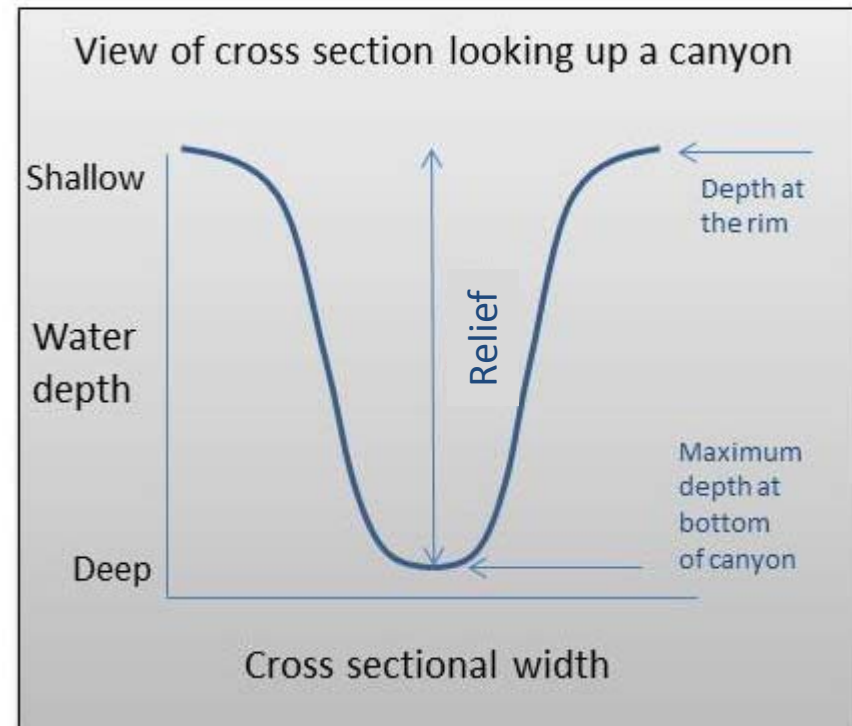
- **Objective**: Determine whether an area is likely to contain outcropping rocks that provide attachment sites for corals
- **Method**: Calculate the relief of the canyon at the shelf break.
 - Canyons that have high relief at the shelf break were assumed to have higher likelihood of outcrops, because they are expected to incise the layers of fine-grained sediments at the shelf/slope break far enough to expose the underlying bedrock
 - Used a slope of 3 degrees to define the shelf break
 - A minimum threshold value of 450 m relief was used to classify canyons as likely to contain outcropping rocks

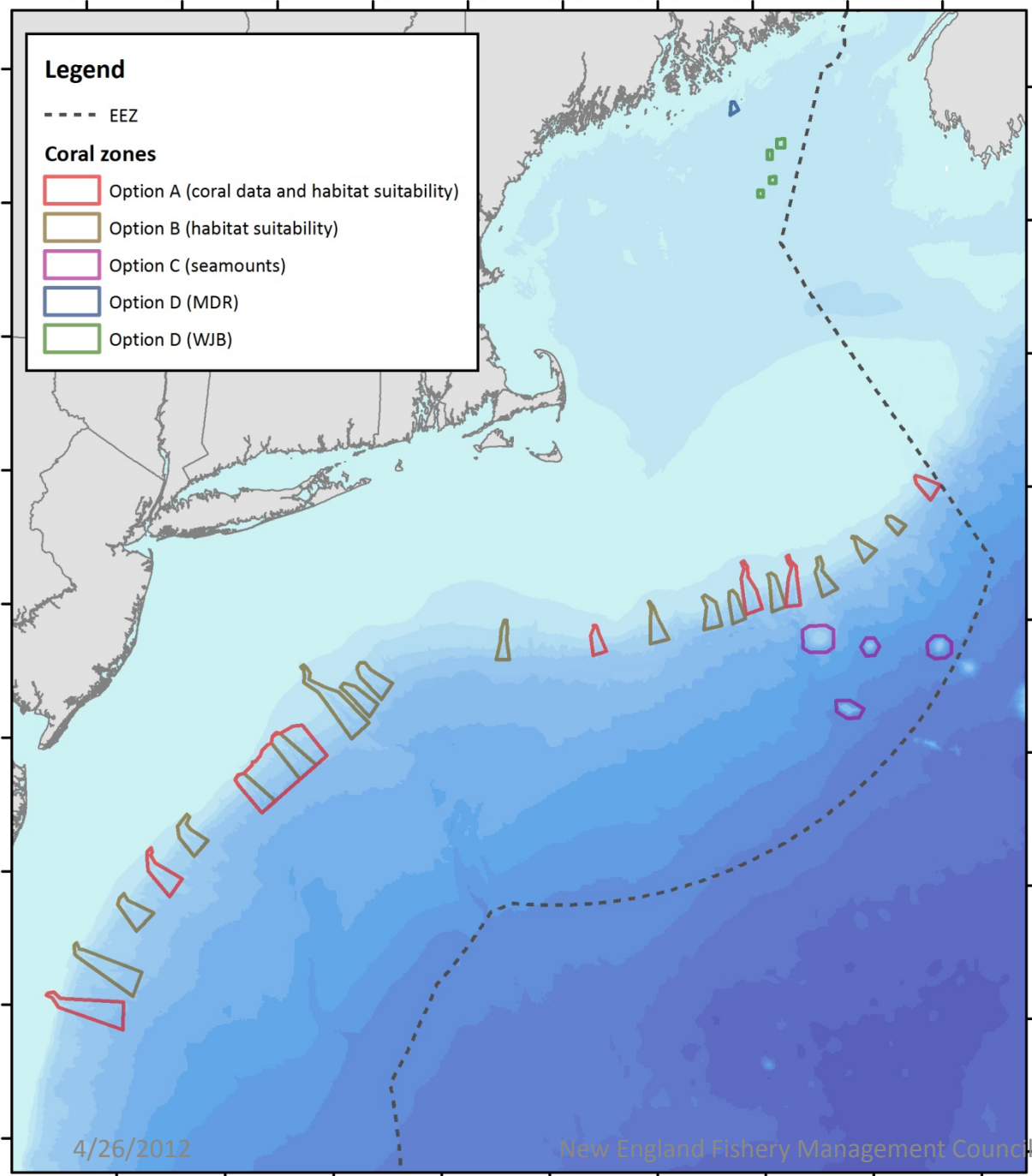
Habitat analysis

Identifying the cross section for each canyon:



Key measurements taken (other measures made as well):





Conclusion of evaluations-
recommended potential
discrete coral zones

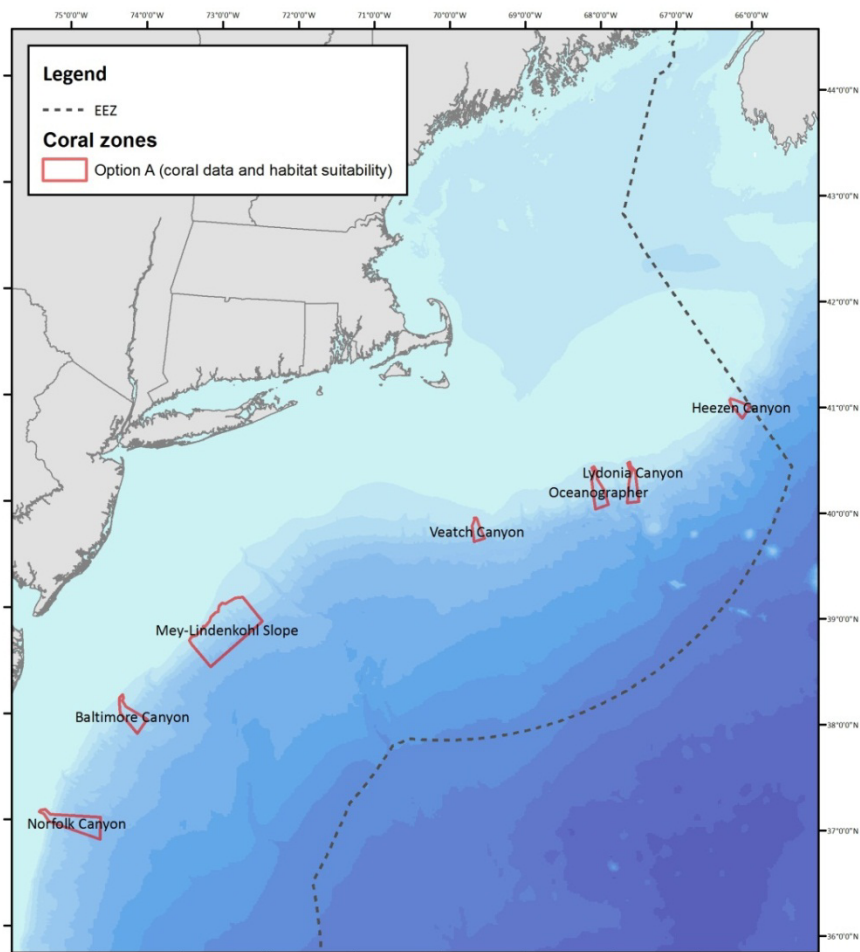
Landward canyon zone
boundaries based on 3
degree slope contour,
seaward boundaries to
encompass area of
maximum slope (red areas
on previous slide)

Seamount boundaries based
on bathymetry of features

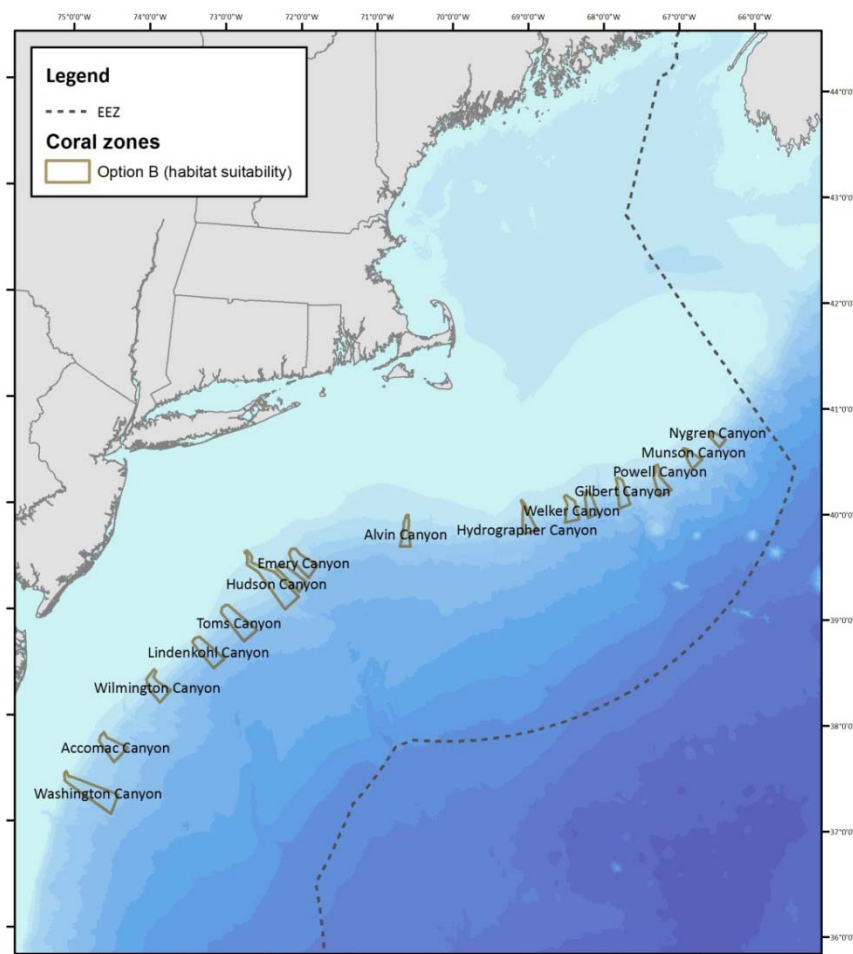
GOM boundaries based on
coral observations,
bathymetry, and substrate

Potential discrete coral zones – canyons and slope

Option A – Canyons and slope area based on coral data and habitat suitability:



Option B – Canyons based on habitat suitability

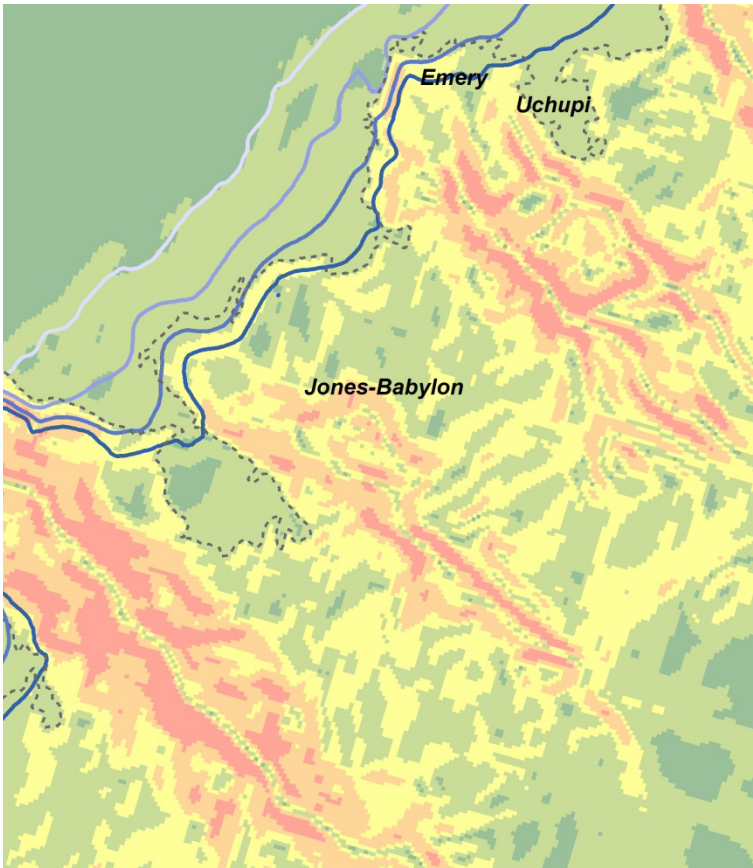
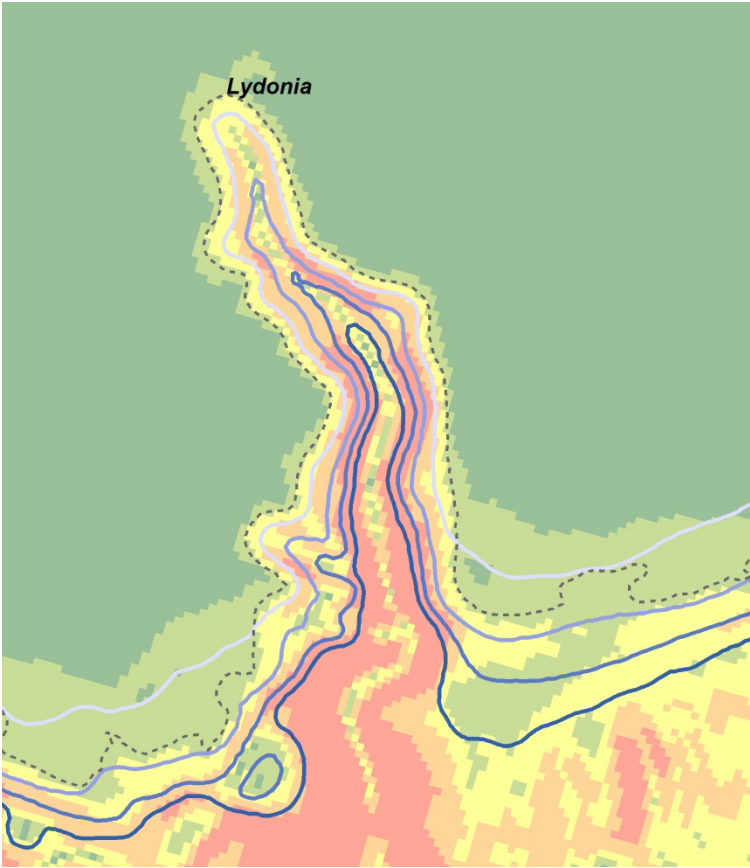


Comparison between 3 degree slope contour and depth contours

Slope contour: ----- 3 degrees

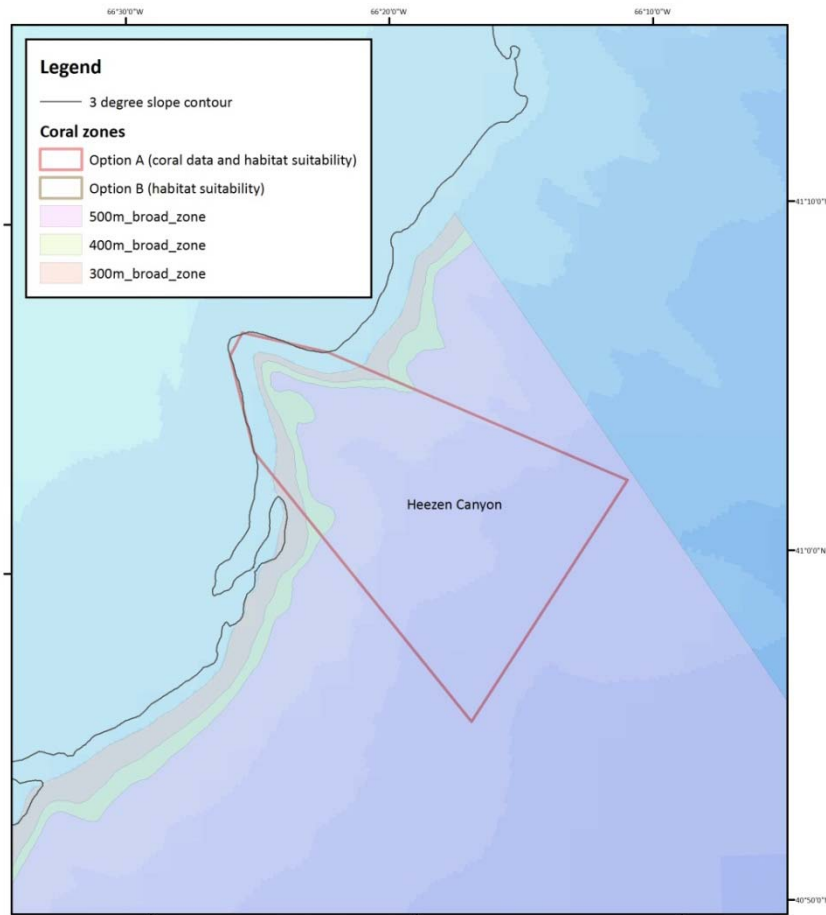
Depth contours:  300
400
500

Slope:  Low
High

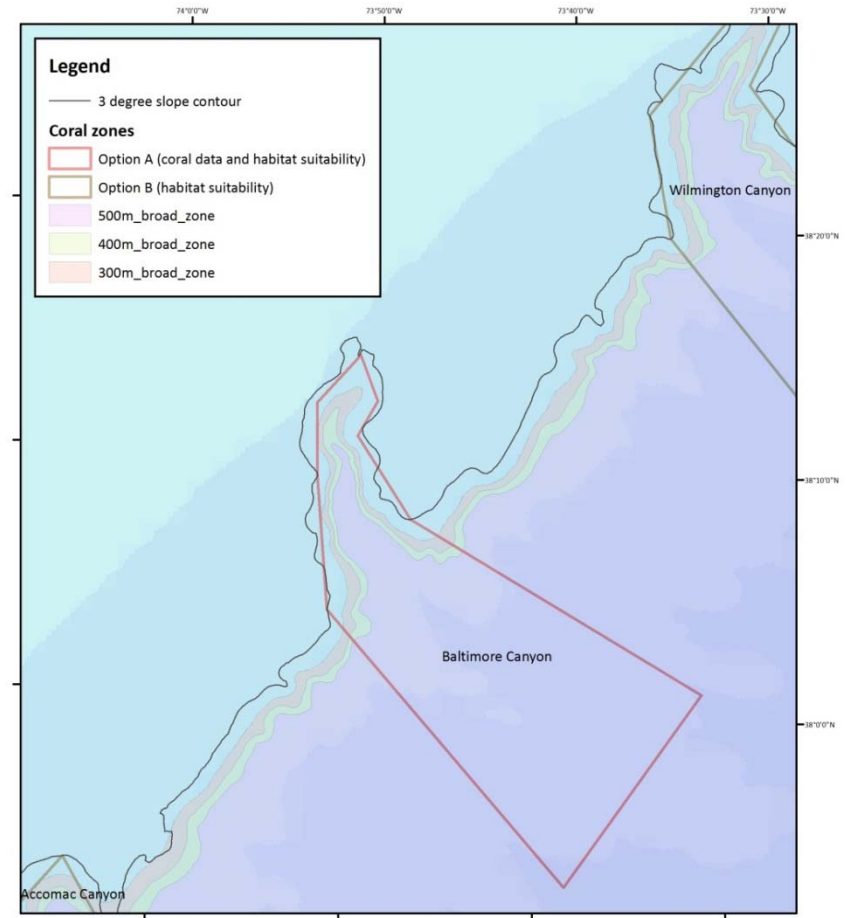


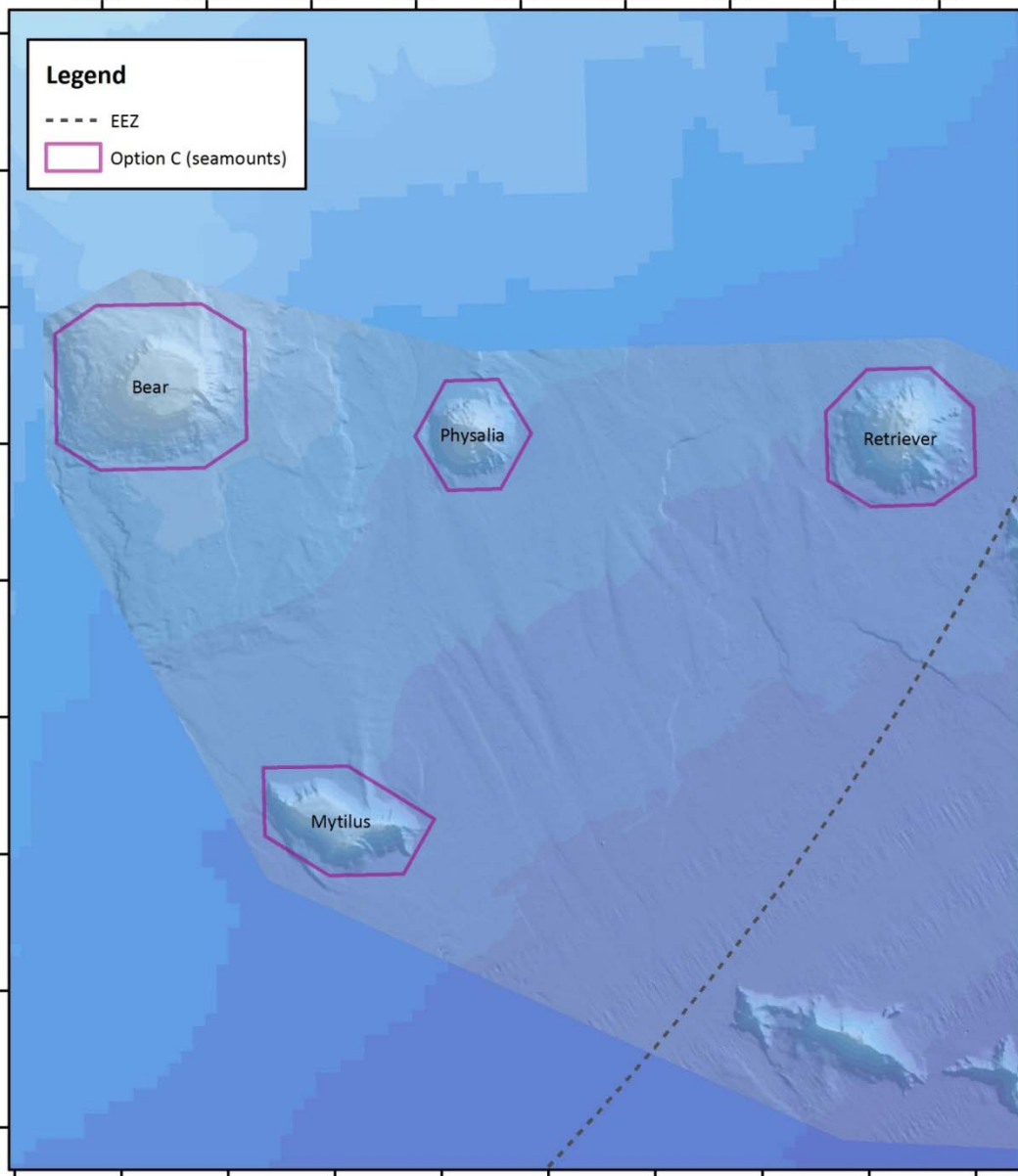
Overlap between broad and discrete zones

Heezen Canyon area:



Baltimore Canyon area:



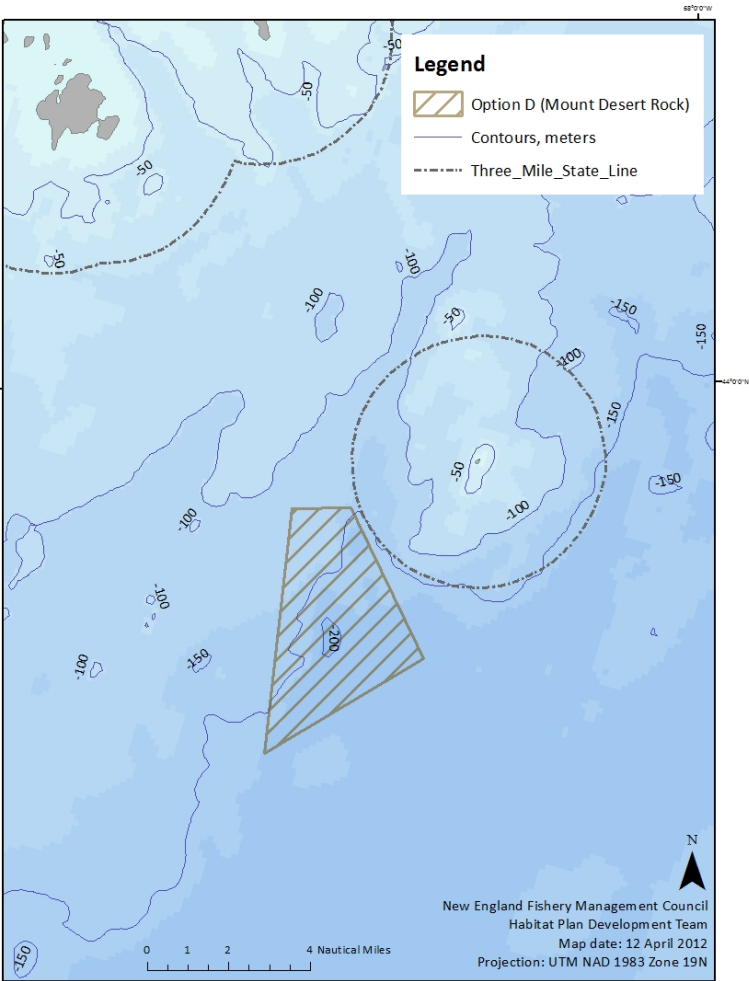


Potential discrete coral zones on seamounts:

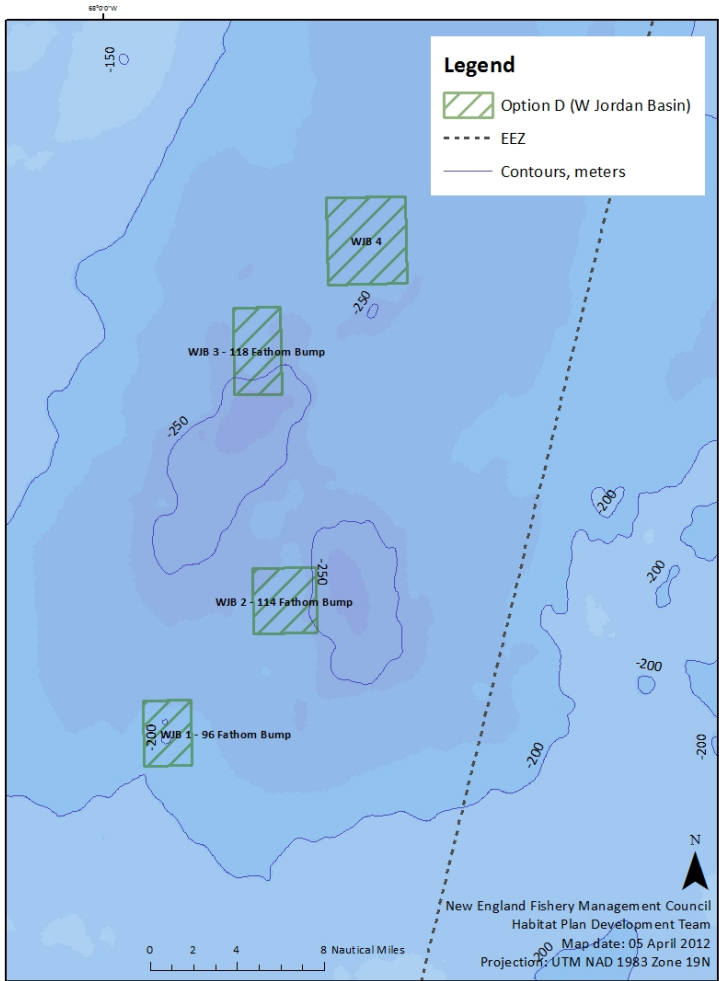
- Bear
- Physalia
- Retriever
- Mytilus

Potential discrete coral zones – Gulf of Maine

Mt Desert Rock



Western Jordan Basin



Fishing restrictions for both types of zones

- Fishing restriction options:
 - Option A: Bottom-tending gears
 - Suboption A1: Exempt the red crab trap fishery from coral zone restrictions
 - Option B: Mobile bottom-tending gears
- Exemptions to fishing prohibitions
 - There is no single set of standards for issuance of exempted fishing permits or letters of authorization, but many have the following elements in common:
 - Require permit or letter of authorization
 - Detailed season, area, and gear requirements
 - List of allowable target and incidental species
 - Additional reporting requirements
 - Vessel monitoring system requirement
 - Specific LOA requirements – duration, restrictions, etc.
 - "Good standing" requirement
 - In addition, a move-along provision might be appropriate
- Framework provisions for deep-sea coral zones
 - Option A: Change fishing restrictions
 - Option B: Change exemption fishery requirements

Enforcement Committee Comments

- The Coast Guard finds either the broad or discrete zones challenging from an enforcement perspective
- The broad zone is very large, and there is doubt about effectively covering such a large area without more aircraft
- The discrete zones are more focused for monitoring, particularly for fisheries using VMS
- It is important to the Coast Guard that the discrete area boundaries are coordinate based (they are fine as proposed)
- Finally, it is important that restrictions apply to generic gear types like mobile bottom tending gear, not to specific trawl types/fisheries