Developing Adverse Effects Minimization Options and Alternatives for Omnibus EFH Amendment 2

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New England Fishery Management Council
Habitat Committee Report
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Outline

- Relevant OA2 goals and objectives
- SASI approach
- Going from SASI outputs to habitat management options
- Range of habitat management options
- Next steps and other ongoing work

Partial list of goals and objectives of OA2

Goals

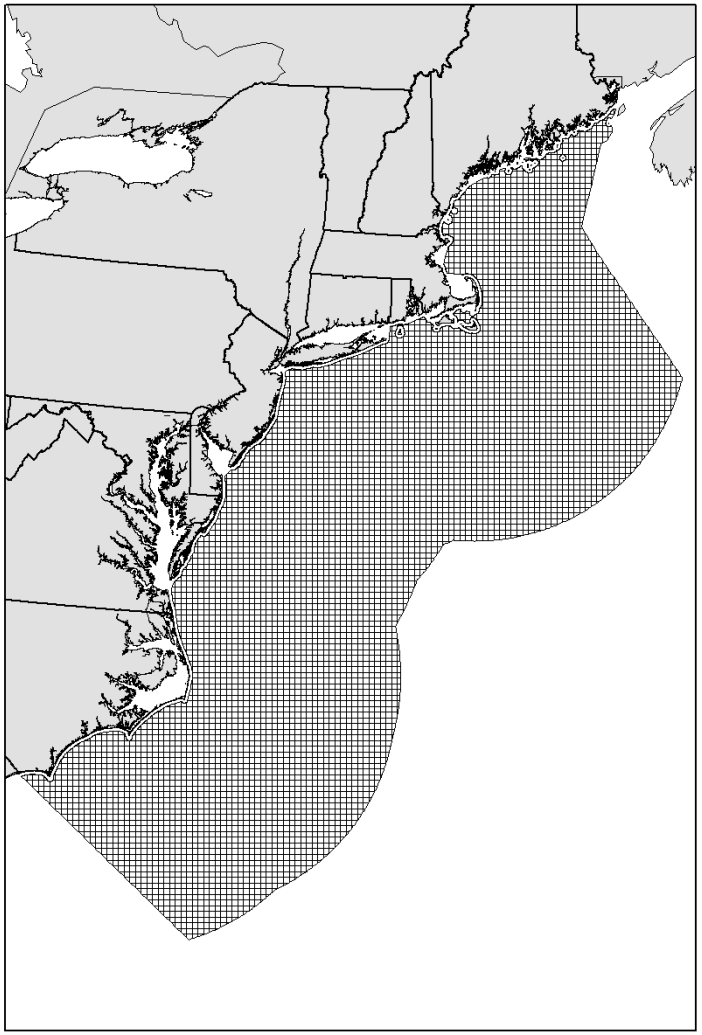
4. Identify and implement mechanisms to protect, conserve, and enhance the EFH of those species managed by the Council to the extent practicable;
5. Define metrics for achieving the requirements to minimize adverse impacts to the extent practicable;
6. Integrate and optimize measures to minimize the adverse impacts to EFH across all Council managed FMPs;
7. Update research and information needs;

Objectives

- Develop analytical tools for designation of EFH, minimization of adverse impacts, and monitoring the effectiveness of measures designed to protect habitat (Goal 5);
- Modify fishing methods and create incentives to reduce the impacts on habitat associated with fishing (Goal 4);
- Develop a strategy for prioritizing habitat protection (Goal 4);
- Develop criteria for establishing and implementing dedicated habitat research areas (Goal 7);
- Design a system for monitoring and evaluating the benefits of EFH management actions including dedicated habitat research areas (Goal 7);
- Consider modifications to groundfish closed areas (Goal 6);

The Swept Area Seabed Impact Approach

- Developed 2008-2010 by the Habitat PDT
- Allows comparison of fishing impacts across bottom-tending gear types and areas
- Consists of a vulnerability assessment, spatial model, and various model extensions and sensitivity analyses
- Domain goes from Maine to South Carolina out to the EEZ, federal waters only
- Grid size/output resolution of 100 km^2



SASI spatial model inputs

100 km^2 grid

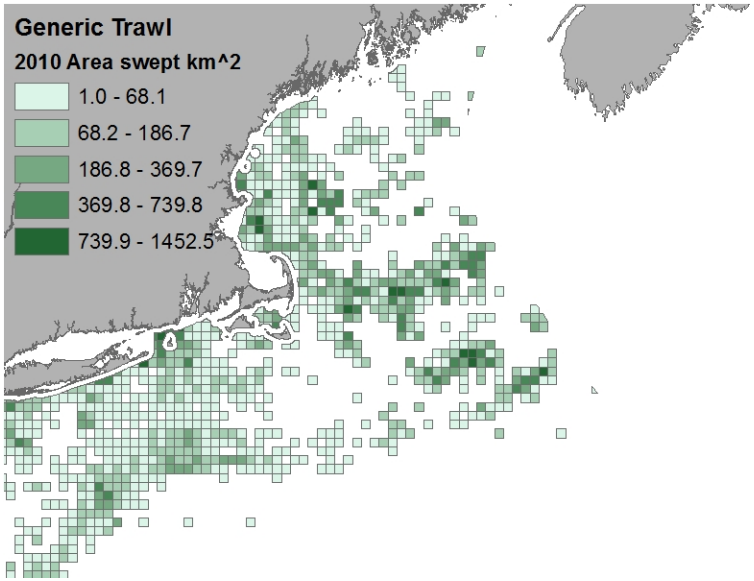
- Fishing effort as area swept
  - By gear type: generic trawl, shrimp trawl, squid trawl, raised footrope trawl, trap, demersal longline, sink gillnet, limited access scallop dredge, general category scallop dredge, hydraulic clam dredge
  - 1996-2011
  - Mostly based on VTR data

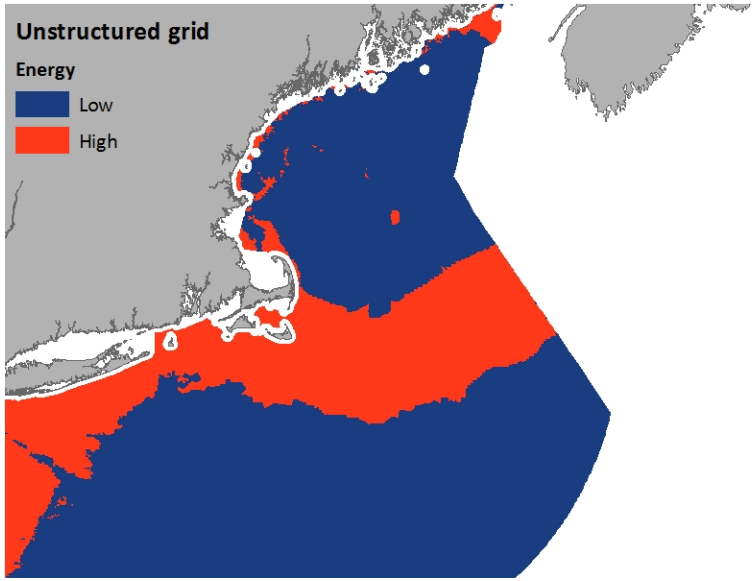
Unstructured grid

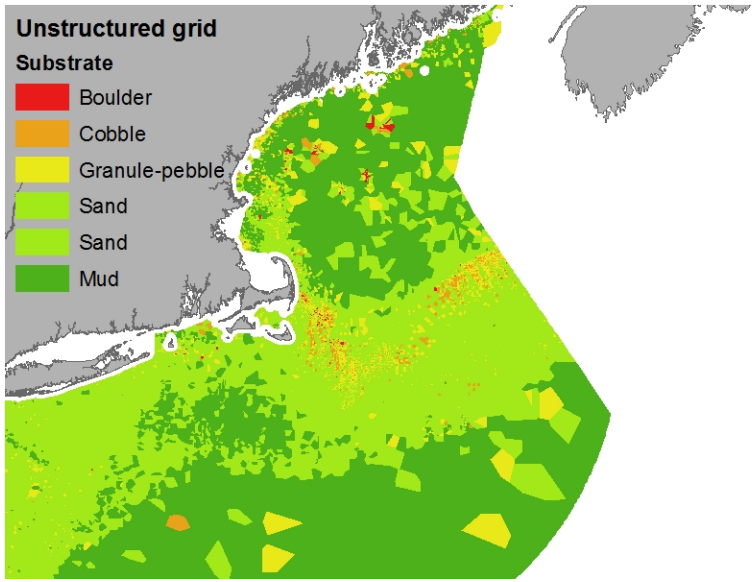
- Energy (composite of depth + critical shear stress)
- Dominant substrate (point data from SMAST video and usSEABED)
- Structural features and their susceptibility and recovery scores (literature-based vulnerability assessment)

Result is 10 habitat types with inferred features

SASI model inputs







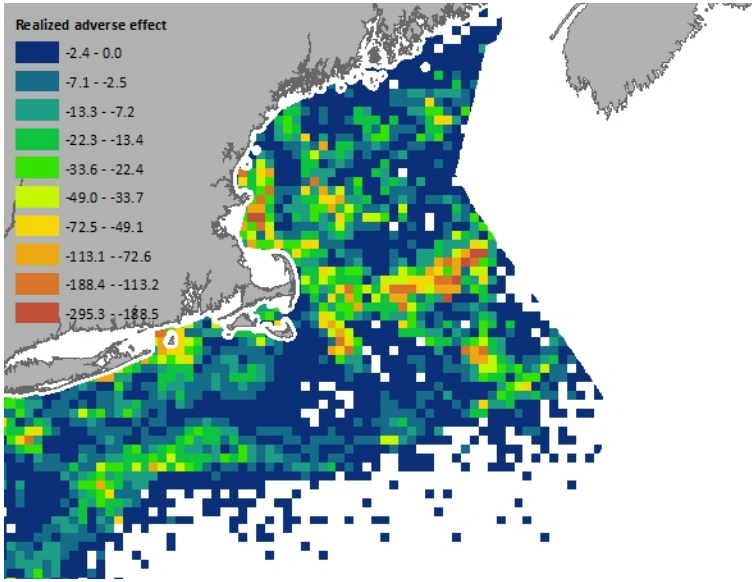
Clockwise from top left: 2010 generic otter trawl area swept in km^2, energy, dominant substrate

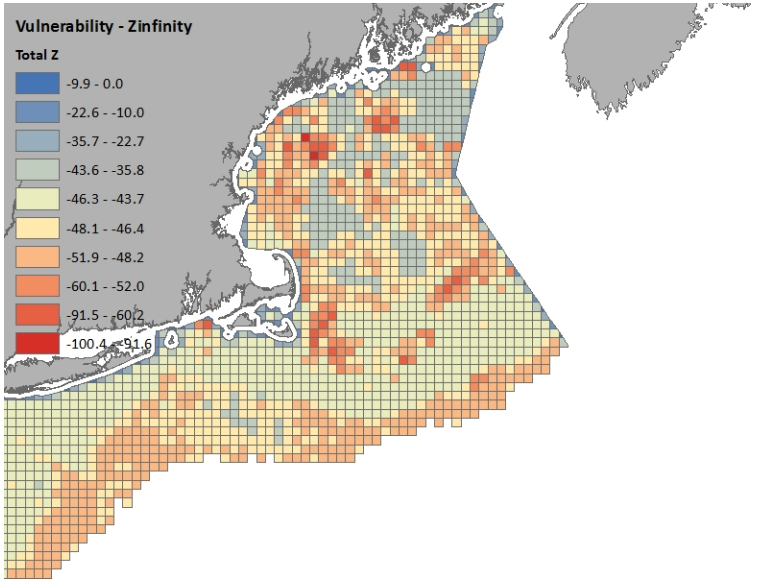
SASI model outputs

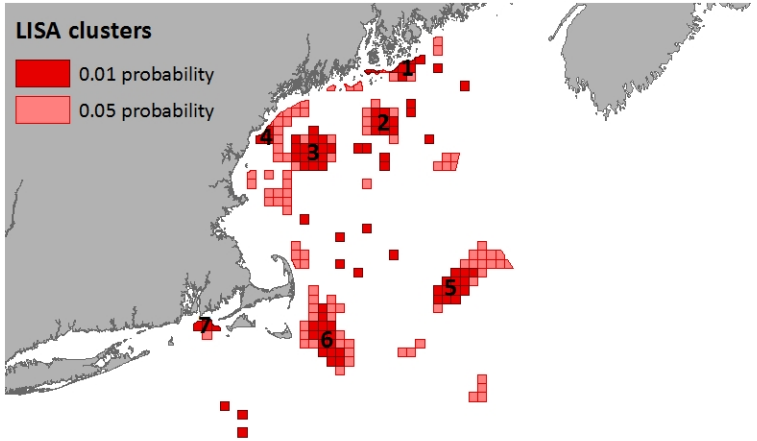
100 km^2 grid

- Vulnerability (Z∞) by gear type (modeled using uniformly distributed area swept)
- Vulnerability (Z∞) clusters (produced using Local Indicators of Spatial Association analysis)
- Realized adverse effects by gear type, 1996-2011
- Practicability ratio “e” by gear type: relationship between habitat vulnerability and net revenue (not shown on next slide)

SASI model outputs – generic otter trawl







Clockwise from top left: 2010 realized adverse effect estimate in km^2, vulnerability (Z∞), LISA clusters

Summary of SASI results

- Features associated with gravel (granule-pebble, cobble, boulder) dominated habitats were estimated to have higher vulnerability
  - Following from this, LISA clusters tended to occur in areas dominated by gravel substrates
- Trawl and dredge gears have greater impact per unit area than fixed gears
  - Trawls are of particular concern because they are wider than dredges, thus the magnitude of total adverse effect is greater for the generic trawl gear type than any other, by an order of magnitude
- Thus, focus for development of adverse effects minimization areas was on
  - The trawl gear vulnerability clusters, and other areas that did not cluster but are known to have similar substrate characteristics and associated structural features
  - Minimizing mobile gear impacts

Objectives that follow from SASI results

Two overarching objectives for the design of a habitat management strategy are identified that are consistent with the SASI approach. They are:

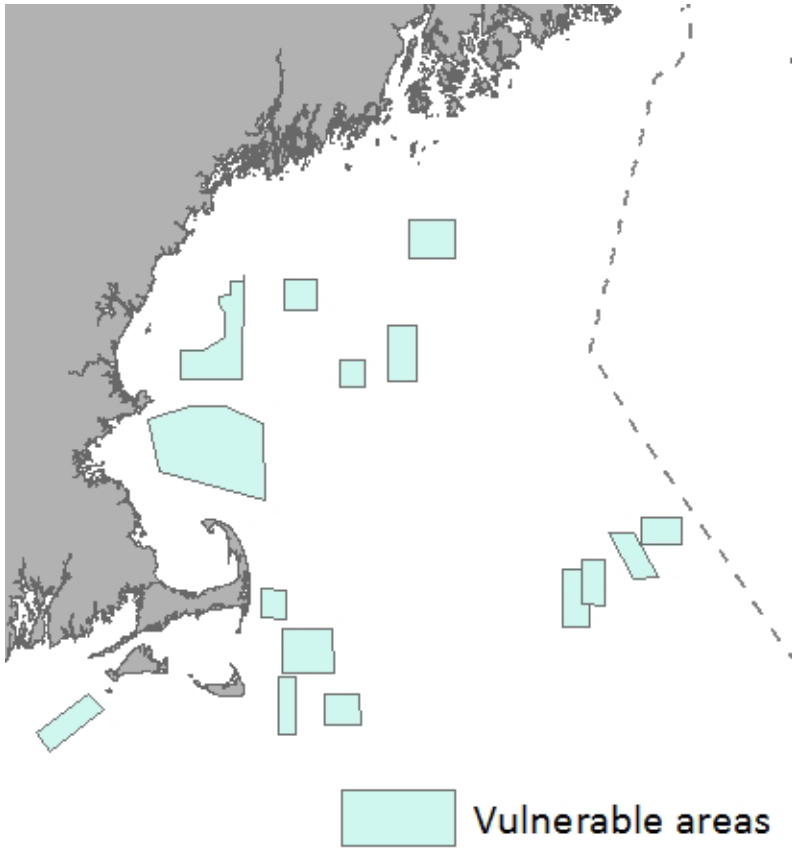
- Protect the most vulnerable habitats from the adverse effects of fishing
- Reduce seabed area swept to reduce the magnitude of adverse effects
  - Use modified gear types in such a way that reduces net area swept
  - Design an area-based management system that facilitates high catch per unit effort fishing, to the extent possible

Next steps…management area development

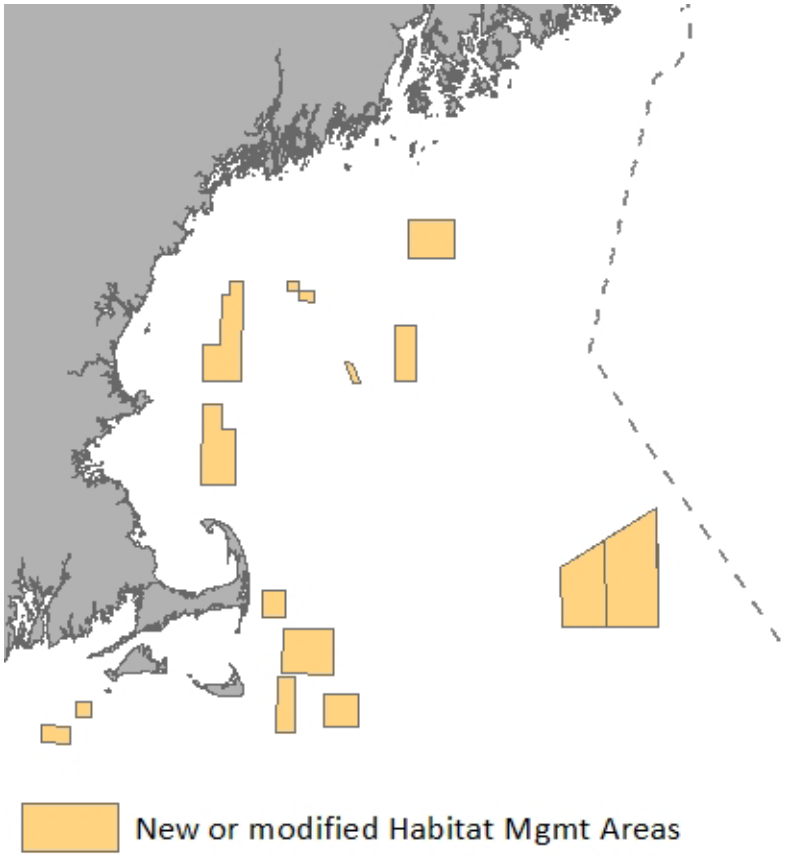
- Calculated vulnerability of existing habitat closures
- Characterized in detail the seven major trawl LISA clusters
- Identified areas that did not cluster but were thought to be similarly vulnerable to fishing
  - In some areas, input substrate data had known issues (low sampling resolution, limited sampling of all five grain sizes, etc.); other data sources were used as needed – multibeam, new optical samples, etc.
- Recommended clusters plus additional recommended areas = set of “vulnerable areas”
- Iterative process with Committee over the past 12 months to go from vulnerable areas to current range of draft management areas

Vulnerable areas vs. current management options

July 2011
Vulnerable areas

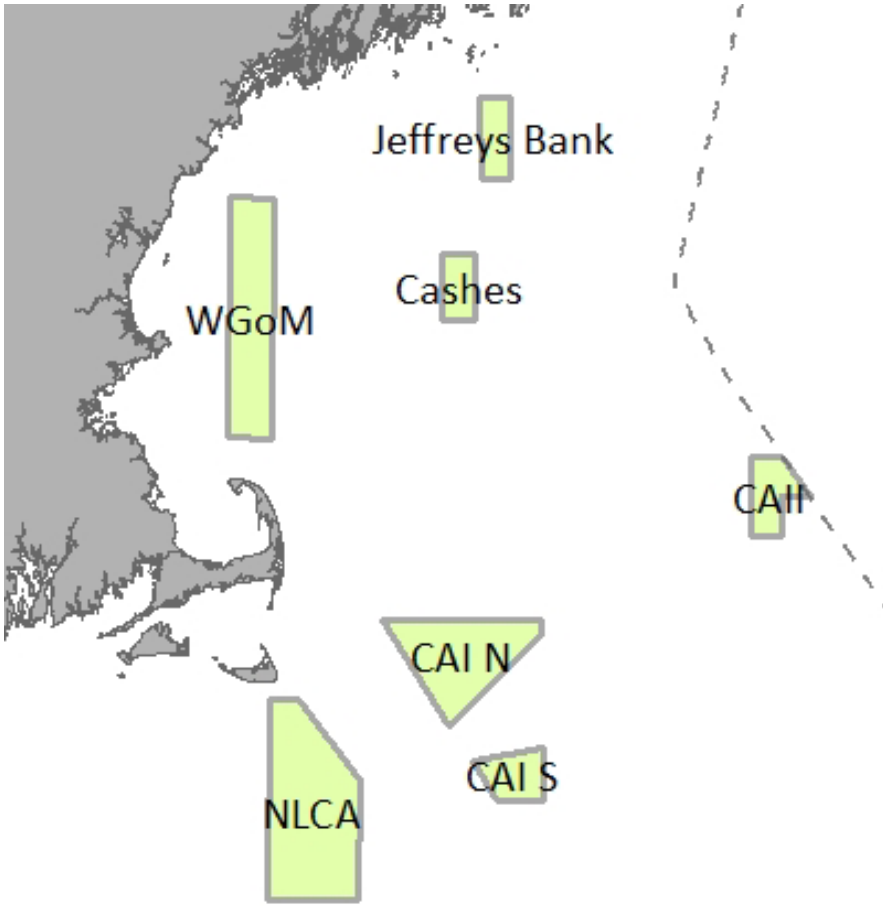


June 2012
Draft habitat management areas



Individual area-based management options

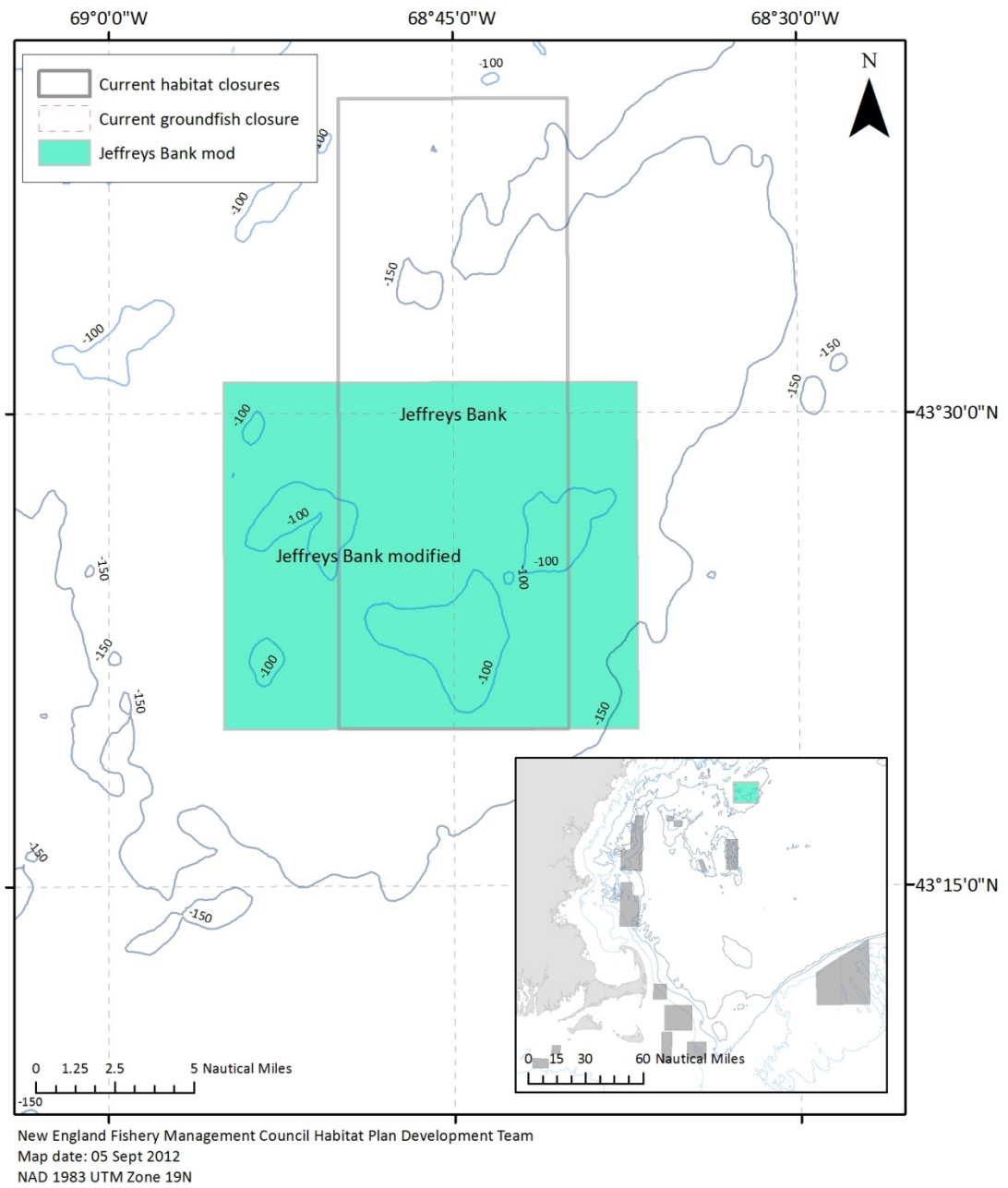
Options related to current areas



- **Jeffreys Bank**: maintain or modify
- **Cashes Ledge**: maintain or modify
- **WGOM**: maintain, modify, or eliminate
- **CAII**: maintain or eliminate
- **CAI**: maintain or eliminate
- **NLCA**: maintain or eliminate

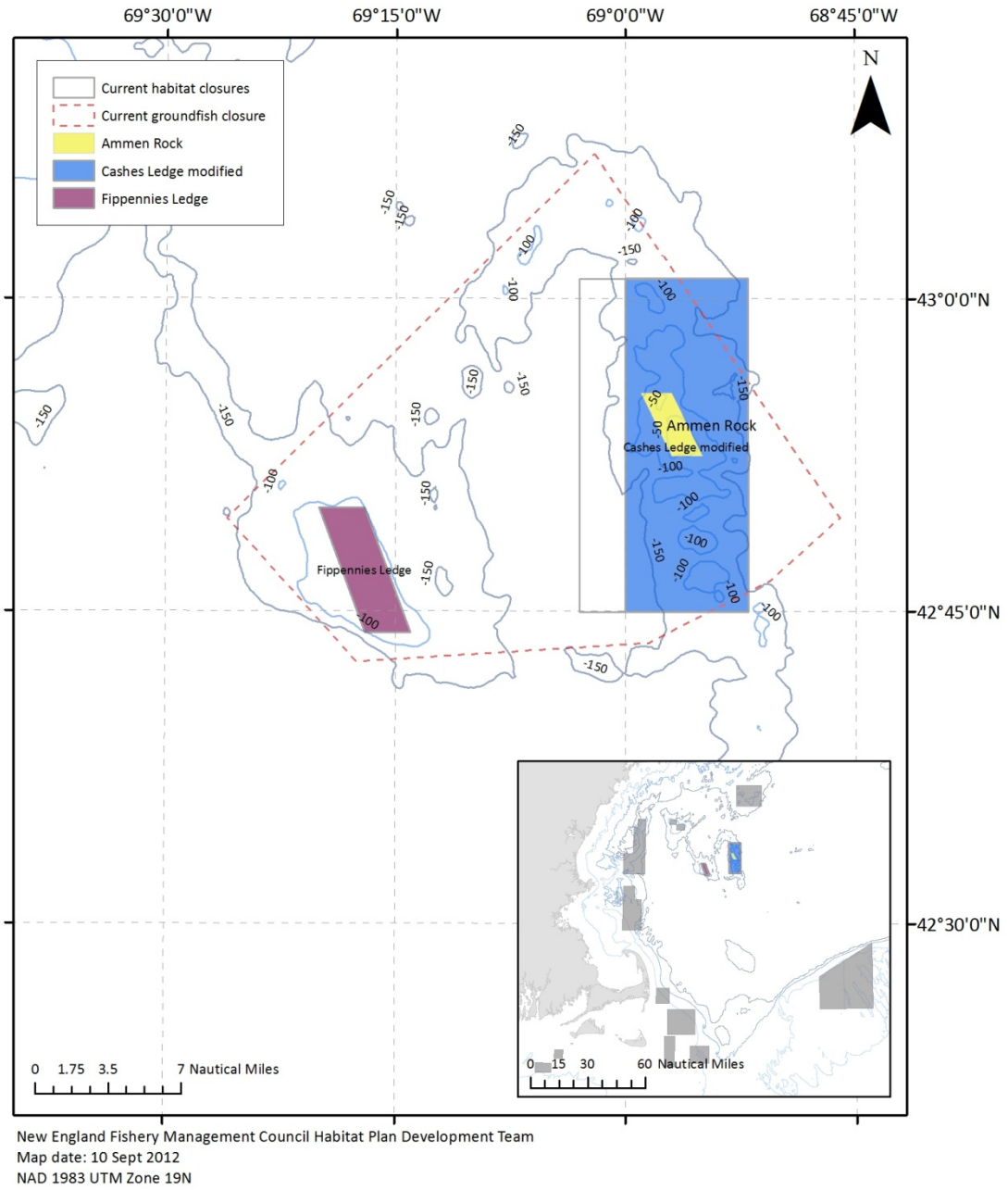
Jeffreys Bank

- Current habitat area implemented via Amendment 13
- Proposed modification designed to encompass the shallowest areas of Jeffreys Bank when cobble and boulder-dominated habitats are most common
- Management alternatives:
  - Mobile bottom tending gear closure, or
  - Ground cable length limits (to be further developed)



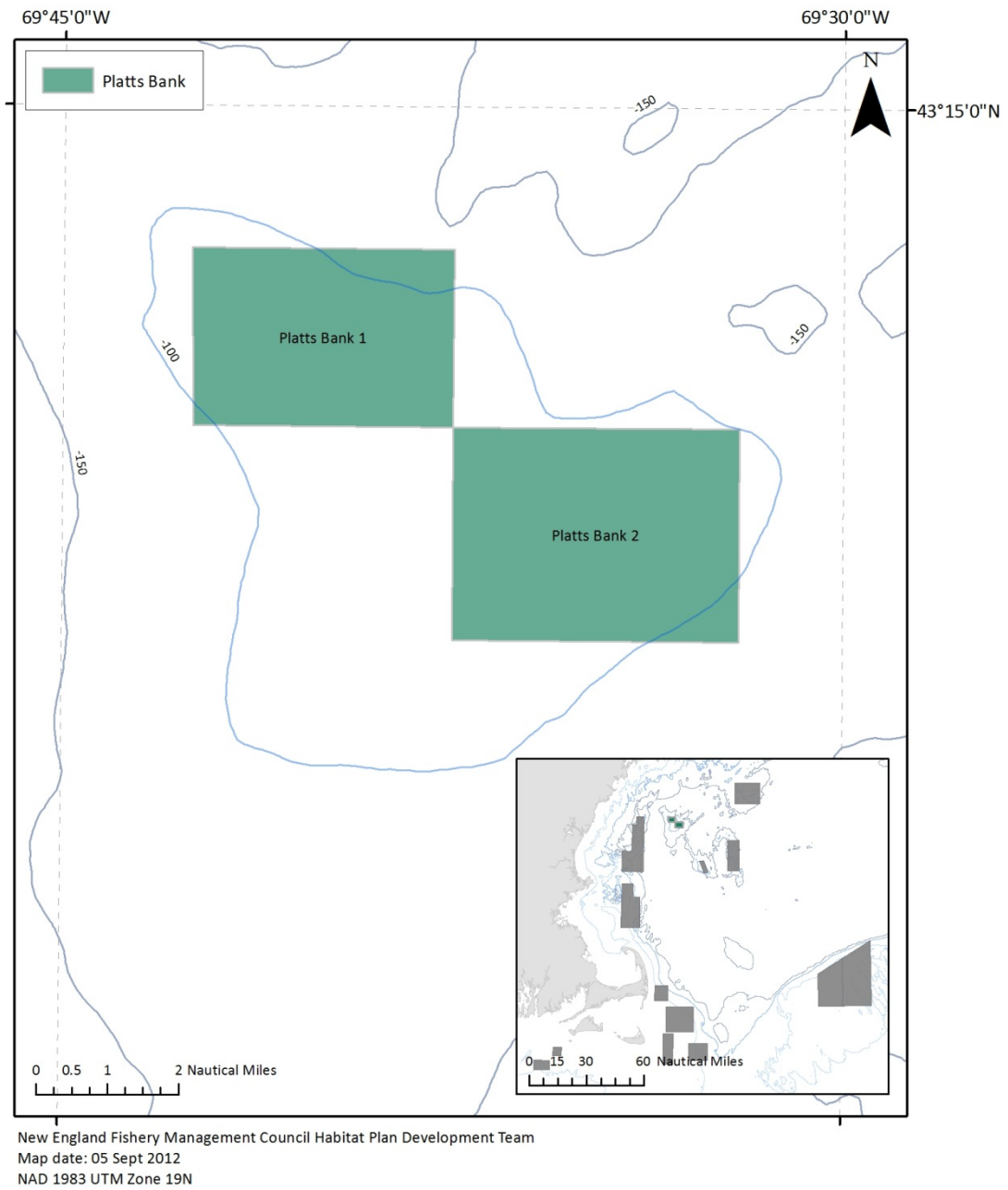
Cashes Ledge

- Current Cashes Ledge habitat area implemented via Amendment 13
- Modified Cashes Ledge area shifts boundary to the east – designed to encompass the majority of the shallower ledge areas and allow fishing access in the deeper western portion
- Fippennies Ledge area designed to focus on portions of the ledge where gravel substrates are present
- Management alternatives for Cashes Ledge and Fippennies Ledge:
  - Mobile bottom tending gear closure, or
  - Ground cable length limits (to be further developed)
- Ammen Rock area proposed for enhanced protections – no fishing zone



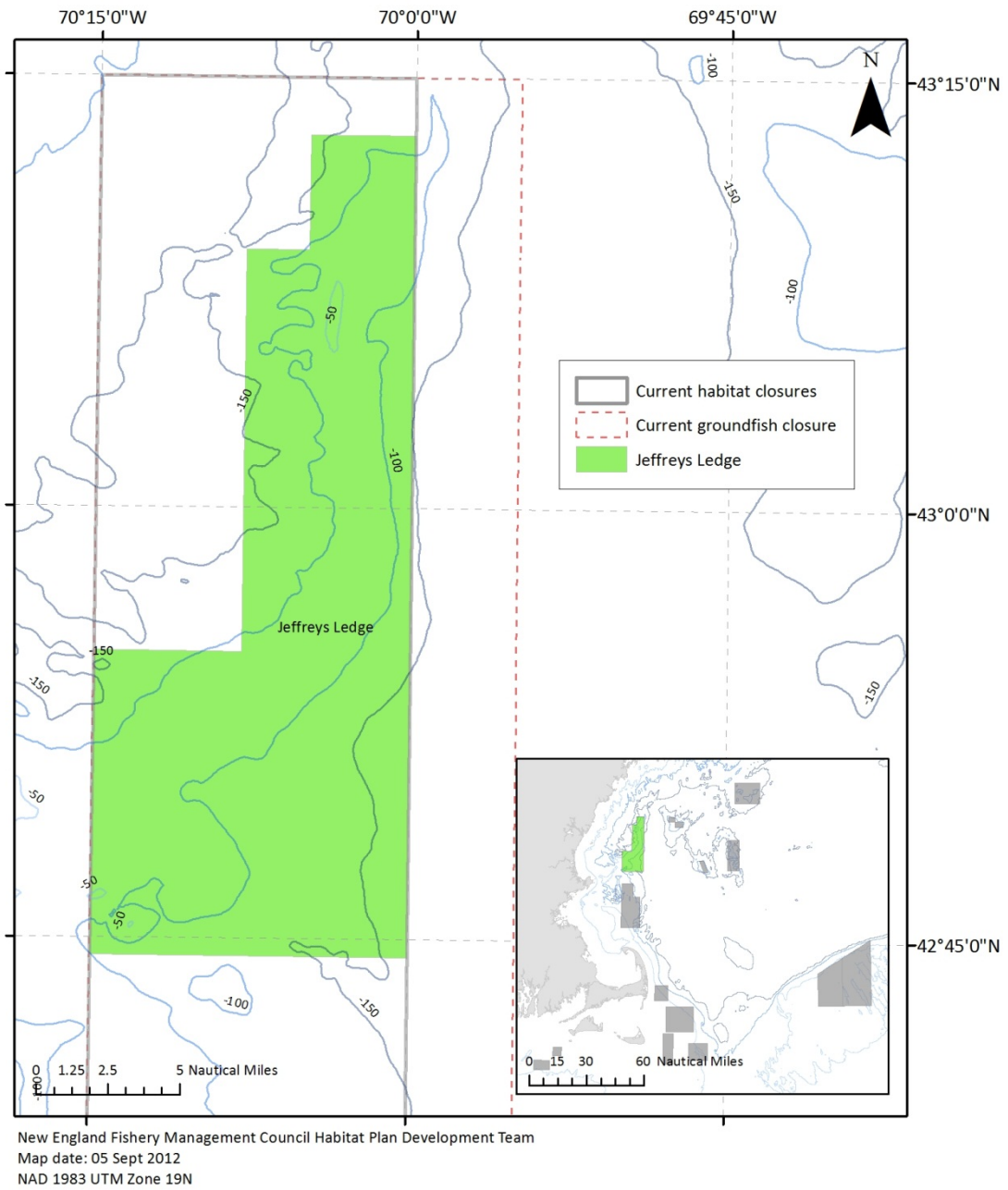
Platts Bank

- Currently open to fishing
- Platts Bank areas designed to focus on portions of the bank where gravel substrates are present
- Management alternatives:
  - Mobile bottom tending gear closure, or
  - Ground cable length limits (to be further developed)



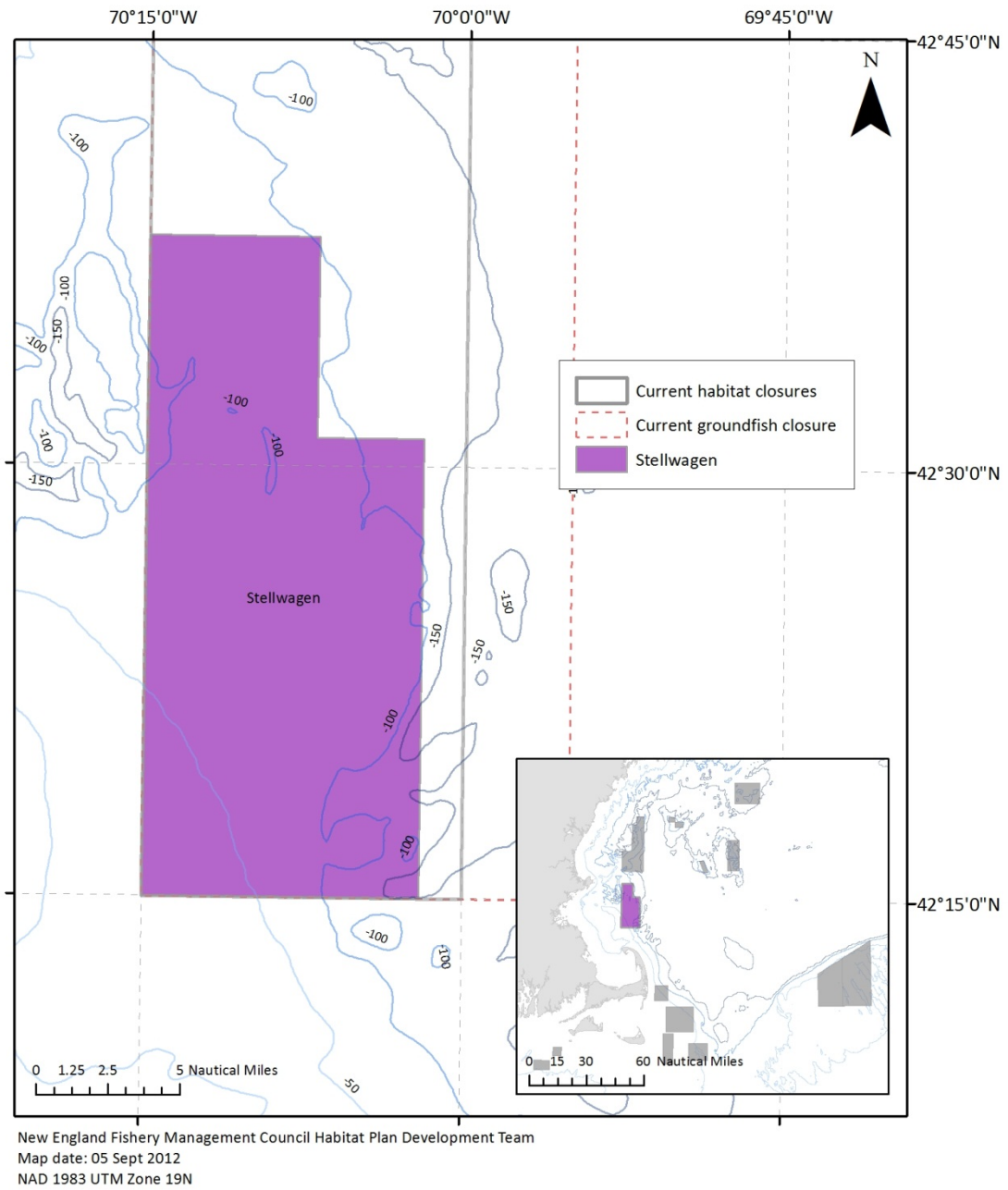
Jeffreys Ledge

- Subset of the WGOM habitat closure, enacted via Amendment 13
- Area designed to focus on shallower ledge habitats and allow fishing access in the deeper, muddier areas in the northwestern portion
- The ledge itself contains gravel dominated habitats more vulnerable to fishing than adjacent soft bottomed habitats
- Management alternatives for Jeffreys Ledge:
  - Mobile bottom tending gear closure, or
  - Ground cable length limits (to be further developed)



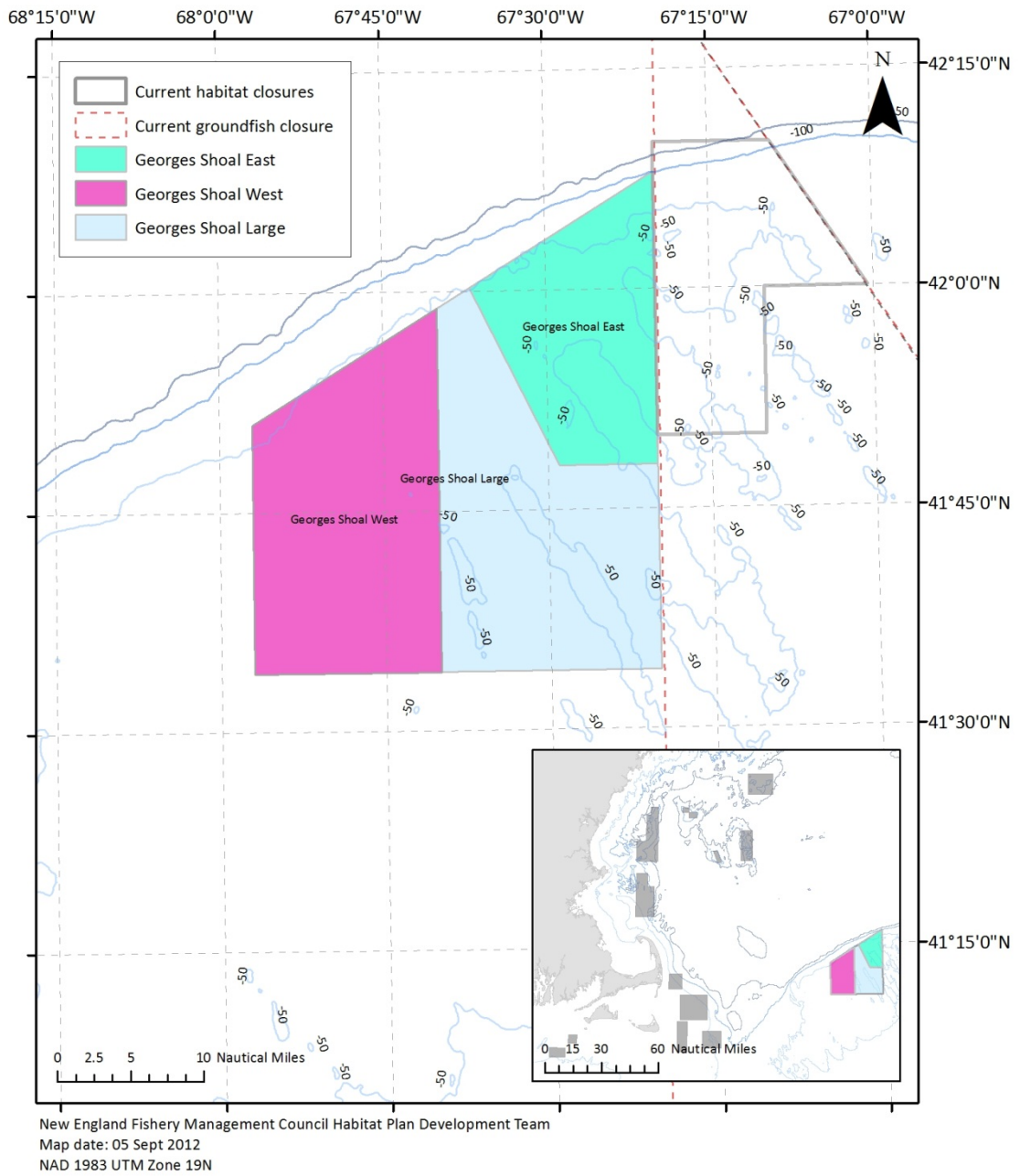
Stellwagen

- Subset of the WGOM habitat closure, enacted via Amendment 13
- Overlaps with SBNMS
- Area designed to encompass gravel dominated habitats more vulnerable to fishing; extent of these habitats documented in multibeam data (extra-SASI)
- Management alternatives for Stellwagen:
  - Mobile bottom tending gear closure, or
  - Ground cable length limits (to be further developed)



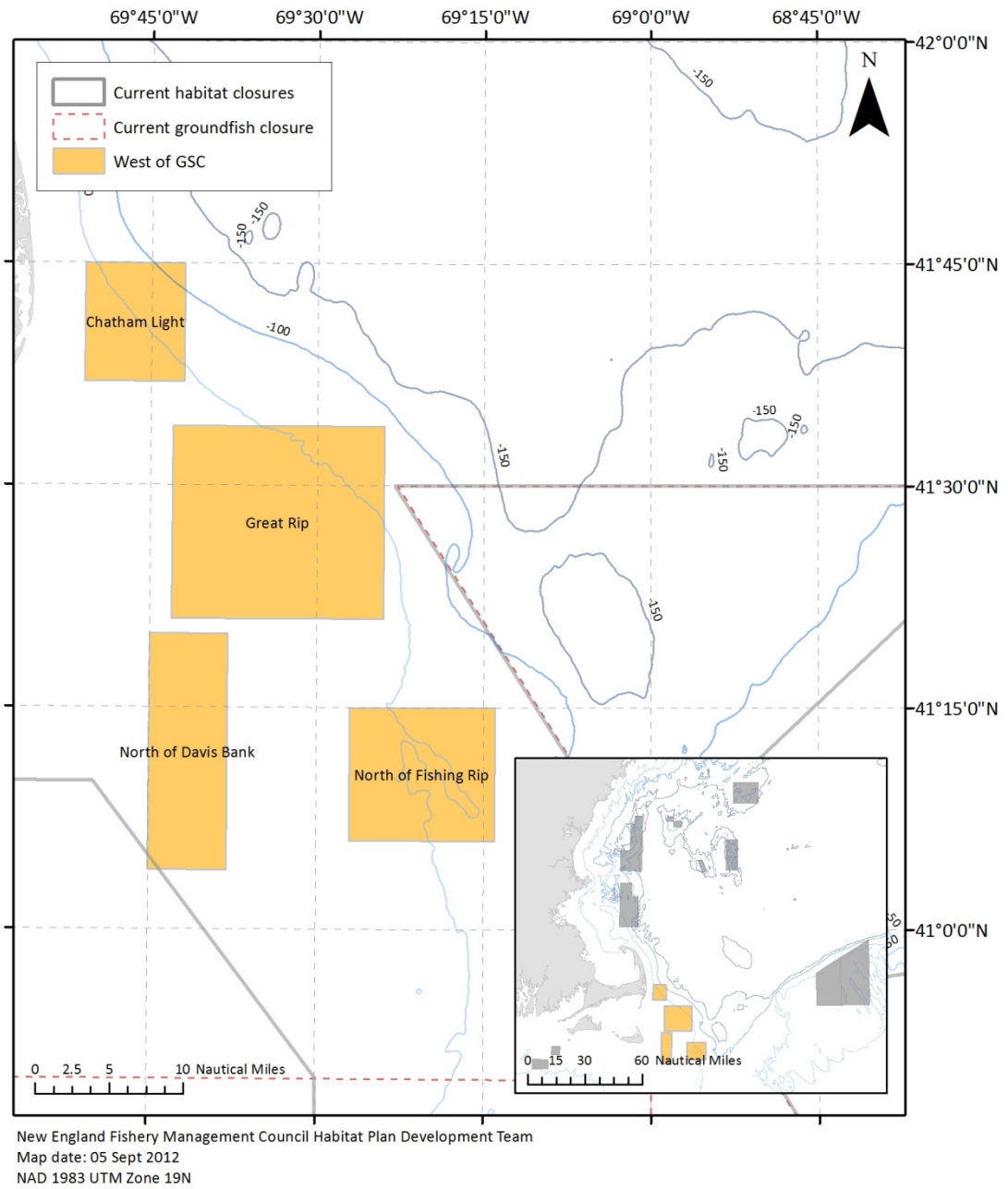
Georges Shoal

- Currently open to fishing
- Designed to encompass one or more gravel 'hotspots' in and around one of the trawl LISA clusters
- Management alternatives for west and east areas:
  - Mobile bottom tending gear closure, or
  - Ground cable length limits (to be further developed)
- Management alternatives for large area:
  - Ground cable length limits (to be further developed)



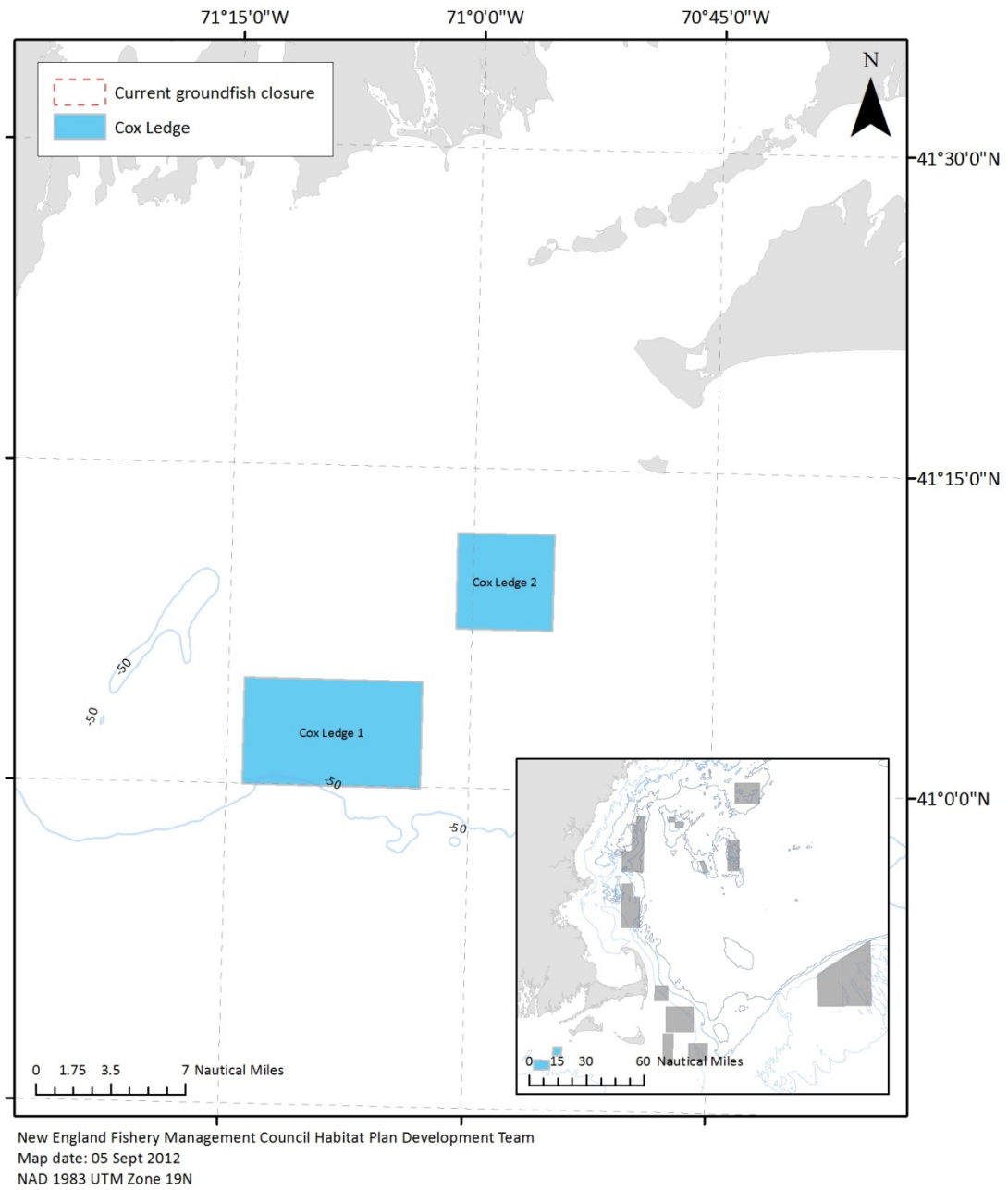
West of the Great South Channel

- Currently open to fishing
- Designed to encompass one or more gravel 'hotspots' in and around one of the trawl LISA clusters
- Management alternatives for all areas:
  - Mobile bottom tending gear closure, or
  - Ground cable length limits (to be further developed)



Cox Ledge

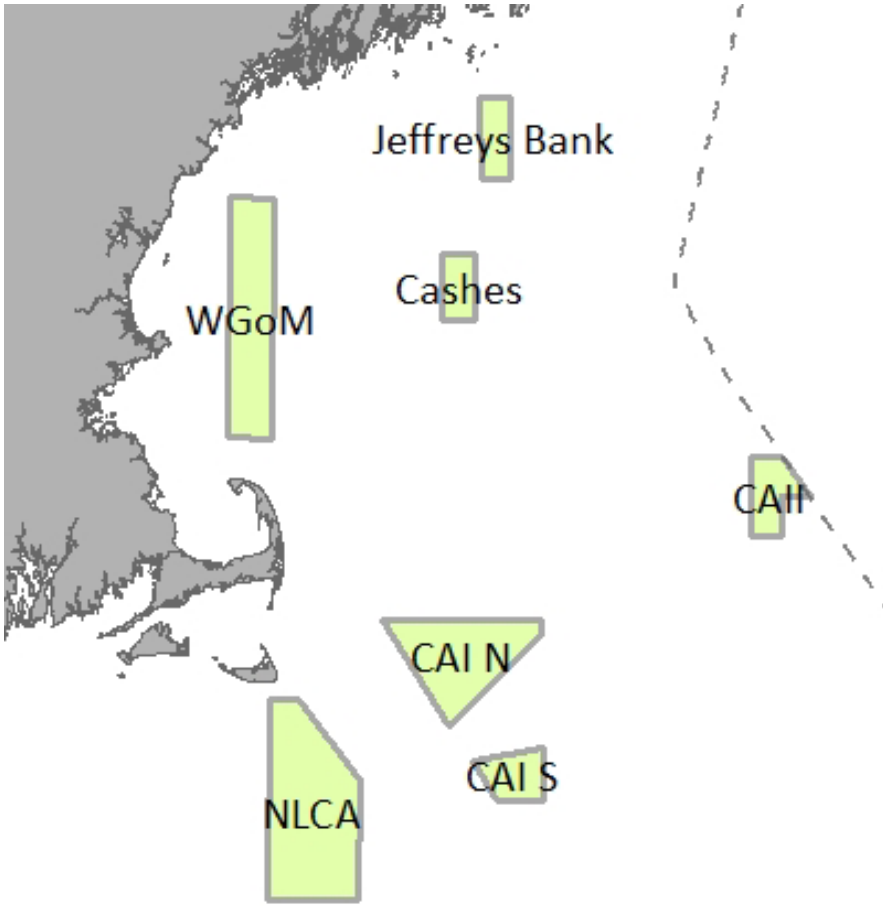
- Currently open to fishing
- Designed to encompass gravel-dominated habitats in and around one of the trawl LISA clusters
- Management alternatives for both sub- areas:
  - Mobile bottom tending gear closure, or
  - Ground cable length limits (to be further developed)



Individual area-based management options combined into alternatives

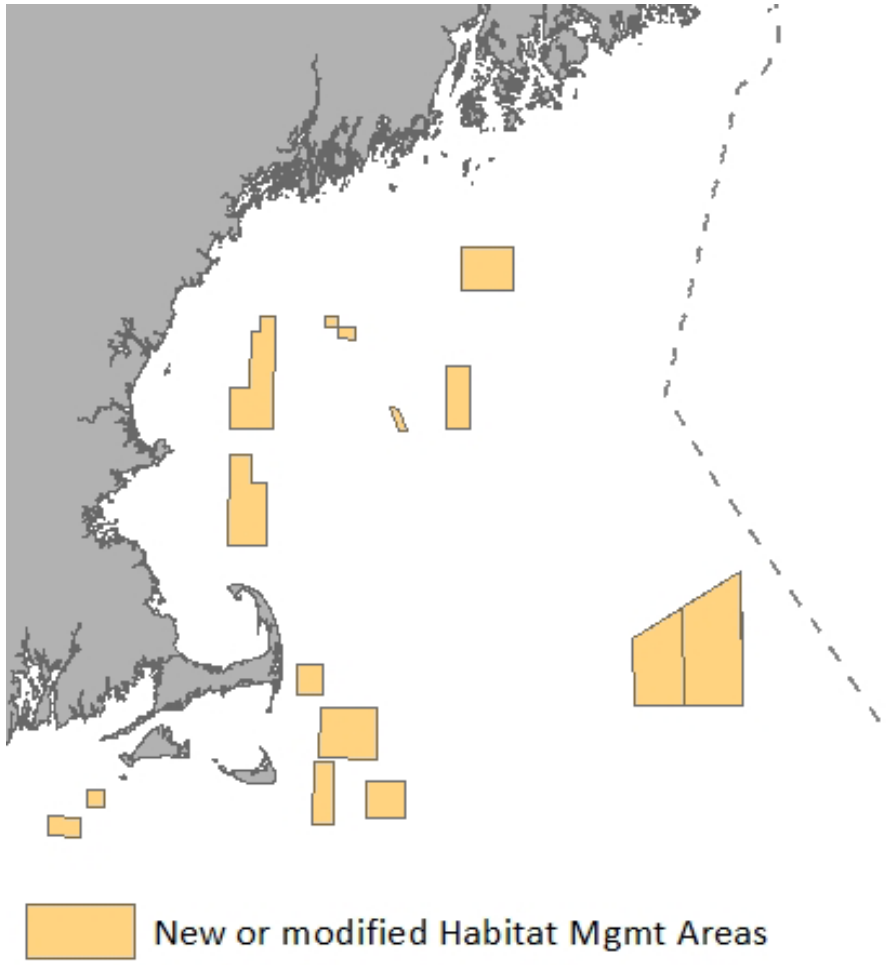
Adverse Effects Minimization Alternative 1 (No action)

- Existing habitat areas would remain in place as mobile bottom-tending gear closures



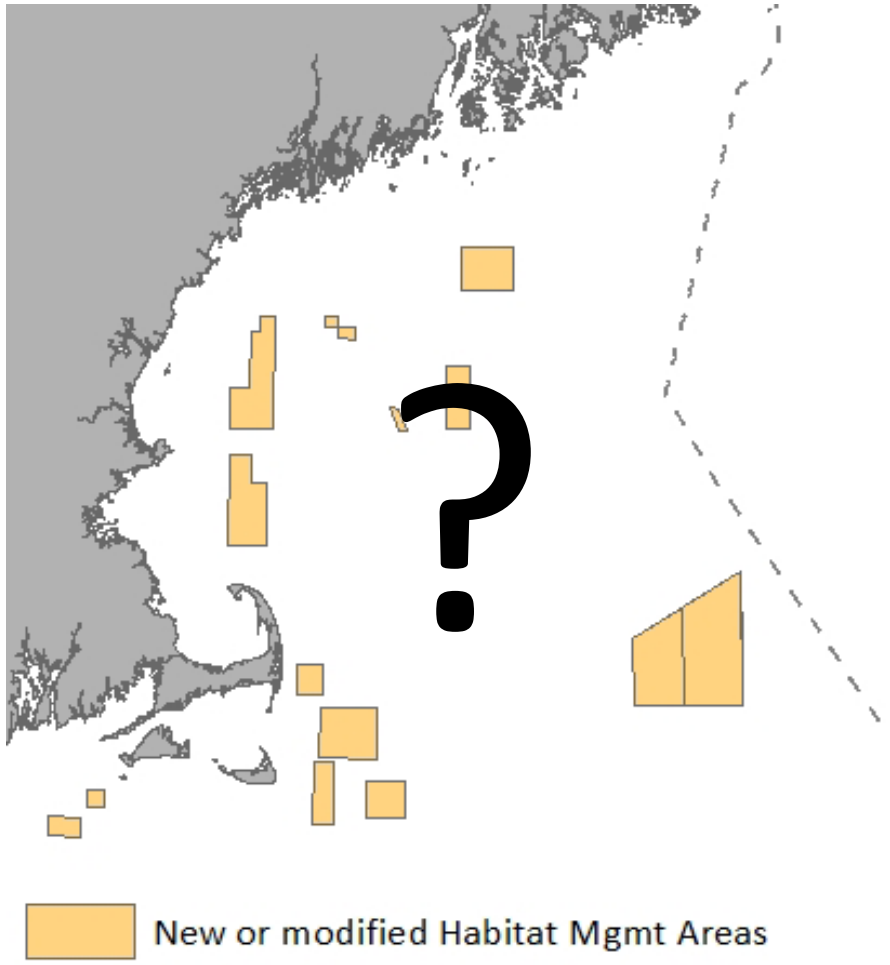
Adverse Effects Minimization Alternative 2

- Remove CAII, CAI, NLCA habitat areas
- Modify Jeffreys Bank, Cashes Ledge, WGOM
- Add areas on Fippennies Ledge, Georges Shoal, W. Great South Channel, and Cox Ledge
- Ammen Rock closed to all fishing
- Measures – MBTG closures or ground cable modifications (if latter are approved for further development)



Adverse Effects Minimization Alternative 3

- Would consist of a subset of the alternative 2 options to be recommended after public comment



Omnibus Amendment next steps

- Habitat advisors/PDT review of feasibility of ground cable length limit options; select lengths for each area as appropriate to species commonly landed and area characteristics
- Committee approves a range of Dedicated Habitat Research Area alternatives (building on habitat management areas)
- Groundfish Closed Area Technical Team (CATT) evaluates existing groundfish closures identifies new areas to meet groundfish-related objectives
- CATT recommendations go to the Groundfish PDT and then to the Groundfish Committee
- Joint Groundfish/Habitat Committee process to identify a range of area-management alternatives for Council approval