

New England Fishery Management Council Deep-Sea Coral Amendment Public Hearings

Michelle Bachman, NEFMC staff

May 22-26, 2017



New England
Fishery Management Council

What is the Deep-Sea Coral Amendment?

- The coral amendment is a New England Fishery Management Council (NEFMC) action, developed in collaboration with NOAA Fisheries, the Mid-Atlantic Fishery Management Council, and the Atlantic States Marine Fisheries Commission
- Overall purpose of the amendment is to protect deep-sea coral habitats throughout the New England region from the negative impacts of fishing gears
- Amendment considers a series of spatial management areas throughout the region, with possible restrictions on bottom-tending fishing gears
- Amendment would update all NEFMC fishery management plans

Management authority

- When the Magnuson-Steven Fishery Conservation and Management Act was reauthorized in 2007, a provision was added (§303(b)) that allows Councils to take discretionary action to protect deep-sea coral habitats
 - Allows the flexibility to decouple coral conservation measures from Essential Fish Habitat or bycatch-related authorities in MSA
 - Important in the context of precautionary management as some corals occur in deep and remote waters beyond the distribution of managed stocks and fisheries
- In 2014, NOAA Fisheries drafted national guidance on implementing the §303(b) discretionary provisions
 - Per the guidance, Councils may develop measures that apply to any fishing, including fishing managed under other federal fishery management plans (e.g., those developed by another Council), or state-regulated fishing authorized in the EEZ (e.g., the lobster fishery)

Amendment problem statement:

The Council is utilizing its discretionary authority under Section 303(b) in MSA to identify and implement measures that reduce, to the extent practicable, impacts of fishing gear on deep sea corals in New England. This amendment contains alternatives that aim to identify and protect concentrations of corals in select areas and restrict the expansion of fishing effort into areas where corals are likely to be present.

Deep sea corals are fragile, slow-growing organisms that play an important role in the marine ecosystem and are vulnerable to various types of disturbance of the seafloor. At the same time, the importance and value of commercial fisheries that operate in or near areas of deep sea coral habitat is recognized by the Council. As such, measures in this amendment will be considered in light of their benefit to corals as well as their costs to commercial fisheries.

Amendment timeline

- April 14: Habitat Committee reviews workshop outcomes and recommends preferred alternatives
- April 18: Council selects preferred alternatives
- May 1-June 5: Public comment period
- May 22-May 26: Public hearings
- May 30: Committee reviews written and hearing comments, recommends any updates to preferred alternatives
- June 20-22: Council takes final action on coral amendment
- Late summer/fall/early winter: Amendment submission and rulemaking
- 2018: Implementation (6-7 months from Council submission)

Public comment opportunities

<u>Date and Time</u>	<u>Location</u>
Monday, May 22 6:00-8:00 p.m.	Montauk Playhouse Community Center 240 Edgemere Street, Montauk, NY 11954
Tuesday, May 23 1:00-3:00 p.m.	University of Rhode Island Bay Campus, Corless Auditorium 215 South Ferry Road, Narragansett, RI 02882
Tuesday, May 23 5:30-7:30 p.m.	Fairfield Inn and Suites 185 MacArthur Drive, New Bedford, MA 02740
Wednesday, May 24 1:00-3:00 p.m.	Mass. Division Marine Fisheries, Annisquam River Marine Fisheries Field Station 30 Emerson Ave., Gloucester, MA 01930
Wednesday, May 24 5:30-7:30 p.m.	Sheraton Harborside 250 Market Street, Portsmouth, NH 03801
Thursday, May 25 5:00-7:00 p.m.	Ellsworth High School 299 State Street, Ellsworth, ME 04605
Friday, May 26 1:00-2:30 p.m.	Webinar https://attendee.gotowebinar.com/register/98257139389273345

Habitat Committee meeting to review comments and make recommendations to the Council: Tuesday, May 30, 10:00 a.m. – Four Points by Sheraton, Wakefield MA

What are deep-sea corals?

- Animals related to anemones and jellyfish
- Live in cold, deep-waters (at least 25 fathoms/50 m, typically deeper)
- Unlike tropical corals, are active feeders
- Some types, sea pens in particular, are found in soft bottom, but many species need to attach to boulders and rocky ledges
 - These are the conservation focus of the Council's amendment



Upper image: A sea fan (*Paramuricea*) in Nygren Canyon
Lower image: A large black coral and sea fans (*Paramuricea*) in Oceanographer Canyon
Images courtesy of NOAA Okeanos Explorer Program, 2013 Northeast U.S. Canyons Expedition.

Deep-sea corals of New England

- Four major groups: stony corals, soft corals, and black corals, and sea pens
- Black corals occur along the continental margin south of Georges Bank in very deep water, but not in the Gulf of Maine
- Species richness is greater in the canyon/slope region vs. the Gulf of Maine
- Some species were documented for the first time in New England during recent scientific expeditions (2013-2015)
- New England corals are mostly colonial, but not reef building

Types of corals that occur in the New England region



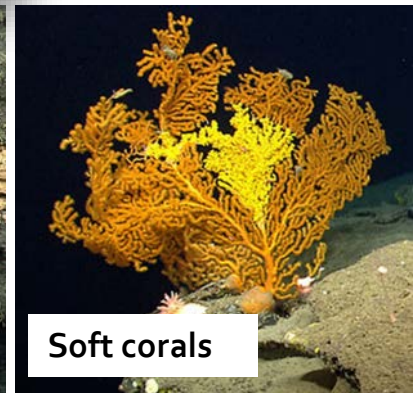
Sea pens



Stony corals



Black corals



Soft corals

Gulf of Maine soft coral species

Fan corals or gorgonians:

- *Paragorgia arborea* or bubble gum coral
- *Primnoa resedaeformis* or sea corn coral
- *Paramuricea placomus*
- *Anthothela grandiflora*
- *Gersemia rubiformis*



Primnoa resedaeformis.

Source: Kenchington et al. 2009



Paragorgia arborea.

Source: Bourbonnais et al. 2003



Bluhm/UAF/NOAA/CoML

Gersemia rubiformis.

Source: http://www.arcodiv.org/seabottom/cnidaria/Gersemia_rubiformis.html

Yellow and purple *Paramuricea* sp.
collected during recent GOM coral surveys



Why protect coral habitats?

- Deep-sea corals provide habitat for fishes and for other invertebrates
- Many coral species are physically fragile and susceptible to entanglement with fishing gear.
- Their very slow growth rates mean that recovery from damage takes many years
- Thus, a precautionary management approach is appropriate to prevent future impacts in areas that are currently unfished



Upper images: redfish in Jordan Basin
Lower images: haddock in Jordan Basin; dogfish and cusk at Outer Schoodic Ridge

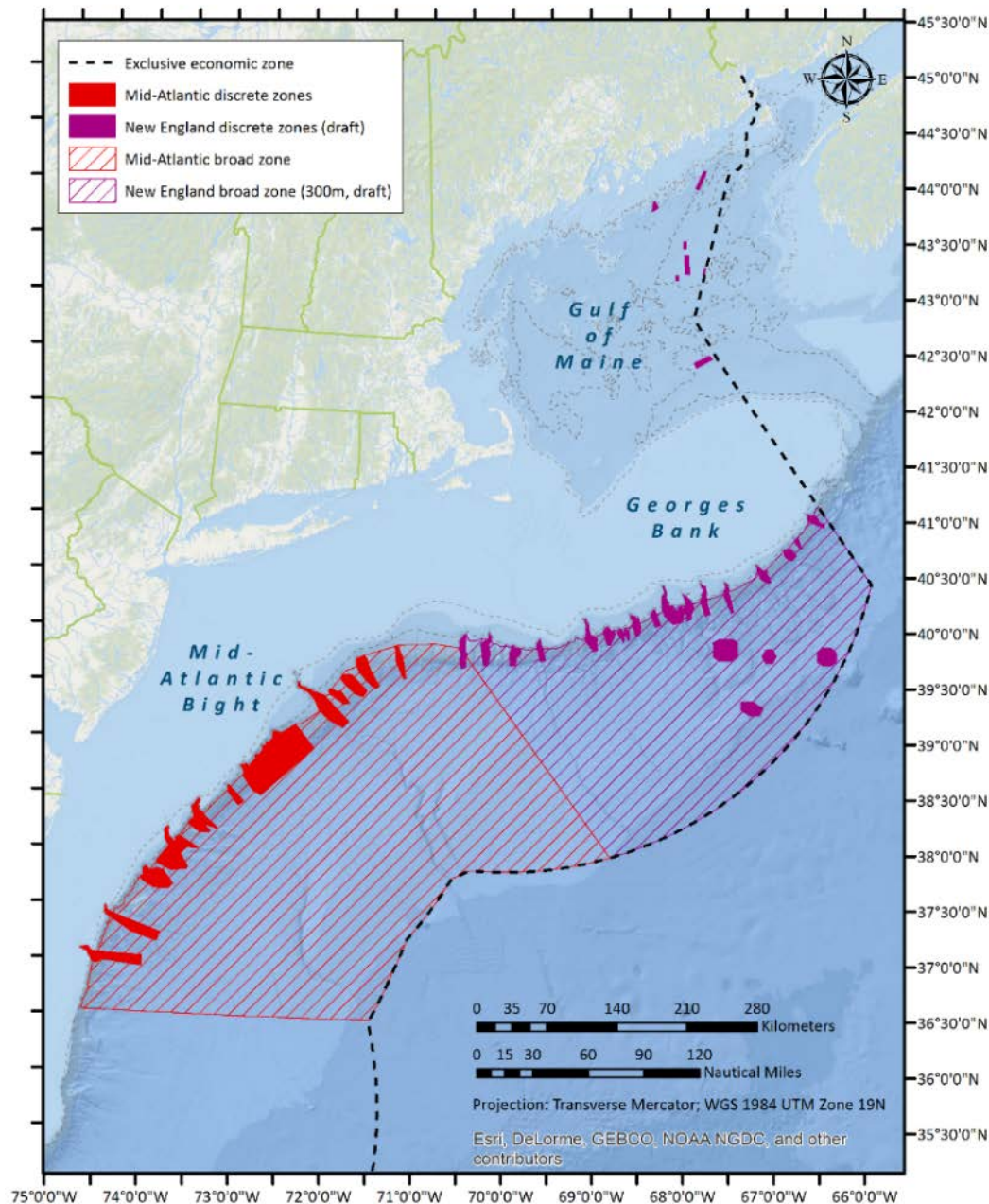
Atlantic coast coral management

New England

- Amendment we are discussing at today's hearing
- Possible management areas in canyon/slope/seamount region and in the Gulf of Maine

Mid-Atlantic

- Effective January 2017
- Management areas in canyon/slope region extending out to edge of EEZ
- 450m depth, shallower in canyon heads
- Areas closed to BTG, red crab fishery exempt
- Lobster fishery not considered in or affected by amendment



§ 4.2 Coral zones

Broad zones: large areas based on 300m, 400m, 500m, 600m, 900m depth contours extending to EEZ boundary. Preferred alternative has 600m minimum depth.

Canyons: 20 areas

Seamounts: Bear, Retriever, Physalia, Mytilus

GOM: Mt. Desert Rock, Outer Schoodic Ridge, Lindenkohl Knoll, Jordan Basin

§ 4.3 Gear restrictions

Option 1: Prohibit fixed and mobile bottom-tending gears.

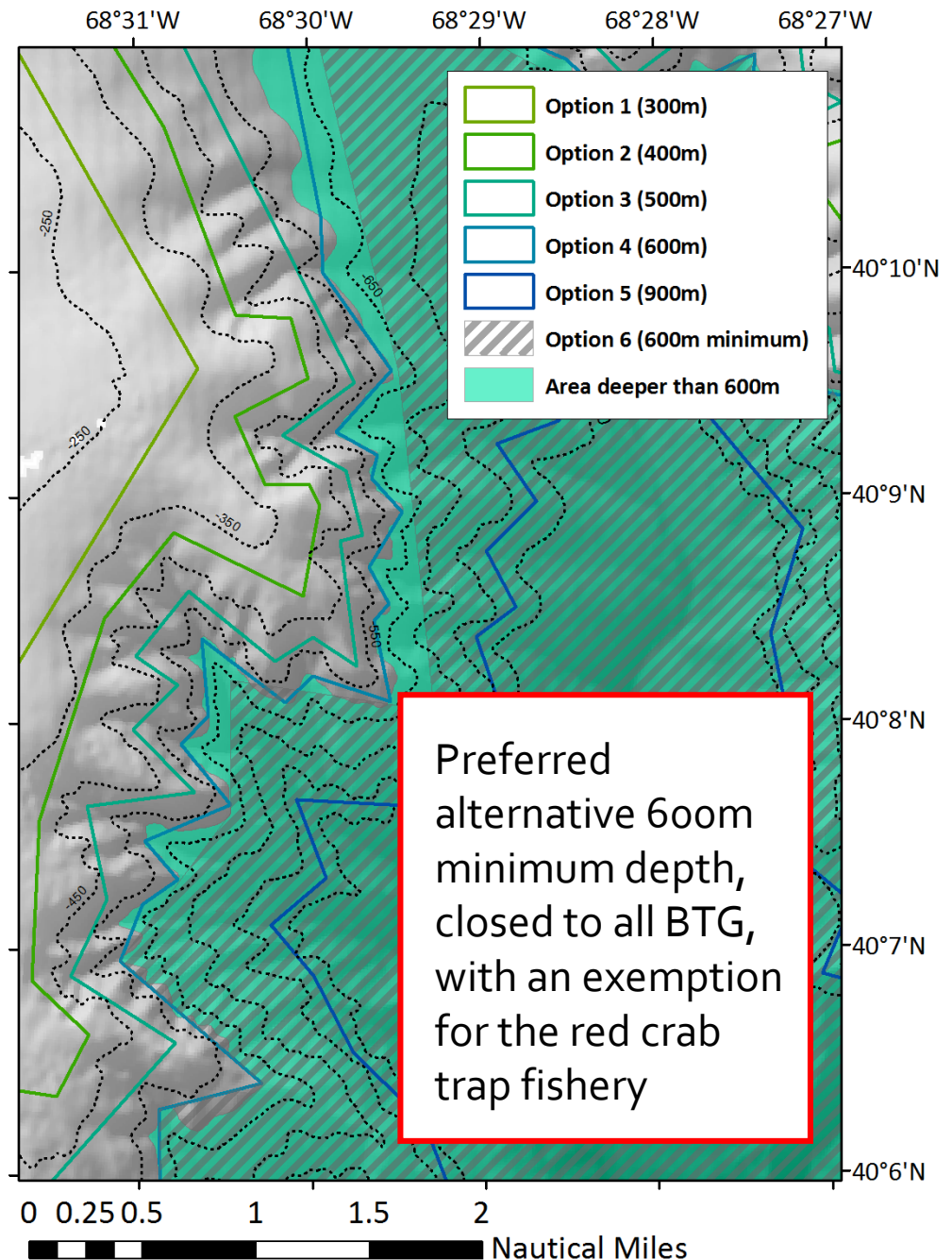
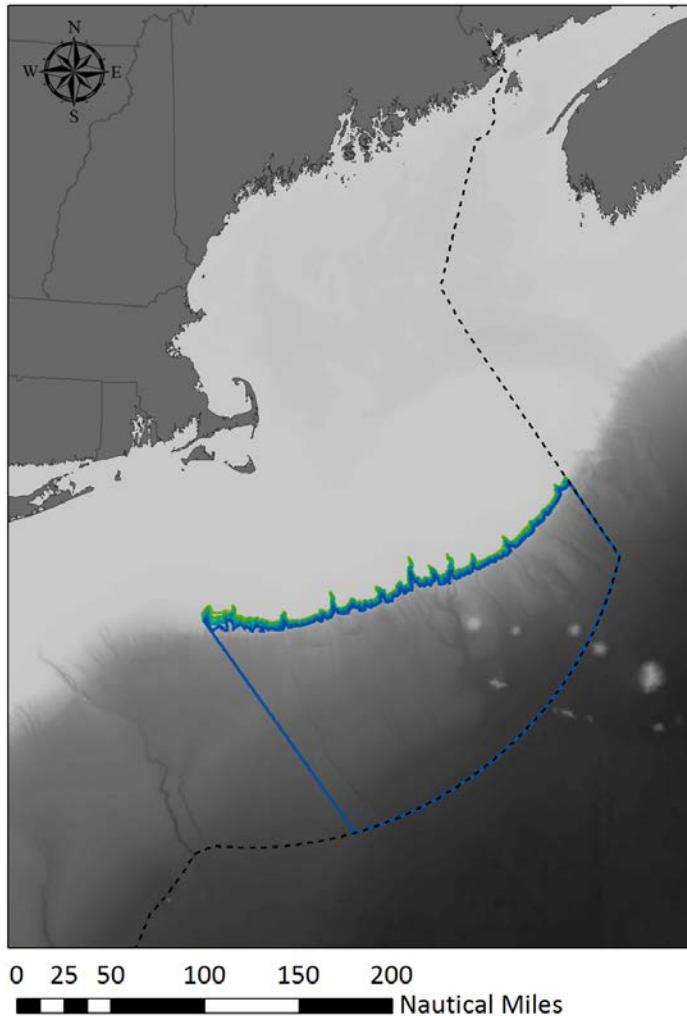
Sub-option A: exempt red crab trap fishery

Sub-option B: exempt other trap fisheries

Option 2: Prohibit mobile bottom-tending gears only.

For both options, transiting across coral zones would be allowed: Vessels may transit the coral zones provided bottom-tending trawl nets are out of the water and stowed on the reel and any other fishing gear that is prohibited in these areas is onboard, out of the water, and not deployed. Fishing gear would not be required to meet the definition of “not available for immediate use” in 50 CFR § 648.2.

§ 4.2.1 Broad coral zones

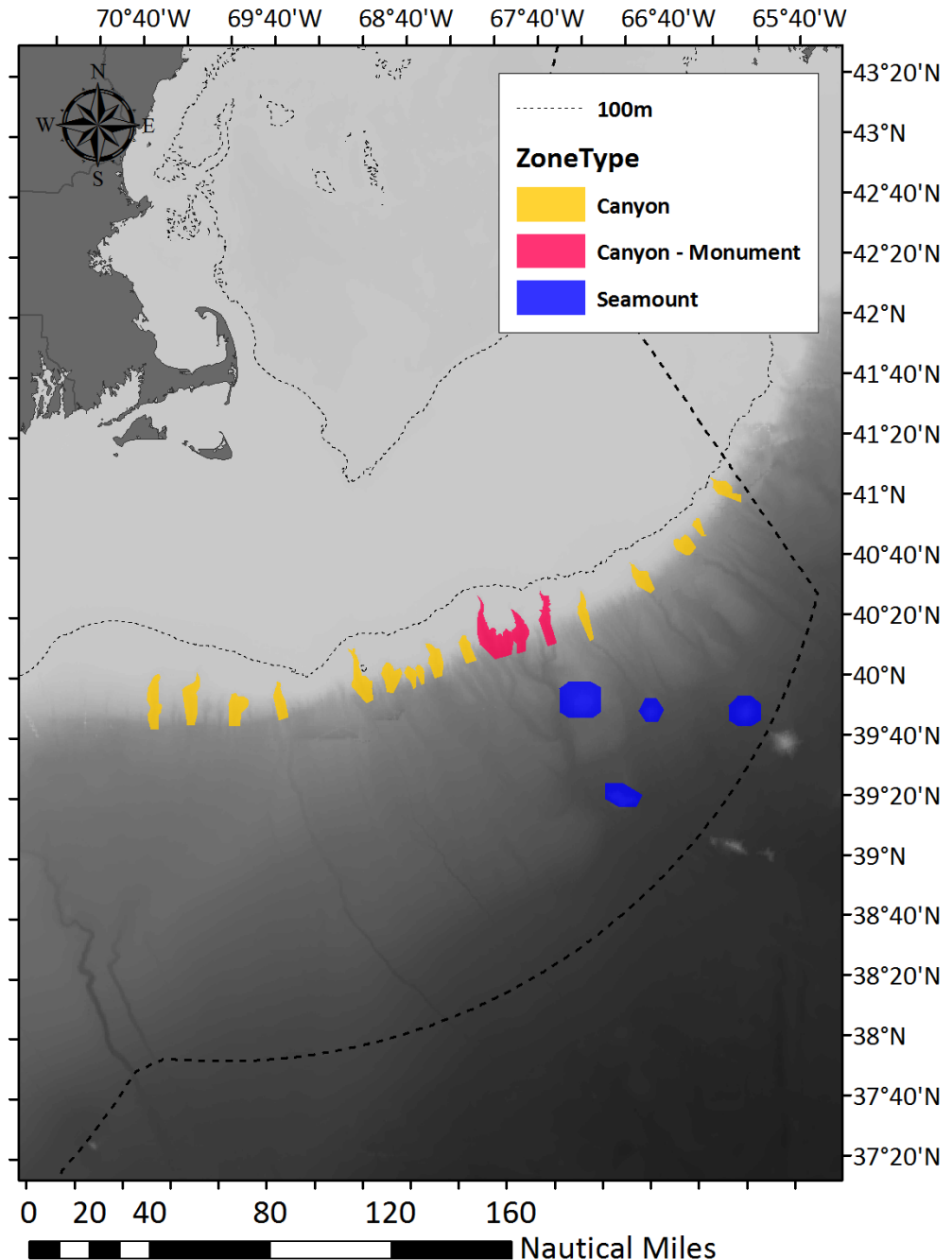


§4.2.2.1 Canyon zones, and §4.2.2.2 Seamount zones

Canyons: Alvin, Atlantis, Nantucket, Veatch, Hydrographer, Dogbody, Clipper, Sharpshooter, Welker, Heel Tapper, Oceanographer, Filebottom, Chebacco, Gilbert, Lydonia, Powell, Munson, Nygren, unnamed canyon, Heezen

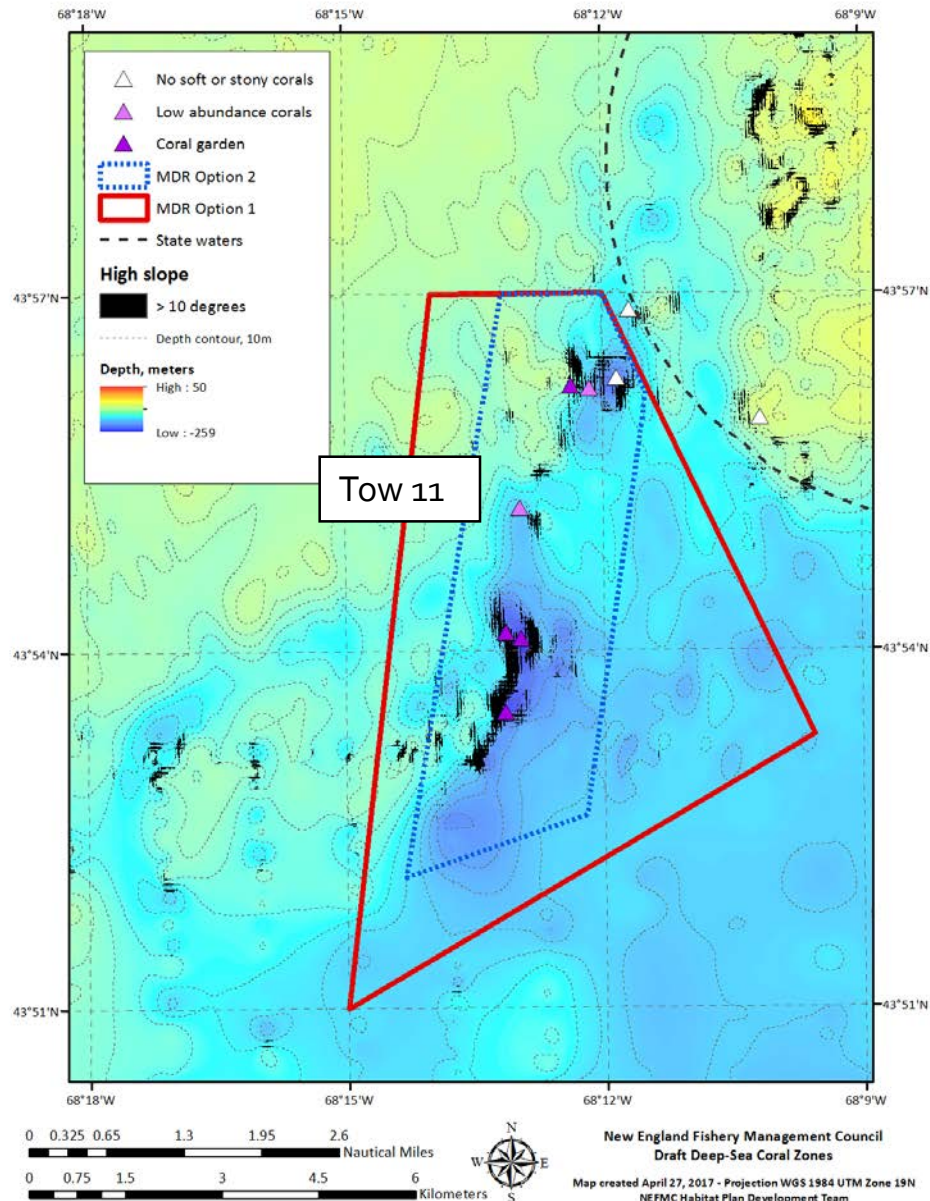
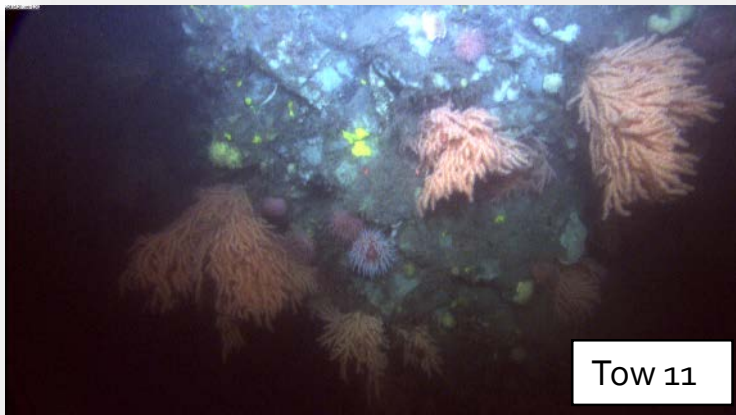
Seamounts: Bear, Mytilus, Physalia, Retriever

Not preferred at this time

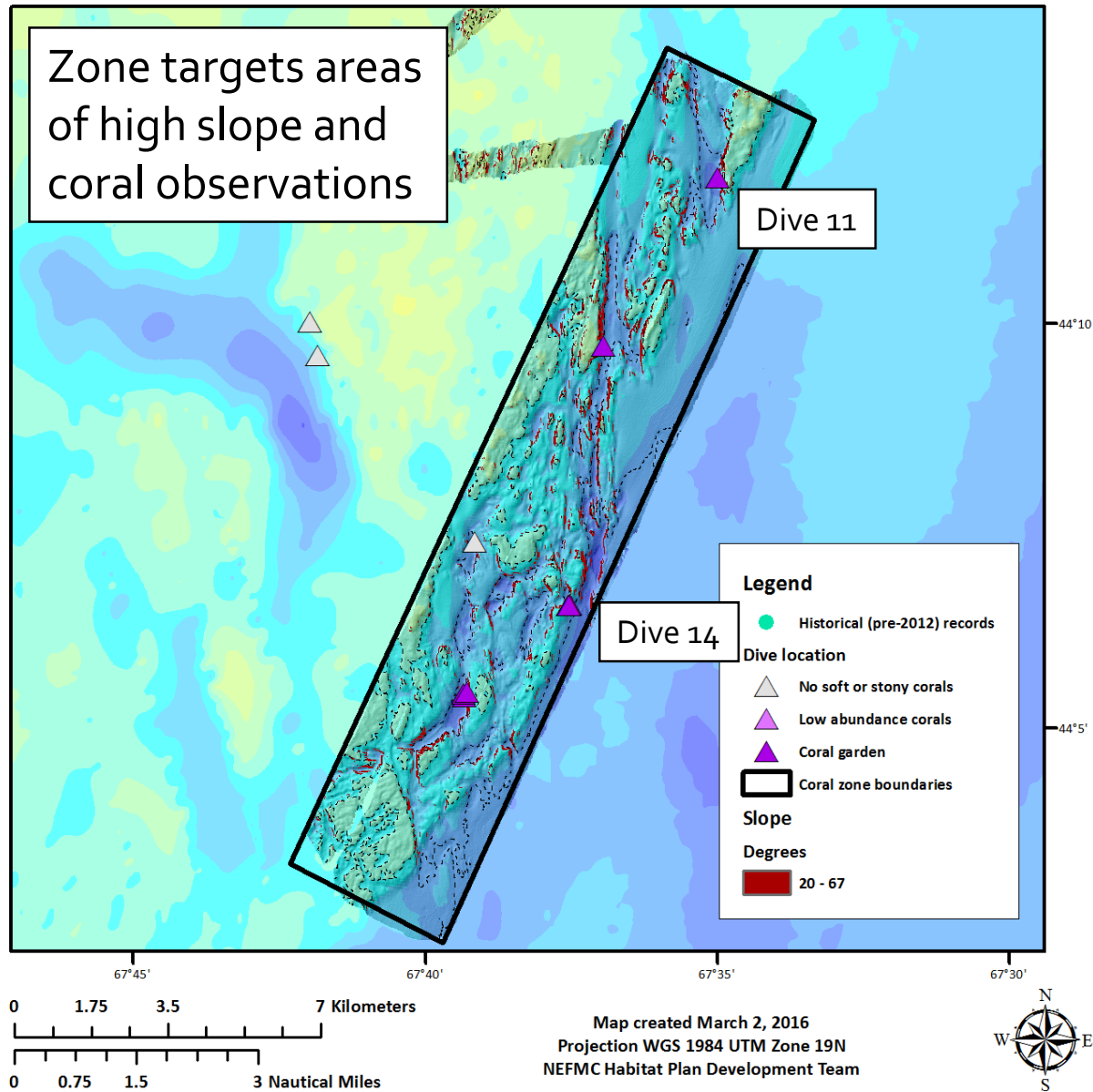


§4.2.2.3.1 Mt. Desert Rock

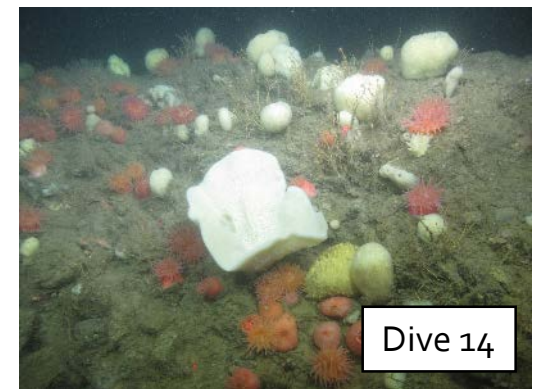
- Option 1 is a larger area (46.8 km²)
- Option 2 (19.2 km²) more closely targets areas of high slope and coral observations
- Preferred alternative, but Option 1 vs. 2 not yet determined. Gear restriction would be MBTG closure



§4.2.2.3.2 Outer Schoodic Ridge

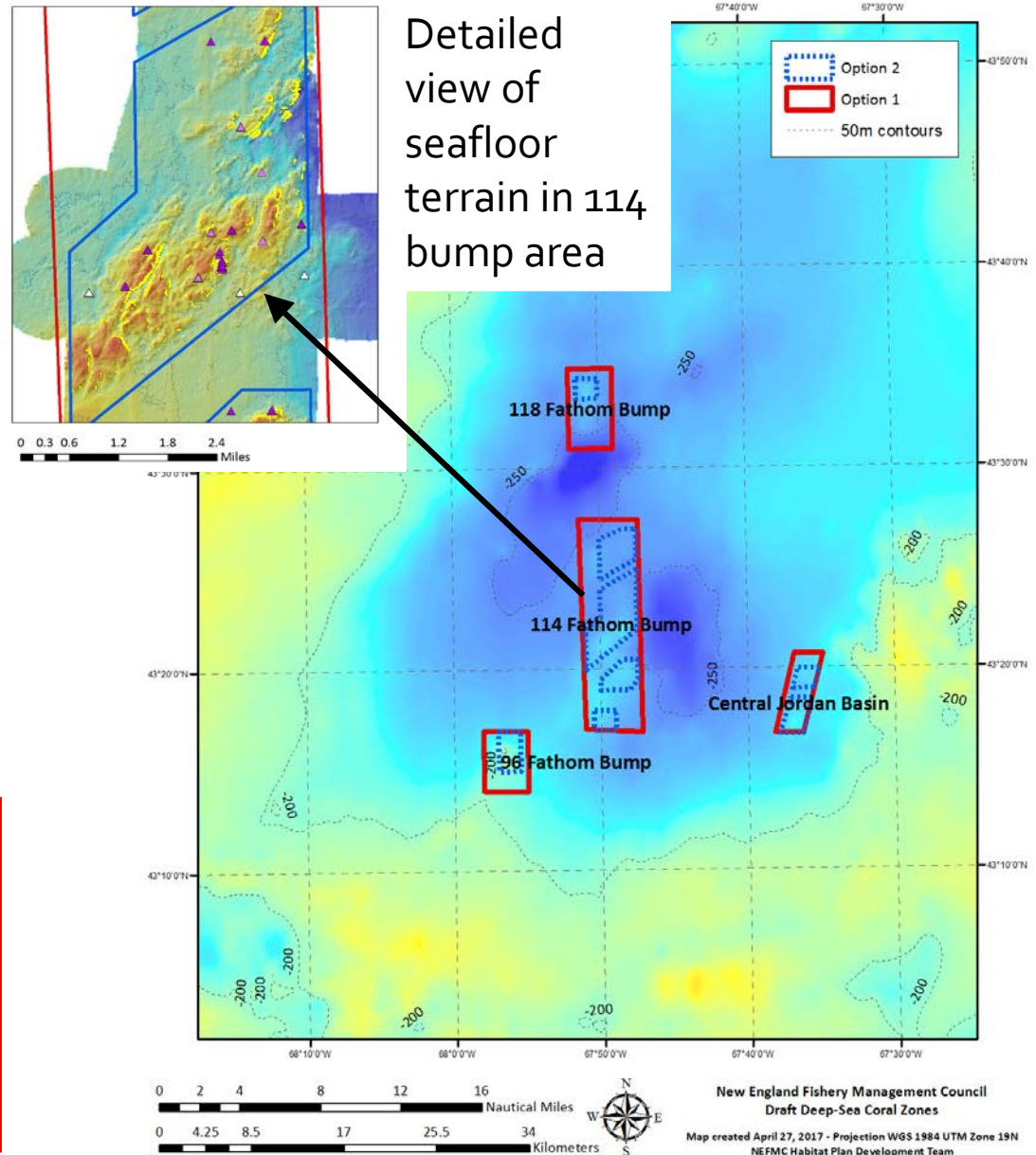


- Single boundary option
- Preferred alternative, MBTG closure



§4.2.2.3.3 Jordan Basin

- Option 1 (175 km²) groups all dive sites with corals into four management zones
- Option 2 (66 km²) more closely targets areas of high slope, when known, and coral observations, and subdivides the 114 bump and central Jordan Basin areas
- Not a preferred alternative at this time, but if designated, preference is MBTG closure



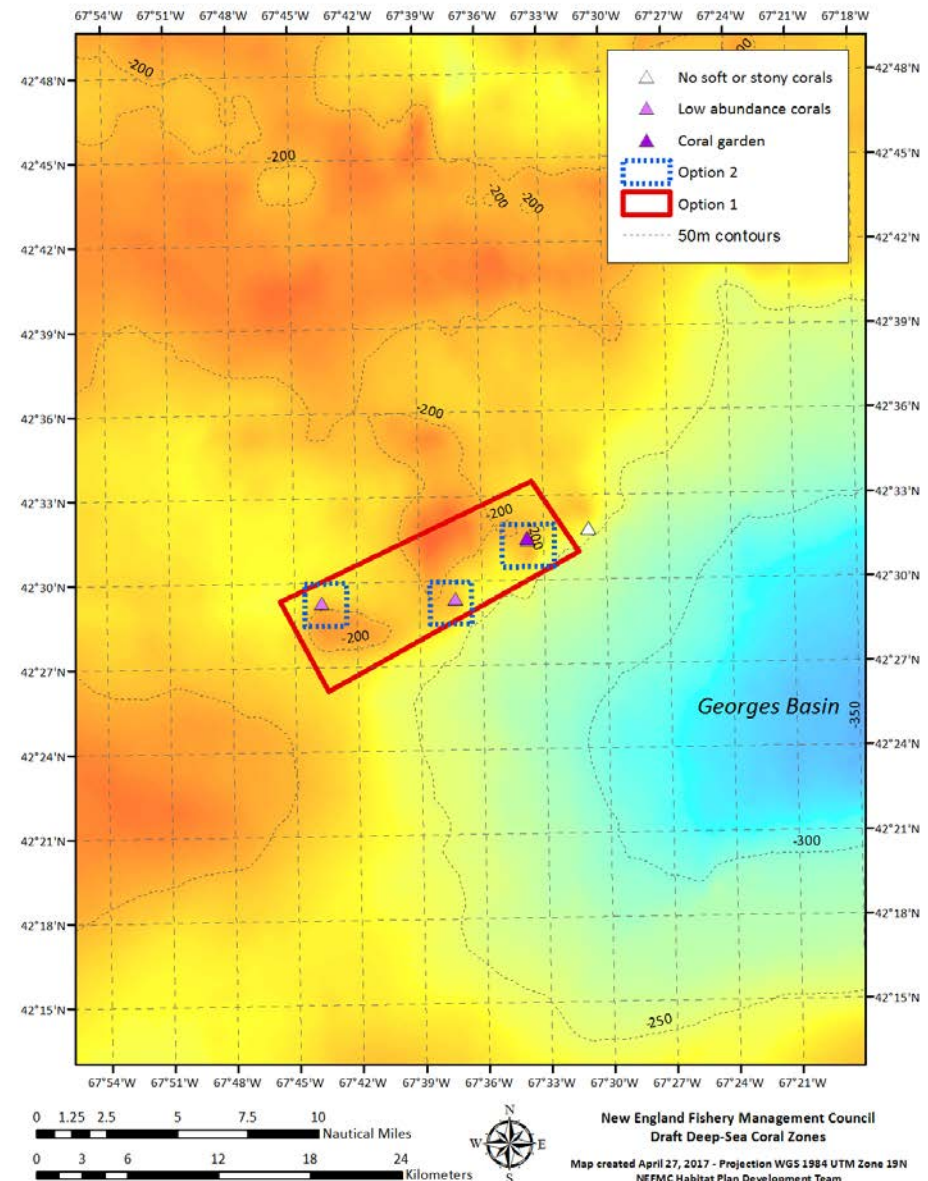


Jordan Basin corals and coral-associates



§ 4.2.2.3.4 Lindenköhl Knoll

- Option 1 (113 km²) includes all known coral habitats in a single zone
- Option 2 (24.7 km²) has 3 sub-areas and targets individual dive observations
- Not a preferred alternative at this time, but if designated, preference is MBTG closure



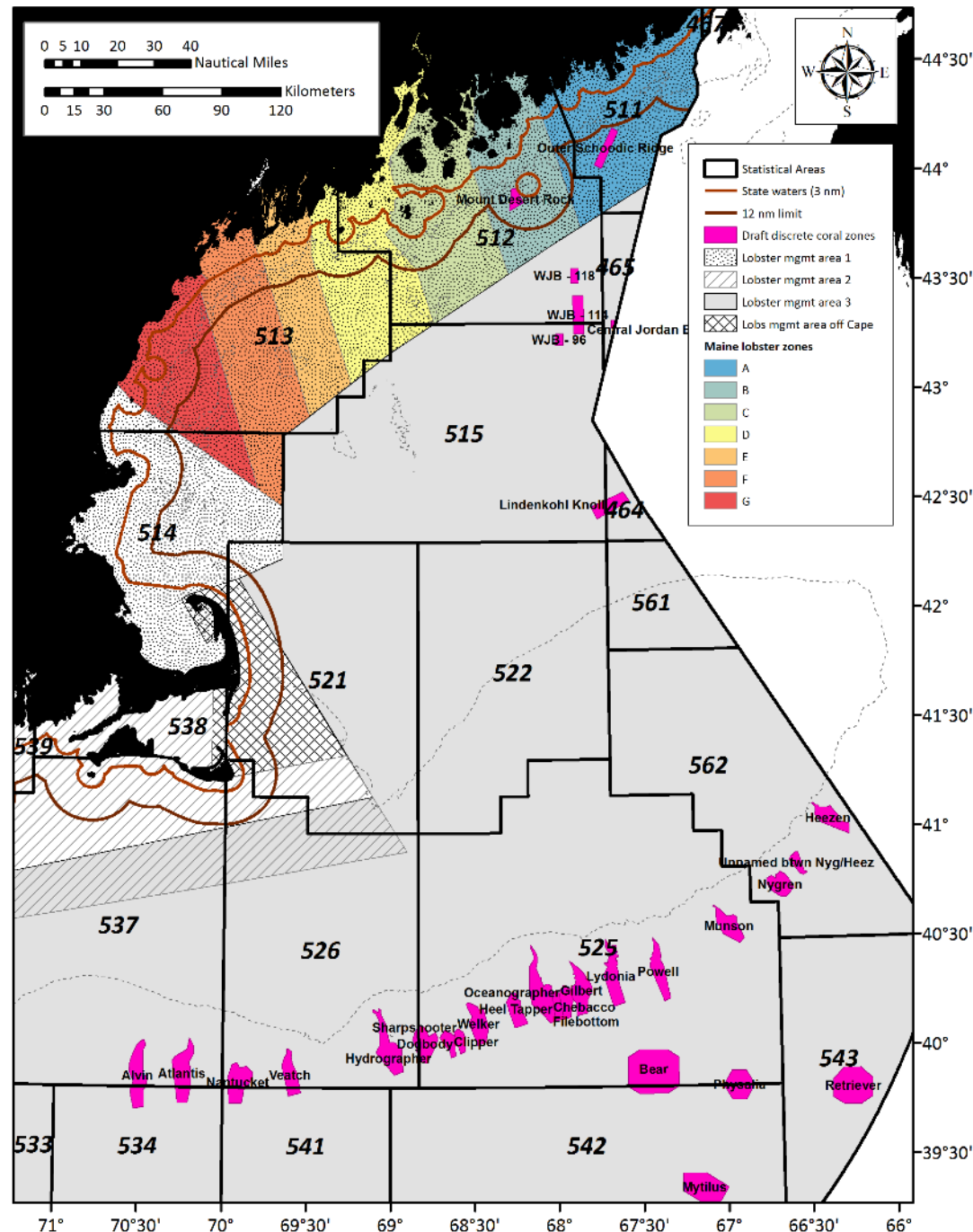
Overlap with lobster management areas

Area 1/Inshore

- Outer Schoodic Ridge (Maine Lobster Zone A, 12+)
- Mt. Desert Rock (Maine Lobster Zone B, 3-12)

Area 3/Offshore

- Jordan Basin
- Lindenkohl Knoll
- Canyons and slope, all broad zones



Other alternatives in the amendment

§4.4 Special fishery programs

- Alternative 1/No Action
- Alternative 2: Special access program fishing
- Alternative 3: Exploratory fishing
- Alternative 4: Request letter of acknowledgement for research activities (*preferred*)

§4.5 Framework adjustment alternatives

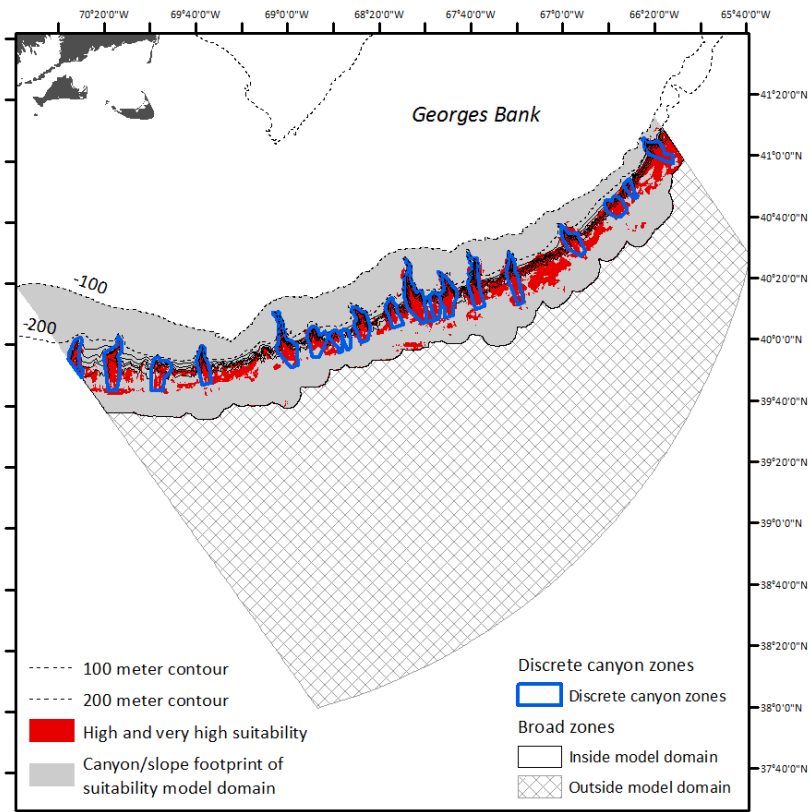
- Alternative 1/No Action
- Alternative 2: Add, revise, or remove coral zones (*preferred*)
- Alternative 3: Change fishing restrictions in coral zones (*preferred*)
- Alternative 4: Allow development or modification of special access or exploratory fishing programs (*preferred*)

Summary of preferred alternatives

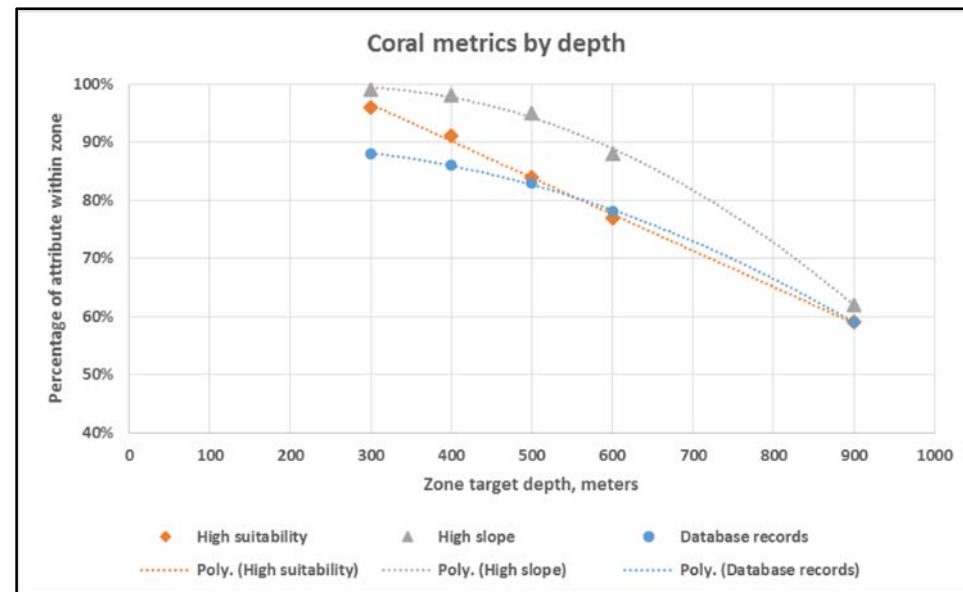
- Broad zone with 600m minimum depth, closed to all bottom-tending gears, red crab trap fishery exempt
- Any Gulf of Maine zones designated would be closed to all mobile bottom-tending gears
 - Inshore zones at Mt. Desert Rock and Outer Schoodic preferred
 - No definitive recommendation on the offshore zones (Jordan Basin and Lindenkohl)
 - Original vs. updated boundaries not specified
- Request letters of acknowledgement from researchers working in coral zones
- Allow changes to coral zones, fishing restrictions in coral zones, and development of special fishery programs for coral zones via framework adjustment
- Include coral research priorities in amendment

Estimating impacts to deep-sea corals

- Assess occurrence of corals and likely coral habitats
- Consider fishing activities and gears used
- Considering these factors, and coral vulnerability, what conservation benefits might be achieved by excluding fishing from the zone?



How do coral metrics compare across the different broad zones depths?



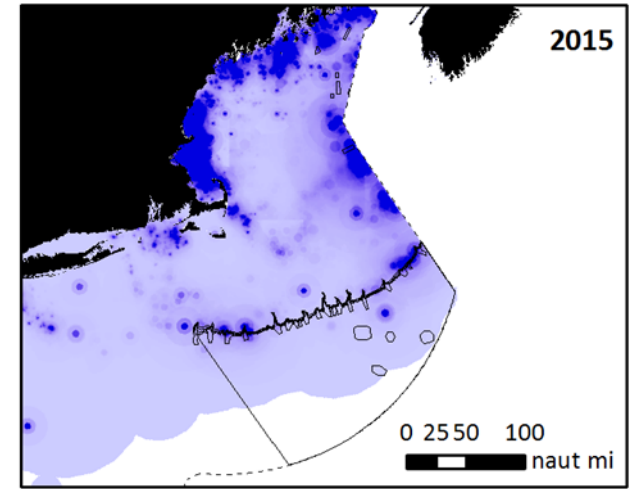
What do we know about fishing gear impacts on corals?

- Coral characteristics make them inherently vulnerable to damage
 - Slow growth, branching structure, brittle/easily broken, limited dispersal capabilities
- Scientific studies have documented negative impacts of fishing gears on corals in many parts of the world
 - Most studies address trawl interactions; less work on fixed gears
- Coral bycatch does occur in New England
 - Since 2013, the Northeast Fishery Observer Program has collected samples when bycatch occurs to verify coral identifications
 - Most interactions are in the Gulf of Maine (vs. the canyons/continental slope)
 - While these data indicate that coral/gear interactions are occurring, we can't use them to estimate bycatch rates at the fleet level

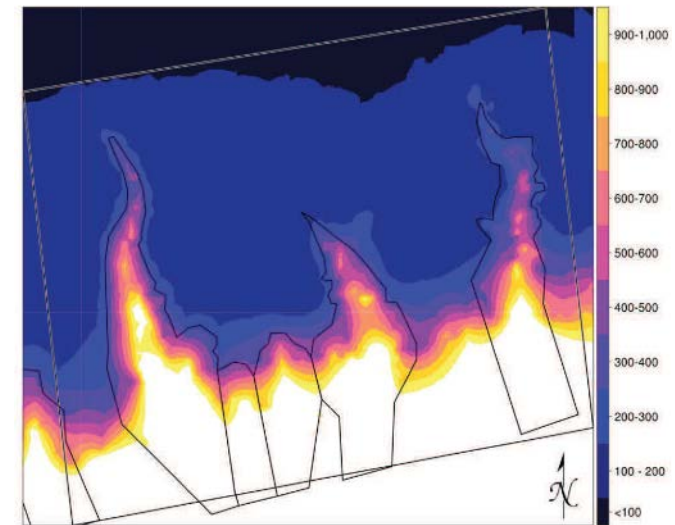
Estimating revenue in offshore coral zones

Jordan Basin, Lindenköhl Knoll, Canyons and slope

- Analysis is based on vessel trip reports (2010-2015)
 - Revenue by gear type and species
 - Number of trips and permits by gear type
 - Percent revenue by owner
- Lobster revenue, trips, and permits are scaled up by 26%
- Alternate approach for lobster trap gear in canyon/slope region relies on information from an ASMFC survey about depth fished to distribute revenues spatially



Vessel trip report data



Depth intervals used to assign revenue from survey

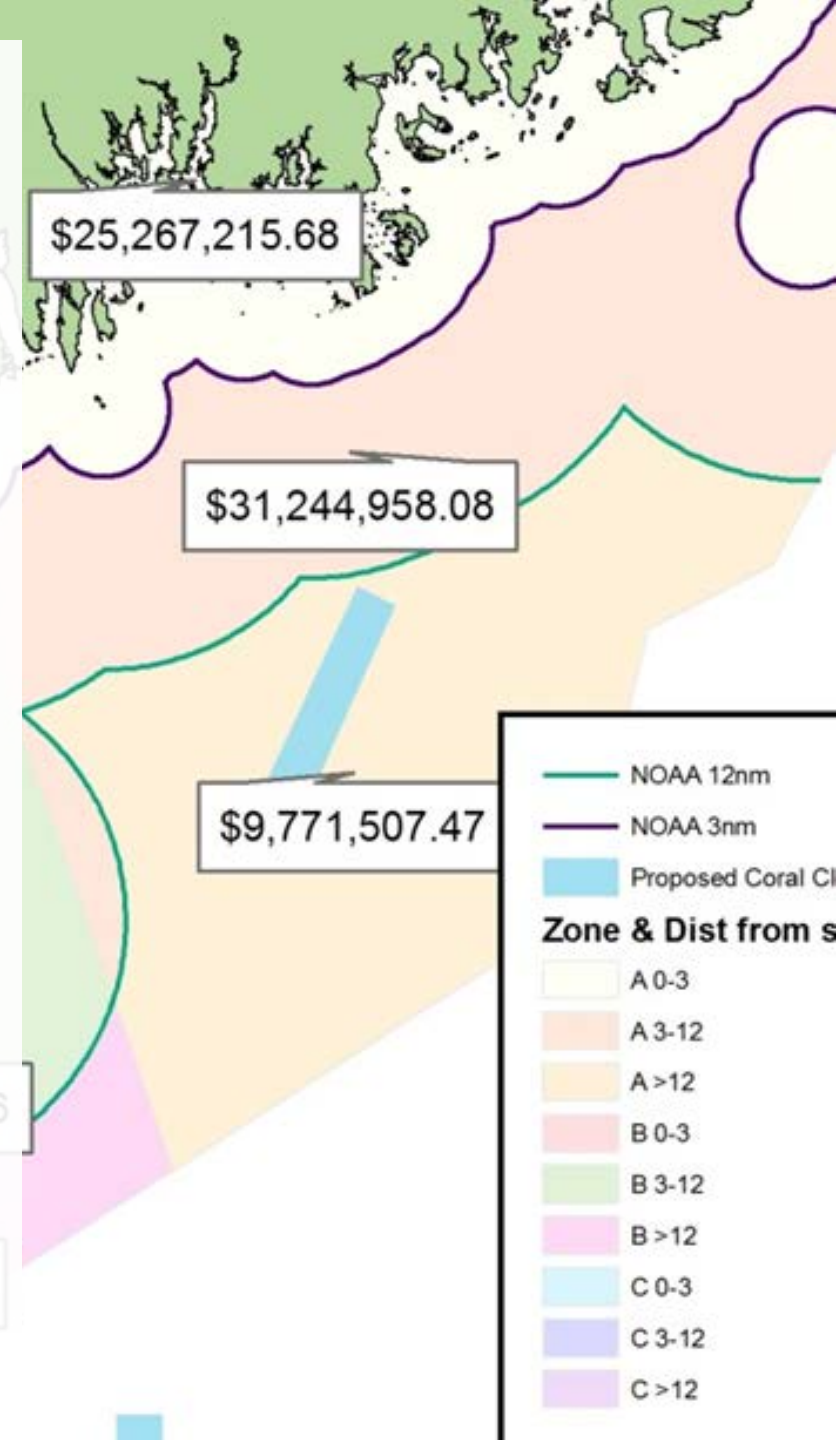
Estimating revenue in inshore coral zones

Outer Schoodic Ridge, Mt. Desert Rock

Maine DMR (via the Lobster TC) contributed data on fishing trips, permits fished, value, and landings by Lobster Management Zone, including the proportion attributed to federally permitted vessels

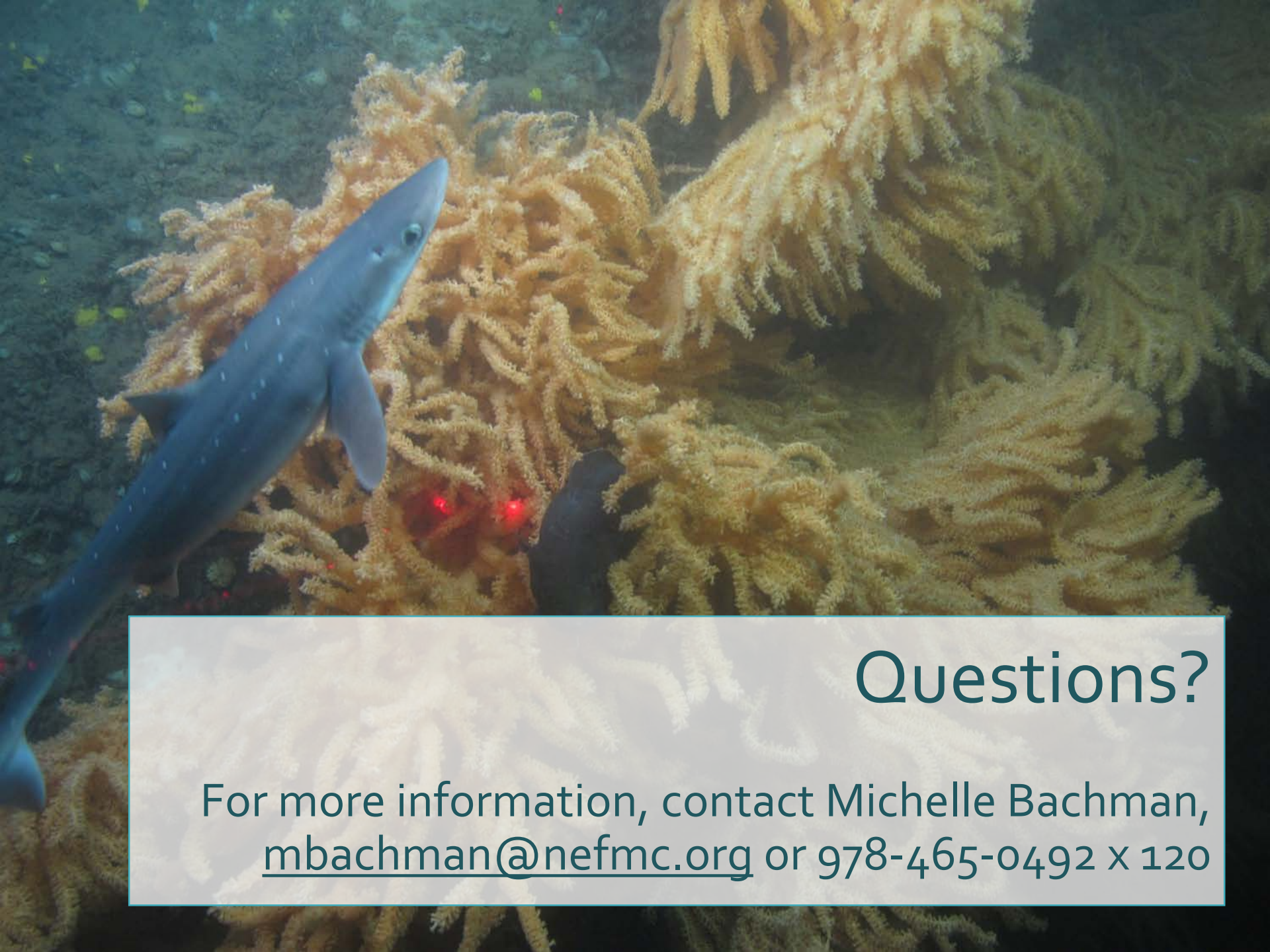
Dealer and port data were used to estimate 2015 lobster revenue for Lobster Management Zones A, B, and C.

Harvester reports from 2011-2014 were then used to ascribe that zone's trips, landings, and revenue to three distances from shore (0-3, 3-12, 12+ nm).



Estimating social/community impacts

- Consider the general social impacts to fisheries of area closures (ability to adapt, displaced effort, gear conflicts in open areas, long-term though uncertain benefits to fisheries if ecosystem improves and resource productivity increases)
- Consider how recent fishery revenues in a zone or group of zones have been are distributed amongst communities
 - What are the demographic characteristics of those communities and their dependence on fishing?
 - Need to ensure that community data are non-confidential when reporting data by year/gear/port – at least three vessels selling to at least three dealers
- Also consider non-use/existence value of corals



Questions?

For more information, contact Michelle Bachman,
mbachman@nefmc.org or 978-465-0492 x 120