

#10

CORRESPONDENCE



P.O. Box 1230
Marshfield, MA 02050

March 30, 2015

Subject: No Action WGOM DHRA

To: E. F. Terry Stockwell III, Dr. John F. Quinn, John K. Bullard, Mark Alexander, Dr. Matthew McKenzie, Terry Alexander, Vincent Balzano, Mary Beth Nickell-Tooley, Mark Gibson, Frank Blount, David Preble, Dr. David E. Pierce, Dr. Michael Sissenwine, Douglas Grout, Ellen Goethel, Peter T. Kendall, Elizabeth Etrie, John Pappalardo

At the upcoming April council meeting you'll have the opportunity to once again consider your preferred management alternatives for the Omnibus Essential Fish Habitat Amendment 2. I'm writing to ask that you oppose the creation of a WGOM DHRA and related reference area on Stellwagen Bank by voting NO ACTION as it relates to this proposal. Regrettably, when the NEFMC first moved option 3 (B) as the preferred alternative, the DEIS was not complete. The scientific validity to support creating the DHRA and reference area, however, seems to be lacking with the additional information now in hand.

In fact, on page 572 of the DEIS this sentiment is summed up nicely by stating "...the short-term slightly negative impacts, and long-term slightly positive impacts make clear that the net benefits are likely to be relatively marginal/negligible regardless of their ultimate sign."

In addition, subsequent analysis has revealed that a "resident" cod population, which is a key part of the reference area justification, may be based on flawed analysis of telemetry tags that were either shed or still attached to dead discards of tagged fish.

The DEIS (pg. 558) also points out the fallacy of using VTR data to identify where charter boats do or do not fish. This has been a consistent point of our opposition to the rationale for selecting the DHRA and related reference area(s). Sadly, the Sanctuary's continued use of data that is known to be false and misleading strains credulity and morality.

And with the recent Habitat Committee meeting we learn that once again, the Sanctuary is attempting to change the rules to fix their broken scientific rationale by prohibiting lobster pot fishing within the DHRA. This represents a complete change from everything that has been presented to date and comes less than a month from when the full Council moves its final recommendations to the Agency. This is nothing more than a shameless attempt to fix a badly broken proposal, and I hope you agree with me that it further proves the science is lacking to justify the DHRA and reference area.

mb 4/1/15

The for-hire sector and related shoreside support businesses will suffer enormous negative consequences with another closure if the DHRA proposal is implemented. Let's be clear: 55 square miles is not a huge area. But for the ports of Plymouth, Green Harbor, and Scituate it might as well be 500 square miles. These are small boats with limited range, and this proposal sticks a year-round closure in the very spot where we take our clients fishing. Many boats have already moved south to New Bedford and Fairhaven for the upcoming season. Those slip fees, fuel fees, maintenance and repair, bait, tackle, and customer-related spending in gas stations, hotels, restaurants, and grocery stores aren't coming back.

And given the cod closure, reduced haddock limits, reduction in striped bass retention, and the proposal for ESA listings for Porbeagle and Common Thresher sharks, the for-hire industry is already in a fragile state. Layering on an additional unnecessary closure may well drive many of these small operations out of business. I urge you not to take that step and vote NO ACTION on the WGOM DHRA.

Thank you.

Capt. Charlie Wade
President
Stellwagen Bank Charter Boat Association

Cc:
Tom Nies
Capt. Barry Gibson
Capt. Michael Pierdinock
Capt. David Waldrip

From: David Wallace

Sent: Friday, April 03, 2015 4:25 PM

To: Terry Stockwell; Tom Nies; Michelle S. Bachman; David Preble; Lou Chiarella; David Stevenson; Rick Robins; Jeff Kaelin

Subject: Cultivator and Georges Shoals Large Areas that Have

All,

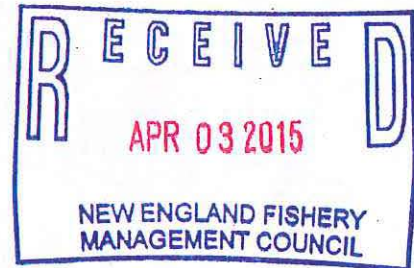
At this time we still do not have the plotter data back for clam trips on Georges. The chart attached was marked up by the captain a few weeks ago and Michelle has a copy that she showed at the PDT at their March meeting. I have colored in pink the large areas the captain has fished but not the very small areas. The green is what we said we would not fish.

Sorry that the chart is not as clear as I would like, but the chart is a poor quality photo copy and that is what I have been working with in my office.

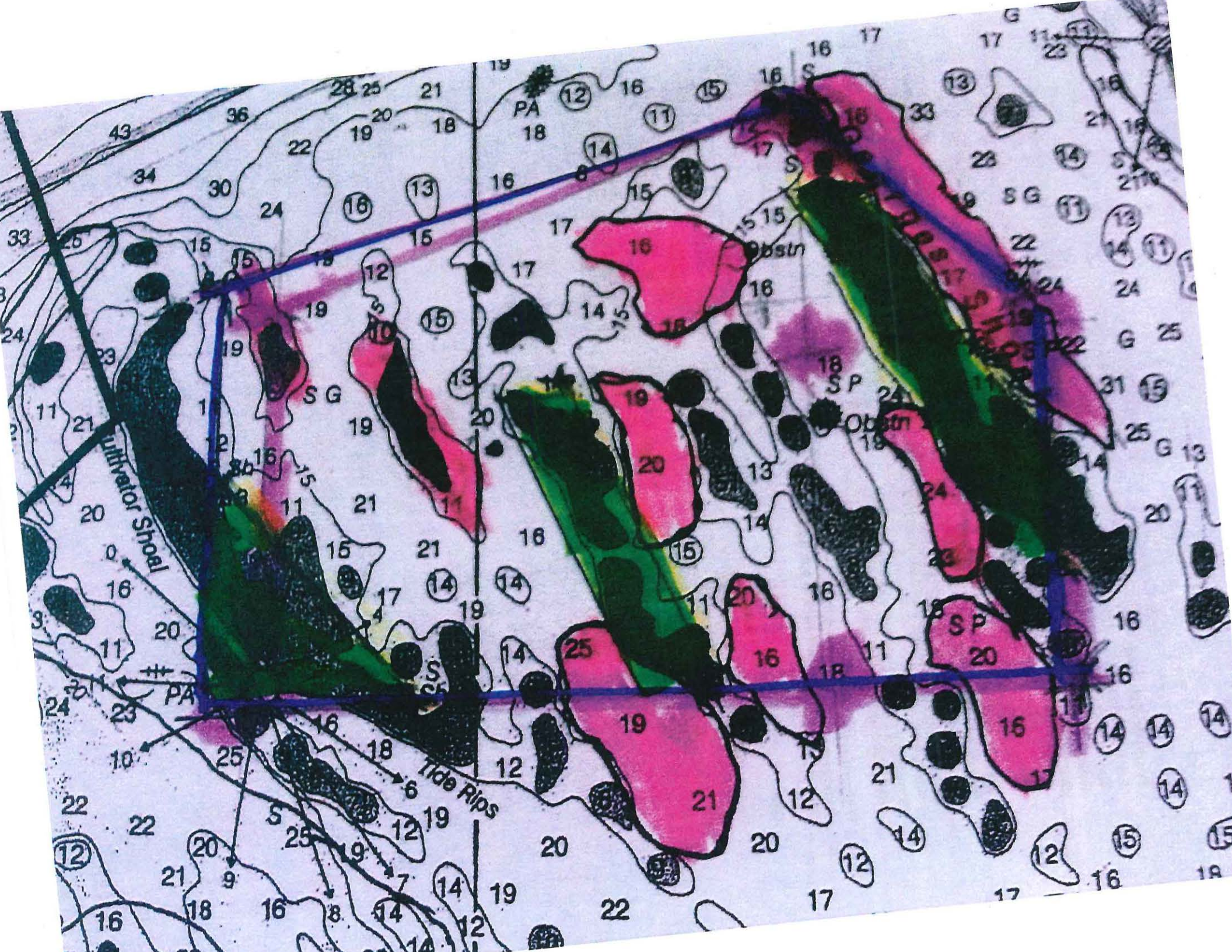
I hope that this give everyone the same understanding that they came to on Nantucket Shoals, clams are found in many cases at the base of outcroppings in sandy bottom, they are not necessarily found in large flat sand beds.

Dave,

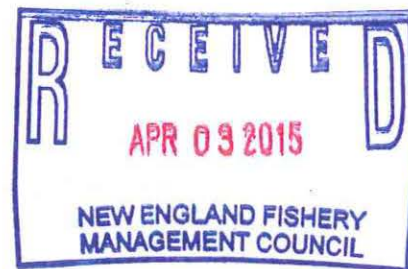
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David H. Wallace
Wallace & Associates
1142 Hudson Road
Cambridge, MD 21623 3234
P 410 376 3200



mb 4/6/15



To: Terry Stockwell, Chair NEFMC
From: David Wallace, Wallace Associates
Date: Wednesday, April 01, 2015



This information follows on our discussions Monday with you and David Stevenson (GARFO), in regards the various alternatives in the Habitat EIS , and the discussion at the last oversight committee meeting last week. Below you will find our summary of reasons why we believe the clam industry should be exempt from any of the habitat closures (gear option 2). Although we made many of these points in our written comments, we have summarized them in the interest of expediting a timely review of such by the committee and PDT. We have also expanded on specific points, committee questions, and concerns that relate to the Nantucket Shoals area and Georges Bank alternatives:

General points that can be made for all areas:

- The Amendment (EIS) is primarily designed with the objective to protect complex habitat such as cobble and boulders and juvenile groundfish aggregations;
- As noted in the DEIS Surf clam and ocean quahogs inhabit areas of high energy sand and mud and do not inhabit areas of complex habitat, specifically rock ledges , boulders , and large cobble.
- New England contains more than forty percent of both surf clams and ocean quahog biomass, but much of it is closed to the clam fleet on Nantucket Shoals and Georges Bank for no good reason;
- Peer reviewed literature by MAFMC and NMFS staff, document minimal and temporary environmental impacts from clam dredging in sandy habitats, which are found on Nantucket Shoal, Cultivator and Georges Shoals. This conclusion is supported by an American Fisheries Society, peer-reviewed article (Wallace and Hoff 2005). The same conclusion was reached in a NERO Environmental Assessment (November 2012) that was developed to reopen Georges Banks to the clam industry;
- As explained latter, clam dredges cannot operate in complex habitat with boulders and large cobble ;
- The clam industry has no objections to closing complex habitat to enhance the survival of juvenile ground fish.
- As stated in the DEIS, it is well documented that clam dredge do not have a significant by- catch of groundfish;
- According to the DEIS, area swept by hydraulic clam dredges (227 square kilometers) is one of the lowest of any gear type. Compared to pots (340), limited access scallop dredge (3,000), and otter trawls (49,000). Lobster pots are exempt from area closures and therefore we believe hydraulic clam dredges at 227 should be exempt. (Source DEIS) ;
- Areas that would be closed on Nantucket Shoals and Georges and Cultivator Shoals are predominantly sand bottom that change configuration continually due to currents and weather events. The Executive Summary, Background and Purpose, EIS (Volume 1)

clearly point out that these areas consist of "...strong currents, sand dunes, ...dunes migrate... ridges move" and have low vulnerability to adverse effects because the clamming is spatially limited;

Economic considerations:

- Total Atlantic surf clam and Ocean Quahog landings in New England, predominantly from Nantucket Shoals and Georges Bank, are about 90,000 metric tons with an ex-vessel value of about \$84 million and value added product estimated to be \$250 million, employing approximately 700 people in New England, primarily New Bedford, Fairhaven, Mass and Bristol , RI.
- The clam industry is the second largest federal managed fishery in New England;
- The Nantucket Shoal fishery has an ex-vessel value of 15 to 20 million dollars per year depending on the year selected, and 18 boats participate in the fishery. Since clam meats are exclusively processed for sale (i.e. chowder, stuffed clams, clam strips, etc. they retain a high multiplier value , which makes the Nantucket Shoals fishery worth 80-100 million dollars to the Massachusetts and RI economies;
- There are six clam vessel capable of fishing on Georges Bank but only three are active, which land 3000-6000 bushels per trip;
- Most of the vessels fishing on Georges Bank are very large, and are required to fish in accordance with the FDA PSP sampling protocol;
- The PSP sampling protocol adds approximately \$2500-3000 per trip, making it cost prohibitive for small vessels to relocate from Nantucket Shoals to Georges Bank, as they can only carry 1,000 to 2,000 bushels per trip. In addition the small vessels that fish the Shoals can not fish on Georges Bank due to safety issues;
- New England would lose hundreds of jobs and at least 100 million dollars in the coastal communities of New Bedford and Rhode Island , if all of Nantucket Shoals and Cultivator and Georges Shoals are closed to clam fishing, as the industry will be forced to shift back into Mid-Atlantic ports;

Nantucket Shoals:

- The Shoals are s generally not surveyed by the NOAA clam surveys and groundfish survey , particularly the northern portion of area , due to the shallow depths and dangerous conditions that exist in a high energy environment;
- The portion of the Shoals that are surveyed, has one of the lowest groundfish spawning indexes at 1.12
- Reopening of Nantucket Shoals and Lightship was recommended by the PDT in their original document submitted to the Council. Nantucket Shoals area is generally not considered complex habitat intended to be protected under the Omnibus Habitat Amendment, although the eastern portion of the area has extensive amounts of cobble and boulders. The general trend is that the habitat becomes more complex and less

fishable for clam vessels as one move from West to East, particularly along the eastern boundary of Alternative 3. .

- There are 18 vessels engaged in the Southern New England and Nantucket Shoals clam fishery, mostly based in New Bedford and Fairhaven, Mass with a few in Chatham, Mass and RI. These vessels generally land between 500 -1500 bushels per trip, valued between \$10,000-25,000 dollars and utilize a 4-8 foot dredge with a 2 inch bar spacing. The average size dredge used by the fleet is 6 feet;
- Due to the excessive tides and strong currents most vessel avoid any type of complex habitat / rocks since many clam boats need to haul from a high point on the stern. A hang can therefore quickly destabilize and capsize a vessel;
- The fishery in the Shoals has been active for decades, so the current participants understand where the complex habitat is located, and where the pockets of clam are located;
- One of the nuances of clam fishing in Nantucket Shoals is that the industry needs to frequently change areas on the same trip due to the extensive tides and sand movement in the area. In some cases , a particular site can only be fished effectively at a single point in the tide cycle, or from a single direction;
- Areas that are highly productive on one trip, are unfishable on the next trip due to a lack of water depth and sand movements;
- The sand and gravel in this area is interspersed among boulders and cobble, and changes frequently based on weather events such as northeasters and tides;
- Fishing activity within the Shoals is highly dependent on the quality of the electronics on a vessel. Improvements in bottom sensing electronic have enabled the clam fleet to fish in very small areas(a few hundred yards) and avoid contact with complex habitat such as boulders and cobble.,
- Vessels make one to two day trips, and frequently make very short tows, as many as 150 per trip , in small area of sand and gravel habitat ;
- It is not uncommon for a vessels to make a one or two minute tows, but the tows on sand habitat generally last 5-7 minutes, and cover approximately 1200 to 2000 feet ;
- The clam industry goes to great lengths to avoid areas of boulders and cobble, since they cause the destruction or loss of a dredge or the termination of a trip.). Point being that lost or damaged dredges can cost a vessel \$70,000, and takes a crew four to six weeks to manufacture, during which time they lose their gross income of \$ 10,000- 25,000 per week;
- As evidenced in the Figures (1-4) major portions of the Shoals are not fished at all but the areas are oddly shaped , dispersed and follow depth contours. These characteristics do not lend themselves to a typical area closure as advocated by the Council Enforcement Committee.
- Rocks, cobbles, stones are also very undesirable, from a by catch perspective, due to the fact that they break the clams in the dredge, and also create excessive work in the separation process. Rocks that enter a dredge and reach the surface need to be physically separated , by the crew , from the clams which provides a tremendous incentive for the

Captain and crew to avoid boulders and cobble. Adding excessive sorting time to a trip provides also provide a compelling inducement to avoid complex habitat;

- Reopening the existing Nantucket Closed area (both groundfish and Habitat) will have positive habitat benefits by simply encouraging the transfer effort from the northern portion of the area, where there is more complex habitat, to more southerly areas where more high energy sand is present. The southern areas, that the industry formerly fished , have not been fished or surveyed in ten years, so the status of the clam resource in the area remains unclear ;
- There are a number of clam beds in the current closed area on Nantucket Shoals, in high energy sand, that the fishery would prefer to fish until CPUE was the same or less than where they are currently fishing;
- Alternative 5, which was selected by the habitat committee, holds some of the most productive clam grounds in the entire Nantucket Shoals, as evidenced by the tow plots;
- In an effort to prove this last point, six clam vessels volunteered to submit their tow plots for the area;
- Since all of these boats possess an active VMS system, the tow data can be independently verified by the PDT, Council Staff, or GARFO staff by comparing the tow plots to the VMS data record. The industry will be happy to provide the names and license numbers of the vessels and if needed the VMS codes.

Nantucket Tow Plots

- The industry submitted two sources of tow data, with Nantucket in each figure for reference. The submission of this data is intended to document the extensive surf clam fishing that take place within Alternative 5. The first two figures represent the tow data from a single clam vessel (Figures 1 and 2). Figure 1 represents expanded version of alternative 5, with smaller SASI box within alternative 5, which is Great South Channel 4.
- Figure 2 focus on the SASI box within alternative 5, which is called Great South Channel 4
- Data for these figures was collected from the plotters on a single clam vessel that has fished the area for the last six years, , downloaded and plotted by Chris Electronics in New Bedford , Mass using a Wind Plot program;
- The tow plots within the area are represented by the short color coded lines, some of which are no more than a dot (one minute tow). Captains use different protocols to color code their tows, so there is no singular industry standard or significance to the color coding practice;
- Captains generally only mark a tow once, even if they fish a specific site numerous times, over several seasons , so the marks do not represent all of the tows in a given area during the timeline ;
- All of the tows were collected during a 4 -6 year period of time ;
- Figure 3 and 4 represent the same areas but combine tow plots for six vessels, which constitute 33 % of the active vessels in N.E. Three of the Captains, that volunteered this information, have a combined history of fishing in Nantucket Shoals for over 100 years.

- More vessels were added to the original representation, as some members of the Habitat committee voiced concerns about using the information from a single vessel.

Discussion Points on Nantucket Shoals

- The tow plots in these Figures represent the spatial coverage of the clam fishery in Alternative 5. Note that numerous small areas do not get fished at all. Lack of fishing activity in an area results from shallow water depth, lack of clams, or the presence of complex habitat or a combination of the three. However we note that the spatial coverage of the fishing activity in Alternative 5 expands, as you add vessels since all vessels fish in slightly different geographical areas;
- Smaller vessels tend to fish closer to shore and larger vessels further offshore, due to safety at sea considerations.
- Most of the areas within SASI Great South Channel 4 are characterized as cobble and boulders, with pebbles on the fringes. This contrasts with, and seems at odds with the tow plots by the clam vessels which appear dispersed within the complex habitat. This apparent disconnect is caused by the spatial coverage of the SMAST survey, which is one of the primary data sources used in the SASI grid of ½ mile.
- As an example of this point, if the SMAST survey detected boulders at each corner of the ½ mile grid, the entire grid was assumed to be boulders. By contrast, a clam vessel using modern electronics, some with bottom recognition technology, can examine the same area to determine what is, and is not fishable. It is therefore possible for a clam vessel to evaluate the same grid with modern electronics and detect the precise location of the complex habitat within the grid. Repeated trips over an area result in a Captain mapping the location of the complex habitat which they then avoid. A Captain would then make a series of short tows to determine the extent of the clam population in that area. This same process has been followed for several decades, which results in a keen understanding of where to fish and which rocky areas to avoid.

Preferred industry alternative on Nantucket Shoals

- Clam boat should be allowed to fish in any part of Nantucket Shoals because the vessels generally fish in high energy sand and do not fish in complex habitats or catch groundfish in any of their life stages;
- Given prior advice from PDT and scientific evidence, open the Nantucket Lightship groundfish and habitat closure;
- Exempt the clam fishery from the closure proposed in alternative #5 on Nantucket Shoals by adopting gear option #2;
- The clam industry has also offered to prohibit clam dredging in approximately 500 square miles within the Southern New England area if needed, provide the above conditions are met. The NEFMC and GARO staffs have a description of the areas that could be closed, all of which fall within Nantucket Shoals options 3 and 5 and Coxes 1 and 2.

Georges Bank

- The Habitat Committee adopted GB Alternative 7 as their preferred alternative so these comment are specific to that recommendation.
- Currently Georges Bank is supplying about 25 percent of all of the surf clams landed.
- All of the surf clams that are being landed from Georges Bank are being taken from the area proposed to be closed encompassing Cultivator and George Shoals under alternative #7 of the OHA 2 amendment;
- Fishing for clams on Georges Bank is very expensive because of the 12 to 14 hour steam each way to the banks from New Bedford and the PSP testing requirements;
- The Georges Bank clam fishery is taking the pressure off of Nantucket Shoals and the Mid Atlantic resources which are in need of less effort so as to allow the sets of small clams to grow to their maximum yield;.
- Georges Bank was closed in the late 1980s due to possible PSP health risk;
- Before the PSP closure that was a productive surf clam fishery on Cultivator and Georges Shoals for many years;
- Since 1990 Georges Bank has be closed for public health concerns by the FDA and NOAA;
- In the resent times the FDA, NOAA and EPA along with the Northern states and industry developed a PSP Protocol that allows any clam vessel that complies with the Protocol; to fish on Georges Bank for surf clams and ocean quahogs;
- There are seven vessel crews that have been certified by the FDA that allow then to fish on Georges under the PSP Protocol;
- So far a total of six vessels have fished for surf clam or ocean quahogs on Georges but never more than three have fished at any one time;
- The vessel that are currently fishing on Georges have capacities from 3,500 to 4,500 bushels;

Preferred industry alternative on Georges Banks

- Clam boat should be allowed to fish in any part of Georges Bank s because the vessels generally fish in high energy sand and do not fish in complex habitats or catch groundfish in any of their life stages, gear option #2;
- Substantial areas within Georges Bank have never been fished and these areas all contain surf clam as evidenced by the NMFS clam survey;
- However should the Council adopt Alternative 7, exempt the clam fishery from the closure proposed in Georges Shoal 2. The industry has identified three specific areas within that alternative that can be closed to MBTG to protect complex habitat. The three areas are the shallow mounds on Cultivator and Georges Shoals.

- The industry support the closure of EFH South to all MBTG should Alternative 7 be selected;
- Should the Council decide on another alternative the clam industry will offer additional comments at that time.

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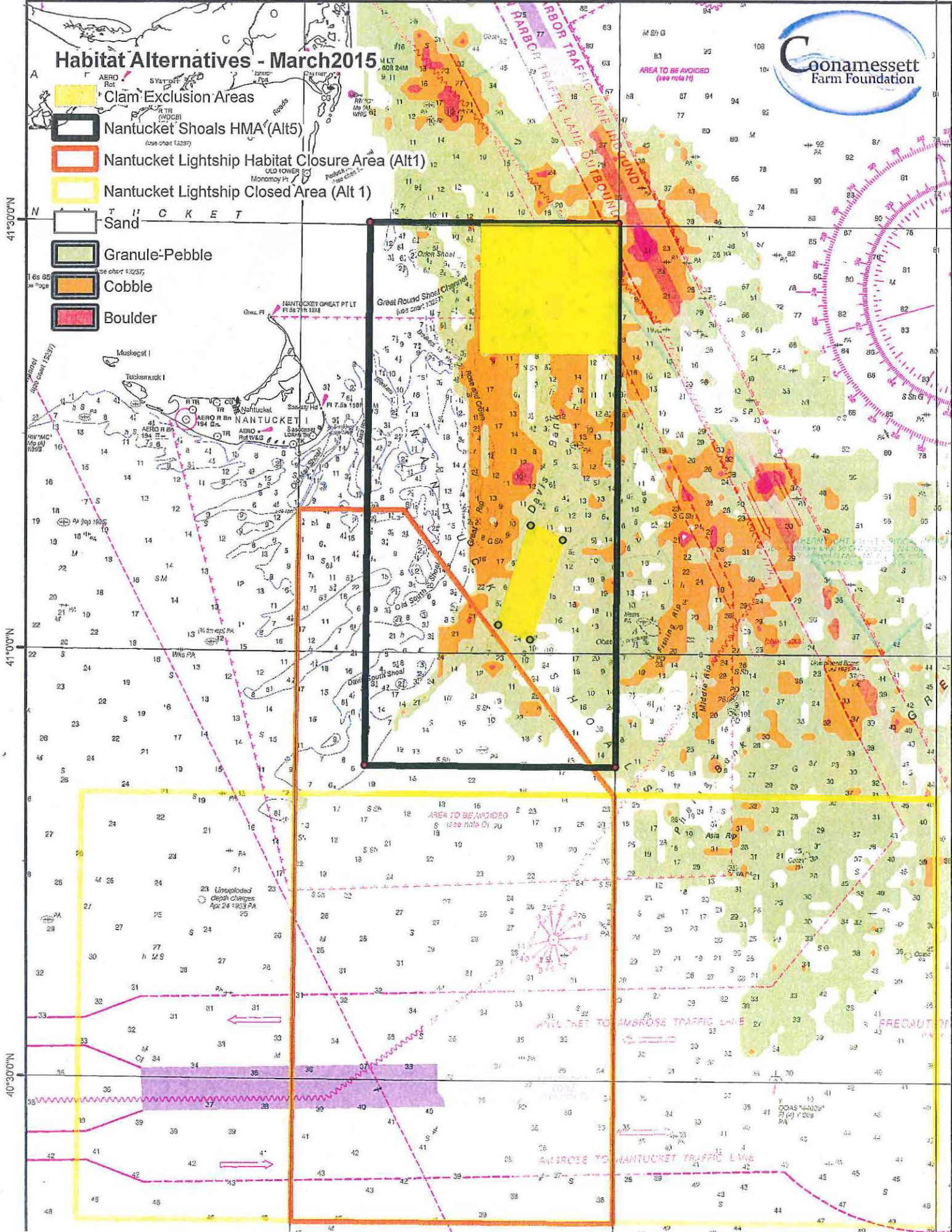
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Habitat Alternatives - March 2015

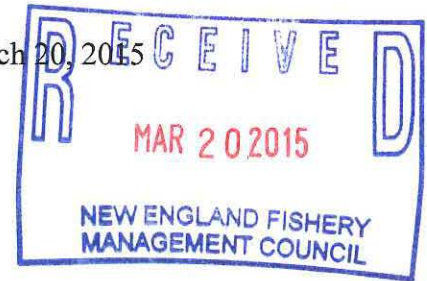
- Clam Exclusion Areas
- Nantucket Shoals HMA (Alt5)
(see chart 13237)
- Nantucket Lightship Habitat Closure Area (Alt1)
- Nantucket Lightship Closed Area (Alt 1)
- Sand
- Granule/Pebble
(see chart 13237)
- Cobble
- Boulder





Mr. Thomas Nies
Executive Director
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

March 20, 2015



Dear Mr. Nies,

We are writing regarding the Habitat Committee's continued work to improve the Omnibus Habitat Amendment (OHA2) in order to meet its goals and objectives, and Magnuson-Stevens Act requirements. In view of the work completed to date, and the public comments and information received during the public comment period, we encourage the Committee to take the following actions in order to improve compliance with the Act and other applicable law:

1. Protect prey as a component of essential fish habitat (EFH) for managed species;
2. Protect the spawning and juvenile habitat for the suite of managed fish;
3. Take an integrated approach to habitat protection with HMAs that achieve multiple goals for specific stocks and the ecosystem, and;
4. Take action to protect habitat areas of particular concern (HAPCs).

The Magnuson-Stevens Act defines EFH as those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity. 16 U.S.C. § 1802(10). If an area contains an important food source for a managed stock, that area should be designated as EFH if there would be adverse impact on the managed species in the absence of that prey.¹ The presence of prey contributes to the quality of foraging habitat and is a component of EFH. With regard to prey, the DEIS needs to be improved in order to: (1) address prey species distributions in the alternatives; (2) provide maps for prey species not managed by the council; and (3) adequately analyze feeding as a factor in the adverse impacts analysis or the development of the HMAs (at present, the DEIS merely summarize what managed species eat for food).² Forage fish such as sandlance, alewives, blueback herring, and Atlantic herring have been identified as key prey species for Atlantic cod, haddock and other managed fish in the DEIS and other scientific documents in the record. The existing analysis, supported by additional information received

¹ FMP's "shall" minimize adverse effects on EFH to the extent practicable, 16 U.S.C. § 1853(a)(7). Feeding (prey) is an essential element of EFH. 16 U.S.C. § 1802(10). The regulatory definition of "adverse effect" includes loss of prey and its habitat if it modifies the quality or quantity of EFH. 50 C.F.R. 600.810(a).

² The EFH designations for the managed species in Volume II also need to be updated to include the prey species information currently in Appendix B, so that the textual descriptions appropriately describe EFH consistent with the regulations. 50 C.F.R. §§ 600.815(a)(i)(1), (iv)(B).

mb - 3/26/15

during the public comment period, require the adoption of alternatives to protect prey as a component of EFH for managed species.³

Similarly, the Closed Area Technical Team (CATT) analysis identified key areas for groundfish spawning. Protections for these areas need to be included in OHA2, instead of in a future action, in order to comply with the Act and the goals and objectives of the Amendment. In addition to groundfish spawning areas, Atlantic herring spawning areas should be protected because they are both a managed species and a vital food source for the region's most important groundfish stocks including Atlantic cod, haddock and other species. The best available science shows that spawning aggregations of Atlantic herring are disrupted by fishing and that herring egg mats, attached to the seafloor, are vulnerable to bottom-tending mobile gear. Analysis contained in public comments and the DEIS require that the final action include protections for well-known groundfish and herring spawning areas.

Several comment letters have urged the Council to take an integrated view of habitat protection, and recommend adoption of HMAs that could achieve multiple goals for specific stocks and the ecosystem. Earthjustice supports this approach. An alternative for a multi-function HMA based on the existing analysis should be adopted for the inshore Gulf of Maine that protects prey for managed species and spawning in the inshore Gulf of Maine. Related to this, it is important to keep in mind that under the Magnuson Stevens Act, there is authority to regulate in state waters, when necessary. Thus, a final HMA addressing the Gulf of Maine should include inshore habitat that will protect juvenile and spawning fish, protect spawning Atlantic herring, and safeguard those areas of groundfish EFH that contain forage as a component of their EFH.

Last, some concerns have been raised regarding the existing HAPCs, and those designated as part of Phase I of the Amendment. Naturally, more recent scientific data related to these HAPCs that has been developed as part of the Amendment should be considered when taking final action, and incorporated into the final EIS, as appropriate. The Council and NOAA Fisheries should evaluate the potential adverse effects of fishing on HAPCs, and where possible incorporate the HAPCs into the spatial management alternatives and adopt measure that will ensure that the adverse impacts of fishing in these most important and vulnerable parts of EFH will be avoided, consistent with the Act. If identified HAPCs are not protected as part of the habitat management areas, separate measure should be implemented to ensure the adverse impacts of fishing in those areas will be avoided. Based on the ecological importance of the areas to juvenile cod, at a minimum, the final HAPC designations should include the following: (1) the existing juvenile cod HAPC on the northern edge of Georges Bank;⁴ (2) the proposed juvenile cod HAPCs in the Great South Channel and (3) the inshore waters from Maine to

³ The Pacific Fishery Management Council has recently identified prey as a component of foraging EFH in both their salmon FMP and groundfish FMP. See Pacific Coast Salmon Fishery Management Plan, [Appendix A](#); see also Pacific Coast Groundfish Fishery Management Plan, [Appendix B2](#).

⁴ Based on the existing analysis and the goals and objectives of the Amendment, it would be particularly inconsistent with EFH regulations to open this area to mobile bottom-tending gears because it was designated as a habitat management area in 2003 to protect vulnerable juvenile cod habitat from the adverse effects of those gears.

Connecticut. The importance of this habitat has been well documented in the DEIS and numerous peer reviewed publications. While the practicability of measures to protect these areas must be considered, the Council and NOAA need to take a comprehensive and long-term view of the practicability of protecting habitat in New England.⁵ This is especially important considering the depleted state of many fisheries resources and the potential impacts of climate change on New England waters. While practicability requires balancing the costs and benefits of competing interests, it is not a “free pass” to do as little as possible in order to limit the economic impacts to certain components of the fishing industry.

This Amendment is an important opportunity to help restore and protect New England’s fisheries and the larger ocean ecosystem. Thank you for considering these comments.

Sincerely yours,

/s/ Roger Fleming

Roger Fleming, Attorney

Erica Fuller, Attorney

Earthjustice

1625 Massachusetts Ave NW Suite 702

Washington, DC 20036

CC: John Bullard, Regional Administrator NMFS, GARFO (via Email)
Terry Stockwell, Executive Director NEFMC (via Email)
David Preble, Chairman Habitat Committee (via Email)

⁵ See e.g., Letter from Guillermo Herrera, Jan. 6, 2014 (Letter, #86 in the Council compilation). NOAA Fisheries’ January 8, 2015 Letter to the NEFMC also indicates that to date the practicability analysis in the DEIS fails to fully account for the benefits to all sectors of the fishing industry that would come from increased productivity associated with habitat protection.

From: ghatch2002@roadrunner.com
To: [Michelle S. Bachman](#)
Subject: Habitat
Date: Thursday, March 19, 2015 8:16:39 PM

Dear Michelle: In response to the Habitat proposals being brought forward concerning the GOM, I would like to make it clear that we need to develop the NGOM scallop industry before we shut it down with another closure that will more than likely have the same results as all the others in the last 30 years!! Closing Platt's (New Ledge) or the eastern Gulf will only bring another hardship to an industry already devastated by NMFS lack of ability to manage our fishery's in a logical responsible and knowledgeable format.

Truly
Gary Hatch
NMFS Scallop Advisor

Joan O'Leary

From: Tom Nies
Sent: Thursday, April 02, 2015 11:25 AM
To: Joan O'Leary
Cc: Michelle S. Bachman
Subject: FW: VOTE "NO" ON STELLWAGEN BANK DHRA

From: Debra Richardson [<mailto:richardson32704@gmail.com>]

Sent: Thursday, April 02, 2015 7:28 AM

To: Terry Stockwell; Terry Alexander; John Bullard; John Quinn; Mark Alexander; Matt McKenzie; Vincent Balzano; Mary Beth Tooley; Mark Gibson; Frank Blount; David Preble; David Pierce; Michael Sissenwine; Doug Grout; Ellen Goethel; Peter Kendall; ibby.MP.Etrie@gmail.com; John Pappalardo; Beth Casoni; Dave Waldrip; Charlie Wade; Barry Gibson; Tom Nies; Jim Quigley; Thomas Benjamin (HOU); Valanzola Jared (SEN); Mike Carroll; Lester; Teresa R. Rosenberger; Lou Gainor

Subject: VOTE "NO" ON STELLWAGEN BANK DHRA

Dear NEMFC Member,

We need your support to vote "NO" on the Stellwagen Bank DHRA which would close 55 square miles of prime fishing grounds to recreational fishing, by voting for the "No Action" alternative in the Habitat Amendment 2 document.

The DHRA would result in the closure of one of the last areas that are accessible to the for-hire fleet and recreational anglers that provides fruitful levels of cod, haddock and other bottom fish.

The basis for the selection of the proposed DHRA is riddled with flawed science and inconsistencies that question the basic foundation and selection of the area for research.

Denying access to these fishing grounds will have a devastating economic impact on the charter/party and recreational anglers and all of the businesses that rely on this historic fishery. This will send thousands of people out of business.

Sincerely,

Debra DePersia Richardson

John Mullen

To: Terry Stockwell; Terry Alexander; John Bullard; John Quinn; mark.alexander@ct.gov; matthew.mckenzie@uconn.edu; Vincent Balzano; mbtoooley@live.com; Mark Gibson; Frank Blount; David Preble; Dave Pierce; m.sissenwine@gmail.com; Doug Grout; Ellen Goethel; peter.kendall@comcast.net; ibby.MP.Etrie@gmail.com; John Pappalardo; Cc: Beth Casoni; Dave Waldrip; Charlie Wade; Barry Gibson; Tom Nies; Jim Quigley; Thomas Benjamin (HOU); Valanzola Jared (SEN); Mike Carroll; Lester; Teresa R. Rosenberger; Lou Gainor

Dear NEMFC Member,


We need your support to vote "NO" on the Stellwagen Bank DHRA which would close 55 square miles of prime fishing grounds to recreational fishing, by voting for the "No Action" alternative in the Habitat Amendment 2 document.

The DHRA would result in the closure of one of the last areas that are accessible to the for-hire fleet and recreational anglers that provides fruitful levels of cod, haddock and other bottom fish.

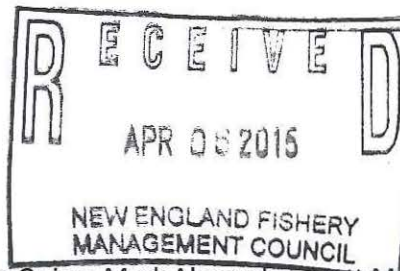
The basis for the selection of the proposed DHRA is riddled with flawed science and inconsistencies that question the basic foundation and selection of the area for research.

Denying access to these fishing grounds will have a devastating economic impact on the charter/party and recreational anglers and all of the businesses that rely on this historic fishery.

Sincerely,



John T. Mullen
3 Wilson Ave
Beverly Ma, 01915



From: Howard Newman

Sent: Monday, April 06, 2015 10:43 AM

To: Terry Stockwell; Terry Alexander; John Bullard; John Quinn; Mark Alexander; Matt McKenzie; Vincent Balzano; Mary Beth Tooley; Mark Gibson; Frank Blount; David Preble; David Pierce; Michael Sissenwine; Doug Grout; Ellen Goethel; Peter Kendall; 'ibby.MP.Etrie@gmail.com'; 'John Pappalardo'; Beth Casoni; Dave Waldrip; 'Charlie Wade'; Barry Gibson; Tom Nies; 'Jim Quigley'; 'Thomas Benjamin (HOU)'; 'Valanzola Jared (SEN)'; 'Mike Carroll'; 'Lester'; 'Teresa R. Rosenberger'; 'Lou Gainor'

Subject: Please Vote NO on the Stellwagen Bank DHRA

Dear NEMFC Member,

We need your support to vote "NO" on the Stellwagen Bank DHRA which would close 55 square miles of prime fishing grounds to recreational fishing, by voting for the "No Action" alternative in the Habitat Amendment 2 document.

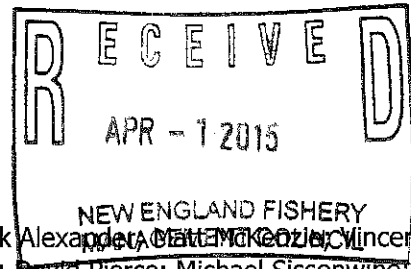
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Denying access to these fishing grounds will have a devastating economic impact on the charter/party and recreational anglers and all of the businesses that rely on this historic fishery.

Sincerely,

Howard Newman
6 Liberty Rd
Marshfield, MA 02050



From: Tom and Julie

Sent: Wednesday, April 01, 2015 10:57 AM

To: Terry Stockwell; Terry Alexander; John Bullard; John Quinn; Mark Alexander; Matt McGehee; Vincent Balzano; Mary Beth Tooley; Mark Gibson; Frank Blount; David Preble; David Pierce; Michael Sissenwine; Doug Grout; Ellen Goethel; Peter Kendall; 'ibby.MP.Etrie@gmail.com'; 'John Pappalardo'; Beth Casoni; Dave Waldrip; 'Charlie Wade'; Barry Gibson; Tom Nies; 'Jim Quigley'; 'Thomas Benjamin (HOU)'; 'Valanzola Jared (SEN)'; 'Mike Carroll'; 'Lester'; 'Teresa R. Rosenberger'; 'Lou Gainor'

Subject: VOTE "NO" ON STELLWAGEN BANK DHRA

Importance: High

Dear NEMFC Member,

We need your support to vote "NO" on the Stellwagen Bank DHRA which would close 55 square miles of prime fishing grounds to recreational fishing, by voting for the "No Action" alternative in the Habitat Amendment 2 document.

The DHRA would result in the closure of one of the last areas that are accessible to the for-hire fleet and recreational anglers that provides fruitful levels of cod, haddock and other bottom fish.

The basis for the selection of the proposed DHRA is riddled with flawed science and inconsistencies that question the basic foundation and selection of the area for research.

Denying access to these fishing grounds will have a devastating economic impact on the charter/party and recreational anglers and all of the businesses that rely on this historic fishery.

Sincerely,

Julie Libertini
Green Harbor Tuna Club

mb - 4/2/15



April 1, 2015

E. F. Terry Stockwell III, Dr. John F. Quinn, John K. Bullard, Mark Alexander, Dr. Matthew McKenzie, Terry Alexander, Vincent Balzano, Mary Beth Nickell-Tooley, Mark Gibson, Frank Blount, David Preble, Dr. David E. Pierce, Dr. Michael Sissenwine, Douglas Grout, Ellen Goethel, Peter T. Kendall, Elizabeth Etrie, John Pappalardo

**RE: Western Gulf of Maine ("WGOM")
Stellwagen Bank Designated Habitat Research Area ("DHRA")**

Dear NEFMC Members:

At the April meeting you will be faced with voting once again on the Omnibus Essential Fish Habitat Amendment 2, WGOM DHRA proposed at Stellwagen Bank that will close 55 square miles of prime fishing grounds to recreational groundfishing. The proposed DHRA would result in the closure of one of the last areas that are accessible to the for-hire fleet and recreational anglers that provides fruitful levels of cod, haddock and other bottom fish. This is neither the time nor the place to consider such a closure while we struggle with a poor economy, with the existing cod closures, reduced bag limits on haddock over fewer weeks per year, and the recent reduction in the striped bass bag limit. Closure will require our vessels to transit farther increasing costs and resulting in safety issues due to transiting distances greater than 30 to 40 nautical miles.

The basis for the selection of the proposed DHRA is riddled with flawed science, flawed economic analysis and inconsistencies that question the basic foundation and selection of the area for research. We have pointed out the scientific and economic flaws over the past two years as set forth in Attachment A. After observing the ongoing changes in the goals and objectives of the DHRA that are constantly being shot down as a result of flawed science and economics it is apparent that the goal of the SBNMS is to expand their funding and budget and not to conduct sound research based upon sound science and economic principles. The SBNMS has indicated that they will go directly to Congress for approval if the NEFMC does not approve the DHRA. We welcome this approach since our state and federal representatives are adamantly against the DHRA as set forth in Attachment B.

Earlier this year, the Council's Recreational Advisory Panel sent a strong message to the Council, unanimously opposing the proposed research area. However, the Sanctuary continues to indicate that only five charter boats fish within this area, based upon Vessel Trip Reports ("VTRs"). New England recreational fishermen as well as other NOAA agencies not associated with the SBNMS

"To safeguard the rights of saltwater anglers, protect marine, boat and tackle industry jobs and ensure the long-term sustainability of U.S. saltwater fisheries."

www.joinrfa.org



point out that VTRs do not provide an accurate picture of fishing activity. Then why does the Sanctuary continue to push flawed science? Over 200 anglers voiced their opposition to the DHRA at the public meetings in Plymouth and Gloucester and they indicated that they fish within the proposed closure area yet the Sanctuary continues to indicate that only five charter boats fish within this area.

As stated at the public meetings, creation of the proposed DHRA will be the last nail in the coffin and leave us with few options resulting in recreational anglers not leaving the dock, the end of the charter boat/for hire fleet, resulting in a detrimental impact on the entire economy and all that rely on this industry to make a living.

On behalf of the RFA and over 50,000 members that we represent please vote "No Action" on the proposed WGOM Stellwagen Bank DHRA.

If you have any questions or comments please call me at (617) 291-8914.

Very truly yours,

Capt. Mike Pierdinock
RFA - Massachusetts Chairman
176 Sandy Beach Road
Plymouth, MA 02360
cpfcharters@yahoo.com

Cc: Tom Nies, NEMFC
Beth Casoni, Massachusetts Lobsterman Association
Capt. Charlie Wade, SBCBA
Michael T. Carroll, Vertex
Capt. Barry Gibson, NEFMC RAP
Capt. David Waldrip

Attachment A – Scientific and Economic Correspondence
Attachment B – Federal and State Representative Correspondence

"To safeguard the rights of saltwater anglers, protect marine, boat and tackle industry jobs and ensure the long-term sustainability of U.S. saltwater fisheries."

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ATTACHMENT A

SCIENTIFIC AND ECONOMIC CORRESPONDENCE

"To safeguard the rights of saltwater anglers, protect marine, boat and tackle industry jobs and ensure the long-term sustainability of U.S. saltwater fisheries."

www.joinrfa.org



Paul J. Diodati
Director

Commonwealth of Massachusetts

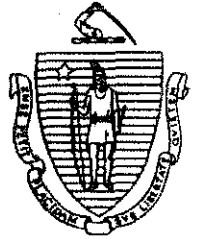
Division of Marine Fisheries

251 Causeway Street, Suite 400

Boston, Massachusetts 02114

(617)626-1520

fax (617)626-1509



Deval Patrick
Governor
Maeve Vallely Bartlett
Secretary
Mary B. Griffin
Commissioner

January 7, 2015

Mr. John Bullard, Regional Administrator
National Marine Fisheries Service GARFO
55 Great Republic Drive
Gloucester, MA 01930

RE: OA2 DEIS Comments

Dear Mr. Bullard

We offer these comments on the Council's Omnibus Essential Fish Habitat Amendment 2 but only with specific reference to the Western Gulf of Maine Dedicated Habitat Research Area (DHRA), a Council-adopted proposal DMF has advanced, and SMAST relevant habitat research. We reserve the balance of our comments and critique for Habitat Committee and Council discussions/decisions.

First, we highlight the Western GOM DHRA because it contains two Reference Area options both being opposed by prominent recreational fishing groups such as the Recreational Fishing Alliance. These groups have quoted DMF opinions in their testimonies against the Reference Areas in which recreational fishing for groundfish would be prohibited. We're obliged to respond for the record, and we do so with full knowledge that the Stellwagen Bank National Marine Sanctuary strongly supports and has lobbied for a DHRA Reference Area.

We call your attention to the Stellwagen website where one can find Stellwagen's position that is expected because the Reference Area is based on the Sanctuary's SERA (Ecological Research Area) although substantially modified in response to initial objections and concerns expressed by the commercial and recreational fishing industries. The Sanctuary has been very obliging as we have noted from our years serving on the Stellwagen Advisory Council as a non-voting member.

The Sanctuary describes on its website "138 scientists who have signed a petition supporting the Stellwagen DHRA with Reference Area." Therefore, one might argue with that amount of scientific support there can be no question about the scientific credibility/validity and importance

of the Reference Area. However, because all recreational fishing for groundfish will be prohibited in the Reference Area and recreational fishermen have argued strongly against that prohibition for justifiable reasons, we're compelled to focus on the rationale for the reference area with its implications for groundfish recreational fishermen, e.g., party and charter boat owners and fishermen.

We support the DHRA, but have questions about the Reference Area we now raise after discussing the area with our scientific staff intimately involved in current research somewhat similar to that performed in the sanctuary about 15 years ago – Sanctuary-sponsored research serving as the foundation and justification for the Reference Area. Specifically and as described in the Omnibus public hearing document: *"The purpose of the reference area is to create a site where removals of groundfish are limited, to be able to study how the ecology of the reference area may change under such conditions. If there are significant ecosystem effects of limiting groundfish removals from the major sources, they will be more likely to be detected with a substantial before/after contrast."*

Consider that the key part of this "purpose" is whether prohibiting recreational fishing for groundfish and performing research within the area to detect "significant ecosystem effects" resulting from groundfish removals can ever be detected or determined. Knowing that the Sanctuary principal groundfish for determining these effects is cod, we've concluded effects will never be discernable. Therefore, the Reference Area will not accomplish the purpose for which it is being touted by the Council in support of Sanctuary objectives.

The Sanctuary claim, now implicitly being supported by the Council, is that cod are resident in the Reference Area; therefore, removal of cod by recreational fishermen will have some detectable ecosystem or ecological effect in the Reference Area. All who are familiar with GOM cod know that cod are not year-round residents in any one portion of the GOM and certainly not in the Sanctuary itself. Tagging information from a variety of sources clearly demonstrates the fact that cod can and do move considerable distances.

We ask what data exist to support no movement of cod out of the 55 square mile reference area (Option B)? The DEIS provides no information in support of year-round residency, except perhaps Stellwagen-sponsored research based on tagged cod and telemetry results. If so, then the following DMF and SMAST insights should help the Council judge the validity of that research's results and conclusions and whether the Reference Area should be adopted, i.e., select an area where recreational fishing for groundfish should be prohibited for ecological research purposes.

The following opinions have been provided by DMF staff as summarized by Micah Dean (Groundfish PDT member filling in for Steven Correia) who examined the key 2007 paper: "Site fidelity and movement of adult Atlantic cod at deep boulder reefs in the western Gulf of Maine" [Marine Ecology Progress Series 2007].

According to Dean, *"These authors point to a lack of movement [acoustically tagged cod] from a single receiver for about four months as a sign of high site fidelity to 'deep boulder reefs*

(DBF). ' There are two far more likely explanations for these results than a lack of movement: (1) cod died upon release, or (2) tags were shed.'

Explanation #1: Cod died upon release. DMF has collected millions of detections from hundreds of cod using very similar equipment, and lack of movement from a single receiver for an extended period of time has always indicated post-release mortality. Many of our tags have included depth sensors, allowing us to confirm that a tag is lying on the bottom (dead fish). Our early DMF experiments with tagging during spring and summer (when Lindholm et al. 2007 conducted their study) revealed that cod were vulnerable to high release mortality if held in a live well supplied with circulating surface water. After pumping water up from 80 feet down (below the thermocline), we managed to have very high survival and little indication of post-release mortality.

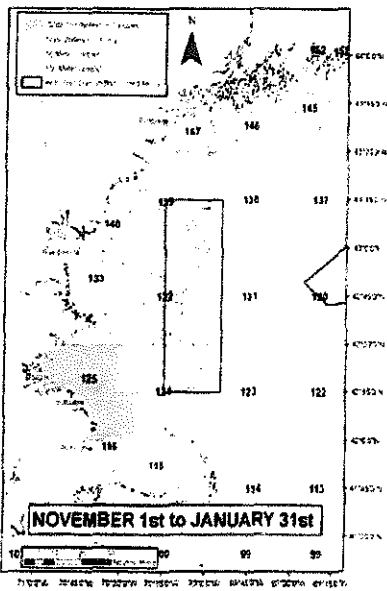
Explanation #2: Tags were shed. The majority of DMF's acoustic transmitters have been surgically implanted in the abdomen, essentially eliminating tag shedding as a concern from our studies. However, through DMF juvenile post-release mortality work, we investigated the use of external t-bar anchored tags, such as were used in the Lindholm et al. in 2007. Our holding-tank experiment indicated very poor tag retention; therefore, we decided to use an external wire attachment method. In their 2007 paper, Lindholm et al. refer to 100% tag retention, and they cited their 2003 paper ["Site Utilization by Atlantic Cod in Off-Shore Gravel Habitat as Determined by Acoustic Telemetry: Implications for the Design of Marine Protected Areas" (Marine Technology Journal 2003) by Lindholm and Auster]. This 2003 paper presents the same data as in the 2007 paper, and there is no mention of tag shedding or retention.

Also, helping us understand the flaws in Lindholm and Auster methods/interpretations is SMAST's GOM cod researcher/graduate student Douglas Zemeckis who recently wrote: (1) *In their 2003 paper they described use of 32 oz jigs, which are more than twice as large as needed to fish that area. Results from our post-release mortality study suggest that jig-caught fish have higher mortality than those caught with bait. Also smaller fish had higher mortality, including the range tagged in their study (38-60 cm fish);* (2) *They attached their Vemco tags (acoustic pingers) to a t-bar tag and then inserted the t-bar tag into the dorsal musculature. This method would be expected to lead to relatively moderate to high tag loss making it impossible to distinguish between high residency, mortality, and tag loss;* and (3) *Tagging was conducted from June-August. Warm surface waters and the thermocline would likely increase mortality (assumed they had warm surface water in holding tanks).*

Micah Dean's concluding and summary remarks highlight why we now offer these comments: "*I do not believe their conclusion that cod caught from deep boulder reefs in the SBNMS/WGOM sliver are resident to that area. Even during spawning (our emphasis), when cod typically exhibit the highest site fidelity and limited horizontal movement, acoustically tagged cod frequently leave the detection area of a single receiver. Hundreds of thousands of cod have been tagged through the Northeast Regional Cod Tagging Program with recaptures all over the GOM indicating a very mobile species. It is far more likely that their fish either died upon release or the tags were shed (from their Figure 2 it looks like about 50%). In short, while they may have been captured on a 'reef' ...these fish are not grouper.*"

Considering the nature of the above critique of Sanctuary “boulder reef” cod tagging and its importance for Council support of the Reference Area, we intend to meet with Sanctuary staff and researchers to discuss our observations and conclusions. We’ve already spoken to Sanctuary Superintendent Craig MacDonald about the need for a meeting well before the Habitat Committee and Council review extensive public hearing comments and select alternatives and options. Being a member of the Sanctuary Advisory Council, we appreciate the time devoted to this initiative by the Sanctuary leadership. Nevertheless, the Reference Area unfortunately will afford nothing to “reference” – certainly not for the Sanctuary’s keystone species, i.e., GOM cod.

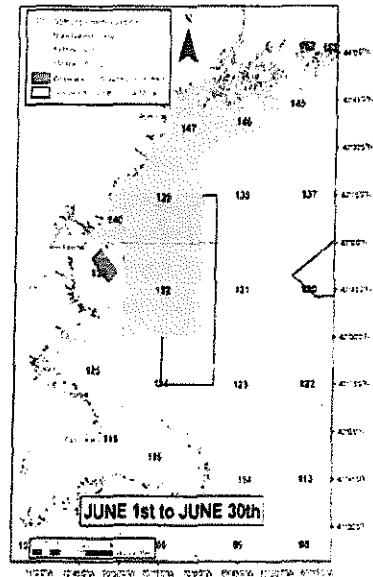
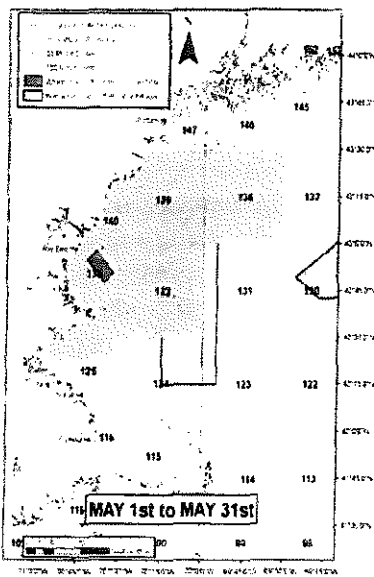
Secondly, we note OHA 2 GOM cod spawning protection alternatives are no longer valid because the Council adopted that protection as part of Framework 53 to the Groundfish Plan. However, there are important complications created by consideration of other groundfish besides



cod. For example, in Alternative 1 the Western GOM and Cashes Ledge remain year-round closures and rolling closures are kept, all to “protect spawning groundfish and provide fishing mortality reduction.” If this alternative is chosen then, for example, block 133 is closed in April to protect spawning groundfish (and reduce fishing mortality), but it’s not part of the FW 53 April cod closure. Outcome: an April closure of 133 to gear capable of catching all groundfish in contradiction to FW 53 (as will be submitted to NMFS).

Also, for clarity, we need to remember that Alternative 1 will allow November through January groundfishing in block 125 and a portion of block 124 for sector fishermen (already closed

to common pool vessels). FW 53, once implemented, will prevent that fishing due to cod spawning protection. See above figure.



Moreover, if Alternative 2 is chosen, the Western GOM closure (Cashes Ledge too) vanishes except FW 53 will keep a large portion of the Western GOM closed area (open in Alternative 2) closed

in May and June to any gear capable of catching groundfish (FW 53 cod spawning protection). See above figures. This is all a bit mind-boggling, and we've provided only a few examples of the fuzzy picture.

We provide the above figures and potential complications to highlight how using OHA 2 to protect all groundfish spawning (as best that can be defined), although very laudable, will create a very messy regulatory picture. We suspect it will require a very difficult-to-follow decision document.

This "messiness" has been caused by somewhat unexpected developments with the status of GOM cod (e.g., 3-4 % of target biomass) and Council/NMFS responses: FW 53 measures to protect spawning GOM cod adopted as important and necessary response to the "collapse" of the GOM cod stock and your recently enacted Interim Action. Your action and FW 53 measures now force a closer examination and understanding of their overlap with OHA 2 GOM cod spawning alternatives.

Finally, we note the May 2014 Final Report prepared by Harris, Stokesbury, and Grabowski as part of the 2011 Atlantic Sea Scallop Research Set-Aside Program. Entitled "Effects of mobile fishing gear on geological and biological structure: A Georges Bank closed versus open area comparison," these authors selected two large gravel outcrops (Northern Edge site on northeastern Georges Bank and Little Georges site on western Georges Bank) and then examined whether the biological and geological structures in areas closed for 17 years, "*exhibited patterns in density, presence/absence, area coverage, and vertical height consistent with recovery from damage due to fishing relative to areas where fishing with trawls and dredges has occurred continuously.*"

Harris et al. found "*no clear pattern in density, etc. between 'impact' and 'reserve' areas within the two study sites.*" They concluded: "*This research suggests that the question regarding the relative importance of drivers behind the observed distribution of biological and geological features which may provide essential habitat for managed fish species remains open. These drivers include natural physical disturbance regimes (e.g., currents and storms), recruitment delivery and settlement dynamics, trophic interactions, and mobile fishing gear contact. Generally, disturbances due to fishing are considered the primary driver of these distributions, but our findings suggest that in high energy regimes, natural disturbance and other ecological processes may be equally or more important. It is plausible that the distribution of biological and geological features in our study area are more influenced by powerful tidal currents and frequent winter storm events and frequent strong recruitment events than by sustained and intensive fishing (our emphasis).*"

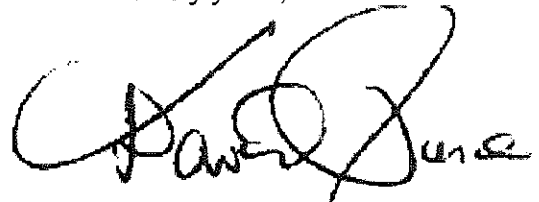
We suggest the Council and NMFS benefit from this SMAST and Northeastern University cooperative research with the scallop industry by considering its results/conclusions when deciding what areas should be closed to mobile gear fishing on Georges Bank. We intend to use this research as guidance along with other published papers such as "Impact of limited short-term sea scallop fishery on epibenthic community of Georges Bank closed areas" by Stokesbury and Harris (2006, Marine Ecology Progress Series). These same authors observed: "*....sediment*

composition shifted between surveys more than epibenthic faunal composition, suggesting that this community is adapted to a dynamic environment. The limited short-term sea scallop fishery on Georges Bank appeared to alter the epibenthic community less than the natural dynamic environmental conditions."

We also suggest the Council, NMFS, and the scallop industry pay attention to another Harris and Stokesbury conclusion we will use as an argument during debate about opening current habitat-closed areas solely for the purpose of harvesting abundant scallops within their confines. This has been and will continue to be the clamor of scallop fishermen and their representatives wanting the revenue from those scallops. Currently, we are wary of opening these areas for that purpose because, according to Harris and Stokesbury, about 45% of the scallop larvae for Georges Bank originate in the Georges Bank closed area where no scalloping is currently involved. We anticipate involving Dr. Stokesbury in Council discussions on this critical issue.

We look forward to bringing OHA 2 to a successful conclusion. That will involve a careful review of the public record and further in-depth looks at DEIS analyses. As always, success will be in the eye of the beholder.

Sincerely yours,

A handwritten signature in black ink, appearing to read "David Pierce". The signature is fluid and cursive, with a large initial "D" and "P".

David Pierce, Ph.D.
Deputy Director

cc
Paul Diodati
Melanie Griffin
Kathryn Ford
Micah Dean
William Hoffman
Michael Armstrong
Steven Lohrenz
Kevin Stokesbury
Terry Stockwell
Thomas Nies
William Karp

Mr. John Bullard, Regional Administrator
National Marine Fisheries Service
Greater Atlantic Regional Fisheries Offices
55 Great Republic Drive
Gloucester, Massachusetts 01930

RE: Proposed SBNMS DHRA – “No Action”

Dear Mr. Bullard:

In regards to the recent DHRA proposal to limit historical use of the Stellwagen Bank area to a no fishing zone: It should be noted that this response and comments are in no way financially supported by any current user group, but have been prompted by concern for the lack of substantiated economic impact analysis presented to make prudent management decisions. After a basic review of the current economic impact data presented, it is very obvious that impacts on the fishing community and associated business are grossly understated. To compound this concern, there is a lack of a realistic or valid value analysis of costs vs. benefits (i.e. Analysis relative to forgoing fishing vs allowing fishing in a research zone).

Having grown up on the South Shore of Boston Area as a fisherman (both commercial and recreational) and having extensive experience with economic impact modeling, I must say I have some serious concerns regards to the underestimation of impacts on the associated fishing community and its marine support economy. The initial assessment “sbnms_sera_proposal.pdf” pgs 26 -39 that was presented to substantiate the background data to support this amendment is severely flawed. Most notable are the unsound estimates of relative fishing effort or the key input data for the impact models. Regardless of how concrete the I/O models used are, if the input data is flawed then all proceeding economic impact analysis based on this information will be meaningless. As you are now aware, through these public meetings it is abundantly clear that there are many more fishermen that frequent the proposed DHRA area, and the input data used in these models is grossly underestimating the impacts on the local marine economy in Massachusetts. The input data for these impact models may have seemed reasonable to an economist at The Office of National Marine Sanctuaries in Washington DC that knows very little about the local fishing community, but anyone involved in fishing on the South Shore of Boston would have a very different understanding.

The implications of using input data that is not representative of the impacts at the vessel level can be tremendous. For example, in most commercial fisheries a change in fishery revenue is used for input data, so every \$1 lost at the vessel equates to \$7 lost in the economy. In most recreational fisheries, the number of trips is used as your input data, then a standard multiplier value is established for a trip and used to calculate impact value. The basic concern is that if the input data on number of trips or associated fishery revenue are understated, your losses to the marine economy in this region will be grossly understated.

The static nature of the VTR data does not provide a robust enough estimate to accurately predict whether a vessel fished or is going to fish in an area. It is my understanding that in cases where multiple areas are fished, the nature and reporting method of the VTR data lends itself to inherently underestimating spatial fishing occurrence. For the charter fleet, I understand there may also have been a lack of empathy given their level of accuracy of reporting, but this is no justification to dismiss the true numbers. As a longtime resident and fisherman from the Boston area, it does not take much to realize the input data of 30 total charter boats over 16 years and impact estimates of \$242K in income and 5.8 jobs is a large underestimation of the economic activity generated from the DHRA area. Even if the charter number were accurate, what about the not for hire/recreational fleet, who for the most part were dismissed in this analysis as irrelevant? In addition, the fact that the commercial fleet has been closed out of this area does not mean this area does not possess tangible and historical economic value to them as well.

Admittedly, the not for hire recreational fleet, which is made up of various types of participants, is difficult to capture. There was a brief mention of dock side surveys used to capture recreational effort, but there are concerns with the size and quality of the sample, and also questions whether the survey was geared appropriately toward the relevant fisherman/species/time of year, as well as suited to estimate this level of spatial data.

Given the difficulty estimating recreational fishing effort and location, and the number of local fisherman that have gone on record to state they fish in this area, I would argue that you need to reference back to the permitted recreational vessels that have the capacity to fish this area. Given the high concentration of vessels fishing for Bluefin tuna in this region, I would argue that HMS permitted vessels would give you a good idea of the potential fleet size. Many of these recreational boats fish these areas for groundfish in the spring and early summer months, before tuna and sharks migrate to this area. Many vessels combine bottom fishing, tuna, and shark later in the season within this area. Groundfish is not the primary target species for later in the season, but groundfish is the only target species in the spring and the proposed DHRA is the area they rely on to catch fish.

A recent report was produced by NMFS on the economic impact of the HMS not for hire recreational fisheries, and the number of vessels and amount of money they spent in the marine economy is staggering. If these same vessels are making just minimal trips to Stellwagen in the spring, the impact on this group and the associated marine economy could be substantial. In the recent report "*The Economic Contribution of Atlantic Highly Migratory Species Angling Permit Holders in New England and the Mid-Atlantic, 2011*" estimates of the number of HMS angling permits for the state of Massachusetts was 3,268, and the number of fishing trips was 20,227 in 2011. It is important to note these numbers do not include General Category or Charter Head Boat permits, which are also likely to frequent Stellwagen in the spring for groundfish. Considering the sheer number and amount of potential offshore fishing effort present in this region from this recreational fleet, I am extremely concerned with the claim that not one recreational fishing vessel fishes in the proposed DHRA Northern Reference Area, and that only

six trips were made in the entire DHRA from May to October in 2010. There are obviously serious deficiencies in this data that underestimate vessel trips, and it is concerning that this information has been used to substantiate these conclusions.

An issue that was not adequately factored into this analysis is the compounded crossover impacts on the fishing community (commercial, recreation and charter) and its support industries. It is well known that a number of fisherman cross over amongst the various user groups. Therefore, given the current climate in commercial fisheries, any type of reduction (recreational or commercial) of fishery access will have damaging economic effects on all users and associated communities. It is relatively well known in these communities that if an individual cannot commercial fish, they will reposition into similar areas of employment, such as charter fishing. Given the interdependency of these fishery segments, further decision to eliminated fishery access without clear net economic benefits needs to be cautiously approached.

In addition to the concerns with inaccuracy of base line estimates of economic impacts, there have been numerous costly documents produced to substantiate economic value of the zone as a no fishing area, though very little financial effort expended to examine the actual true impacts on the historical fishing community. As someone that does economic impact work with fisheries for a living, after review of the annual funding that has gone into this effort I am shocked at this disparity in numbers. One must ask, is there an agenda here and who stands to gain if this becomes an exclusive research zone?

As I further review these documents, no valid or acceptable analysis was performed to show a true comparison of options, that is an economic cost benefit analysis. With this type of analysis there are two types of numbers; hard financial estimates (market values) of money that are gained and lost in the economy and soft numbers (non-market values) or estimates for things that do not possess hard financial value in the economy. The hard values are derived based on historical numbers in the economy, where the soft values tend to be derived through surveys and estimation. Within this supporting analysis, there are volumes exceptional biological research documents, but no real hard economic benefits, that have been presented in the material. Of all the benefits mentioned I would only consider replenishment of the stock relevant as a hard benefit, but it will be a tough argument that this outweighs the value generated by the recreational fishery. For starters, recreational fishermen catch very few fish per trip, but they spend astronomical amount of money in the economy to make this trip. In addition, the value of these trip costs are in today's dollars, whereas your stock replenishment value would be amortized into future dollars. In short, the money is worth much more now than in the future. As for soft values, the report attempts to present various scenarios that a biological researcher or an environmental group may prefer, but no estimates, hard or soft, or peer reviewed studies are presented to substantiate their point. A good example of the weakness of the benefit argument can be noted when the document references "people might have *willingness to pay*" to have no use in a research zone, but offer no reference document or associated value to support this statement. Without a reference to the study where this can be grounded or a concrete

“willingness to pay” value, this statement or any pursuing claims have no basis to stand on. From the lack of what I found in the literature, I would have to deduce this argument was contrived to try to push a predetermined agenda. I would argue strongly given the information we have today that the actual true benefits of this DHRA do not even come close to the costs the community will bear.

Unfortunately, the approach of spending very little on economic impacts estimates and knowingly using inaccurate data has been status quo in fishery management in the past, but look where it has gotten us. As a member of the council, if you know that the data is flawed and the implications of this decision could have broad sweeping implications on our community, I would urge you to reject this DHRA and vote Alternative 1, no action.

Sincerely,



Michael T. Carroll
Vice President Fisheries & Aquaculture

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One Congress Street, 10th Floor | Boston, MA 02214 | USA

OFFICE 617.275.5407 | **MOBILE** 617.640.8126
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Cc: James Cantwell – State Representative Ma., Fourth District
Dan Ryan - State Representative Ma, Charlestown
Edward Markey – United States Senator, Ma.
Michael J. Pierdinock, RFA – Massachusetts Chairman
Frank Mirarchi – Commercial Fisherman- Scituate Ma
Beth Casoni – Executive Director - Massachusetts Lobsterman’s Association
William Keating – Congressman , Ma.

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P.O. Box 732, Brant Rock, MA 02020
(617) 291-8914
cpfcharters@yahoo.com
www.cpfcharters.com

February 12, 2014

Mr. Tom Nies
New England Fishery Management Council
50 West Street
Newburyport, Massachusetts 01950

RE: Proposed Designated Habitat Research Area ("DHRA") Stellwagen Bank National Marine Sanctuary ("SBNMS")

Dear Mr. Nies:

As an owner and operator of the charter boat "Perseverance" located in Green Harbor, Massachusetts that fishes the Stellwagen Bank waters and as a member of the SBNMS Advisory Council – Recreational appointment and NEFMC Enforcement Advisory Panel, I oppose any change to the Western Gulf of Maine ("WGOM") closed area and support *Alternative No. 1, No Action* to the proposed habitat protection measures being considered by the NEFMC. In addition I cannot support at this time the DHRA presented at the NEMFC meeting in January and therefore support *Alternative 1 (No Action) – No DHRA designation* for SBNMS.

Denying access to these productive fishing grounds will have a devastating economic impact on the charter/party and recreational anglers and all of the businesses (marinas, tackle shops, coffees shops, restaurant, hotels, etc.) that rely on this industry.

The flawed catch share system has resulted in the poor status of the cod fishery that was at sustainable levels approximately 3 to 4 years ago. The proposed DHRA is within one of the last areas that are accessible to the fleet that provides fruitful levels of cod and other bottom fish. Until the flawed catch share system is modified there will continue to be a lack of fish at SBNMS.

Concluding that the proposed DHRA area is not an area utilized by charter boat/party recreational anglers based on Vessel Trip Reports ("VTR") is incorrect based upon how the coordinates are recorded on the VTRs. This flawed science does not accurately reflect the use of this area by the charter boat/party recreational anglers.

The DHRA proposes that no bottom fishing occur by the charter boat/party recreational anglers in this area in order to not have an impact on the cod or bottom fish that may be present in this area. Yet lobster traps will be permitted that regularly catch cod and bottom fish. This flawed science contradicts the purpose of the closure.

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As set forth in the *SBNMS Final Management Plan and Environmental Assessment* dated June 2010, there are alternate "offshore northeast continental shelf location that are suitable candidates" for the research area. Why are the alternate offshore continental shelf locations not being considered as a result of the devastating economic impact to charter/party and recreational anglers and all of the businesses that rely on this industry?

Please do not deny the fleet and recreational angler's access to these productive fishing grounds.

If you have any questions please email or give me a call at (617) 291-8914.

Very truly yours,



Capt. Michael J. Pierdinock
CPF Charters, Charter Boat "Perseverance" Green Harbor, MA

Stellwagen Bank Charter Boat Association – Officer
Stellwagen Bank National Marine Sanctuary Advisory Panel – Recreational Appointment
NEFMC Enforcement Advisory Panel
Recreational Fishing Alliance - Member

cc: Mr. John Bullard, Administrator, NMFS
Mr. Paul Diodati, Director, MA. Division of Marine Fisheries
David Pierce, PhD MA. Division of Marine Fisheries
Mr. Barry Gibson, NEFMC RAP
Mr. Frank Blount NEFMC
Mr. Dave Preble NEFMC
Ms. Michele Bachman, NEFMC
Mr. Charles Wade, President, SBCBA

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November 28, 2014

Mr. John Bullard, Regional Administrator
National Marine Fisheries Service
Greater Atlantic Regional Fisheries Office
55 Great Republic Drive
Gloucester, Massachusetts 01930

**RE: Proposed Western Gulf of Maine, Stellwagen Bank Designated Habitat
Research Area ("DHRA") – No Action Alternative**

Dear Mr. Bullard:

As you are aware, charter/party boat operators and individual anglers are adamantly opposed to the creation of a DHRA in the currently proposed site. Many of us have provided, in writing and verbally at past NEFMC meetings, details concerning the flawed technical approach and detrimental impact to for-hire vessels and recreational anglers and all of those that rely on us to make a living if the DHRA is implemented. My testimony, email and correspondence are already on record dating back to the original Sanctuary Ecological Research Area ("SERA"). One of the basic foundations for the selection of the proposed DHRA is the fact that the SBNMS relied on studies that indicated that cod are year-round residents of the proposed study area. As a result, SBNMS believes the proposed DHRA would be suitable and appropriate for study. Based upon our years of experience as anglers and charter boat captains in the proposed DHRA area, we do not believe this to be the case, and it is not consistent with our historical observations.

Other for-hire operators and I attended a recent Stellwagen Bank Charter Boat Association meeting where we were provided details on a recent cod study conducted in the Jeffereys Ledge area by the University of New England. In addition, I attended a SBNMS Advisory Council meeting (of which I am a member) where an update was provided on the ongoing cod study being conducted by MA-DMF, and others, in our nearby waters. In both instances there were strong indications that cod were not residents of the areas being studied. The studies did note that the cod with "pinger" tags ("tags") never left the study area because they had expired within that area or as a result of tag shedding where the cod migrated beyond the area and the tag remained. The questions was posed as to how one can differentiate between a live resident cod, dead cod or a shedded tag? Each study indicated that the recorded localized movement of the dead cod or tags that have been shed (they are easily shed) were consistent with the tidal cycles and vertical/horizontal currents, which indicated they were not a live resident to the area.

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As a result, we are concerned as to whether the cod studies that were conducted, which SBNMS misinterprets as a conclusion that cod are residents of the proposed DHRA, actually indicate that the cod tracked were dead or the tags remained as a result of shedding and therefore, the movement observed was a result of the tidal cycle or currents. Therefore, we contacted the MA-DMF and posed the question, and they responded that in **their opinion the cod appeared dead and/or the tags had been shed, and in either case indicate that they are *not* resident cod of the proposed DHRA.**

We adamantly recommend that the NEFMC and NMFS carefully review these cod studies and the underlying information for the basis for selection of the site for the proposed DHRA, and that another area be selected that will not have such a detrimental impact on the for-hire fleet and the recreational fishermen of New England.

Denying access to these productive fishing grounds will have a devastating economic impact on the charter/party and recreational anglers and all of the businesses (marinas, tackle shops, coffees shops, restaurant, hotels, etc.) that rely on this industry.

The flawed catch share system that was implemented in 2010 has resulted in the poor status of the cod fishery that was at sustainable levels in 2010. The proposed DHRA is within one of the last areas that are accessible to the fleet that provides fruitful levels of cod and other bottom fish. Until the flawed catch share system is modified there will continue to be a lack of fish at SBNMS.

Concluding that the proposed DHRA area is not an area utilized by charter boat/party recreational anglers based on Vessel Trip Reports ("VTR") is incorrect based upon how the coordinates are recorded on the VTRs. This flawed science does not accurately reflect the use of this area by the charter boat/party recreational anglers.

As set forth in the *SBNMS Final Management Plan and Environmental Assessment* dated June 2010, there are alternate "*offshore northeast continental shelf location that are suitable candidates*" for the research area.

Based on the technical issues set forth above we recommend that another suitable location be selected that that will not have such a detrimental impact on the for-hire fleet and the recreational fishermen of New England.

In response to the present proposal before the NMFS, **I recommend the No Action alternative associated with the Stellwagen Bank Western Gulf of Maine DHRA.**

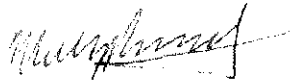
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Please do not deny the fleet and recreational angler's access to these productive fishing grounds.

If you have any questions please email or give me a call at (617) 291-8914.

Very truly yours,



Capt. Michael J. Pierdinock
CPF Charters, Charter Boat "Perseverance" Green Harbor, MA
Recreational Fishing Alliance – Massachusetts Chairman
Stellwagen Bank Charter Boat Association – Board of Directors
Stellwagen Bank National Marine Sanctuary Advisory Panel – Recreational Appointment
NEFMC Enforcement Advisory Panel

cc: Mr. Tom Nies, NEFMC
Mr. Paul Diodati, Director, MA. Division of Marine Fisheries
David Pierce, PhD MA. Division of Marine Fisheries
Mr. Barry Gibson, NEFMC RAP
Mr. Frank Blount NEFMC
Mr. Dave Preble NEFMC
Ms. Michele Bachman, NEFMC
Mr. Charles Wade, President, SBCBA

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ATTACHMENT B

FEDERAL AND STATE REPRESENTATIVE CORRESPONDENCE

"To safeguard the rights of saltwater anglers, protect marine, boat and tackle industry jobs and ensure the long-term sustainability of U.S. saltwater fisheries."

www.joinrfa.org

WILLIAM R. KEATING
9TH DISTRICT, MASSACHUSETTS

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COMMITTEE ON HOMELAND SECURITY
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SECURITY TECHNOLOGIES



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Washington, DC 20515

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WASHINGTON, DC 20515
(202) 225-3111

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HYANNIS, MA 02601
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NEW BEDFORD OFFICE
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NEW BEDFORD, MA 02740
(508) 999-6462

PLYMOUTH OFFICE
2 COURT STREET
PLYMOUTH, MA 02360
(508) 746-9000

January 8, 2015

The Honorable John Bullard
Regional Administrator
National Marine Fisheries Service
Greater Atlantic Regional Fisheries Offices
55 Great Republic Drive
Gloucester, MA 01930

Dear Administrator Bullard:

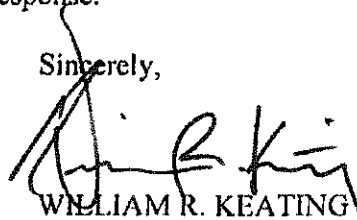
I am writing today regarding the proposed Western Gulf of Maine (WGOM) Dedicated Habitat Research Area (DHRA) closure to recreational groundfishing. Members of my constituency have expressed their concerns with the subsequent impacts of this closure, and it is incumbent upon me to register these concerns.

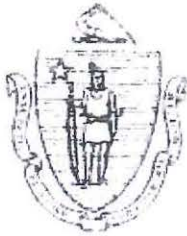
In recent years, many charter and recreational fishermen have needed to travel farther distances for the same catch. While this area is currently closed to cod fishing, the full prohibition on groundfishing may cause these fishermen, crews and passengers further offshore. Inherent within this additional travel are increased fuel costs and safety risks. Further, this closure may have detrimental economic consequences for anglers, the charter boat industry, marinas, bait and tackle shops, motels, restaurants and a variety of other related industries within fishing communities.

I recognize the importance of setting aside closed and controlled areas that can be utilized to better understand how the ecosystem works and how stocks recover absent of human interaction. However, in consideration of these concerns, I respectfully request that the potential scientific advances are balanced against the recreational fishing industry's anticipated economic hardships and alleged scientific uncertainties of the DHRA.

Thank you for your ongoing support of the New England fishing industry and your efforts to sustain our coastal populations, and I look forward to hearing your response.

Sincerely,


WILLIAM R. KEATING
Member of Congress



The Commonwealth of Massachusetts

General Court

State House, Boston 02113-1054

December 3, 2014

John Bullard, Regional Administrator
National Marine Fisheries Service
Greater Atlantic Regional Fisheries Office
55 Great Republic Drive
Gloucester, MA 01930

Dear Mr. Bullard,

We write to express our concern regarding the proposal to create a Western Gulf of Maine (WGOM) Designated Habitat Research Area (DHRA) that would close fifty-five nautical square miles of Stellwagen Bank to recreational groundfishing. Because this closure would severely impact anglers, the charter boat industry, and the many businesses connected to recreational fishing, we urge the New England Fishery Management Council (Council) to oppose this proposal by adopting Alternative 1—No Action.

Fishermen are adamant the proposed closure area is a key fishing ground for recreational anglers and charter boats. As you know, this area is already closed to cod fishing as part of the recent emergency actions connected with the failing cod stock. A full prohibition on groundfishing will force recreational and charter boats farther offshore and substantially increase fuel costs, safety risks for crews and passengers, and travel times. Our charter boat industry is already operating under significant ecological and regulatory stressors. The added burden from this closure could be the final blow for many in the industry.

Groundfishing remains a core of our recreational fishing industry and an important aspect of our fishing and tourism economies. In addition to purchasing bait, fuel, and gear for trips, anglers and charter boats support numerous local businesses indirectly through fishing activity. By hampering recreational fishing, this closure will negatively impact the many businesses from which fishermen and charter businesses purchase goods and services, including marinas, bait and tackle shops, hotels, and restaurants.

We understand that research can help regulators, fishermen, and legislators make good decisions about how to sustain fishing. That is one reason our fishermen are often partners in research efforts. For example, many recreational fishermen participate in multispecies tagging programs.


However, we must ensure that the fishing industry, which is already declining due to increased regulations and restrictions, is not even further jeopardized.

The Council's Recreational Advisory Panel has acknowledged how detrimental this closure would be for the recreational fishing industry and unanimously opposed this proposal. We urge the Council to heed both the Panel's judgment and fishermen's voices, and reject this closure.

Sincerely,



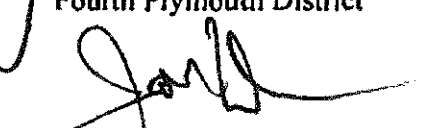
Senate President Therese Murray
Plymouth and Barnstable District



Senator Robert L. Hedlund
Plymouth and Norfolk District



Representative James Cantwell
Fourth Plymouth District



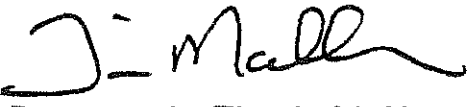
Representative Josh Cutler
Sixth Plymouth District




Representative Shawn C. Dooley
Ninth Norfolk District



Senator Michael O. Moore
Second Worcester District



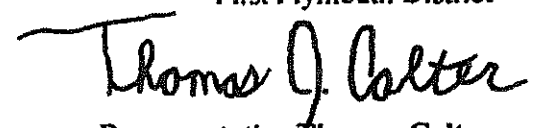
Representative Timothy Madden
Barnstable, Dukes and Nantucket District



Senator Bruce E. Tarr
First Essex and Middlesex



Representative Vinny deMacedo
First Plymouth District



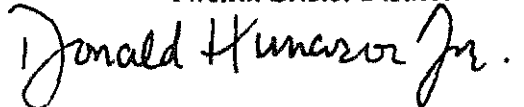
Representative Thomas Calter
Twelfth Plymouth District



Representative Marc T. Lombardo
Twenty-Second Middlesex District




Representative Keiko Orrall
Twelfth Bristol District



Senator Donald F. Humason, Jr.
Second Hampden and Hampshire District



Senator John F. Keenan
Norfolk and Plymouth District



Senator Joan B. Lovely
Second Essex District



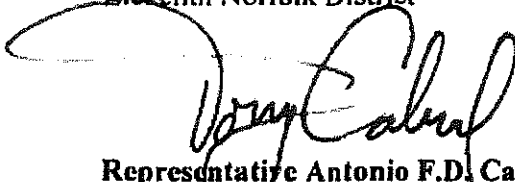
Representative Sarah K. Peake
Fourth Barnstable District



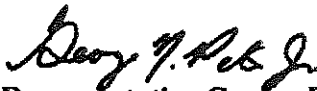
Representative David T. Vieira
Third Barnstable District



Representative Paul McMurty
Eleventh Norfolk District



Representative Antonio F.D. Cabral
Thirteenth Bristol District



Representative George Peterson
Ninth Worcester District



Representative Leah Cole
Twelfth Essex District



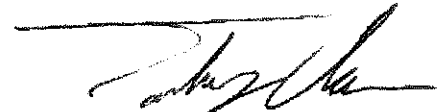
Representative Kay Khan
Eleventh Middlesex District



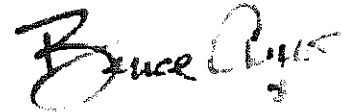
Representative Steven S. Howitt
Fourth Bristol District



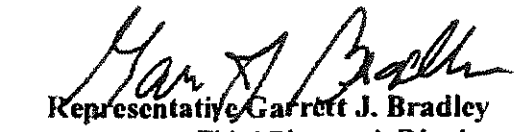
Representative James M. Murphy
Fourth Norfolk District



Representative Tackey Chan
Second Norfolk District



Representative Bruce J. Ayers
First Norfolk District



Representative Garrett J. Bradley
Third Plymouth District



Representative Angelo D'Emilia
Eighth Plymouth District



Representative Kimberly Ferguson
First Worcester District



Representative Randy Hunt
Fifth Barnstable District

Shaunna O'Connell

Representative Shaunna O'Connell
Third Bristol District

Anne M Gobi

Representative Anne M. Gobi
Fifth Worcester District

Brian M. Ashe

Representative Brian Ashe
Second Hampden District

Carolyn Dykema

Representative Carolyn Dykema
Eighth Middlesex District

Susan Williams Gifford

Representative Susan Williams Gifford
Second Plymouth District

Brian Mannel

Representative Brian Mannel
Second Barnstable District

Chris Walsh

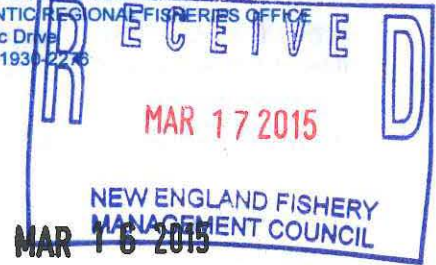
Representative Chris Walsh
Sixth Middlesex District

Mark C. Montigny

Senator Mark C. Montigny
Second Bristol and Plymouth



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2776



Ernest F. Stockwell III
Chairman
New England Fishery Management Council
50 Water Street, Suite 2
Newburyport, MA 01950

Dear Terry:

Several important legal and process questions regarding the Omnibus Habitat Amendment were raised at the Habitat Committee's February 24, 2015, meeting in Mansfield, MA. I would like to provide further guidance on two of those issues, so that the Committee and the public have a clear understanding of these two important issues. The first relates to the ability and limitations on how the Council can "mix and match" areas within the current suite of alternatives. The second issue I would like to address relates to Habitat Areas of Particular Concern (HAPC).

Mixing and Matching Alternatives

Much of the discussion at the meeting related to the degree to which the Council is able to mix and match various components from within the Amendment's currently assembled alternatives without triggering the need for significant new analysis and development that would delay final action on this amendment. As was noted during the meeting, this type of approach is within the Council's purview, but I wanted to remind you that there are a few caveats associated with this flexibility.

Under National Environmental Policy Act regulations, the Council may modify, revise, or repackage alternatives and areas within the existing alternatives based on public comment. In order to do that without triggering a supplemental comment period, those changes may not result in "substantial changes in the proposed action that are relevant to the environmental concerns" or "significant new circumstances or information relevant to the environmental concerns and bearing on the proposed action or its impacts," (Center for Environmental Quality Regulations 40 CFR 1502.9(c)). While this may include alternatives considered by some to be "less restrictive," the important factor to keep in mind is whether the impacts of the alternatives have already been analyzed and considered. That is, the changes to how the alternatives are combined or modified must not affect the quality of the human environment to a significant extent not already considered, or present a seriously different picture of the impacts.

Further, it is important to remember that any revised or repackaged alternatives must continue to meet the goals and objectives of the amendment. To help accomplish this, when any repackaged combinations are put forward, the Council should clearly articulate the rationale for the revisions, including an explanation of how/why the revised alternatives are superior to the alternatives as they were previously considered. The Council should also clearly comment on whether the long- and short-term costs and benefits of the new combination are different from



mb - 5/19/15

those of the previously considered alternatives, along with any changes to the impacts on habitat, affected species, and different user groups.

Habitat Area of Particular Concern Designations

The designation of HAPCs and the impact of such a designation appears to continue to be a cause of confusion. The currently existing HAPCs and those HAPCs designated in Phase I of the Amendment must be fully incorporated into the discussion related to habitat management areas. Volume II of the Draft Environmental Impact Statement lays out the HAPC criteria and how the proposed HAPCs meet those criteria.

Essential fish habitat (EFH) regulations state that any EFH that is particularly vulnerable to fishing activities may be identified as an HAPC. Further, the EFH regulations require an evaluation of the potential adverse effects of fishing activity on EFH with special attention paid to the adverse effects on HAPCs. For existing HAPCs and the HAPCs identified in Phase I of the Amendment, additional analysis should be conducted specifically to inform the Council of the potential adverse effects of fishing on these areas and how the current alternatives address these potential effects (i.e., how the current alternatives prevent, mitigate, or minimize these adverse effects, to the extent practicable). As we noted in our January 2015 letter, the analyses should more clearly link the HAPC designations with the proposed habitat management areas. As suggested by comments received on this issue, information developed by the Habitat Plan Development Team since the HAPCs were approved in 2007 should be used to more clearly evaluate their sensitivity to fishing and non-fishing impacts. Upon review of the additional analyses, the Council may determine that HAPC designations (existing or currently preferred) no longer meet the criteria and an HAPC designation is no longer warranted. In such cases, a clear justification would need to be in the final EIS, including identifying what new information or circumstances have occurred since the original designation that would support the change.

As requested by some Habitat Committee members, I have attached the HAPC designation criteria and the Council's interpretation of those criteria from the Amendment for reference.

If you or the Habitat Committee have any questions related to these issues or wish to have other questions clarified before the next meeting, please do not hesitate to contact Moira Kelly in the Sustainable Fisheries Division at 978.281.9218.

Sincerely,



John K. Bullard
Regional Administrator

cc: Tom Nies, Executive Director
Michelle Bachmann, EFH Omnibus Amendment Coordinator
David Preble, Chair, Habitat Committee

Attachment

HAPC Criteria

Omnibus Habitat Amendment 2

Volume 2, Draft Environmental Impact Statement (October 1, 2014), pg 378-379

The EFH regulatory criteria for HAPCs are specified at 50 CFR 600.815(a)(8).

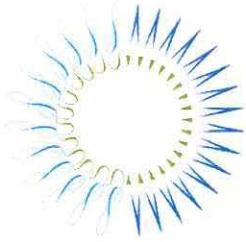
CRITERION 1A: Importance of Historic Ecological Function - The area or habitat feature proposed for HAPC designation at one time provided an important ecological function to a currently managed species, but no longer provides that function due to some form of degradation. An important ecological function could include, but is not limited to, protection from predation, increased food supply, appropriate spawning sites, egg beds, etc. The importance of the ecological function should be documented in scientific literature and based on either field studies, laboratory experiments, or a combination of the two.

CRITERION 1B: Importance of Current Ecological Function - The area or habitat feature proposed for HAPC designation currently provides an important ecological function to a managed species. An important ecological function could include, but is not limited to, protection from predation, increased food supply, appropriate spawning sites, egg beds, etc. The importance of the ecological function should be documented in scientific literature and based on either field studies, laboratory experiments, or a combination of the two.

CRITERION 2: Sensitivity to Anthropogenic Stresses – The area or habitat feature proposed for HAPC designation is particularly sensitive (either in absolute terms or relative to other areas and/or habitat features used by the target species) to the adverse effects associated with anthropogenic activities. These activities may be fishing or non-fishing related. The stress or activity must be a recognizable or perceived threat to the area of the proposed HAPC.

CRITERION 3: Extent of Current or Future Development Stresses – The area or habitat feature proposed for HAPC designation faces either an existing and on-going development-related threat or a planned or foreseeable development-related threat. Development-related threats may result from, but are not limited to, activities such as sand mining for beach nourishment, gravel mining for construction or other purposes, the filling of wetlands, salt marsh, or tidal pools, shoreline alteration, channel dredging (but not including routine maintenance dredging), dock construction, marina construction, etc.

CRITERION 4: Rarity of the Habitat Type – The habitat feature proposed for HAPC designation is considered “rare” either at the scale of the New England region or at the scale of the range of at least one life history stage of one or more Council-managed species. A “rare” habitat feature is that which is considered to occur infrequently, is uncommon, unusual, or highly valued owing to its uniqueness. Keep in mind that the term “rare” usually implies unusual quality and value enhanced by permanent infrequency. We may usually think of rare habitats or features as those that are spatially or temporally very limited in extent, but it could also be applied to a unique combination of common features that occur only in a very few places.



THE
PEW
CHARITABLE TRUSTS

Mr. Thomas Nies
Executive Director
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

March 17, 2015



Dear Mr. Nies:

As the chairman Preble explained before the habitat committee recently assembled in Mansfield, Massachusetts (February 24, 2015), the National Environmental Policy Act (NEPA) requires that the Council and the National Oceanic and Atmospheric Administration's Fisheries Service (NOAA Fisheries) carefully consider new information and specific alternatives offered through the formal public review process for the Omnibus Habitat Amendment 2 (OHA2) Draft Environmental Impact Statement (DEIS), closed January 8, 2015. In this letter I discuss new information and specific alternatives introduced during the comment period.

Specifically, I would like to draw your attention to new analyses of prey components of groundfish Essential Fish Habitat (EFH), the need for Habitat Management Area (HMA) protection for spawning Atlantic herring, and to three alternatives for improving EFH management through HMAs. These issues were all raised during the public comment period for OHA2, in previous letters, in public testimony before the Council and NOAA Fisheries and most recently in many thousands of comments on the draft Environmental Impact Statement (DEIS). To date, we have not seen any public response or analysis of these issues, nor treatment of the proposed alternatives, from the Council or NOAA Fisheries. As you know, EFH is defined as those *waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity* (MSA) and thus prey should be included as a component of EFH for managed species.

Prey species distributions have been entirely neglected in the preferred alternative for text descriptions of the new proposed EFH in the DEIS (Volume 2). No maps are provided for prey species that are not managed by the Council, and feeding has not been adequately analyzed as a factor in assessing adverse impacts of alternatives, or in the development of HMAs. The needs of managed species to have adequate food are briefly summarized in non-preferred alternatives for EFH text descriptions (DEIS Volume 2, *Modified abundance based* and *Abundance plus habitat considerations*) and in Appendix B: *EFH supplementary tables, prey species information, and spawning information* (DEIS volume 5).

mb ~5/19/15

Sandlance (*Ammodytes* spp), various herrings (e.g., alewife, blueback) and Atlantic herring are each identified as key prey species for Atlantic cod, haddock and other managed fishes in the DEIS and in many published sources.¹ Consequently, these forage fish species are important components of groundfish EFH; EFH areas for managed species that include these prey should be protected through habitat management areas.

(1) Atlantic herring spawning protection

Spawning is part of EFH as defined in the law, and protection of spawning is specified within the goals and objectives of the OHA2. The OHA2 amends the Atlantic herring FMP but proposes no protection for well-known herring spawning areas. Moreover, herring are a vital food source for the region's most important groundfish stocks including Atlantic cod, haddock and other species as detailed above. Not surprisingly, the EFH maps for these groundfish overlap extensively with herring spawning grounds and other components of EFH for Atlantic herring. This was a principal conclusion of an analysis presented to NOAA Fisheries and the Council in a letter February 20, 2014 (see CLF *et al.*, 2014, Figure 1A, page 13), and in our public comments on the DEIS (Pew, January 8, 2015). These letters presented maps of herring spawning areas from the most recent stock assessment for herring, and from the EFH source documents, showing their relationship to HMA options that are being considered. Spawning aggregations are disrupted by fishing and herring egg mats, attached to the seafloor, are vulnerable to mobile gear that impacts the seafloor.

Those HMA alternatives in the DEIS that could provide protection for herring spawning and eggs, and which include aggregations of this prey species within groundfish EFH, must be given the highest priority when the Council finalizes OHA2.

The HMA alternatives that overlap extensively with herring spawning areas and groundfish EFH include:

- Eastern Gulf of Maine Alternative 2: Large Eastern Maine HMA and Machias HMA.
- Western Gulf of Maine Alternative 1/No Action: Western Gulf of Maine Groundfish and Habitat Closure Areas
- Georges Bank Alternative 8: The Northern Georges HMA
- Georges Bank Closed Area I: Part of Alternative 1 (no action)
- Great South Channel (GSC) and Southern New England: Alternative 3 - GSC East HMA

¹ Richardson DE (2012) Role of egg predation by haddock in the decline of an Atlantic herring population. PNAS **108** (33):13606–611; Richardson DE et al (2014) The influence of forage fish abundance on the aggregation of Gulf of Maine Atlantic cod (*Gadus morhua*) and their catchability in the fishery. Can. J. Fish. Aquat. Sci. **71**: 1349–62; Gulf of Maine Atlantic Cod (*Gadus Morhua*) Stock Assessment For 2012, Updated Through 2011. 55th SAW Assessment Report. Northeast Fisheries Science Center Reference Document 13-11; Ames EP (1997) Cod and Haddock Spawning Grounds in the Gulf of Maine. Island Institute, Rockland, Maine; Ames EP, Lichter J (2013) Gadids and Alewives: Structure within complexity in the Gulf of Maine. Fisheries Research **141**: 70–78; Zemeckis D et al (2014) Spawning site fidelity by Atlantic cod (*Gadus morhua*) in the Gulf of Maine: implications for population structure and rebuilding. ICES J. Mar. Sci. **71** (6): 1356–65; Ames EP (2010) Multispecies Coastal Shelf Recovery Plan: A Collaborative, Ecosystem-Based Approach. Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science **2**:217–231; see DEIS Volume 2: *Modified abundance based and Abundance plus habitat considerations* for EFH definitions of groundfish and appendix B of the DEIS.

(2) Stellwagen Bank HMA for Atlantic Cod Foraging EFH

In a previous letter (CLF *et al.*, 2014) and in our public comments on the DEIS (Pew, 2015) an alternative for protecting an area of Stellwagen Bank was put forward, including a map of cod foraging hotspots. Stellwagen Bank has been recognized as a hotspot for cod feeding on sandlance in the recent cod stock assessment and in peer reviewed publications (Richardson *et al.*, 2014: Can. J. Fish. Aquat. Sci. Vol. 71). Thus, this portion of cod EFH (see DEIS Volume 2, Map 41) is particularly important to cod as a feeding area and should be protected as an HMA with measures suitable for protecting cod and their prey. The boundary of the areas is shown approximately in Richardson *et al.*, but could also be defined by depth contour around the bank (depth=60 meters). See further discussion in Pew letter page 7, and CLF *et al.*, 2014, Figure A3, page 15).

(3) New HMA Alternative for conservation of river herring as forage

Published research has focused on the specific role of river herring in the spawning and feeding of groundfish.² Areas of groundfish EFH that coincide with river herring concentrations must be considered as particularly important areas and protected as HMAs because they contain food for seriously compromised stocks like cod.

The times and locations of high rates of at-sea river herring catch were identified in a paper published by Cournane *et al.* 2013 (Fisheries Research 141:88– 94 – Figure 2), and also analyzed extensively during the development of Atlantic Herring Amendment 4/5. An alternative for seasonal HMAs within the OHA2 based upon Figure 2 in Cournane *et al.* should be included the OHA2. These HMAs should extend from shore to the boundary indicated in the appended map.

1. January through April (red box)
2. May through June (blue box)
3. July through October (green box)
4. November through December (yellow box)

(4) Multi-Function HMA - GOM

In our letter submitted to the Greater Atlantic Regional Fisheries Office (GARFO) during the comment period for the DEIS (Pew, January 8, 2015) we recommended that the Council include a multi-function HMA alternative for the near-shore Gulf of Maine, based on the work of the Closed Area Technical Team (CATT) on spawning and juvenile groundfish, and also considering forage concerns (river herring hotspots and spawning in Atlantic herring). This alternative was developed on pages 13-15 of our letter of January 8, 2015. An HMA defined by a line 15 nm seaward of shore, and extending from a point due east of Chatham to the border with Canada should be established through the OHA2 to protect spawning and juvenile groundfish, to protect spawning Atlantic herring, and to safeguard those areas of groundfish EFH that contain forage as a component of their EFH.

² Ames EP (1997) Cod and Haddock Spawning Grounds in the Gulf of Maine. Island Institute, Rockland, Maine; Ames EP, Lichten J (2013) Gadids and Alewives: Structure within complexity in the Gulf of Maine. Fisheries Research 141: 70– 78; Zemeckis D et al (2014) Spawning site fidelity by Atlantic cod (*Gadus morhua*) in the Gulf of Maine: implications for population structure and rebuilding. ICES J. Mar. Sci. 71 (6): 1356-65; Ames EP (2010) Multispecies Coastal Shelf Recovery Plan: A Collaborative, Ecosystem-Based Approach. Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science 2:217–231; see species summaries in Collette and Klein-MacPhee (2002) Bigelow and Schroeder's Fishes of the Gulf of Maine, Smithsonian Press, DC.

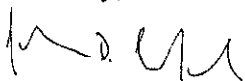
The new Atlantic herring spawning analysis presented by NOAA Fisheries at the March 11, 2015 meeting of the habitat Plan Development Team (PDT) in Braintree, MA adds further support for the ecological value of this HMA alternative, revealing extensive overlap between near-shore spawning areas and groundfish EFH. The HMA would also capture the areas shown in DEIS map 35, volume 3 (p 141), as recommended by the PDT and CATT in 2013. Per comments made at the PDT meeting March 11, such an HMA should include near shore waters to maximally benefit juvenile cod (see also DEIS on juvenile cod EFH). Though this area has received previous analysis and consideration, including a recommendation by the PDT, the analysis did not consider this as a joint spawning and juvenile area that has significant benefits for Atlantic and river herring as forage within groundfish EFH. We strongly urge NOAA Fisheries and the Council to give serious consideration to habitat protection to support juvenile and spawning groundfish and to address deficiencies in the DEIS where forage as a component of groundfish EFH must be addressed.

In several earlier letters on OHA2, we urged the Council to take an integrated view of habitat protection, seeking out HMA areas that could achieve multiple goals for specific stocks and the ecosystem (e.g., letter to Paul Howard dated July 18, 2011). This Multi-Function HMA for the inshore Gulf of Maine would achieve this goal and advance recovery of the ecology of this area.

Closing comment

Approximately 159,502 comments were submitted and about 95% of these called for increasing the footprint of habitat protection in the region, and doing more to protect spawning fish and the prey that managed species need for growth to maturity and reproduction. I urge the Council and NOAA Fisheries to give serious consideration to the alternatives we introduced during the comment period, summarized here and at the recent PDT meeting. I thank members of the habitat PDT for allowing me the opportunity to speak briefly to these and other issues raised in our formal comments on the OHA2 at their recent meeting, March 11, 2015 (Braintree, MA).

Sincerely,



John D. Crawford PhD

cc: Mr. John Bullard, Regional Administrator, Greater Atlantic Regional Fisheries Office

(3) New HMA Alternative for conservation of river herring as forage

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J.M. Courane et al. / Fisheries Research 141 (2013) 88–94

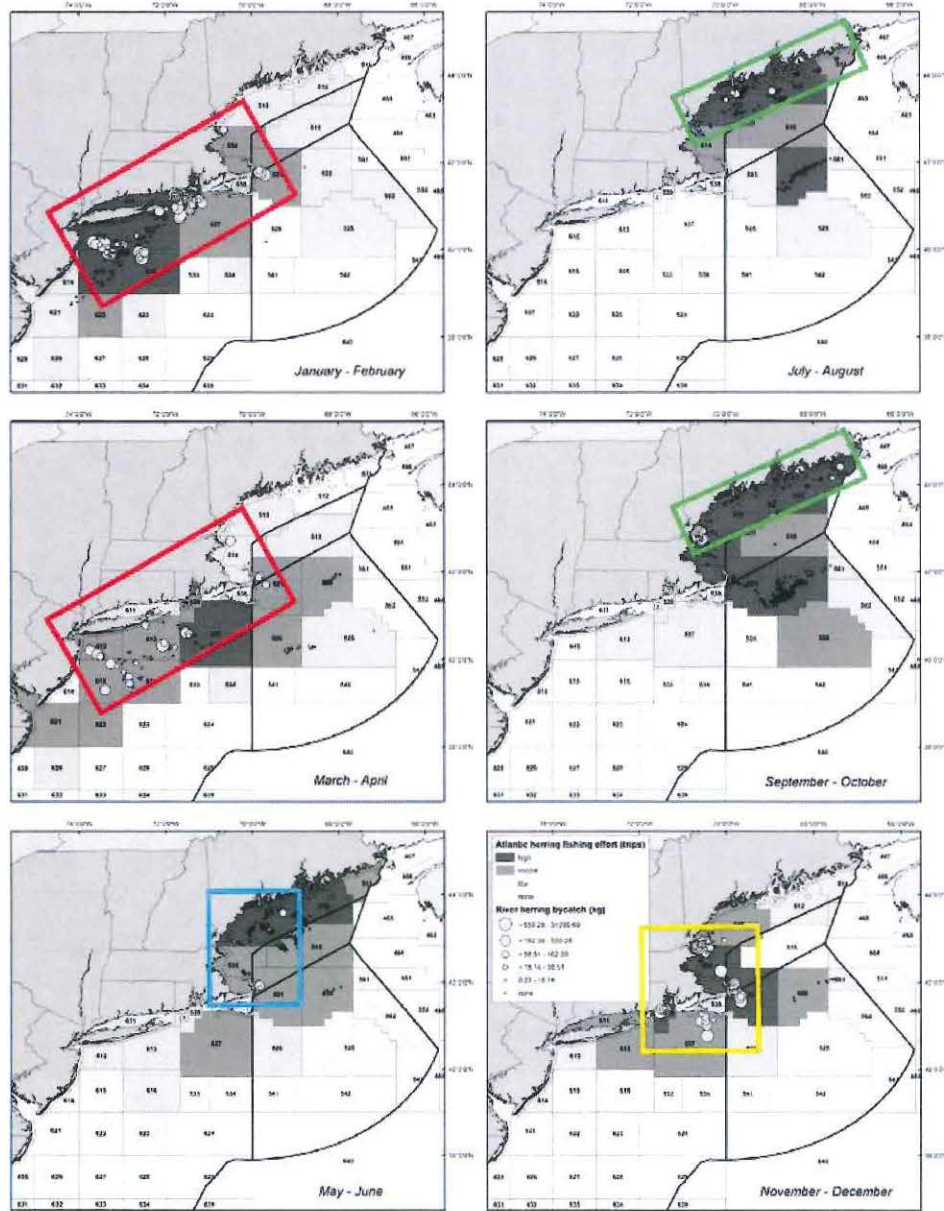


Fig. 2. Bimonthly Atlantic herring fishing effort and associated river herring bycatch patterns. Fishing effort (reported VTR trips) by SRA is grouped from high (>60), medium (6–60), low (1–5), and no (0) effort within the bimonthly grouping. White areas indicate statistical areas with no fishing effort at any time during the year. Scaled circles represent the relative magnitude of river herring bycatch (kg); see categories in Table 3. A "*" signifies no river herring catch.
Sources: VTR Database 2005–2009 and NEFOP Database 2005–2009.

From: togue@mainedayboatscallops.com
To: nmfs.gar.OA2.DEIS@noaa.gov; [Michelle S. Bachman](#)
Subject: Comments for next week's meeting
Date: Thursday, March 19, 2015 10:19:23 AM

Hello Michelle and members of the Habitat Advisory Panel and Committee:

After years of low biomass, the Northern Gulf of Maine scallop resource is finally recovering and the fishery is growing, providing a much-needed source of diversification for Maine fishermen.

The NGOM resource has always been patchy. The current Omnibus Habitat Amendment includes closures, some of which are listed as preferred alternatives, that *would essentially wipe out the burgeoning NGOM scallop fishery*. The Platts Bank closures and Machias Area Closures may seem small when you look at all the areas groundfishermen can go, but they are hugely important to NGOM scallop fishermen, as evidenced by recent VTR data. It does not make sense to extinguish a growing, sustainable scallop fishery in a (very uncertain) attempt to resuscitate the groundfishery.

If you must implement closures, please do so in a way that does not so differentially and devastatingly impact NGOM scallop fishermen.

Thank you

- Togue Brawn

Togue Brawn
www.mainedayboatscallops.com
TASTE THE DIFFERENCE A DAY MAKES

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JAN 28 2015

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A LIMITED LIABILITY PARTNERSHIP

WASHINGTON HARBOUR, SUITE 400

3050 K STREET, NW

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DIRECT LINE: (202) 342-8048

EMAIL: dfrulla@kelleydrye.com

January 28, 2015

E.F. "Terry" Stockwell III, Chairman
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

Re: Omnibus Habitat Amendment

Dear Chairman Stockwell:

As you know, we represent the Fisheries Survival Fund ("FSF"). FSF's participants include over 250 full-time Atlantic scallop limited access permit holders. These are all actively working fishing vessels. FSF respectfully submits these comments in response to the letter sent by John Bullard, Regional Administrator of the National Marine Fisheries Service ("NMFS"), to the New England Fishery Management Council ("Council") on January 8, 2015, regarding the Council's selection of alternatives in its Omnibus Essential Fish Habitat ("EFH") Amendment 2 Draft Environmental Impact Statement ("DEIS").

FSF has serious concerns about several statements in this letter. While we appreciate the agency's recognition of the need to select practicable management actions, its position on specific alternatives in the Great South Channel and on Georges Bank are based on erroneous information. For eight years since it voted on the EFH aspects of the DEIS, the Council has continued to develop analyses and, ultimately, a range of alternatives based on the best available scientific information. That information must be considered as you select alternatives in this action, as it has refined and improved the analysis on which the Volume I of the EFH DEIS, including its proposed habitat area of particular concern ("HAPC") designations, was based in 2007.

We are also concerned that the agency has mischaracterized certain physical aspects of the two regions, continued to propagate a nonexistent linkage between broad scale year-round closures and groundfish productivity, and failed to consider the impacts of selected alternatives on the Georges Bank juvenile cod stock as a whole. Furthermore, the agency has overstated the

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legal and management obligations associated with EFH and HAPC designations. FSF supports the use of best scientific information available and urges the Council to follow the regulations and its own goals, and to base its decisions in the context of the entire record.

I. HAPCs MUST BE DESIGNATED AND MANAGED USING RIGOROUS AND CONTEMPORARY ANALYSIS AND INFORMATION

The concept of HAPCs was implemented through regulation by NMFS's Final Rule on Essential Fish Habitat.¹ The rule allows a Council to designate HAPCs as subsets of EFH that are particularly vulnerable to fishing activities. As NMFS recognized in its January 8, 2015, letter, HAPCs do not impose any regulatory requirements, but rather highlight areas for additional analysis and require and in-depth review of the effects of fishing in these areas.² NMFS cannot reasonably claim HAPCs designated in 2007 based on qualitative information must be treated as sacrosanct in 2015. The Council has undertaken another eight years of analyses that must be used to inform contemporary management decisions regarding fishing in these areas.

A. HAPCs Are Simply Tools for Highlighting Important Management Areas

If a Council does choose to designate an HAPC, then, how it manages fishing activities within the HAPC is up to its reasoned discretion, based on the best available scientific information. At the time the EFH final rule was implemented, members of the public questioned NMFS' authority to create a subset of EFH that NMFS opted to term "HAPC". In response, the agency stated that "NMFS cannot require Councils to designate HAPCs. Any higher degree of protection for areas designated as HAPCs would result from having more available information about the function or sensitivity of the habitat, or the human-induced threats to the habitat, which may justify more stringent or precautionary management approaches."³

The Council's designation of HAPCs in 2007 occurred during the first phase of the development of the DEIS. That designation, together with the options currently under consideration in Volume III of the DEIS, constitute one Council action that will be implemented through the typical public notice and comment period once final action is taken on Volume III.

¹ 67 Fed. Reg. 2343 (January 17, 2002).

² "Each FMP must contain an evaluation of the potential adverse effects of fishing on EFH designated under the FMP... The evaluation should give special attention to adverse effects on habitat areas of particular concern." 50 C.F.R. 600.815(a)(2)(i).

³ 67 Fed. Reg. at 2357.

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That means that no final decision has been made on the entire document, and the analytical process is still ongoing. Indeed, the Habitat Plan Development Team and Committee reviewed the HAPCs once already in the fall of 2010 and spring of 2011, and suggested some modifications to the alternatives that were approved in 2007.

B. The 2007 HAPC Designations Are Not Based on the Best Scientific Information Available

The fact that the HAPCs were developed eight years ago, have only been partially reviewed, and have not been formally implemented, raises consideration of the National Standard 2 mandate that management decisions be based on the best available scientific information. The regulations promulgating the EFH final rule also explicitly require the use of the best available scientific information in designating EFH.⁴ Therefore, the Council may either choose to manage using its 2007 HAPC designations in light of the rigorous analysis that has occurred over nearly a decade thereafter, or it may revisit the designations using information developed during Volume III's preparation. Relying too heavily on HAPCs that were delineated in 2007 based primarily on qualitative information, when peer-reviewed scientific information is now available, is inconsistent with the record and thus arbitrary and capricious.⁵

In light of the entire record constructed during the development of the Omnibus EFH Amendment 2, it is unclear how the agency can support its statement that the Council has not recognized the importance of the HAPCs designated in 2007. The habitat amendment process has been thorough, rigorous, and has evaluated the impacts of management alternatives in areas including the proposed HAPC using the best available science. Indeed, the Council has precisely recognized the importance of HAPCs, as well as all vulnerable habitat types, and considered ways to reduce impacts to those habitats to the letter of the law throughout this long process.

More specifically, the HAPCs were designated prior to the development of a whole series of rigorous analytical tools that were used in drafting the Alternatives in Volume III of the DEIS. These include:

1. The peer-reviewed Swept Area Seabed Impact ("SASI") model;
2. The Local Indicators of Spatial Association ("LISA") cluster analysis;
3. The Closed Area Technical Team's ("CATT's") "hotspot analysis";
4. Characterization of the substrate and ocean energy dynamics; and

⁴ "Councils should obtain information to describe and identify EFH from the best available sources, including peer-reviewed literature, unpublished scientific reports, data files of government resource agencies, fisheries landing reports, and other sources of information." 50 C.F.R. 600.815(a)(1)(ii)(B).

⁵ See, e.g., *Motor Vehicle Manufacturers Ass'n v. State Farm*, 463 U.S. 29 (1983).

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5. The practicability analysis.

These tools, and indeed the deliberations of the Council, its committees, and numerous government, academic, and independent scientists and peer review panels, have comprised a sophisticated analysis in how to apply the EFH regulations and, by inclusion, the HAPC provisions. The SASI model, in particular, has been the subject of multiple peer reviews, not only by the Council's own committees, including its Scientific and Statistical Committee, but by external reviewers as well. In each review, it emerged as the best possible tool for analyzing habitat impacts in New England. Therefore, management decisions must be based upon the synthesis of information generated by these five tools—not solely based upon sorely outdated HAPC designations.

II. ANALYTICAL BASIS FOR AMENDMENT ALTERNATIVES

A. Great South Channel

1. The Record Supports More Refined Ways of Meeting the Goals of the HAPC Designation

The agency's letter focuses on Alternative 3 as a starting point, but then goes on to direct that "[m]odifying Alternative 3 by shifting the boundaries to focus more closely on the less dynamic and more vulnerable cobble and boulder areas would create a more effective habitat management area." Notably, that is exactly why Alternatives 4 and 5 do—focus habitat protections inshore of high energy Channel areas.

There is no record-based reason, moreover, why the agency needs to work from Alternative 3, which has the highest adverse economic impacts of all the alternatives by far. For starters, each of the alternatives in the DEIS (with the exception of the no action alternative) overlap portions, but not the entirety, of the HAPC. The entire rationale for designating the Great South Channel HAPC provided in Volume II of the DEIS is "to recognize the importance of the area for its high benthic productivity and hard bottom habitats, which provide structured benthic habitat and food resources for cod and other demersal-managed species." This goal is achieved through the DEIS alternatives that have been refined based on analysis subsequent to the HAPC designation.

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2. Alternatives 3, 4, and 5 Have Comparable Habitat Impacts Under DEIS Analysis

The economically crippling Alternative 3 scores no better on habitat sensitivity than more reasoned alternatives. More specifically, the LISA cluster analysis outputs, based on the SASI model, identified groups of areas that were more vulnerable to the adverse effects of fishing with bottom trawls and scallop dredges. In the Channel, Alternatives 3-6 have nearly identical maximum vulnerability scores ranging from 65.5 to 66.1 for scallop dredge and 63.2 to 63.6 for otter trawl. All of those alternatives, including Alternatives 4 and 5, were also developed to cover LISA spots beyond the HAPC, creating an improvement over the HAPC and over “no action.” Although the number of groundfish hotspots varies in the different alternatives, the only ones that the CATT identified for cod in the Great South Channel are in the no action alternative.⁶

3. Alternatives 3, 4, and 5 Are All High Energy

Nearly the entire Great South Channel is a high energy area. The area comprising the eastward bump-out added to Alternative 4 by Alternative 3, moreover, contains only high energy areas. Lower energy areas are to the west of the Channel. As the NMFS letter implicitly concedes, the scour from natural forces in the high energy Channel dwarfs any effect of scallop gear, adverse or otherwise. Furthermore, by definition, scallops are only found in high-energy areas—therefore there will be no adverse effects from scallop fishing on substrate in the productive scallop grounds Alternative 3 would inadvisably include.

It is unclear whether the agency’s interest is in protecting the substrate itself—when the larger substrate is not modified by fishing gear—or the epifauna attached to that substrate. To the extent the Channel even supports such epifauna, it is adapted to the high-energy environment. A study by the University of Massachusetts School for Marine Science and Technology (“SMAST”) showed that there is no significant difference between changes in fish and macroinvertebrate categories and the density of individuals within each category in areas impacted by the scallop fishery.⁷ Therefore, there is no physical or biological benefit to adopting Alternative 3, even with shifted boundaries, as advocated for by the agency.

4. Alternative 3 Is Impracticable

In addition to being of limited habitat value, the DEIS clearly states that Alternative 3 fails a practicability analysis: “The magnitude of the loss to the scallop fishery is expected to

⁶ DEIS Volume III at 347.

⁷ Kevin D.E. Stokesbury & Bradley P. Harris, *Impact of Limited Short-Term Sea Scallop Fishery on Epibenthic Community of Georges Bank Closed Areas*, 307 Marine Ecology Progress Series 85, 98 (2006).

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dwarf the expected moderate positive benefits to the groundfish fishery of habitat conservation in this area.⁸ The closure in this alternative would lead to predicted losses of \$33 million in the scallop and groundfish fisheries alone—with no benefit gained. Therefore, NMFS's request to consider this alternative lacks any suitable rationale.

B. Georges Bank

1. Statements from the HAPC Designation Are No Longer Supported in the Record

NMFS next makes unnecessarily selective use of the DEIS in arguing for continued closure of the Northern Edge as an HAPC, along with highly productive Georges Shoals fishing grounds to the west. Once again, the fact of a proposed HAPC designation from 2007 settles nothing. Similar to the Great South Channel HAPC rationale, Volume II of the DEIS provides only a vague qualitative justification for the designation of the Northern Edge HAPC on Georges Bank: “[s]everal sources document the importance of gravel/cobble substrate to the survival of newly settled juvenile cod ... Increasing the availability of suitable habitat for post-settlement juvenile cod could ease the bottleneck, increasing juvenile survivorship and recruitment into the fishery.”⁹ Notably, this 2007 justification was copied verbatim from the 1998 Habitat Omnibus Amendment I, and contains no more recent scientific information. It goes on to say that “the habitat type is rare relative to the Georges Bank region.”¹⁰ These statements are no longer supported in the record, and the more recent analysis contained in the DEIS (including site-specific analytical focus and incorporation of SMAST video data) provide more accurate and more refined ways to achieve the purpose of the EFH regulations and of the amendment.

In fact, a large region of Georges Bank, which is not limited to the Northern Edge, contains high-energy gravel and cobble substrate, as referenced in the DEIS Volume III analysis. There is no information in the DEIS that supports any claim that the Northern Edge has unique qualities that justify its continued closure when other alternatives perform equivalently well in the impact analysis and are more practicable. Although the agency's letter states that “Alternative 7 is not equivalent in terms of habitat protection and thus may not compensate for the adverse effects of opening a portion of the HAPC,” as with its Great South Channel advocacy, there is simply no basis for that claim in the record.

⁸ DEIS Volume III at 469.

⁹ DEIS Volume II at 384.

¹⁰ *Id.* at 385.

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2. *The Record Primarily States that Alternative 7 Has Positive or Neutral Impacts*

NMFS cannot ignore the eight years of scientific and empirical development since the 2007 re-recitation of 1998 qualitative conjecture supporting the HAPC. The record simply does not support NMFS's argument that Alternative 7 has negative impacts compared to no action. Indeed, NMFS needs to cherry-pick isolated passages of the DEIS to support its ill-founded argument, while the entirety of the record supports the opposite conclusion.

Four passages in the DEIS, as well as the Habitat Plan Development Team's comprehensive report detailing the findings of the SASI model, contain summary information comparing Alternative 7 to No Action. In only one of those five analyses is Alternative 7 described as having "possible slight" negative impacts compared to "no action"—conveniently, that is the passage the agency cited in its letter. The five passages are thus:

- DEIS impacts summary chart: Alternative 7 is keyed as "green plus"—that is, it has positive habitat impacts compared to No Action;¹¹
- SASI report: Opening any of the current closures on Georges Bank will substantially decrease total adverse habitat impacts from fishing;¹²
- DEIS description of Alternative 1 habitat impacts: "Alternative 1/No Action probably has neutral seabed impacts... relative to Alternative 7";¹³
- DEIS description of Alternative 6A habitat impacts: "If Alternative 6A is implemented with Option 1 or 2, there would be slightly positive impacts relative to Alternative 1/No Action, given that the 6A area encompasses a larger area containing vulnerable seabed habitats as compared to the existing closure... [6A] would have neutral impacts relative to Alternative 7"¹⁴ (concluding by

¹¹ DEIS Volume I at 45.

¹² "For mobile bottom tending gears, which comprise nearly 99% of all adverse effects in our region, allowing fishing in almost any portion of the area closures on Georges Bank is estimated to substantially decrease total adverse effects from fishing... So long as there is agreement that, if areas are opened, catch rates and effort levels for most fisheries are likely to be higher inside these areas than outside, the direction of change in aggregate adverse effect for these various opening scenarios will not change." NEFMC, *The Swept Area Seabed Impact (SASI) Model: A Tool for Analyzing the Effects of Fishing on Essential Fish Habitat* (January 21, 2011), at 234. A Northern Edge scallop access area would be designed specifically to elevate catch levels.

¹³ DEIS Volume III at 252.

¹⁴ *Id.* at 254-255.

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extrapolation that Alternative 7 is also slightly positive compared to no action); and

- DEIS description of Alternative 7 habitat impacts: “[T]he Alternative 7 areas in combination may not constitute an improvement in conservation related to Alternative 1/No Action, and probably have slightly negative impacts. Alternative 7 probably has neutral impacts to Alternatives 3, 4, 6A, and 6B.”¹⁵

In summary, the following conclusions are drawn. In the DEIS overview, the SASI report, and Alternative 6 analysis, Alternative 7 has slight positive impacts relative to no action. In the no action description, the relative impacts are neutral. Only in the description of Alternative 7 are the impacts characterized as probably slightly negative, and NMFS has provided no rational basis to cherry-pick this sole instance in forming its argument to advocate for both maintaining the Northern Edge closure and extending that closure into productive, currently-fished Georges Shoals areas to the west.

3. Alternative 7 Performs Comparably to Other Alternatives in the DEIS Analysis

Regardless of the documents’ contradictory summary conclusions, moreover, what is known is that Alternative 7 performs comparably to the other alternatives using the DEIS’s analytical tools, as we have detailed in previous letters and as the DEIS shows. While NMFS would minimize this fact, the Northern Edge contains some of the most productive scallop grounds on the planet. Allowing periodic access to that area, via closely regulated scallop rotational access area management, is fully consistent with the quoted SASI analysis.

For example, none of the Georges Bank habitat management area alternatives contain hotspots for cod. In fact, the huge majority of areas contain hotspots only for haddock, red hake, and winter flounder.¹⁶ Also, the combined vulnerability score of the two areas comprising Alternative 7 is comparable to, or exceeds, that of other proposed IIMAs in the management region.¹⁷ Furthermore, Alternative 7 would prohibit scallop fishing in a much greater area of the type of cobble that the agency argues must be protected, compared to no action, since scallop fishing is currently allowed in many areas of Closed Area II.

¹⁵ *Id.* at 255. Notably, the agency advocates Council consideration of Alternative 6A over Alternative 7, despite this section and the habitat impact analysis for Alternative 6A stating that the two have comparatively neutral impacts.

¹⁶ *Id.* at 318.

¹⁷ *Id.* at 247.

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4. Analyses of Impacts Must Be Based on the Selected Alternatives as a Whole

Another major flaw in NMFS's position is that it considers closures on Georges Bank and in the Great South Channel in isolation. If the goal of these actions is to protect the Georges Bank cod stock, all of the impacts must be considered in totality, including what would be new closures in or near the Great South Channel. Each of the alternatives was designed to protect the stock's juvenile life stage, and must therefore be viewed based on aggregate impacts to the stock. This coordinated effort will constitute an improvement in overall management if practicable alternatives, considered as a whole, are adopted that protect key habitat.

C. Resource Productivity

In addition to FSF's concerns over the agency's site-specific errors, NMFS's January 8, 2015, letter also contains several serious mischaracterizations of the scientific analysis behind the DEIS alternatives. Principally, NMFS continues to claim that broad-scale year round closures in New England will demonstrably improve stock productivity. As we have stated throughout the amendment process, there is no scientific data that shows *any* linkage between such closures and groundfish stock productivity. As a matter of historic performance, moreover, the current closures have not appeared to help Georges Bank cod very much, if at all.

The agency relies on this faulty interpretation in most of its arguments. For example, in justifying its position that there should be a closure in the Northern Edge, it states "the Council needs to consider the extent to which continued habitat protection in the status quo habitat management areas would enhance the productivity of groundfish resources, one of the over-riding goals of the amendment." It further states that "[t]he practicability analysis should weigh the economic impacts of the alternatives the stock productivity impacts [sic]." What's more, the DEIS includes a similar statement to explain when EFH designations will influence management decisions.¹⁸

D. The Scientific Record Should Be Updated, Where Appropriate

FSF urges the Council to consider the best scientific information available in weighing alternatives. In cases where the scientific record has not been updated since 2007, it would be prudent to do so as NMFS has requested—provided that so doing does not unduly delay the implementation of the amendment. In particular, the agency requested that the PEIT update the realized Z score from the SASI model using data through 2013. The SASI model will still show

¹⁸ "When EFH designations, collectively or individually, influence fishery management decisions, the intent is to minimize adverse effects of Federal actions on EFH and thereby improve resource productivity and long term benefits to the fishery and fishing communities." *Id.* at 451.

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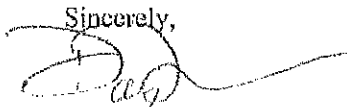
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that the best way to decrease swept area, and therefore habitat impacts, is to allow the fishery to operate at the highest catch per unit effort. This would be a useful exercise to ensure that decisions are made on sound science. This will not be accomplished through broad, haphazard year-round closures in the Great South Channel and on Georges Bank.

* * * * *

We appreciate the huge amount of work and thought that both the Council and the agency have already given to this habitat process. Please do not hesitate to contact us if you have any questions or need additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Frulla", with a long horizontal flourish extending to the right.

David E. Frulla
Andrew E. Minkiewicz
Anne Hawkins
Counsel for Fisheries Survival Fund



27 January 2015



Subject: Clarification of scientific issues raised in the 7 January 2015 public comment letter from Dr. David Pierce at Massachusetts Division of Marine Fisheries to NMFS Regional Director John Bullard regarding the Stellwagen DHRA Alternative in the Draft Environmental Impact Statement (DEIS) for Omnibus Habitat Amendment 2 (hereinafter referred as the MADMF letter).

Dear Mr. Stockwell,

Herein I address a number of gross misconceptions and mischaracterizations that appear in the referenced MADMF letter and are used as justification to oppose the proposed Stellwagen DHRA with Reference Area Option 2. From the DEIS,

"[t]he purpose of the reference area is to create a site where removals of groundfish are limited, in order to be able to study how the ecology of the reference area may change under such conditions. The two reference area options sub-divide an area of relatively high recreational fishing effort. Siting the reference area in a location with relatively large amounts of recreational fishing will best ensure a contrast in before vs. after conditions. If there are significant ecosystem effects of limiting groundfish removals from the major sources, they will be more likely to be detected with a substantial before/after contrast."

The issue and need justifying this option is to better understand the direct and indirect effects of predators (i.e., those that feed directly on habitat-forming species such as brachiopods and ascidians, and those that feed on predators of habitat forming species such as seastars and crustaceans), and the consequences of their removal by fishing, on the biological elements of seafloor habitats. While the Council has an ongoing concern with the direct effects of bottom contact fishing gear on habitat, virtually no work has been done to address the impacts that removal of predators play in mediating the dynamics of biological elements of habitat. The only way to address this issue is to minimize fishing mortality to as low as possible within a reference site (i.e., in this case, and within the status quo WGOM Closure regime, is to exclude recreational and party-charter hook-and-line fishing from an area) in order to produce the necessary contrasts in the occurrence of predators.

MADMF rejects the Reference Area option principally for the following reasons:

1. an assumption that Atlantic cod is singularly the predator that can influence the state and dynamics of seafloor habitats,
2. an assumption that the option is based solely on the limited movement rates of Atlantic cod reported in Lindholm and Auster (2003) and Lindholm et al. (2007), and
3. an assessment that those studies in item 2 have fatal flaws such that the conclusions of the authors are erroneous,

therefore there is no viable justification for the option. Items 1 and 2 are simply wrong and the

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identification of a supposed fatal flaw in item 3 is unfounded by their reasoning and unsupported by the data. The author of the letter bases his conclusion on an edifice of misinformation, misinterpretation of the referenced literature and a lack of scholarship related to other relevant published work that informs the problem at hand.

It is unfortunate that addressing these particular issues has to take place in the arena of the public comment process; this is amplified by the influence that MADMF, as a respected research and management institution, can have on the public and Council discourse regarding this and related issues. This is not to say that asking critical questions about supporting science is in any way a bad thing. This is a critical part of the scientific enterprise for both fundamental and applied science as well as its application to natural resource management. However, these issues that are foundational to the development of the referenced alternative should and could have been addressed much earlier in the process, so the discussion could focus on the benefits versus the costs of implementing such actions, not whether or not the alternative is even relevant. Dr. Pierce, as a member of the NEFMC, the body where this option was moved forward, had ample opportunity to bring these issues to the fore at Habitat Committee or full Council meetings, or through queries to the Habitat PDT where this and other alternatives were developed and discussed. The Habitat Committee and PDT had discussions and exchanges at multiple meetings regarding the structure and function of this alternative and sought to minimize the size of the Reference Area and its location in order minimize the impact on stakeholders. This MADMF letter simply adds unnecessary conflict to an already conflict-rich process.

What follows is a detailed refutation of these major assumptions and arguments as well as some clarification of other erroneous points raised by the MADMF letter:

1. The assumption that the PDT considered Atlantic cod as the only predator that can exert direct and indirect predator effects is unfounded. Indeed the operating hypothesis of the PDT is that there are multiple species with movement rates that would yield local ecological effects. In the Stellwagen region of the WGOM Closure (and DHRA Reference Area), those predators include not only Atlantic cod but haddock, spiny dogfish, Atlantic wolffish, cusk, and ocean pout. All are a) caught by recreational fishermen who primarily target Atlantic cod in the area, b) prey upon those species of interest, and c) are in the top 10 species reported in landings from 1996-2005 (USDOC 2008 - SBNMS DEIS). Other benthic feeders observed in this area via direct underwater observation include hake (*Urophycis* spp.) and various Pleuronectiform flounders (Auster and Lindholm 2005), all species of interest to recreational fishermen.
2. The assumption that movement rates of cod (and the other species identified above) are too high to exhibit an ecological effect in the proposed Reference Area is also unfounded. First, the related assumption as stated in the MADMF letter that animals need to be year round residents in order to exert ecological effects was never stated in the DEIS nor in any PDT discussion as far as I know. I'm unclear where this rumor came from. For this option to be effective the only requirement is that some (not all) fish need to be in the Reference Area long enough to produce an effect through predation that

is in contrast to areas outside the Area boundary. This time period can be on the order of weeks to months. For Atlantic cod, our two studies that were referenced in the letter concluded that a portion of the local Atlantic cod population exhibited "high site fidelity," which translates to time periods for each fish of weeks and up to 120 days in the 2003 study and 95 days in the 2007 work (note that the issues raised about interpreting our tagging data are addressed below). Perhaps more important, however, is the fact that other studies in the region, as well as those in other areas of the North Atlantic, report patterns of movement consistent with those at Stellwagen, effectively rendering the already spurious attack on our two papers moot. These studies too had reported a portion of their tagged animals had moved very short distances from their release location over ecologically relevant periods of time. Of course some animals moved longer distances but were still considered sedentary at the spatial scale of the region. The details are in these papers! For example, a paper by Howell et al (2008) supports this assumption and concludes:

"[t]he movements of scores of cod populations around the world have been examined. Several studies, including two from Stellwagen Bank in the southwestern Gulf of Maine (Groger et al., 2007; Lindholm et al., 2007), have found that groups of cod in different localities are composed of a mixture of both resident and migratory fish (Neat et al., 2006; Wright et al., 2006; Svedang et al., 2007). The fact that a small portion of the fish tagged in this study [the empirical part of this Howell et al paper] moved long distances, suggests that this is probably true in our study area as well. After reviewing many of these studies, Robichaud and Rose (2004) proposed four migratory behavioral categories based on the degree of site fidelity and homing. "Sedentary" populations are found year-round in a relatively small geographical area. "Accurate homers" display seasonal movements and home to a relatively small area, and "inaccurate homers" display seasonal movements and home to a much broader area. The fourth category ("dispersers") includes populations that move and spawn in a haphazard pattern over large geographical areas. Results of this study indicate that the group of cod in the southwestern Gulf of Maine can be categorized as "sedentary resident".

Other predator species noted above also exhibit low movement rates and sedentary life-styles, at least during significant parts of each year. Cusk, wolffish and ocean pout all exhibit sedentary lifestyles with low movement rates (e.g., Collette and Klein-McPhee 2002, Auster and Lindholm 2005, Templeman 1984, others). Movement patterns for haddock are less clear, although Halliday and McCracken (1970) suggest a portion of haddock populations, like cod, can be considered resident, at least seasonally (Begg 1998). That fish predators can influence benthic communities, including structure-forming seafloor fauna, is well known in general terms (e.g., Ojeda and Dearborn 1991, Witman and Sebens 1992, Steneck et al. 2004). The Reference Area sets the stage for studies that better address this question at deeper depths within the management region.

That the MADMF letter did not acknowledge any of this other supporting work is emblematic of the larger problem with the letter, the strategic omission of key facts and the misrepresentation of others. It also suggests that the interest of the MADMF in the issue espoused by the letter is not nearly as keen as the letter suggests. A more thorough examination of the rationale underlying the DHRA option would have made the poorly conceived attack on our peer-reviewed literature unnecessary. Indeed this option

could have been developed even with the total absence of the Lindholm papers based only upon this litany of scholarly work (those studies cited above and references therein).

3. The issues raised regarding tag retention, loss and detections are spurious. We did not conduct a field study to assess tag loss and, while it would have been nice, it wasn't necessary. Tag loss studies are critical when tag return data (physical tags or acoustic tags) are used for population estimates. They are not critical for studies focused on some questions regarding fish movement. The data reported in both our papers were aggregated up to hours or days for analysis. However, prior to that data aggregation it is possible to identify patterns in tag returns from lost tags within the receiver network. Further, while any tag loss outside the receivers eliminates detection of animals returning to the network, it has the effect of minimizing the percentage of "local" animals versus producing an overestimate. In a preliminary lab study we found zero loss with careful tag emplacement, and no observed changes in fish behavior following tagging. Further, we did consider tag loss when interpreting our data, and for those animals that stayed within the range of receivers in both studies, all tags exhibited "behaviors" consistent with live fish. Animals came and went from the receiver, with some fish traveling between receivers. Even those fish with the most consistent presence in the network exhibited behaviors on a daily basis, inconsistent with a pattern expected due to tag loss. If an animal died or a tag was lost at any of the receivers, the variation in the tag detections would have exhibited much different patterns from those observed (e.g., a tidal signal for tags responding to current patterns, constant signal from one lodged in the rocks modified by signal dropouts). Even assuming we did not detect lost tags based on our iterative assessment approach, it would be those few fish with the longest daily presence, and would not change our overall conclusions. The probability that all animals lost tags is unlikely in the extreme.

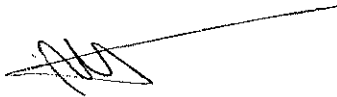
Perhaps the tagging experience of the MADMF and SMAST people as quoted in the letter is based on the way they seem to handle tagged fish. In our study, we took time to minimize trauma from capture, tagging, recovery (removal of injured fish), and return to depth in a customized elevator device for release (as detailed in the 2003 paper). Based on images in publications and on the web, it appears animals in MADMF studies are captured, tagged and then haphazardly tossed into the water at the surface, a protocol I'm not sure I could get past my Institutional Animal Care and Use Committee (e.g., see an airborne fish as it is released at: http://stellwagen.noaa.gov/library/pdfs/enotes_mar2014.pdf).

In closing, I acknowledge a personal desire to respond as a co-author of the works referenced in the MADMF letter and as one of the members of the Habitat Plan Development Team who, together with colleagues, crafted the option (although this is my own communication and does not necessarily represent the opinions of other PDT members, the NEFMC or my affiliated institutions). It is unfortunate that this discussion about the scientific foundations and justifications for the alternative, with a voting Council member, had to take place this late in the process and in this forum. Admittedly, the details in the DEIS are scant and need to be addressed in more detail, but in any case, there were ways to go about this that could have engendered this discussion and provided a higher degree of clarity much earlier. With this communication I hope the subsequent discussion can address the benefits and

costs of setting the stage, with the DHRA Reference Area, to produce information that clearly has importance for the Council and the stakeholders it serves.

Thank you, in advance, for your consideration. I would be pleased to discuss this matter further and clarify any additional issues.

Sincerely,



Peter J. Auster, PhD
Research Professor Emeritus of Marine Sciences
and
Senior Research Scientist, Sea Research Foundation - Mystic Aquarium

cc:

Mr. Thomas Nies
Mr. John Bullard
Dr. William Karp
Mr. David Preble
Ms. Michelle Bachman
Dr. Craig MacDonald
Dr. Stephen Gittings
Dr. James Lindholm

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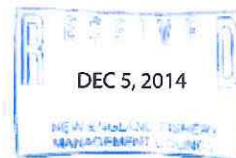
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Imaging Surveys of Select Areas in the Northern Gulf of Maine for Deep-sea Corals and Sponges during 2013-2014.

Report to the New England Fishery Management Council - 1 December 2014.

Peter J. Auster^{1,2}, David Packer³, Rhian Waller⁴, Steven Auscavitch⁴, Morgan J. Kilgour¹, Les Watling⁵, Martha S. Nizinski⁶, Ivar Babb¹, Donna Johnson³, Jeffrey Pessutti³, Amy Drohan³, Brian Kinlan⁷

¹Northeast Undersea Research, Technology & Education Center and Department of Marine Sciences, University of Connecticut at Avery Point, 1080 Shennecossett Rd., Groton, CT 06340; ²Sea Research Foundation, Mystic Aquarium, 55 Coogan Blvd., Mystic, CT 06355; ³NOAA National Marine Fisheries Service, Northeast Fisheries Science Center, James J. Howard Marine Sciences Laboratory, 74 Magruder Road, Highlands, NJ 07732; ⁴School of Marine Sciences, University of Maine, Darling Marine Center, 193 Clarks Cove Road, Walpole, ME 04573; ⁵Department of Biology, 2538 McCarthy Mall, Edmondson 312, University of Hawaii at Manoa, Honolulu, HI 96822; ⁶NOAA National Marine Fisheries Service, Northeast Fisheries Science Center, National Systematics Laboratory, Smithsonian Institution, National Museum of Natural History, PO Box 37012, NHB, MRC-153, Washington, DC 20013-7012; ⁷NOAA National Ocean Service, NCCOS-CCMA-Biogeography Branch, 1305 East-West Hwy, SSMC-4, N/SCI-1, #9224, Silver Spring, MD 20910-3281

Corresponding author: peter.auster@uconn.edu



Since the late nineteenth century, deep-sea octocorals were known to occur in the Gulf of Maine region; specimens collected during early natural resource expeditions as well as by fishermen as bycatch were contributed to natural history museums (Watling and Auster 2005, Gass and Willison 2005). Early ecological studies (e.g., Wigley 1968, Theroux and Grosslien 1987) listed corals as a common component of the hard bottom faunal assemblage in the Gulf of Maine. However, it appears that coral distributions have contracted significantly since then and are now limited to small refugia in rocky areas (Watling and Auster 2005; Auster 2005, Auster et al. 2013, Cogswell et al. 2009).

To inform discussions of deep-sea coral management and fish habitat usage, we are providing the New England Fishery Management Council with a brief review of research surveys conducted in 2013 and 2014. These surveys identified coral-dominated communities in U.S. deep waters (200-250 m depth) of the northern Gulf of Maine. This report focuses only on geographic distributions of octocorals based on direct observations. Detailed analyses of imagery to determine fine-scale attributes of coral and sponge distributions in relation to geology, benthic community composition, species associations, and coral size structure are ongoing. Additionally, coral samples were collected for taxonomic, reproductive biology, age-size, and population genetics studies. Results from all projects will be reported as they are completed.

Two different camera platforms were used to assess the presence and composition of coral communities. Both platforms were outfitted with real-time color video and digital still photographic imaging equipment. A 14-day cruise (11-24 July 2013) aboard the RV *Connecticut* utilized the University of Connecticut's ISIS2 towed camera sled. Thirty-five ISIS camera tows were conducted in four areas (Western Jordan Basin, Mount Desert Rock, Outer Schoodic Ridge, off Monhegan Island; Figure 1). A second cruise (23 July - 6 August 2014) aboard the RV *Connecticut* employed the ROV Kraken 2. During this cruise, 21 ROV dives were conducted in three areas (Outer Schoodic Ridge, Western and Central Jordan Basin; Figure 1).

Previous surveys in the region guided the selection of survey sites in 2013. Initial investigations using ROVs in 2003 and 2004 documented a limited number of locations with dense coral communities (e.g., Auster 2005, Watling and Auster 2005). During a cruise of the NOAA Ship *Ronald H. Brown* during 2005, preliminary multibeam sonar data was collected in Western Jordan Basin and revealed that hard substratum in the immediate area around one of those sites (i.e., around the 114 Bump site identified in 2004-2004) was more spatially extensive than previously suspected (Watling and Auster, unpublished). Using these data and a detailed bathymetric chart of the Jordan Basin-Mount Desert Rock-Schoodic Ridge regions (Fisheries and Oceans Canada LC 4011), we selected areas of steep topographies in depth ranges where corals were expected to occur (i.e., the deeper depths of Maine Intermediate Water and Maine Deepwater regimes). These initial surveys and mapping efforts, along with historical records (Watling and Auster 2005, Packer et al. 2007, in review), were the basis for the current coral zone alternatives for the northern Gulf of Maine region, as described in the June 2012 Draft Deep-Sea Coral Management Alternatives (Figure 3; NEFMC 2012).

Much needed high quality multibeam data were recently collected in the region after our 2013 survey. Maps of the two primary survey areas (i.e., Western Jordan Basin and Outer Schoodic Ridge) were produced during a collaborative effort with the Ecosystem Monitoring group of NEFSC and NOAA's Office of Exploration and Research (OER) during the fall 2013 ECOMON cruise aboard the NOAA Ship *Okeanos Explorer* (Figure 4 a,b). Thus, selection of ROV dive locations in 2014 were based on topographic features illustrated in these detailed maps. A map of the Central Jordan Basin dive site, immediately along the U.S.-Canada boundary, was produced during a June 2014 cruise (HB1402) of the NOAA Ship *Henry B. Bigelow* (Figure 4c). Based on these data, we conducted one dive in the Central Jordan Basin region in 2014. Time constraints prevented additional investigations. No dives were made at Mount Desert Rock during 2014.

Results of our surveys revealed extensive coral cover in our two primary survey sites (Western Jordan Basin and Outer Schoodic Ridge; Figure 5). This pattern is somewhat biased given that we focused our efforts on topographic features that we reasoned could support coral communities in order to increase the likelihood that coral habitat would be discovered. As the map indicates, other areas in the region, such as Mount Desert Rock and Central Jordan Basin also have coral communities. Although habitat suitable for coral colonization appears to be more patchy in these areas than in the primary survey areas, additional work is needed to better define the extent of coral habitat. The spatial extent of surveys in these areas were inadequate due to limited dive time. (Note: we only report octocoral data here, as this is the primary focus and defining rationale for the coral omnibus amendment.)

Structure-forming corals at all sites were predominantly octocorals (Subclass Octocorallia, Order Alcyonacea), although scarce numbers of tiny, stony cup corals (Subclass Hexacorallia, Order Scleractinia) were observed on some dives. We classified coral occurrences as either coral present (sparse to medium density) or coral garden (high density patches). Coral gardens are defined as areas where octocorals are among the dominant fauna and occur at densities higher than surrounding patches (Bullimore, Foster, and Howell 2013). Based on ISIS2 imagery in 2013, areas in Western Jordan Basin, off Mount Desert Rock, and Outer Schoodic Ridge with steep and short vertical rock faces (ca. 2-4 m maximum height) had higher densities of octocorals (primarily *Paramuricea placomus* with lower abundances of *Primnoa resedaeformis* and *Acanthogorgia cf. armata*) than nearby areas with less vertical relief (Figure 6). Density of coral colonies on these rock faces, calculated using 20 cm parallel laser dots to calibrate the area of digital still images, had highest density values of 15.7–38.6 colonies m⁻². These density values are well above the threshold of 0.1 colony m⁻² used by ICES (2007) to define coral garden habitat. Areas adjacent to these steeper features as well as open muddy areas containing gravel, sand-gravel, and emergent rock outcrop features (with shallow expressions above the fine-grain sediment horizon), supported lower densities of coral (primarily *P. placomus*). Corals in these low relief environments co-occurred with other attached and emergent structure-forming fauna (e.g. burrowing anemone *Cerianthus borealis*, sea pen *Pennatulia aculeata*, sponge *Polymastia* sp. and other sponge taxa).

Surveys with the highly maneuverable Kraken 2 ROV during 2014 revealed additional coral-dominated sites as described above (Figure 7). Tall vertical rock walls in the Schoodic Ridge area with extremely dense and spatially extensive communities dominated by *Primnoa resedaeformis* were also observed (Figure 8). The geologic setting in Schoodic is unique, and analogous in topographic structure to slot canyon morphologies found on land (e.g., in the western United States). Coral colonies were so dense in most of these settings it was impossible to identify and count individual colonies. The vertical walls had the highest coral cover of any area along Outer Schoodic Ridge. One discrete community measured approximately 42 m horizontally x 12 m in height based on ultra-short baseline acoustic tracking and Kraken 2 altitude sonar data.

A site in Central Jordan Basin was added to the 2014 cruise to survey areas likely to support corals in U.S. waters along the U.S.-Canada boundary. The single dive revealed low-density patches of *Paramuricea* on lower vertical relief rock outcrops and mud-covered gravel (Figure 9). (In June 2014 scientists aboard NOAA Ship *Henry B. Bigelow* cruise used the Canadian ROV ROPOS to investigate deep-sea coral habitats and associated fauna in submarine canyons and the Gulf of Maine on both sides of the international boundary. Only one ROPOS dive, south of the study site reported here, was conducted in U.S. waters of Jordan Basin. Results of the *Bigelow* cruise will be reported elsewhere.)

In all areas surveyed, sponges and anemones often occurred in high density patches amongst the more extensive corals on walls and on steep features without corals (Figure 10). Sea pens also occurred in dense patches in mud and gravel-mud habitats adjacent to hard substratum habitats. Sea pens have been documented to serve as habitat for larval redfish in Canadian waters (Baillon et al. 2012).

Pandalid shrimp, amphipods, and aggregations of krill (*Meganyctiphanes norvegica*) were commonly associated with coral communities along steep walls. Acadian redfish used coral for shelter whereas Atlantic cod (juvenile and adult size classes), cusk, goosefish, pollock, silver hake and spiny dogfish were observed searching for and catching prey (i.e. pandalid shrimp, krill, small fish) near and amongst coral colonies (Figure 11). Corals also provided flow refuges for fishes from tidal generated currents. Crustacean taxa (American lobster *Homarus americanus*; king crab *Lithodes maja*) occurred in association with structure-forming organisms on the seafloor, including corals, and were observed foraging amongst these features as well.

Noteworthy is the first documentation of the occurrence of *Anthothela grandiflora* in the Gulf of Maine (Figure 12). This species has been observed off the Northeast Channel along the continental margin at depths deeper than 1400 m (Cogswell et al. 2009). Also, we observed the sea star *Hippasteria phrygiana* preying on *Primnoa*. These predation events occurred on living coral colonies that had been detached from rock walls and were laying on the seafloor (Figure 13).

Areas exhibiting recent direct impacts from fishing activities were observed at sites in Western and Central Jordan Basin and Outer Schoodic Ridge. In steep areas, paths or tracks, consistent with setting or recovery of trap gear, were denuded of corals and associated fauna (Figure 14a-c). The peaks of some ridges and nearly horizontal sections of wider outcrops were also denuded. Tracks observed here were consistent with impacts from mobile fishing gear (Figure 14d-e). Some coral patches exhibited damage to large but still living colonies. Smaller colonies were also distributed within the patch, producing a disjunct size class structure, and suggesting previous impacts with subsequent recruitment (Figure 14f).

Here we have summarized results from recent research cruises focused on deep-sea coral resources within the northern Gulf of Maine region with the intent to provide the Council with improved information for conservation and management. This project principally addressed the "Exploration and Research" goal of NOAA's Deep Sea Coral Research and Technology Program (DSCRTP)(NOAA 2010) and the specific objectives to: "locate and characterize deep-sea coral and sponge ecosystems, understand the biology and ecology of deep-sea corals and sponges, understand the biodiversity and ecology of deep-sea coral and sponge ecosystems, and understand the extent and degree of impact to deep-sea coral and sponge ecosystems." Meeting these objectives links directly to the second DSCRTP goal of "Conservation and Management." Data collected provides information needed to inform the management process to protect coral communities from fishing gear impacts and conserve those areas not currently fished. This work also meets NOAA's long-term mission Goal #3 focused on "Healthy Oceans." In particular, research and information products that result from this deep sea coral survey effort will directly inform NOAA Fisheries and the New England Fisheries Management Council and improve conservation and sustainable use of "[m]arine fisheries, habitats, and biodiversity ..." by aiding development of management alternatives related to deep sea corals and essential fish habitat.

Highest abundances and diversity of deep-sea corals off the Northeast United States occur in deep submarine canyons and seamounts far offshore along the edge of the continental shelf (Packer et al. 2007). That said, the extremely high densities observed for at least two large-sized, structure forming species of corals in the relatively shallow waters of the Gulf of Maine is unique. The proximity of these habitats so close to shore increases the potential role of these habitats to function as EFH (e.g., Auster 2005). Finding these spectacular walls of corals in the Gulf of Maine for the first time in 2014, after 40-plus years of submersible surveys, illustrates how much more we need to understand about the Gulf of Maine ecosystem in order to better conserve and manage our natural resources.

Acknowledgements

This work was funded by the National Oceanic and Atmospheric Administration's Deep Sea Coral Research and Technology Program through NOAA Grant NA13NMF4720187, NOAA Contract EA-133F-14-SE-3060, and NOAA Grant NA14OAR4320158 through the Cooperative Institute for North Atlantic Region. We thank the crews of the RV *Connecticut* as well as the ISIS 2 and Kraken 2 underwater vehicles for exceptional support in the field. The opinions expressed herein are those of the authors and do not necessarily reflect the opinions of NOAA or its sub-agencies.

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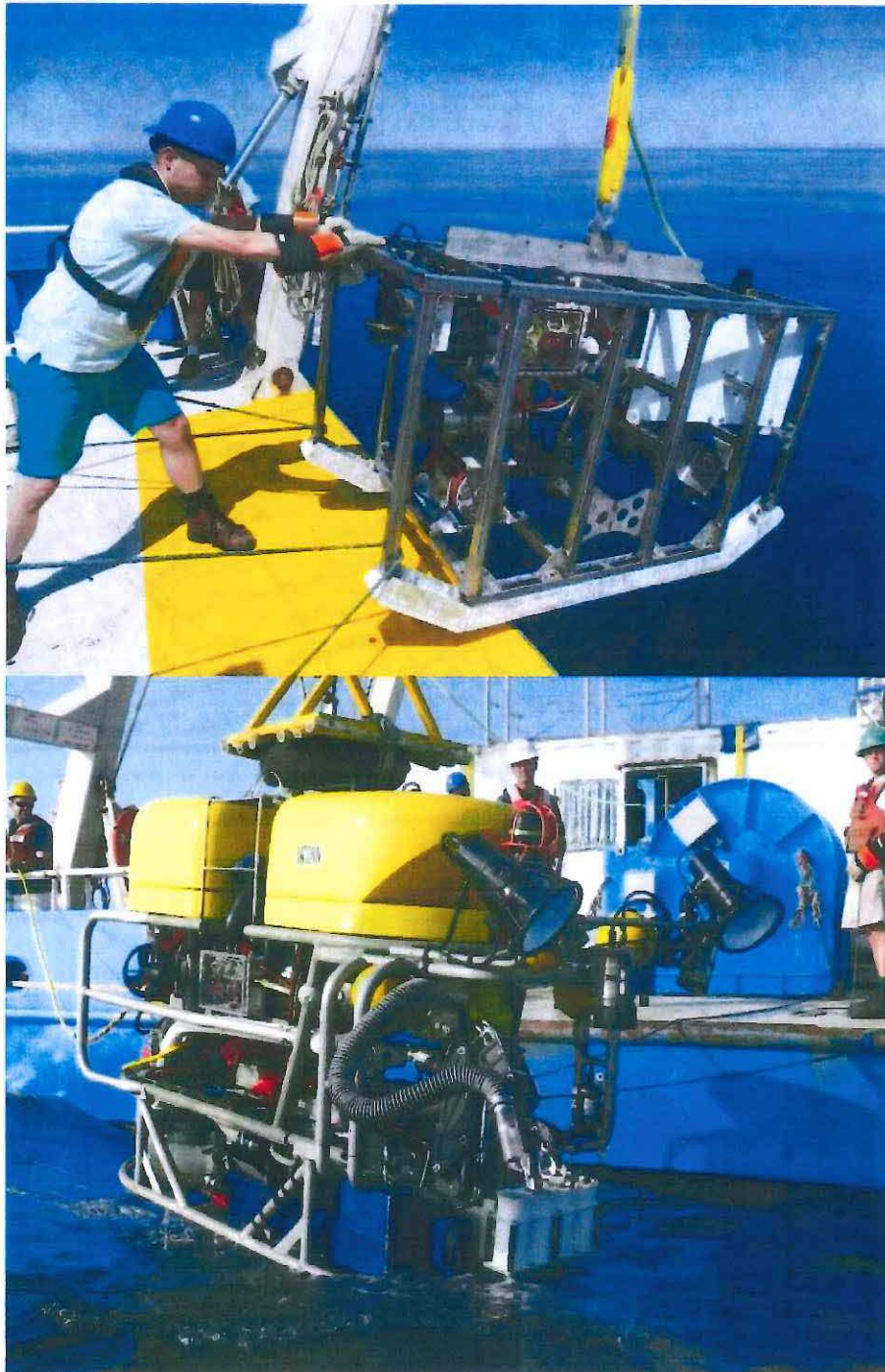
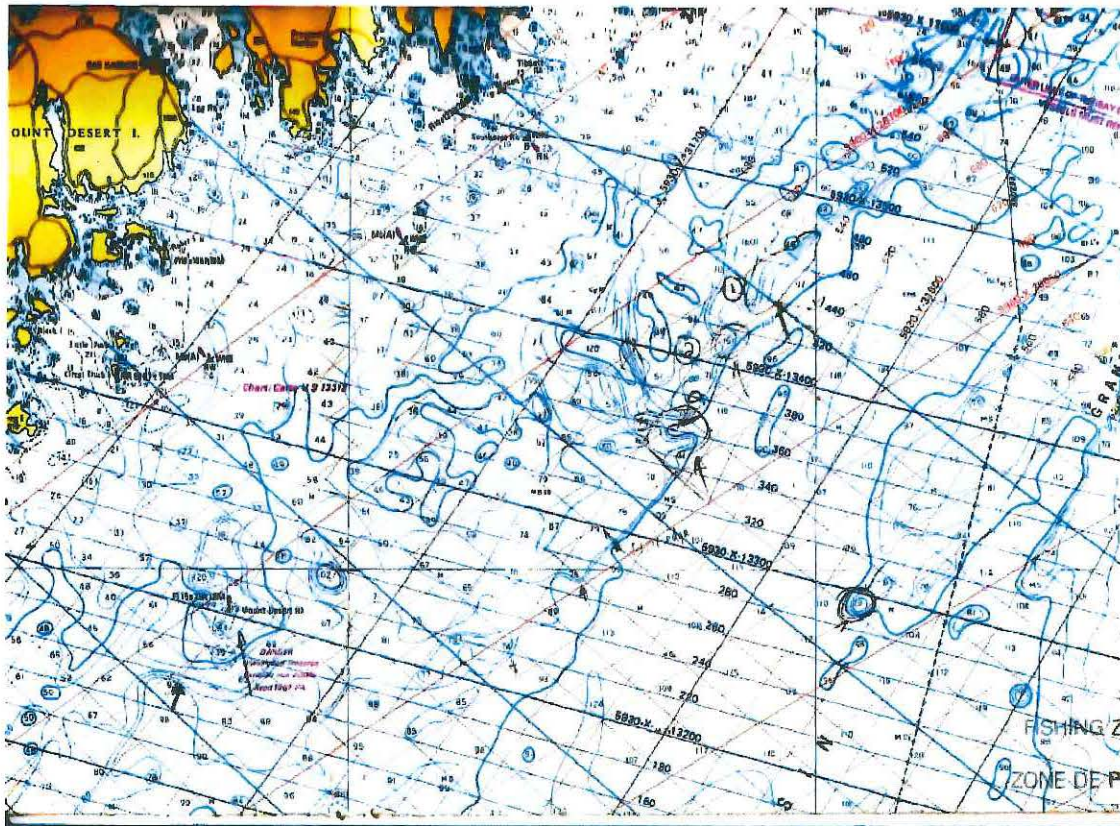
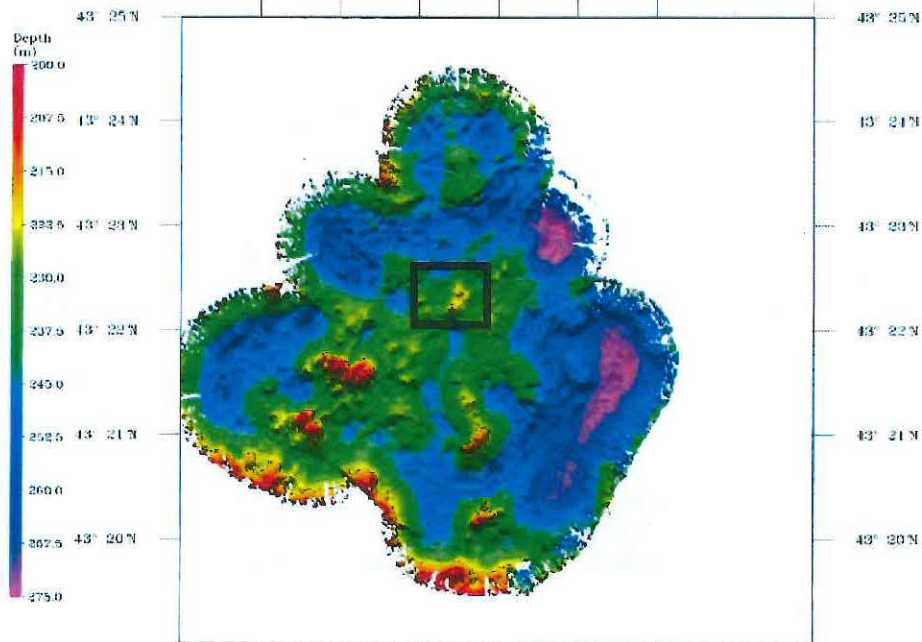


Figure 1. (Top) Instrumented Seafloor Imaging System 2 (ISIS 2) and (bottom) Kraken 2 Remotely Operated Vehicle (ROV). Both systems have forward and down-looking video and digital photographic capabilities. ISIS 2 can be rapidly deployed and recovered but can only maneuver in X-Y directions along complex seafloor via ship movement using dynamic positioning, with depth adjusted via shipboard winch. This system is limited to imaging tasks. Kraken 2 has more complex launch-recovery requirements but is able to finely maneuver for imaging as well as to collect and store samples with a manipulator arm and suction sampler.



07° 52' W 07° 51' W 07° 50' W 07° 49' W 07° 48' W 07° 47' W 07° 46' W 07° 45' W 07° 44' W



07° 52' W 07° 51' W 07° 50' W 07° 49' W 07° 48' W 07° 47' W 07° 46' W 07° 45' W 07° 44' W

Figure 2. (Top) Bathymetric chart of Mount Desert Rock – Schoodic Ridges region (Fisheries and Oceans Canada LC 4011) used to identify 2013 ISIS2 camera tow stations along areas of steep topography. (Bottom) Multibeam bathymetric map from NURP-UConn 2005 NOAA Ship *Ronald H. Brown* cruise. The 114 Bump site, identified during 2003-2004 cruises in Western Jordan Basin, is indicated by the box.

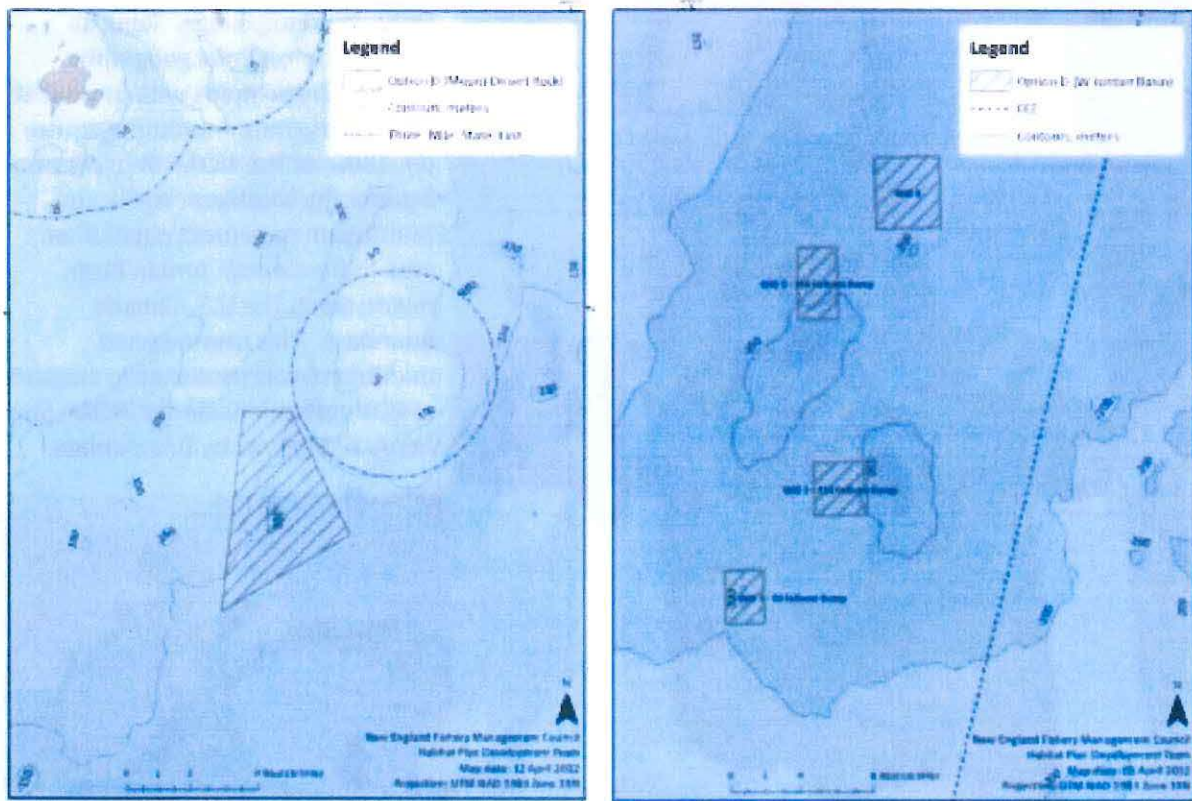


Figure 3. Maps of current draft alternatives for discrete deep-sea coral zones in the Gulf of Maine: Mount Desert Rock area (left) and Western Jordan Basin (right). Source: Maps 12 and 13 in NEFMC June 2012 Draft Deep-Sea Coral Management Alternatives.

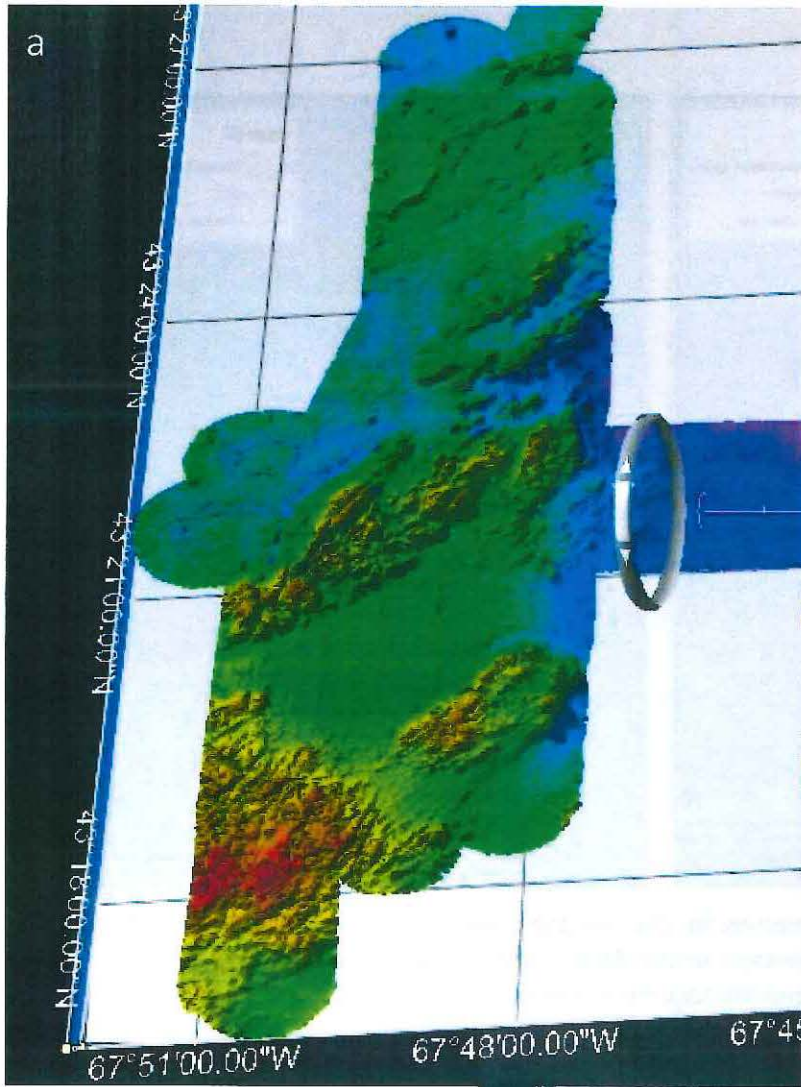
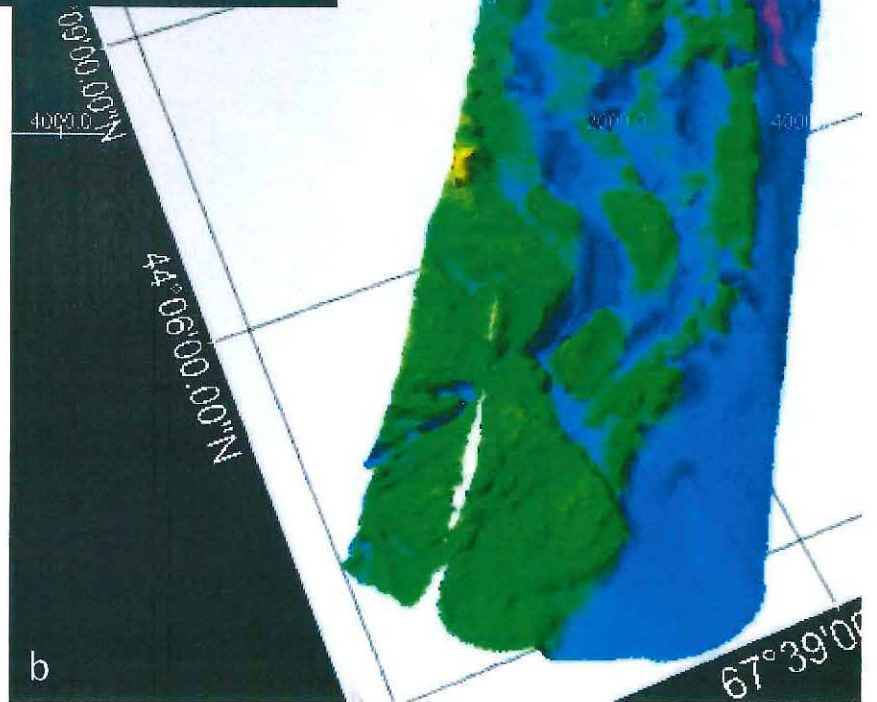


Figure 4. Detailed multibeam maps of (a) Western Jordan Basin and (b) Outer Schoodic Ridge. Refer to Figure 3 for regional geographic setting. These maps were produced on an ecosystem monitoring cruise (EX 1305) of the NOAA Ship *Okeanos Explorer* by Mashkoor Malik. (c) Multibeam map (next page) of an area in the Central Jordan Basin region along the U.S.-Canada boundary. This unprocessed multibeam was produced in support of ROV operations on the NOAA Ship *Henry B. Bigelow* by Brian Kinlan.



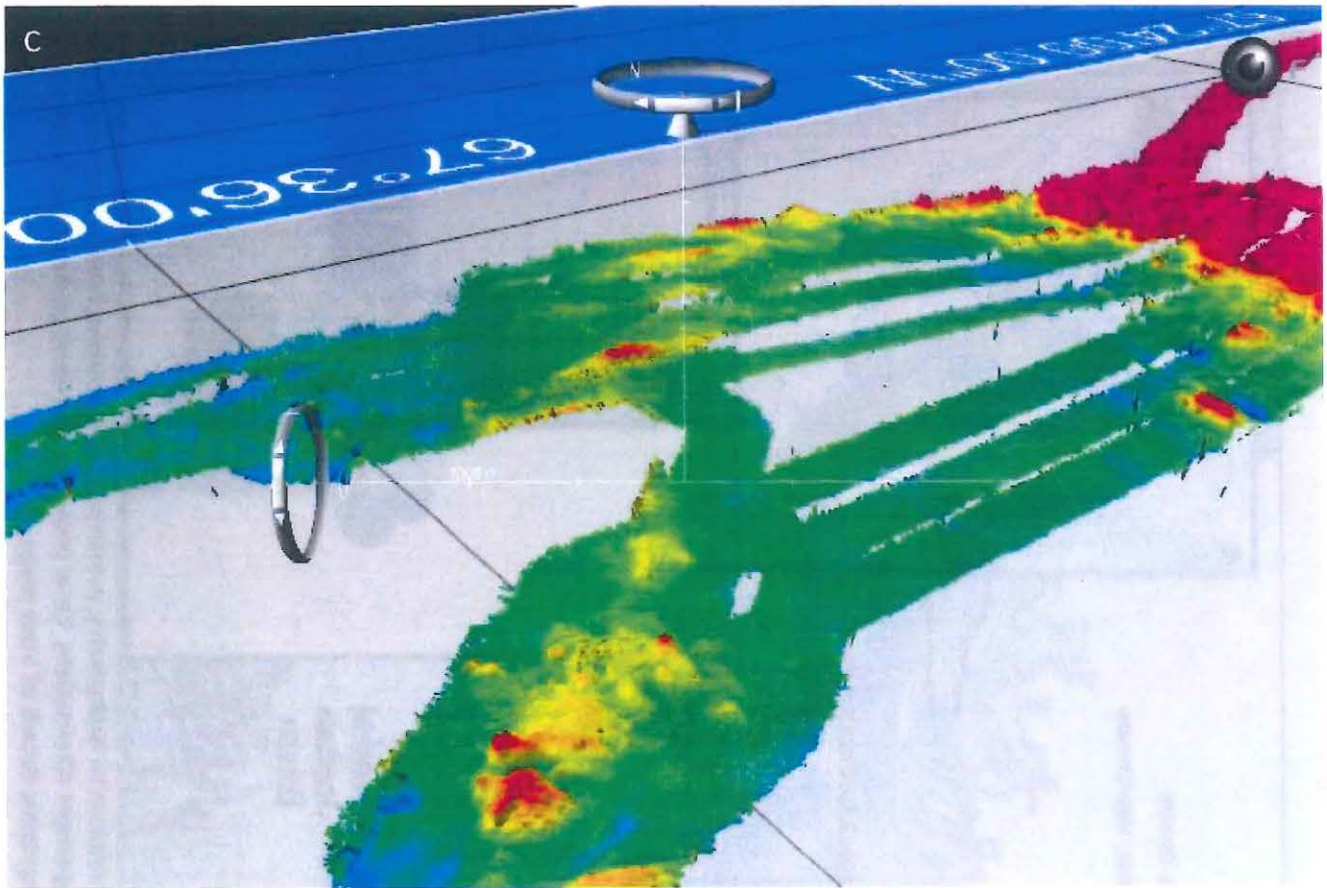


Figure 4. continued

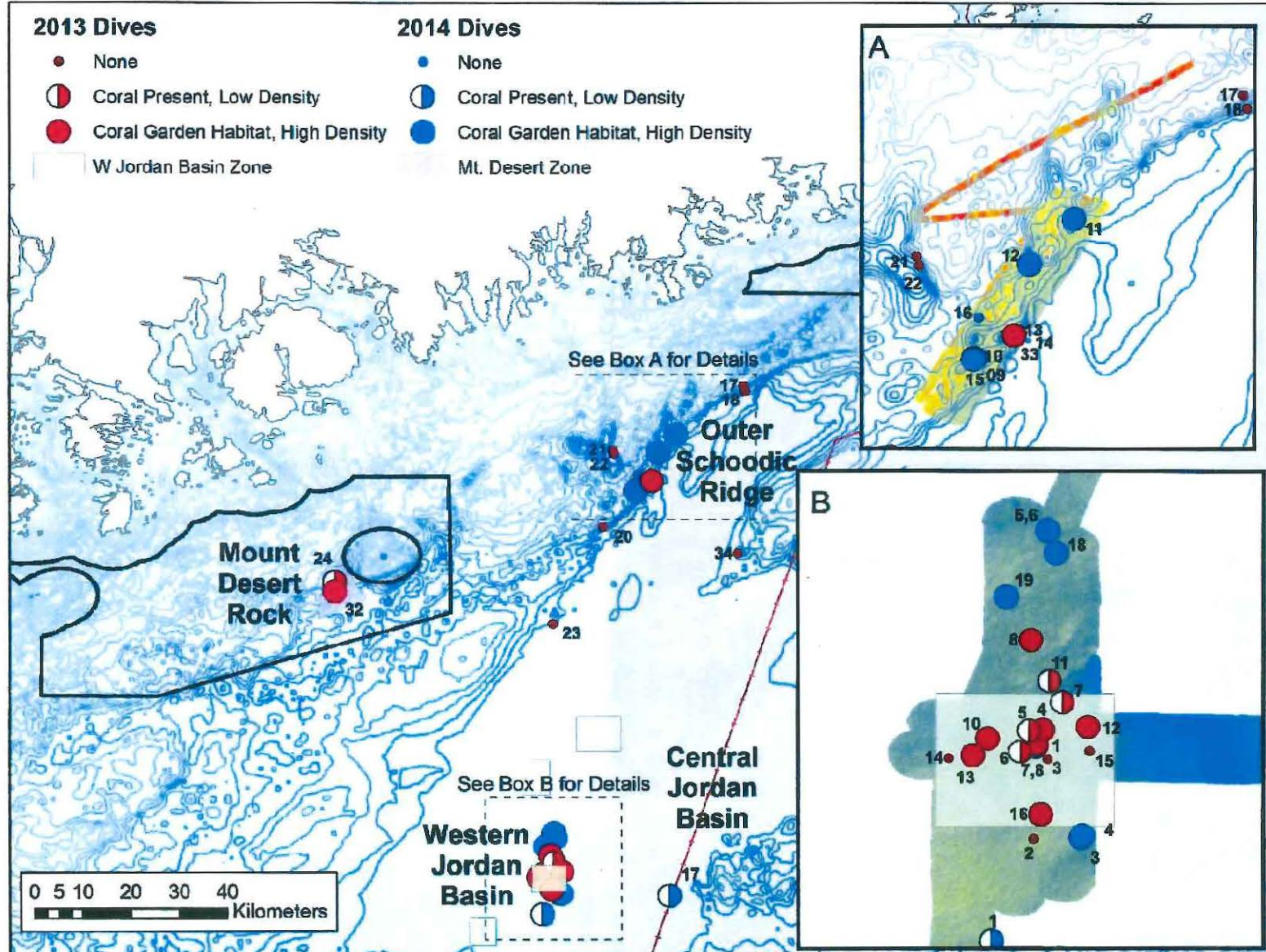


Figure 5. Location of ISIS 2 tows (2013) and Kraken 2 dives (2014) in relation to bathymetry, proximate habitat management alternatives in Omnibus Habitat Amendment 2, and the Draft Deep-Sea Coral Management Alternatives. Coral presence and coral garden classifications are based on definitions in the text. Refer to Figure 4 for multibeam topographic details of inset maps.

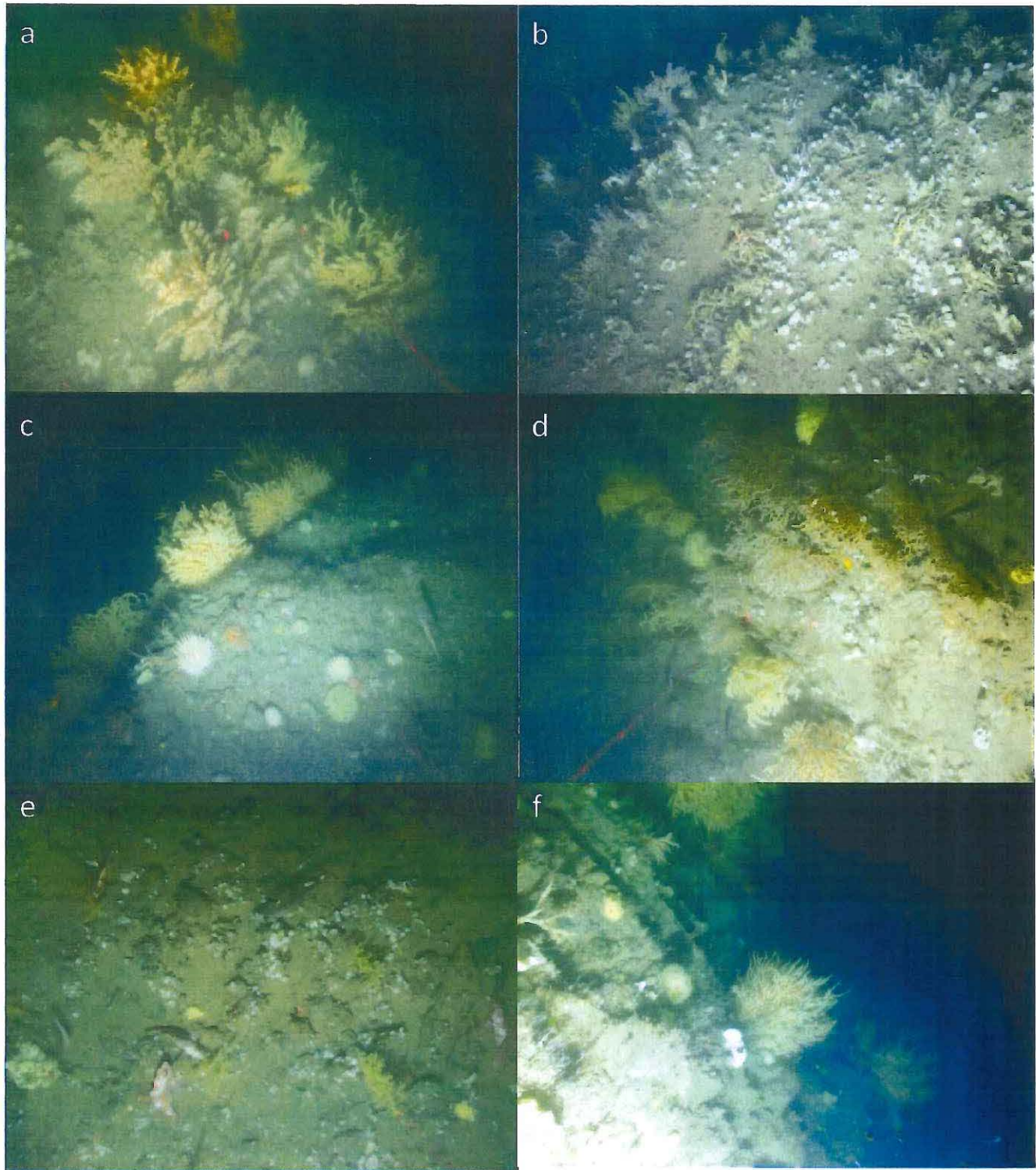


Figure 6. Figure 6. Down-looking images from ISIS2 2013 cruise with 20 cm parallel laser dot spacing of (a) *Paramuricea placomus* (yellow), *Primnoa resaediformis* (orange), and perhaps *Acanthogorgia cf. armata* (brown) along a steep escarpment in Western Jordan Basin. (b) mostly *P. placomus* distributed along sloping rock face with brachiopods in Western Jordan Basin. (c) View from rock crest illustrating *P. resaediformis*(?) on vertical wall at Outer Schoodic Ridge. (d) Color morphs of mostly *P. placomus* at Outer Schoodic Ridge. (e) *P. placomus* on coarse gravel at Outer Schoodic Ridge. (f) Large colonies of *P. resaediformis*(?) along rock wall off Mount Desert Rock.

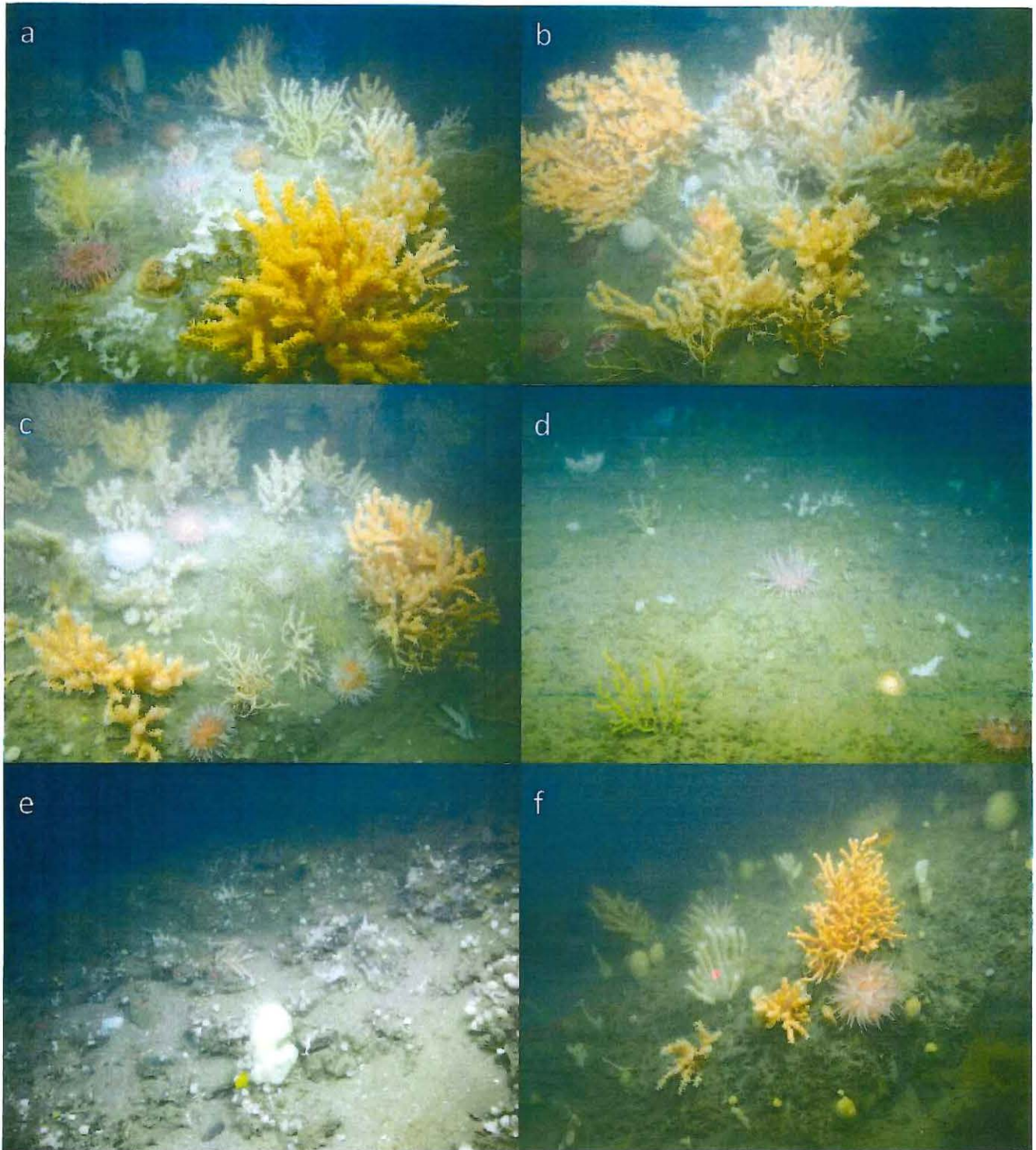


Figure 7. Examples from additional stations during the 2014 cruise illustrating coral garden and sparse coral habitats. All oblique images from Kraken2 with parallel laser dots at 10 cm spacing. (a-c) Dense garden habitat including *Primnoa resaediformis* and *Paramuricea placomus* in western Jordan Basin. (d) Sparse *P. placomus* distributed along horizontal outcrop in western Jordan Basin. (e) Sparse *P. resaediformis* on gravel pavement below vertical wall at Outer Schoodic Ridge. (f) Corals and sponges at Outer Schoodic Ridge.



Figure 8. Examples of coral garden habitat seen during 2014 formed by *Primnoa resedaeformis* on near vertical rock walls along Outer Schoodic Ridge. Laser dots are 10 cm apart. (a, b) Example of dense and continuous coverage of *P. resedaeformis* along rock walls. (c-e) Examples of discontinuities in coral cover. Sponges and anemones utilize spaces in these gaps. (f) Patch of coral amongst larger patch of sponges and other attached fauna.

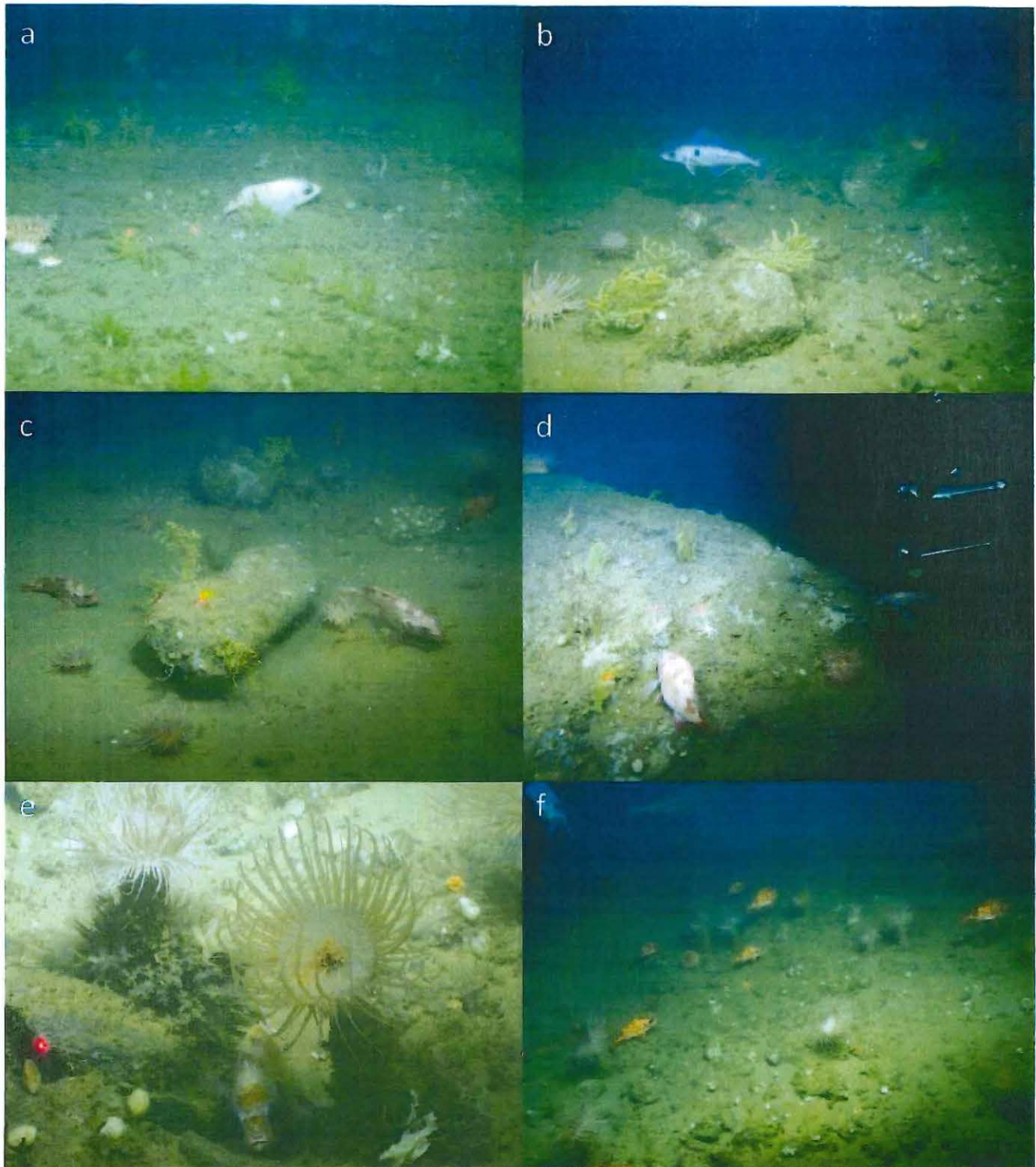


Figure 9. Examples of coral distribution, primarily *Paramuricea placomus*, at the Central Jordan Basin site during 2014. Laser dots are 10 cm apart. (a) Example of low density corals on gravel pavement. (b, c) *P. placomus* on scattered boulders distributed on mud draped gravel. (d) Coral and other attached fauna on rock outcrop. (e, f) The burrowing anemone *Cerianthus borealis* also serves as a primary structure forming organism in muddy areas.

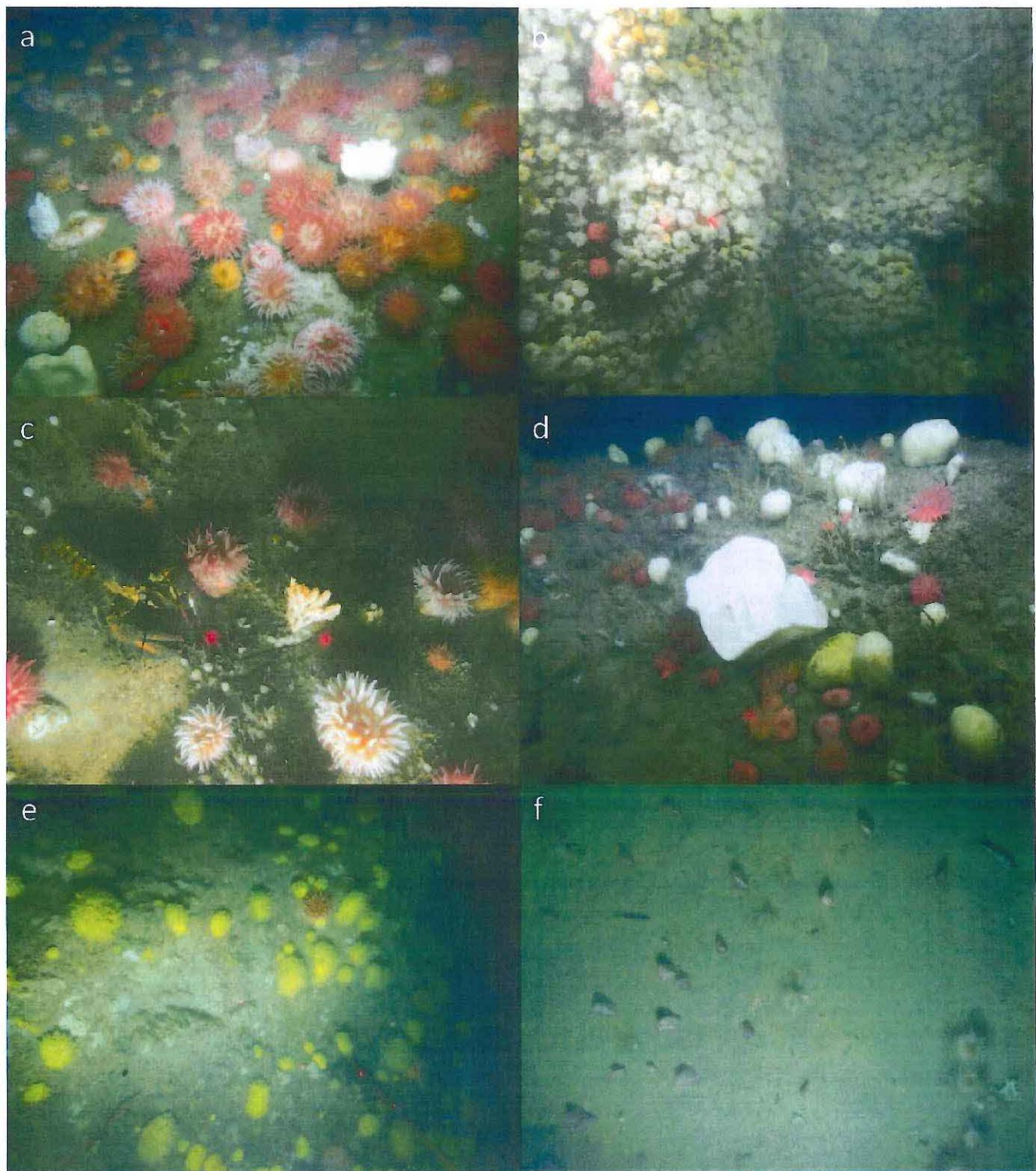


Figure 10. Examples of dense patches of other structure forming fauna from 2013 (laser dots 20 cm apart) and 2014 (laser dots 10 cm apart) surveys. (a) Anemones and sponges, Western Jordan Basin, 2014. (b) Anemones on vertical wall, Outer Schoodic Ridge, 2014. (c) *P. resedaeformis*, lobster, and anemones, Western Jordan Basin, 2013. (d) Sponges (*Polymastia* and *Phakellia* among them) and anemones, Outer Schoodic Ridge, 2014. (e) *Polymastia* sponges and anemones, Outer Schoodic Ridge 2013. (f) Sea pens (*Pennatula aculeata*) and burrowing anemones on mud bottom, Outer Schoodic Ridge 2013.

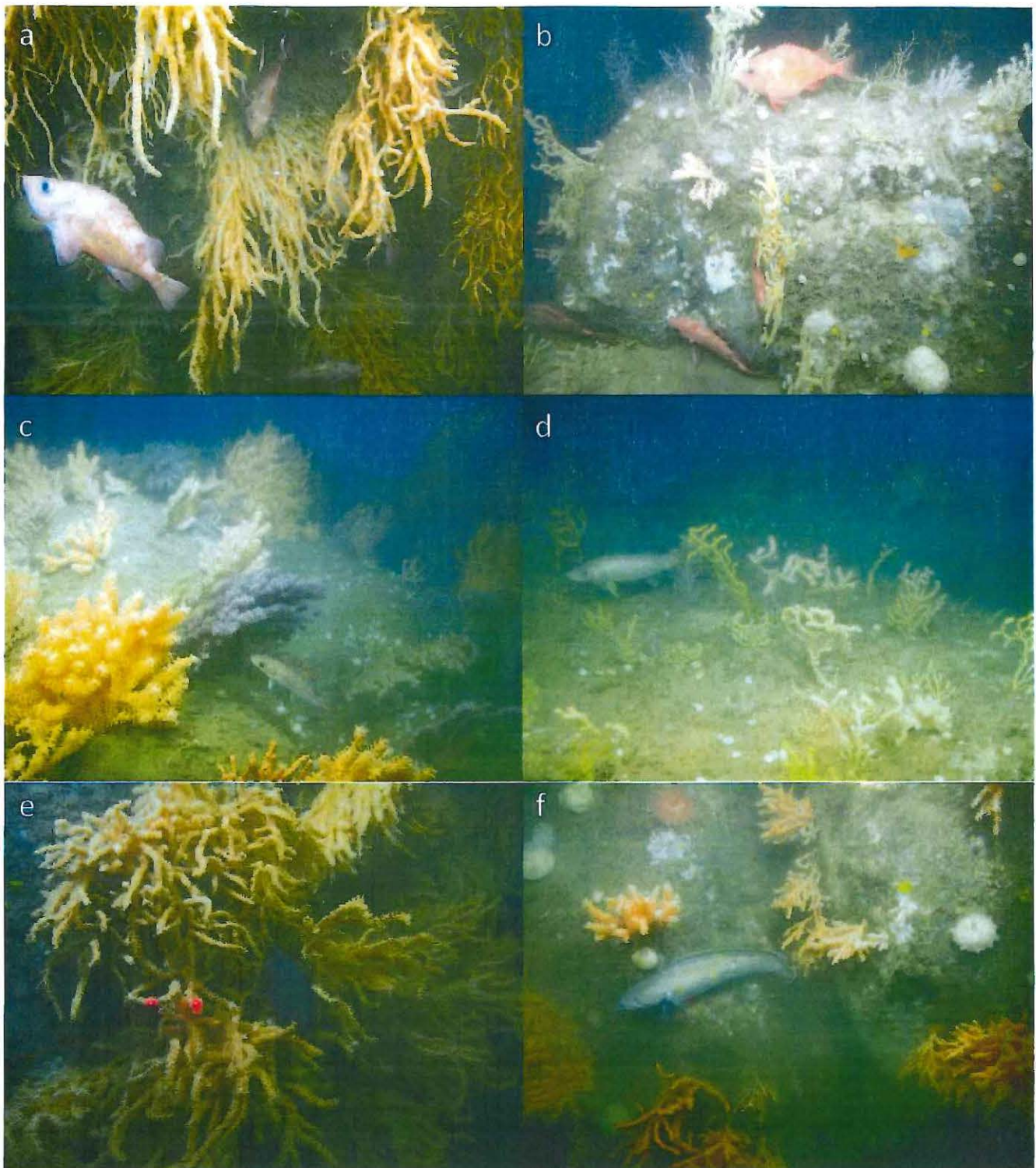


Figure 11. Examples of fish associations with coral habitats. All from 2014 surveys (laser dots 10 cm apart) except (h) from 2013 (laser dots 20 cm apart). (a, b) Acadian redfish, Outer Schoodic Ridge and Western Jordan Basin, respectively. (c, d) Atlantic cod, Western Jordan Basin. (e, f) Cusk, Outer Schoodic Ridge.

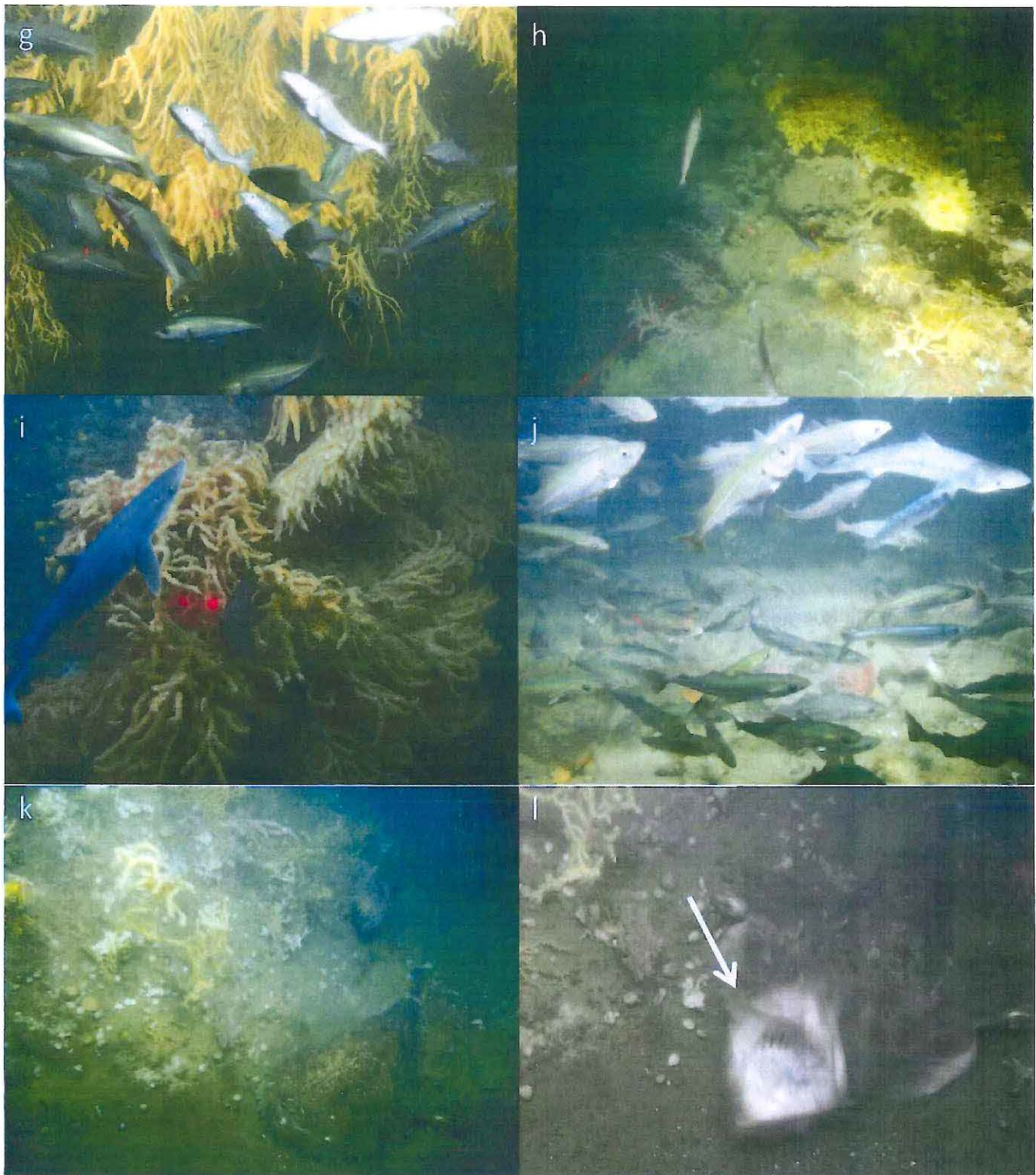


Figure 11. (continued) (g) Pollock, Outer Schoodic Ridge. (h) Juvenile silver hake, Outer Schoodic Ridge. (i) Spiny dogfish and cusk, Outer Schoodic Ridge. (j) Pollock, Atlantic herring and spiny dogfish, Outer Schoodic Ridge. (k) Goosefish, Western Jordan Basin; (l) Goosefish as in previous image unsuccessfully attacking a small silver hake (at arrow).



Figure 12. Specimen of *Anthothela grandiflora* at 214 m on Outer Schoodic Ridge (2014). A first report for this species in the Gulf of Maine.

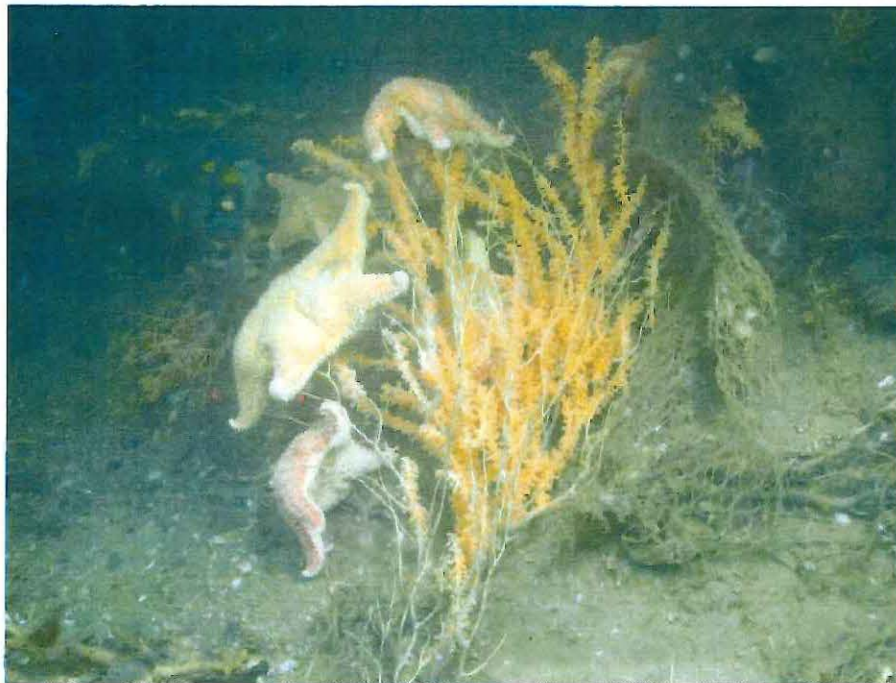


Figure 13. Cushion stars *Hippasteria phrygiana* preying upon a fallen colony of *Primnoa reseadiformis* on Outer Schoodic Ridge (2014).

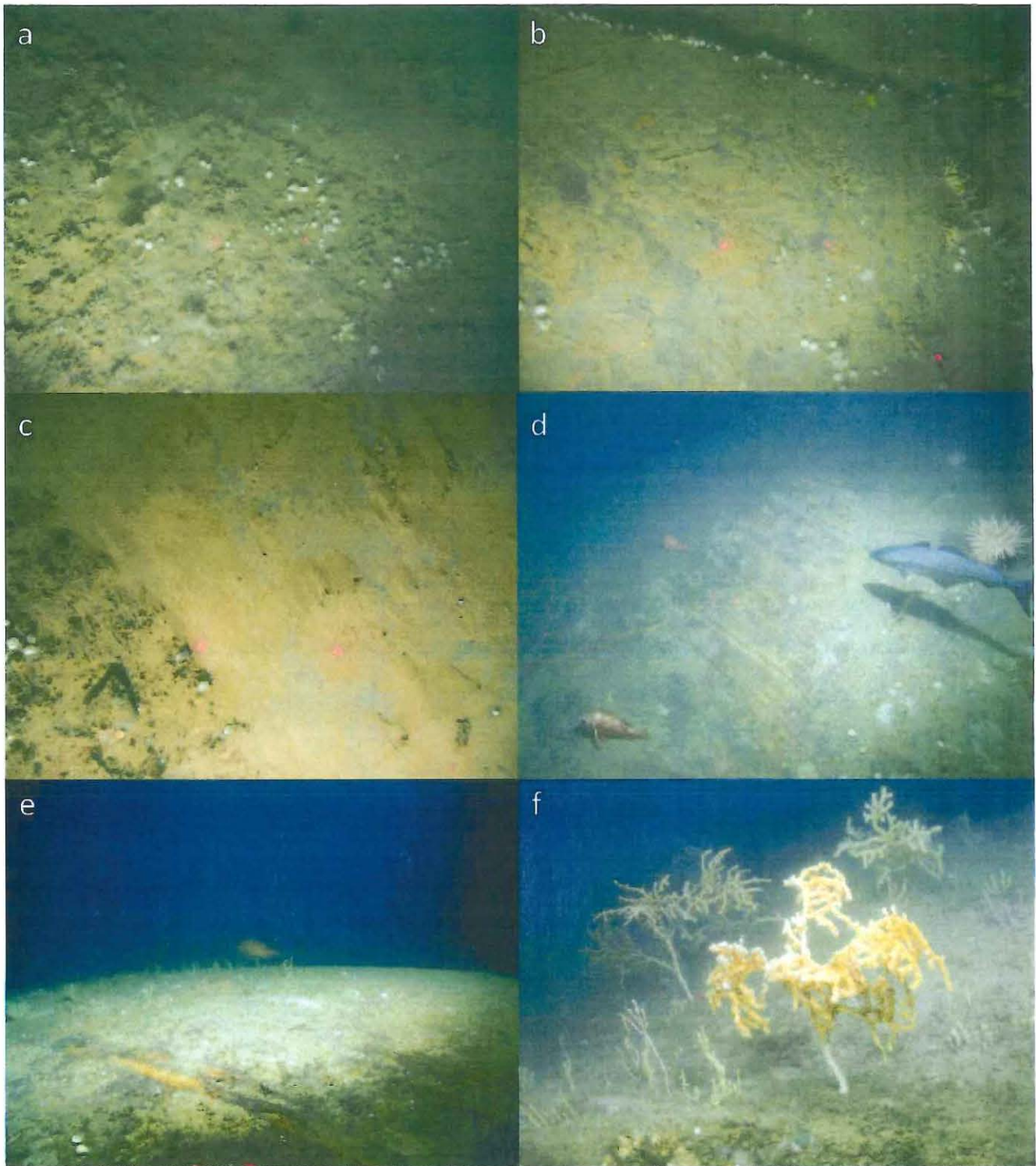


Figure 14. Examples of impacts to coral habitats. (a-c) Examples of impacts consistent with fixed gear from 2013 surveys (laser dots 20 cm apart), Western Jordan Basin. (d, e) Examples of mobile gear impacts to hard bottom from 2014 surveys (laser dots 10 cm apart), Central Jordan Basin site. (f) Example of sub-lethal damage to corals and subsequent recruitment resulting in disjunct size class structure, from 2014 surveys (laser dots 10 cm apart), Western Jordan Basin.