Atlantic States Marine Fisheries Commission

ADDENDUM II TO THE INTERSTATE FISHERY MANAGEMENT PLAN FOR JONAH CRAB

Coastwide Standard for Claw Landings and Bycatch Definition

Vision: Sustainably Managing Atlantic Coastal Fisheries

January 2017

1.0 Introduction

The Atlantic States Marine Fisheries Commission (ASMFC) coordinates the interstate management of Jonah crab (*Cancer borealis*) in state waters (from 0-3 miles offshore). ASMFC manages Jonah crab through an Interstate Fishery Management Plan (FMP), which was approved in August 2015 under the authority of the Atlantic Coastal Fisheries Cooperative Management Act (1993). Management authority in the exclusive economic zone (EEZ), which extends from 3-200 miles offshore, lies with NOAA Fisheries. The management unit for Jonah crab includes the Atlantic states from Maine through Virginia. The biological range of the species is primarily from Newfoundland, Canada to Florida.

The American Lobster Management Board (Board) initiated Addendum II to the FMP to consider a coastwide standard for claw landings in the Jonah crab fishery. The FMP specifies a whole crab fishery with the exception of individuals from New Jersey, Delaware, Maryland and Virginia who can prove a history of claw landings before the June 2, 2015 control date. The FMP allows claw landings for these fishermen due to the historic practice of declawing Jonah crab in the Delmarva Peninsula. After final action was taken on the FMP, claw fishermen were identified in New York and Maine. In accordance with the FMP, these New York and Maine fishermen are required to land whole crabs.

Given concerns regarding the equity of the FMP's claw provision (namely that some fishermen with a history of claw landings are allowed to continue this practice while others must land whole crabs) and the fact that the fishery is primarily executed in federal waters, the Board requested NOAA Fisheries provide regulatory guidance on the claw provision in the FMP. In a letter dated February 29, 2016, NOAA Fisheries highlighted potential challenges with implementing the FMP's claw regulation since it does not provide equal opportunities to like participants across the fishery. As a result, the Board directed the Plan Development Team (PDT) to draft an addendum to consider a range of options that would establish a coastwide standard for claw harvest in the Jonah crab fishery.

At its October 2016 meeting, the Board added a second issue to Addendum II to consider establishing a definition of bycatch in the Jonah crab fishery. Per Addendum I, there is a 1,000 crab per trip bycatch limit for non-trap and non-lobster trap fishermen. While the bycatch limit is intended to accommodate incidental catch, no definition of bycatch is provided. As a result, the bycatch allowance may support a small-scale fishery as fishermen harvesting Jonah crab under the bycatch limit may land 1,000 crabs per trip and nothing else. In order to reflect the intention of the bycatch limit, to account for Jonah crab caught while targeting another species, the Board added options to Addendum II to establish a definition of bycatch in the fishery.

2.0 Overview

2.1 Statement of the Problem

The Jonah Crab FMP established a whole crab fishery with the exception of individuals from New Jersey, Delaware, Maryland, and Virginia, who can prove a history of claw landings before June 2, 2015. However, following approval of the FMP, fishermen from New York and Maine who were landing claws were identified. Under the FMP, these individuals are only allowed to land whole crabs. Given concerns about the equity of the claw provision, as well as potential challenges implementing the regulation in federal waters, the Board initiated this addendum to consider establishing a coastwide standard for claw harvest in the Jonah crab fishery. In October 2016, the Board added a second issue to the Addendum to consider establishing a definition of bycatch in the Jonah crab fishery in order to prevent the creation and expansion of a small-scale fishery.

2.2 Background

Jonah crab has long been considered a bycatch of the lobster fishery; however, in recent years there has been an increase in the targeted harvest of Jonah crab. Since the early 2000s, landings of Jonah crab have increased 650%, creating a mixed crustacean fishery which can target lobster or crab at different times of the year based on slight, legal gear modifications and small shifts in the areas in which traps are fished. This rapid increase in landings can be attributed to a number of factors including a decrease in the abundance of lobsters in Southern New England, causing fishermen to supplement their income with Jonah crab, and an increase in the price of other crab (such as Dungeness), creating a substitute market for Jonah crab. There is also speculation that the increase in landings reflects an increase in the abundance of Jonah crab. While a stock assessment has not been completed for the species, data from the Rhode Island Fish Trawl Survey suggests that the abundance of cancer crabs has increased since 1959. As a result of the immense growth in this fishery, ASMFC approved a FMP for Jonah crab to support the implementation of a unified coastal management program which promotes the conservation and full utilization of the Jonah crab resource.

Landings in the commercial fishery fluctuated between approximately 2 and 3 million pounds throughout the 1990's but steadily rose to over 17 million pounds in 2014. A similar increase occurred in the economic importance of the fishery as ex-vessel value rose from roughly $1.5 million in the 1990's to an estimated $13 million in 2014. Landings in 2014 predominately came from Massachusetts (70.4%), followed by Rhode Island (24.5%).

While the majority of Jonah crab is harvested as whole crabs, fishermen from numerous states, including Maine, New York, New Jersey, Delaware, Maryland and Virginia land claws. Jonah crab claws are relatively large and can be an inexpensive substitute for stone crab claws. As a result, they can provide an important source of income for fishermen. Claws can also be harvested for personal consumption; however, these landings are not well documented. A historic claw fishery takes place along the Delmarva Peninsula. These traditionally small boat fishermen harvest Jonah crab claws

because they do not have a seawater storage tank on board to store whole crabs. As a result, landing claws avoids economic inefficiencies for this small fleet.

Jonah crab is also landed as bycatch in non-trap gear, such as bottom otter trawls and gillnets, and non-lobster trap gears, such as whelk pots, crab pots, and fish pots. Non-trap gears account for roughly 0.1% of Jonah crab landings annually, with total non-trap landings varying between 2,986 pounds in 2011 and 13,211 pounds in 2014 (Table 1). Landings by non-lobster trap gears are a bit higher. Data submitted by NOAA Fisheries show between May 1, 2013 and August 31, 2015, 194 trips landed Jonah crab with whelk pots, crab pots, and fish pots.[1] Of these, 80 trips landed 100 crab or fewer and 115 trips landed 200 crab or fewer. Approximately 45 trips landed between 200 and 500 crab and 40 trips landed more than 450 crab. Trips with the highest landings came from whelk pots.

Table 1: Number of trips landing Jonah crab with non-trap gear and estimated total landings (2010-2014). Provided by New England Fishery Management Council (NEFMC).

Year	Number of Permits Landing Jonah Crab w/ Non-Trap Gear	Number of Trips Landing Jonah Crab w/ Non-Trap Gear	Total Non-Trap Jonah Crab Landings (lbs)	% of Year's Total Jonah Crab Landings
2010	21	87	10,815	0.099%
2011	23	62	2,986	0.032%
2012	14	45	4,099	0.035%
2013	22	89	6,081	0.038%
2014	17	113	13,221	0.078%

Jonah Crab Claw Landings

Information on the magnitude of the Jonah crab claw fishery is limited. As a result, it is unclear how many fishermen are landing claws or the magnitude of pounds being harvested. The primary obstacle in obtaining this information is that trip level harvester reporting has not been required in all jurisdictions. Furthermore, prior to the implementation of the Jonah Crab FMP, many states did not require trip-level dealer reporting to delineate between whole crabs and claws.[2] As a result, data on the Jonah crab claw fishery is incomplete. Refer to Appendix 1 for a summary of state reporting in the Jonah crab fishery prior to the implementation of the FMP.

Table 2 shows claw landings reported to the ACCSP Data Warehouse between 2010 and 2015. Total claw landings from 2010-2015 were just under 150,000 lbs; however, this is likely an underestimate given that Jonah crab dealer reporting has not always specified market category and claws harvested for personal consumption are often not reported. Claws are primarily landed by pots and traps, with lobster pots accounting for up to 95%

[1] Data provided by NOAA GARFO from the Vessel Trip Report database. Assumes that 1 crab=1 pound.
[2] As a part of the Jonah Crab FMP, states were required to implement Jonah crab dealer reporting which specifies market grade by June 1, 2016.

of the claw landings (a majority of pots and traps are not specified in the data reports so it is unclear what percentage of these landings are from lobster pots versus fish pots). Gill net and otter trawl fishermen comprise 2.7% of claw landings. When these gears encounter Jonah crab, fishermen harvest the claws because they are often forced to detach the claws in order to remove the crab from the net.

Table 2: Jonah crab claw landings in the management unit (ME through VA) from 2010-2015. (Source: ACCSP Data Warehouse.) The unspecified 'pots/traps' category could include lobster pots, fish pots, conch pots, and crab traps.

Year	Pots/traps (Type not specified)	Lobster Pot	Fish Pot	Gill Net	Otter Trawl	Total
Jonah Crab Claw Landings from 2010 – 2015 (lbs)	75,847	66,296	3,081	2,115	1,958	149,297
Percent of Total	50.8%	44.4%	2.1%	1.4%	1.35%	100%

While prior to the FMP Maryland did not require reporting to differentiate between claws and whole crabs, efforts were made to determine the market category of Jonah crab landings from trip level reports. ACCSP confidential dealer reports and state fishing report data were analyzed. Available fishermen were interviewed and a Jonah Crab Advisory Panel member described the practices of the fleet over the time period. From these efforts, Maryland staff determined that between 2000 and 2015, only one fishing vessel predominately landed whole crabs while the remainder of the fleet (n=18) landed both claws and whole crabs. The information also showed that the number of trips landing claws has increased from approximately 19 trips in 2011 to 70 trips in 2015. The amount of claws landed on these trips ranged from just a few pounds to a couple thousand pounds. These vessels used a variety of gears including lobster pots, conch pots, otter trawls, and gill nets.

Jonah Crab Claw Morphometric and Mortality Data

To date, the life cycle of Jonah crab is poorly understood. Several studies have recently been conducted to better understand the biology of this species. As part of a Saltonstall-Kennedy Grant awarded in 2015 to collect biological data in the Jonah crab fishery, the Massachusetts Division of Marine Fisheries measured the carapace width and claw length of several hundred Jonah crabs from Southern New England (inshore and offshore) and Georges Bank. From this data, the relationship between carapace width and claw length was examined (Figure 1). The data suggests that, for a male crab whose carapace width meets the minimum size of 4.75" (120.65 mm), an average (expected) claw length would be 2.47" (62.84mm).

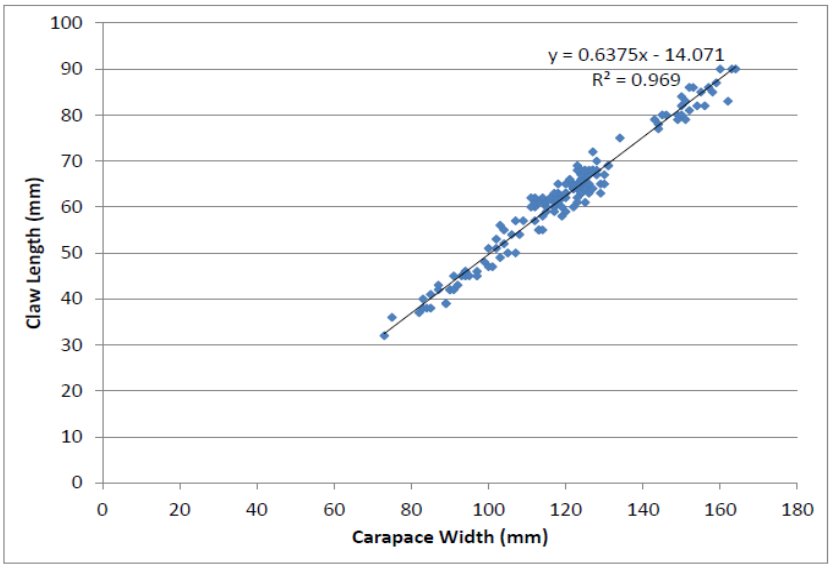

Figure 1: Linear regression between the carapace width and claw length of male Jonah crabs (n=153). Measurements from regenerated claws were removed using a least square method. Regional differences in claw length may be masked since crabs from Southern New England and Georges Bank are presented together (Source: MA DMF).

Morphometric data was also collected on female Jonah crabs in Georges Bank and Southern New England. Figure 2 shows that, for a female crab whose carapace width meets the minimum size of 4.75" (120.65mm), the expected claw length would be 2.06" (52.33mm). This is smaller than the expected claw length for males. Furthermore, 100% of female crabs sampled had claw lengths less than 2.75" (69.85mm).

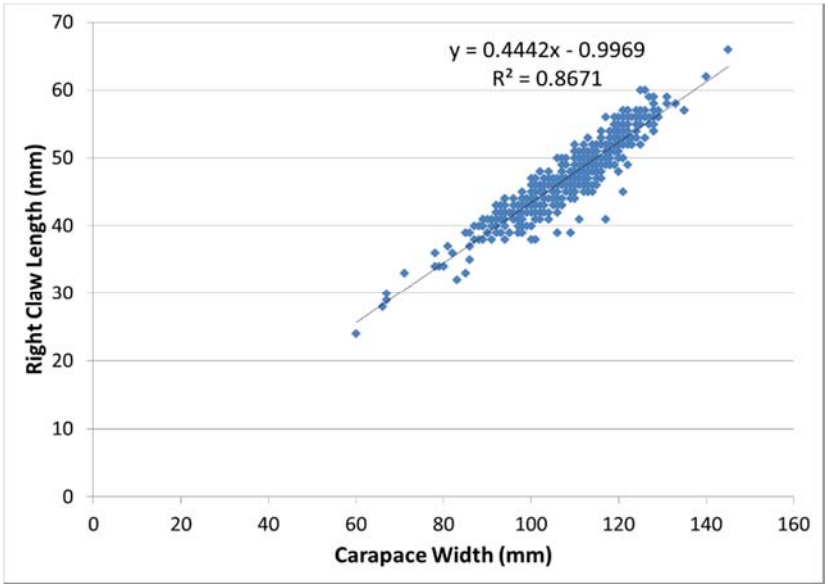

Figure 2: Linear regression between the carapace width and claw length of female Jonah crabs (n=480). Measurements from regenerated claws were removed using a least square method. Regional differences in claw length may be masked since crabs from Southern New England and Georges Bank are presented together (Source: MA DMF).

Preliminary data is also available from a small scale laboratory study which is investigating Jonah crab claw removal and its impacts on survivorship. The study, conducted by New Hampshire Fish & Game and the University of New Hampshire, looked at the biological implications of claw harvest by subjecting crabs to one of three treatments: one claw removed, two claws removed, and no claws removed. Crabs (n=232) were monitored in seawater trays over a four week period and their activity levels and survival were evaluated. Preliminary results suggest that 19% of crabs died when no claws were removed, 56% of crabs died when one claw was removed, and 74% died when both claws were removed. There is 100% mortality when whole crabs are harvested.

Federal Adoption of the Jonah Crab FMP Claw Provision

Given that the Jonah crab fishery is primarily executed in federal waters and there is a need for NOAA Fisheries to enact complementary measures in the EEZ, the Board sent a letter to NOAA Fisheries asking for preliminary guidance on the FMP's claw provision. In a letter dated February 29, 2016, NOAA Fisheries responded to the Board's request, highlighting several concerns with a claw fishery in federal waters. Specifically, NOAA Fisheries reiterated the Law Enforcement Committee's position that a claw fishery could "complicate effective enforcement of a minimum-size standard, and introduce an opportunity to move undersized crabs through the system".[3] Additionally, NOAA Fisheries stated that it "may prove challenging"[4] to implement the FMP's claw provision due to Magnuson-Stevens Fishery Conservation and Management Act's National Standard 4, which requires that management measures "not discriminate between residents of different states"[5]. NOAA Fisheries noted their support of the Commission's public process, encouraging the Board to consider changes to the Jonah Crab FMP through an addendum which encompasses a range of alternatives and is released for public comment. Refer to Appendix 2 for a copy of the NOAA Fisheries letter received by ASMFC.

Given that the FMP's claw provision does not provide the same fishery opportunities to like participants, the Board initiated this addendum to the Jonah Crab FMP to consider establishing a coastwide standard for claw harvest. The Addendum considers a range of options including a strictly whole crab fishery and the allowance of claw harvest coastwide.

Definition of Bycatch

The Jonah Crab Fishery Management Plan (FMP) established a 200 crab per day, 500 crab per trip bycatch limit for non-trap gear. This bycatch limit was increased to 1,000 crab per trip under Addendum I to accommodate several mobile gear trips which were above the original allowance. Furthermore, Addendum I established a 1,000 crab per

[3] John Bullard to Robert Beal. 29 February 2016. Re: Jonah Crab Claw Fishery.
[4] John Bullard to Robert Beal. 29 February 2016.
[5] Ibid.

trip bycatch limit for non-lobster traps, which include fish pots, whelk pots, and crab pots.

The increase of the bycatch limit has raised concerns that the allowance could support a small-scale fishery. While the intent of the bycatch limits prescribed in Addendum I are intended to accommodate incidental catch, no definition of bycatch is provided in the Addendum. As a result, fishermen harvesting Jonah crab under the bycatch limit may, in fact, 'direct' on Jonah crab by landing 1,000 crabs per trip. Moreover, there is the potential for a small-scale fishery to develop in which fishermen can land 1,000 crabs per trip and nothing else. This does not reflect the intention of the bycatch limit: to account for Jonah crab caught while targeting another species.

3.0 Management Program

3.1 Claw Harvest

This section replaces "Crab Part Retention" in *Section 4.1* of the Jonah Crab FMP and eliminates the provision that a history of claw landings prior to June 2, 2015 is required to participate in the Jonah crab claw fishery.

Throughout the management unit, Jonah crab claws may be detached and harvested at sea. If the volume of claws detached at sea is under 5 gallons, there is no minimum claw length; however, if the volume of claws detached at sea is greater than 5 gallons, all claws must meet a minimum claw length of 2.75". Claw length is measured along the bottom of the claw, from the joint to the lower tip of the claw. This minimum claw length is more conservative than the expected claw length of 2.5" for a Jonah crab at the 4.75" minimum carapace width and was chosen to ensure claws are harvested from neither sublegal crabs nor berried females. Two claws may be harvested from the same crab. Bycatch limits will remain in effect per Addendum I such that a fisherman fishing under the bycatch allowance may land up to 2,000 claws (1,000 whole crabs = 2,000 detached claws). For reference, 2,000 claws is equivalent to approximately eight 5-gallon buckets. Lobster permit holders are not constrained by the bycatch limit and can land an unlimited number of claws.

Fishermen may also harvest whole crabs which meet the 4.75" minimum size under this option. Once landed, claws may be detached from whole crabs and sold. There is no minimum size for claws which are detached at the dock.

3.2 Bycatch Definition

This section adds a definition of bycatch in the Jonah crab fishery to Sections 3.1 and 3.2 of Addendum I.

Jonah crab caught under the bycatch limit must comprise at all times during a fishing trip an amount lower, in pounds, than the target species the deployed gear is targeting.

A target species are "those species primarily sought by the fishermen in the fishery" and are "the subject of directed fishing effort."[6] Potential target species of non-lobster traps, such as fish pots, crab pots, and whelk pots, include but are not limited to whelk, conch, crabs (other than *Cancer borealis*), scup, black sea bass, tautog, flounder, and eel. Potential target species of non-trap gear, such as bottom otter trawls and gillnets, include but are not limited to butterfish, herring, shrimp, skates, scallops, halibut, black sea bass, stripped bass, bluefish, cod, crab (other than *Cancer borealis*), dogfish, flounder, croaker, hake, scup, squid, tautog, weakfish, monkfish, polluck and shad. Groundfish, as a compilation of multiple species, are considered a target species.

4.0 Compliance

States must implement the management measures in Addendum II by January 1, 2018.

5.0 Recommendation for Federal Waters

The management of Jonah crab in the EEZ is the responsibility of the Secretary of Commerce through the National Marine Fisheries Service (NMFS). The Atlantic States Marine Fisheries Commission recommends that the federal government promulgate all necessary regulations in Section 3.0 to implement complementary measures to those approved in this addendum.

6.0 Literature Cited

ASMFC, 2015. Interstate Fishery Management Plan for Jonah Crab. Atlantic States Marine Fisheries Commission, Arlington, VA. 73p.

The University of Rhode Island Graduate School of Oceanography. 2016. 2015 Annual Fish Trawl Survey Report. 6p.

[6] NOAA Fisheries Glossary. 2006, rev. 2006. NOAA Technical Memorandum NMFS-F/SPO-69.

Appendix 1: States Jonah crab reporting prior to implementation of the Jonah Crab FMP.

	NMFS	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA
Is it lawful for harvesters to land Jonah crabs and NOT report?	No for most federal permit holders. Yes for federal lobster-only permit holders and Jonah crab-only harvesters with no other federal permits	Yes	No	No	No	No	No	Yes, only if the vessel does not have a federal permit and is fishing state waters.	No	No	No
Trip-level harvester data collected delineates landings as whole crab vs. claw	No	No	No	No	No	No	No	No	No	No	Yes (though not always done in the past)
Trip-level dealer data is collected that would capture Jonah crab transactions	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes, through SAFIS for vessels with federal permit.	No	Yes	Only for federal water harvest that is sold to a federal dealer and can be tied back to a VTR
Trip-level dealer data delineates transactions as whole crab vs. claws	No	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No

Appendix 2

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 01930-2276

FEB 29 2016

Robert Beal
Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland St, Suite A-N Arlington, VA 22201

Dear Bob:

Thank you for your February 17, 2016, letter requesting preliminary guidance on the development of a claw-only Jonah crab fishery under the Interstate Fishery Management Plan for Jonah Crab. As your letter points out, I cannot provide definitive, final guidance on this issue because the Lobster Board continues to discussion revisions to claw-only measures and my staff have not yet completed the rulemaking process to implement the management measures recommended in the Jonah Crab Plan. I can provide guidance on preliminary conservation, enforcement and legal issues associated with a claw-only fishery.

As you noted, I urged the Lobster Board in my July 16, 2016 letter to develop a whole-crab fishery, as the Jonah Crab Plan did "not contain information on the post-release survivability of Jonah crab after one or both claws has been removed." My staff echoed this concern at the August 2016, Lobster Board meeting. Since that time, the University of New Hampshire and New Hampshire Fish and Game have undertaken a small scale laboratory study to evaluate the impacts of claw removal on the health and behavior of Jonah crabs. Preliminary results from these trials indicate high levels of mortality (approximately 50 percent for crabs with one claw removed and approximately 75 percent for crabs with both claws removed). Unless additional information becomes available indicating that post-claw removal survival is higher than this preliminary study suggests, I believe the Lobster Board would have a difficult time justifying that a claw-only fishery is a sustainable practice and is consistent with the Jonah Crab Plan goals and objectives.

As you noted, the Law Enforcement Committee previously weighed in on the option for a claw- only fishery, stating "Introducing an option to retain parts or remove claws will complicate effective enforcement of a minimum-size standard, and introduces an opportunity to move undersized crabs through the system. Adding an additional measurement standard for claws, such as a count-per-pound or something similar, will greatly complicate enforcement requirements to monitor and inspect fishing." Staff from NOAA's Office of Law Enforcement participated in that discussion and concurred with the Committee's recommendation. In addition, the Office of Law Enforcement has indicated that implementing multiple sets of requirements, such as whole and claw-only provisions, in a single management area complicates and weakens enforcement. This is why we have historically supported one set of regulations that can be applied consistently across jurisdictions and areas. I believe the Lobster Board should

discuss and closely evaluate the potential enforcement concerns associated with a claw-only fishery.

As you know, any regulation promulgated under the Atlantic Coastal Fisheries Cooperative Management Act must be in accordance with the Magnuson-Stevens Fishery Conservation and Management Act's National Standards. Your letter referenced National Standard 4, which states in part that "Conservation and management shall not discriminate between residents of different states…" During our rulemaking process, we would formally review whether the Commission- recommended Jonah crab measures comply with National Standard 4, including whether it is a conservation measure without discriminatory intent. It may prove challenging for us to implement the claw-only exemption, as constructed in the August 2015 Jonah Crab Plan because of National Standard 4. My recollection of the August claw-only discussion is that additional development of claw-only permitting requirements and management measures would be necessary prior to implementation. Once developed and recommended, these measures would be subject to a formal review under National Standard 4.

While I remain in favor of a whole-crab fishery, I am supportive of the Commission's public process. Changes to the Jonah Crab Plan should be considered by Lobster Board through an addendum that encompasses a range of alternatives and subsequently released for public comment.

Thank you for the opportunity to provide additional comments on this important issue. If you have any questions, please contact Allison Murphy at (978) 281-9122 or allison.murphy@noaa.gov.

Sincerely,

John K. Bullard
Regional Administrator

cc: David Borden, American Lobster Board Chairman
Megan Ware, ASMFC Fishery Management Plan Coordinator