SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

4055 Faber Place Drive, Suite 201, North Charleston SC 29405
Call: (843) 571-4366 | Toll-Free: (866) SAFMC-10 | Fax: (843) 769-4520 | Connect: www.safmc.net

Dr. Michelle Duval, Chair | Charlie Phillips, Vice Chair
Gregg T. Waugh, Executive Director

April 25, 2017

The Honorable Ryan Zinke
Secretary
Department of the Interior
1849 C Street, N.W.
Washington, DC 20240

RE: SAFMC Position on Energy Development and Seismic Testing

Dear Secretary Zinke:

The South Atlantic Fishery Management Council (Council) is providing the following comments to clarify our position on energy exploration, development, and transportation including specifically the potential environmental effects of conducting seismic surveys in the South Atlantic Region. The Council, pursuant to authority granted by the Magnuson-Steven Act, is charged with conservation of fish stocks and fish habitat and management of recreational and commercial fisheries dependent on those resources in the U.S. Exclusive Economic Zone (3-200 miles) off North Carolina, South Carolina, Georgia, and the East Coast of Florida through the Florida Keys.

The Council has a standing Essential Fish Habitat (EFH) Policy Statement on Energy, Exploration, Development, and Transportation (**see Policy Statement included in the Council's 2016 letter**). The present policy statement is clear that seismic testing will directly impact benthic ecosystems, essential fish habitat, managed species, and the fisheries which depend on them. The Council, considering the multi-million dollar recreational and commercial fisheries in our region that would be affected by seismic testing, continues to recommend that seismic surveys not be conducted in areas that will impact EFH and especially areas designated as EFH-Habitat Areas of Particular Concern. These areas include but are not limited to deep-water snapper grouper Marine Protected Areas (MPAs), Special Management Zones and recently approved Spawning Special Management Zones, tilefish EFH- HAPC, other snapper grouper EFH-HAPCS including but not limited to the Georgetown Hole EFH-HAPC, Hoyt Hills EFH-HAPC, Deep-water Coral Habitat Areas of Particular Concern (CHAPCs), and the Oculina Bank Habitat Area of Particular Concern which encompasses the Oculina Experimental Closed Area (**see chart included in the Council's 2016 letter**).

The South Atlantic Council further highlighted concerns over the broader issue of sound in the ocean and provided the attached comments on the NOAA Ocean Noise Strategy Roadmap to support the agency's use of its capabilities and authorities to more effectively understand and

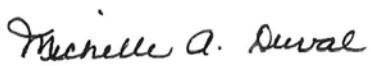
address the effects of noise on Council-managed species and soundscapes or acoustic habitat associated with essential fish habitat of managed species.

The Council supports Bureau of Ocean Energy Management's (BOEM) past denial of geophysical and geological permit applications to conduct airgun seismic surveys in the Mid- and South Atlantic Planning Areas of the Atlantic Ocean and removal of the Atlantic Program Area from the 2017-2022 Outer Continental Shelf Oil and Gas Leasing Program highlighting BOEM Director Abigail Ross Hopper's position that "... we believe that the value of obtaining the geophysical and geological information from new airgun seismic surveys in the Atlantic does not outweigh the potential risks of those surveys' acoustic pulse impacts on marine life,…" The Council, in an attempt to avoid the negative affects of offshore oil and gas development, has worked closely with BOEM, NOAA Fisheries, and state partners, to highlight regional research needs and avoid impacts on EFH and managed fisheries through cooperative development of alternative energy capacity, specifically offshore wind energy, in the region.

In conclusion, the Council is concerned about the impact these activities would have on our managed resources and fisheries and the coastal communities generating billions of dollars of revenue in our region.

Thank you for your consideration of our comments.

Best regards,



Michelle Duval
Chair

cc: Council Members, Staff & SSC
Executive Directors
Habitat and Ecosystem Advisory Panel
Monica Smit-Brunello, NOAA GC
Jack McGovern and Rick DeVictor, NMFS SERO
Bonnie Ponwith, Theo Brainerd, and Adyan Rios, NMFS SEFSC
Walter Cruickshank, BOEM, Acting Director
Sam Rauch, NOAA, Acting Administrator for Fisheries
Valerie Smith, OIEA, US DOI

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Dr. Michelle Duval, Chair | Charlie Phillips, Vice Chair
Gregg T. Waugh, Executive Director

July 1, 2016

Eileen Sobeck
Assistant Administrator for Fisheries
National Marine Fisheries Service/NOAA
U.S. Department of Commerce
1315 East-West Highway
Silver Spring, MD 20910

RE: NOAA Ocean Noise Strategy Roadmap

Dear Eileen:

The South Atlantic Council appreciates the opportunity to comment on the draft NOAA Ocean Noise Strategy Roadmap. The NOAA Ocean Noise Strategy Roadmap should specifically support the agency's use of its capabilities and authorities to more effectively understand and address the effects of noise on Council-managed species and soundscapes or acoustic habitat associated with essential fish habitat of managed species. The Council supports an agency-wide strategy for addressing ocean noise as it impacts fish, fish habitat, and fisheries over the next 10 years. Therefore, the Council endorses NOAA's need to focus efforts on key areas identified in the road map that will provide the following: (1) an understanding of how noise impacts managed species and essential fish habitat in the South Atlantic region, and how that can translate to population level effects; and (2) an understanding of the aggregated effects, on individuals and populations, of multiple noise sources and cumulative effects of noise combined with other stressors and how to better address those impacts.

Specific comments on the draft roadmap and key elements of the four chapters of the Strategy are as follows:

1. **Chapter 1: Reviewing species level impacts of ocean noise and associated management actions**

THE BUILDING BLOCKS OF IMPACT ASSESSMENT
Sound Use and Production
There is a critical need to characterize species use or production of sound for Council-managed species and prey on which they depend. The Strategy needs to ensure detailed information is collected to support and enhance Council and NOAA Fisheries ability to address mandates to characterize species use of essential habitats and provide policy recommendations intended to reduce impacts from non-fishing activities. The information collected should include species by

life stage review of sound production, species sound thresholds, and baseline habitat/ecosystem soundscapes for various habitat types during multiple seasons (e.g., mid shelf reef soundscape during spawning, migration, or settlement of larval stages).

Impacts of Noise
To understand the impact of noise, NOAA needs to support regional research programs providing detailed species and habitat information where species presence, abundance, and distribution can be quantified which, in the South Atlantic region, include the following state and Federal fishery independent surveys: MARMAP, SEAMAP, and NOAA SEFIS. In addition, where possible, the agency should provide resources and technology to enhance existing survey programs ability to collect acoustic information needed to characterize the species sound production and soundscape of the habitat that may be affected by anthropogenic sounds. To conduct a full evaluation of human introduced sounds, a baseline from which change could be detected and impact assessed is a prerequisite.

The Council has commented on seismic testing activities and policy, requesting that activities not be conducted where they will impact Essential Fish Habitat of Council-managed species and Habitat Areas of Particular Concern, including the Council's Managed Areas (i.e., Deepwater Snapper Grouper Marine Protected Areas, Spawning Special Management Zones, Deepwater Coral Habitat Areas of Particular Concern (HAPC), and the Oculina Bank Coral HAPC). Refining information on impacts to species and habitats to address NOAA and Council habitat conservation mandates and associate policies is a priority.

EVALUATING POPULATION-LEVEL AND CUMULATIVE IMPACTS OF NOISE
Stress
NOAA, in cooperation with state, Federal, and regional partners, should develop products for managed species that parallel research efforts for marine mammals, so as to better understand and characterize the behavioral, physiological (hearing and stress response), and potentially population-level consequences of sound exposure.

Acoustic Habitat Effects
The Council supports NOAA's focus to ensure that the chronic effects of rising noise levels on the acoustic habitat of protected species is addressed including but not limited to the masking of important species-specific acoustic cues (i.e., snapper grouper species use of reef sound for settlement).

Population Effects
Using the U.S. National Research Council Potential Consequences of Disturbance conceptual model as a template, NOAA should facilitate development of a managed species model integrating relationships linking disturbance to changes in behavior and physiology, health, vital rates, and population dynamics.

Aggregate or Cumulative Effects of Sound
NOAA should develop both the quantitative and qualitative approaches to include consideration of cumulative effects of stressors other than sound on Council-managed species.

CURRENT NOAA MANAGEMENT OF NOISE IMPACTS

Magnuson-Stevens Fishery Conservation and Management Act (MSA)

The Council understands and supports the ongoing management of noise effects on marine mammals, fish, invertebrates, and sea turtles through project-specific consultations and permitting pursuant to the MMPA, the ESA, the NMSA, and the MSA. The Council concurs with NOAA in highlighting that present analyses associated with consultations are not comprehensive on a scale that would adequately address long life spans or large geographic ranges of all of the marine species potentially impacted, and they don't address aggregate or cumulative effects very well. Also, existing analyses do not present an understanding of the broader acoustic habitat value to, in our case, Council-managed species or habitats.

Enhancing NOAA's support for Council identification, description and protection of essential habitat for federally-managed species will ensure the best available information is used and will enhance the EFH consultation process. This mechanism provides an effective vehicle to integrate new information on ocean soundscapes and the impacts of sound on habitat and fish more effectively. In addition, consultations associated with Council-designated Habitat Areas of Particular Concern (i.e., Council Managed Areas: Deepwater Snapper Grouper Marine Protected Areas, Spawning Special Management Zones, Deepwater Coral Habitat Areas of Particular Concern, and the Oculina Bank CHAPC) would address sound impacts. Refining information on the impacts of sound on species and habitats to address NOAA and Council habitat conservation mandates and associate policies is a priority.

REGULATORY AND ANALYTICAL APPROACHES

Acoustic Thresholds

NOAA should characterize and assess acute impacts of noise exposure and develop acoustic exposure thresholds for Council-managed species or species complexes. These should at a minimum address the level at which auditory injury will occur or behavior (e.g., migration, feeding, spawning, and larval settlement) will be disrupted.

NOAA should re-evaluate the relevance of 160 and 120 dB take levels for impulsive and continuous sources, as to what is categorized as impulsive versus continuous. For example, even though seismic airgun sounds are regulated as impulses, recent published studies demonstrated that airgun sounds begin to share many similarities with continuous sounds, particularly at long distances.

Mitigation

NOAA should develop measures that will provide the following for managed species: real-time detection and action to limit acute/direct impacts; seasonal/area limitations (e.g., in HAPCs); and noise abatement/reduction (to reduce both chronic and acute impacts).

NEXT STEPS FOR THE NOAA OCEAN NOISE STRATEGY

The Council supports the NOAA Strategy and views the following next steps as key to its success:

- Consistent Messaging, Internal Education, and Coordination;
- Developing National Guidance for Acoustic Thresholds and Other Management Tools ensuring Council-managed species are included;

- Exploring, Expanding, and Coordinating the Use of Applicable NOAA Authorities will both utilize and enhance MSA and EFH mandates;
- Development of Risk Assessment Tools with a focus on Council-managed species;
- Prioritize Baseline Science Needs including characterizing and evaluating impacts of sound on Council-managed species;
- Continue to Support Mitigation Development including managed species seasonal limitations and avoidance of HAPCs;
- Enhance Efficacy and Transparency of Monitoring Approaches; and
- Develop Mechanisms for Outreach, Collaboration, and Stakeholder Engagement that will highlight marine soundscapes, and the importance of and potential impacts of anthropogenic sound on fish, fish habitat, and fisheries.

The Council recommends NOAA develop and compile a glossary of noise terms and concepts, especially as they relate to effects on marine species and their acoustic habitats. Further, the Council supports expanded guidelines and standards for Council-managed species, complexes, and essential fish habitat. It is also critical for NOAA stakeholders and partners to use this shared terminology so that any concerns/issues can be clearly outlined in regulatory documents.

2. Chapter 2: Establishing the foundation for understanding and managing acoustic habitats for NOAA trust species and places

BROADENING NOAA'S NOISE MANAGEMENT APPROACH

Describing Acoustic Habitats

The Council supports NOAA in pursuing the description of acoustic habitats for essential fish habitat of Council managed species. In addition, creation of soundscapes of habitats by season will provide a baseline from which to understand the existing sound background of benthic and pelagic habitats and cues used by managed species for migration, spawning and settlement between those habitats. A focus area should be developing these parameters for including EFH Habitat Areas of Particular Concern and Council Managed Areas.

NOAA's Tools for Acoustic Habitat Risk Assessment

NOAA should work with state, Federal, and regional partners in the South Atlantic including the Southeast Coastal Ocean Observing Association (SECOORA) to build a monitoring network and ensure that acoustic data are collected to support assessments of both baseline conditions of acoustic habitats and changes in their status through time.

The Council supports NOAA in the integration of acoustic habitat protection within its science and management activities and evaluation of whether traditional species-based noise impact evaluation processes can be leveraged to inform a broader evaluation of impacts to acoustic habitats. NOAA should develop noise impact assessments to identify:

- which species use or make sound (including hearing, sound production, and sensitivity);
- the role of sound in their life histories (acoustic ecology and behavior); and
- how they use their environments (including their distribution and habitats that support biologically important activities, such as reproduction and feeding).

NOAA's Tools for Managing Acoustic Habitat
The Council supports a broader view of NOAA's role in addressing sound impacts supporting Council management efforts to conserve functioning ecosystems and the services they provide. NOAA and the Council are moving to ecosystem-based management that highlights the importance of natural habitats and parallel additional efforts within NOAA to focus the Agency's many mandates to protect and restore habitats. The Council supports the intent of the Strategy for NOAA to begin to address the widespread degradation of natural acoustic habitat for a broad range of acoustically sensitive species (i.e., including Council-managed species and habitat) due to increasing noise from accumulated anthropogenic sources.

3. **Chapter 3: Reviewing NOAA's current capability to characterize aquatic soundscapes and enhancing this capacity for the future**

THE NEED TO UNDERSTAND AND CHARACTERIZE SOUNDSCAPES
Importance to NOAA's Understanding of Species and Places
In addition to marine mammals noted in the Strategy, managed species and ocean habitats have evolved and adapted to the natural underwater acoustic environment over millions of years. With the speed and efficiency of transmission, many Council-managed species rely on sound as a primary means of communication, and gaining information about and interacting with the environment to survive, migrate, spawn, and grow to maturity. Therefore, accurate characterization of the underwater soundscape is essential.

Understanding of Anthropogenic Changes to Soundscapes
Appendix A of the Strategy provides an effective review of available information on acute, chronic, and cumulative effects of multiple noise sources and other stressors; however, additional focus on region-specific activities would be warranted.

CHARACTERIZING MARINE SOUNDSCAPES
Data Collection—Fixed Platforms
The Council supports NOAA's and regional partner investment in expanding their capabilities in deployment of fixed platforms using acoustic hydrophones on moorings in addition to deployment through a cabled hydrophone or hydrophone array. Additional coordination with or availability of additional resources for regional partners including SECOORA, would enhance regional coverage and linking of multiple systems developed by states, academia, or other regional partners. Partnering with the U.S. Navy should be explored to benefit from data collected by the Navy's listening array.

The Council is developing a Citizen Science Program that could provide a mechanism to collect these types of data from fixed platforms.

Data Collection—Mobile Platforms
The Council supports NOAA's expanded use of mobile platforms for collection of sound information associated with managed species including the use of vessel-deployed hydrophones, hydrophone-equipped autonomous underwater vehicles AUVs, gliders, drifting buoys, and acoustic recording tags.

The Council is developing a Citizen Science Program that could provide a mechanism to collect these types of data from mobile platforms (i.e., fishing vessels).

Data Analysis
The Council supports data collection and analyses that differentiate between managed species that can be extracted for studies of seasonal and spatial animal distributions, response to anthropogenic activities, behavior, acoustic inventories, levels at which animals produce sound, and most recently, for population density and absolute abundance estimation.

Predictive Sound Field Mapping
The Council supports the development and expansion of the predictive sound field modeling to provide annual average sound levels throughout most of the U.S. Exclusive Economic Zone. Refinement of the product to more accurately represent regional and seasonal variation may be warranted.

CURRENT NOAA ASSETS/CAPABILITIES TO CHARACTERIZE AQUATIC SOUNDSCAPES

Acoustic Equipment
One shortfall as it pertains to providing information on Council-managed species in the South Atlantic region is that most passive acoustic research projects at the NMFS and NOS focus on investigating seasonal presence, distribution, movement, and behavior of marine animals, as well as characterizing anthropogenic noise and assessing its potential impacts. However, one opportunity noted in the Strategy is that while these projects focus on recording signals of biological origin, acoustic data obtained during the process can additionally be used to characterize and improve our knowledge of underwater soundscapes.

Data Holdings—NOAA
The Council supports NOAA's development of a unified metadata and data archival capacity with proper documentation and long-term preservation, and for simplified querying and access capabilities for NOAA and regional partners.

Monitoring Data Resulting from Permitted Activities
The Council recommends NOAA expand its capability and adaptive management of sound data collected from permitted activities.

TANGIBLE OUTCOMES APPLICABLE TO NOAA'S OCEAN NOISE STRATEGY MISSION

The highest priority in support of Council management is for NOAA to increase their capacity to monitor and characterize soundscapes in locations of significance for acoustically sensitive species and habitats in the South Atlantic Region (i.e., EFH, HAPCs, and Council Managed Areas).

The Council supports the following NOAA efforts highlighted in the Strategy that will enhance monitoring and characterization of sound in the region and again recommend exploring potential partnering with the U.S. Navy:

- Quantification of Spatial, Spectral, and Temporal Variability of Ambient Noise Conditions;

- Increased Understanding of Anthropogenic Sound Sources, Their Contributions to Soundscapes, and Changing Human Use Patterns;
- Improving Understanding of Behavior and Biology of Marine Life;
- Assessments of Effectiveness of Noise Mitigation Strategies; and
- Increased Accuracy of Predictive Sound Field Modeling.

4. **Chapter 4: Applying risk assessment to place-based examples that highlight Roadmap science and management recommendations**

Case Study 2:
Managing Noise Impacts on Spawning Areas Used by Acoustically Sensitive and Commercially Important Fish and Invertebrate Species
As noted in the Strategy, the South Atlantic Fishery Management Council (SAFMC) has established EFH and habitat areas of particular concern (HAPCs) to increase protection for snapper grouper complex species both offshore, in areas with known spawning aggregations, and inshore, in areas known to support juveniles. Offshore HAPCs include eight marine protected areas (MPAs) established by the SAFMC in 2009 through Amendment 14 to the Snapper Grouper Fishery Management Plan (http://www.safmc.net/managed-areas/marine-protected-areas). The focus on protection of spawning locations for species in the complex has further led to 5 newly proposed Spawning Special Management Zones (http://safmc.net/resource-library/snapper-grouper-amendment-36) which are also priority areas for sound monitoring and characterization.

General Comments:
The Council views the Strategy as an important milestone in highlighting the important role that sound plays in the science and assessment of marine systems. In particular, the realization of the importance of sounds for fish is important given NOAA's authority as a regulatory agency, and may influence how fish populations are assessed and what threats ocean noise pollution may pose to them. The Strategy effectively emphasizes the relevance and new emphasis on sound and fish populations, but it is unclear if and how this may become part of a regulatory approach. However, the focus of Case Study #2 in Chapter 4 clearly highlights the utility and value of acoustic monitoring for fisheries assessments. The Strategy is however unclear on how and when recommendations might be implemented other than within the 10 year timeframe noted.

What is outlined in the Strategy is commendable and extremely ambitious, particularly in the context of NOAA's current funding constraints. While cultivating the in-house NOAA expertise is certainly critical, the key to successful achievement of items outlined in the roadmap is actively collaborating with Councils, other federal agencies, states, universities, and the private sector through the new Citizen Science initiatives.

While the Marine Mammal Protection Act does have specific provisions for evaluating and mitigating sound exposure on marine mammals, the Magnuson-Stevens Act does not have such specific acoustic-related mandates for regulation. NOAA should therefore use this strategy to establish explicit provisions to address MSA and species or complex-specific considerations for exposure to sound. In addition, NOAA should be able to evaluate "acoustic habitat" as a component of Essential Fish Habitat.

Council's Energy Exploration and Development Policy:
The South Atlantic Council's Energy Exploration and Development Policy presents the Council's intent with respect to sound issues (**Attachment 1)**. The following items address sound:

- **Threats to Marine and Estuarine Resources from Energy Exploration and Development Activities** (page 6), Item #11. Fish behavior and health may be negatively impacted by anthropogenic sound depending on sound pressure levels and the duration of the sound producing activity.
- **EFH Review, Administrative Policies, Licensing Policies and Best Management Practices** (page 8), Item #5. The effects of sound from proposed projects on fish behavior and health should be considered in EFH Assessments.

Seismic Surveys:
The South Atlantic Council commented on the potential environmental effects of conducting seismic surveys in the South Atlantic Regions (**Attachment 2**):

"The Council has a standing Essential Fish Habitat (EFH) Policy Statement on Energy, Exploration, Development, and Transportation (see included Policy Statement). The present policy statement is clear that seismic testing will directly impact benthic ecosystems, essential fish habitat, managed species, and the fisheries which depend on them. Therefore, the Council recommends that seismic surveys not be conducted in areas that will impact EFH and especially areas designated as EFH- Habitat Areas of Particular Concern including but not limited to deepwater snapper grouper Marine Protected Areas (MPAs), Special Management Zones, tilefish EFH- HAPC, other snapper Grouper EFH-HAPCS including but not limited to (the Georgetown Hole EFH-HAPC, Hoyt Hills EFH-HAPC, Deepwater Coral Habitat Areas of Particular Concern (CHAPCs), and the Oculina Bank Habitat Area of Particular Concern which encompasses the Oculina Experimental Closed Area (see chart included)." The chart has been updated to include the 5 proposed Spawning Special Management Zones (**Attachment 3**).

Many thanks for the opportunity to comment, and we look forward to continuing to work with NOAA and our other regional partners to address ocean noise.

Best regards,

Michelle A. Duval

Michelle Duval
Chair

cc: Council members, staff & SSC
Executive Directors
Richard Merrick and Jason Link
Monica Smit-Brunello
Jack McGovern and Rick DeVictor
Bonnie Ponwith, Theo Brainerd, and Adyan Rios

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4055 FABER PLACE DRIVE, SUITE 201
NORTH CHARLESTON, SOUTH CAROLINA 29405
TEL 843/571-4366 FAX 843/769-4520
Toll Free 1-866-SAFMC-10
email: safmc@safmc.net web page: www.safmc.net

Dr. Michelle Duval
Charlie Phillips, Vice Chair

Robert K. Mahood, Executive Director
Gregg T. Waugh, Deputy Executive Director

POLICY FOR THE PROTECTION AND RESTORATION OF ESSENTIAL FISH HABITATS FROM ENERGY EXPLORATION AND DEVELOPMENT ACTIVITIES
(December 14, 2015)

Introduction

This document provides guidance from the South Atlantic Fishery Management Council (SAFMC) regarding the protection of Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (EFH-HAPCs) from impacts associated with energy exploration and development activities as described in the "Threats to Marine and Estuarine Resources" section of this policy. This document also provides guidance regarding mitigation of those impacts, including avoidance, minimization and compensatory mitigation. The guidance is consistent with the overall habitat protection policies of the SAFMC as formulated and adopted in the Habitat Plan (SAFMC 1998a), the Comprehensive EFH Amendment (SAFMC 1998b), the Fishery Ecosystem Plan of the South Atlantic Region (SAFMC 2009a), Comprehensive Ecosystem-Based Amendment 1 (SAFMC 2009b), Comprehensive Ecosystem-Based Amendment 2 (SAFMC 2011), and the various Fishery Management Plans (FMPs) of the Council.

For the purposes of policy development, the types of activities within the scope of this document include wind; oil and gas; methane hydrate mining; estuarine and marine hydrokinetic; liquefied natural gas (LNG) regasification, pipelines, and offshore and on-shore facilities; and onshore power plants. The findings assess potential impacts to EFH and EFH-HAPCs posed by activities related to energy exploration and development in offshore and coastal waters, riverine systems and adjacent wetland habitats, and the processes that could improve those resources or place them at risk. The policies and recommendations established in this document are designed to avoid and minimize impacts and optimize benefits from these activities, in accordance with the general habitat policies of the SAFMC as mandated by law. The SAMFC may revise this guidance in response to changes in the types and location of energy exploration and development activities in the South Atlantic region, applicable laws and regulatory guidelines, and knowledge about the impacts of energy exploration and development on habitat.

EFH At Risk from Energy Exploration and Development Activities

The SAFMC finds that:

1. Energy exploration or development has the potential to occur within or in proximity to EFH including – but not limited to – coral, coral reefs, and live/hardbottom habitat at all depths in the Exclusive Economic Zone (EEZ); EFH-HAPCs; or other special biological resources essential to commercial and recreational fisheries under SAFMC jurisdiction.

2. Energy development activities have the potential to cause impacts to a variety of habitats across the shelf and to nearshore, estuarine, and riverine systems and wetlands, including:
   a) waters and benthic habitats in or near drilling and disposal sites, including those potentially affected by sediment movement and by physical disturbance associated with drilling activities and site development;
   b) waters and benthic habitats in or near LNG processing facilities or other energy development sites,
   c) exposed hardbottom (e.g. reefs, live bottom, deepwater *Lophelia* mounds) in shallow and deep waters,
   d) coastal wetlands
   e) coastal inlets and
   f) riverine systems and associated wetlands; and
   g) Intertidal oyster reefs

3. Certain offshore, nearshore, and riverine habitats are particularly important to the long-term viability of commercial and recreational fisheries under SAFMC management, and potentially threatened by oil, gas, wind and other energy exploration and development activities:
   a) coral, coral reef and live/hardbottom habitat, including deepwater coral communities,
   b) marine and estuarine water column habitat,
   c) estuarine wetlands, including mangroves and marshes,
   d) submerged aquatic vegetation (including seagrass),
   e) waters that support diadromous fishes, and their spawning habitats
   f) waters hydrologically and ecologically connected to waters that support EFH.

4. Siting and design of onshore receiving, holding, and transport facilities could have impacts on wetlands, shallow habitats such as oyster reefs and submerged aquatic vegetation, and endangered species' habitats if they are not properly located.

5. Sections of South Atlantic waters potentially affected by these projects, both individually and collectively, have been identified as EFH or EFH-HAPC by the SAFMC. Potentially affected species and their EFH under federal management include (SAFMC, 1998b):

a) Summer Flounder (various nearshore waters, including the surf zone and inlets; certain offshore waters),
b) Bluefish (various nearshore waters, including the surf zone and inlets),
c) many snapper and grouper species (live/hardbottom from shore to 600 feet, and – for estuarine-dependent species such as gag grouper and gray snapper – unconsolidated bottoms and live/hardbottoms in the estuaries,
d) Black Sea Bass (various nearshore waters, including unconsolidated bottom and live/hardbottom to 600 feet),
e) penaeid shrimp (estuarine emergent habitat, offshore habitats used for spawning and growth to maturity, and waters connecting to inshore nursery areas, including the surf zone and inlets, live/hardbottom),
f) coastal migratory pelagics (e.g., King Mackerel, Spanish mackerel) (sandy shoals of capes and bars, barrier island ocean-side waters from the surf zone to the shelf break inshore of the Gulf Stream; all coastal inlets),
g) corals of various types and associated organisms (on hard substrates in shallow, mid-shelf, and deepwater),
h) royal red shrimp (upper regions of the continental slope from 180 meters (590 feet) to about 730 meters (2,395 feet), with concentrations found at depths of between 250 meters (820 feet) and 475 meters (1,558 feet) over blue/black mud, sand, muddy sand, or white calcareous mud),
i) rock shrimp (offshore terrigenous and biogenic sand bottom habitats from 18 to 182 meters in depth with highest concentrations occurring between 34 and 55 meters. This applies for all areas from North Carolina through the Florida Keys. Essential fish habitat includes the shelf current systems near Cape Canaveral, Florida which provide major transport mechanisms affecting planktonic larval rock shrimp),
j) golden crab (a flat foraminferan ooze habitat; distinct mounds, primarily of dead coral; ripple habitat; dunes; black pebble habitat; low outcrop; and soft-bioturbated habitat),
k) Pennatulacea (sea pens and sea pansies) muddy, silt bottoms from the subtidal to the shelf break, and deepwater corals and associated communities,
l) Highly Migratory Species (areas identified as EFH for managed by the Secretary of Commerce (e.g., inlets and nearshore waters, including shark pupping and nursery grounds), and
m) Diadromous species (riverine and offshore areas that support, including important prey species such as shad, herring and other alosines in addition to Shortnose and Atlantic sturgeon).

6. Many of the habitats potentially affected by these activities have been identified as EFH-HAPCs by the SAFMC. Each EFH-HAPC, type of activity posing a potential threat and FMP is provided as follows:

EFH-HAPC	Activity	FMP
Nearshore hardbottom	LNG regasification, pipelines and power plants	Snapper Grouper
Coastal inlets	estuarine hydrokinetic; LNG regasification, pipelines,	Shrimp, Snapper Grouper

EFH-HAPC	Activity	FMP
Spawning sites	estuarine hydrokinetic; LNG regasification and pipelines; and power plants	Shrimp, Snapper Grouper
Manganese outcroppings on the Blake Plateau	oil and gas; methane hydrate mining; marine hydrokinetic; LNG regasification and pipelines	Snapper Grouper, Golden Crab
Pelagic and benthic *Sargassum*	wind; oil and gas; marine hydrokinetic; LNG regasification and pipelines	Snapper Grouper, Dolphin Wahoo
Inshore and nearshore areas to the ends of the sandy shoals of Cape Lookout, Cape Fear, and Cape Hatteras, North Carolina; Hurl Rocks, South Carolina; and *Phragmatopoma* (worm reefs) reefs off the central coast of Florida and near shore hardbottom south of Cape Canaveral	wind; oil and gas; marine hydrokinetic; LNG regasification and pipelines	Coastal Migratory Pelagics
Atlantic coast estuaries with high numbers of Spanish mackerel and cobia from ELMR, to include Bogue Sound, New River, North Carolina; Broad River, South Carolina	estuarine hydrokinetic; LNG on-shore facilities; and power plants	Coastal Migratory Pelagics
Florida Bay, Biscayne Bay, Card Sound, and coral hardbottom habitat from Jupiter Inlet through the Dry Tortugas, Florida	wind; oil and gas; marine hydrokinetic; LNG regasification and pipelines	Spiny Lobster
Hurl Rocks (South Carolina); The *Phragmatopoma* (worm reefs) off central east coast of Florida; nearshore (0-4 meters; 0-12 feet) hardbottom off the east coast of Florida from Cape Canaveral to Broward County; offshore (5-30 meters; 15-90 feet) hardbottom off the east coast of Florida from Palm Beach County to Fowey Rocks; Biscayne Bay, Florida; Biscayne National Park, Florida; and the Florida Keys National Marine Sanctuary	wind; oil and gas; marine hydrokinetic; LNG regasification and pipelines	Coral, Coral Reef, and Live Hard/bottom
Council-designated Artificial Reef Special Management Zones (SMZs)	wind; oil and gas; methane hydrate mining; marine hydrokinetic; LNG regasification and pipelines	Snapper Grouper, Coastal Migratory Pelagics, Coral, Coral Reef, and Live Hard/bottom Habitat
Troughs and terraces intermingled with sand, mud, or shell hash at depths of 150 to 300 meters	wind; oil and gas; marine hydrokinetic; LNG regasification and pipelines	Snapper-grouper [golden tilefish]
Rock overhangs, rock outcrops, manganese-phosphorite rock slab formations, and rocky reefs	wind; oil and gas; marine hydrokinetic; LNG regasification and pipelines	Snapper-grouper [blueline tilefish]
HAPCs designated for HMS species (e.g., sharks) in the South Atlantic region – exploration and development	wind; oil and gas; marine hydrokinetic; LNG regasification and pipelines	Highly Migratory Species (NMFS FMP)

EFH-HAPC	Activity	FMP
Deepwater Coral HAPCs are designated as Snapper Grouper EFH-HAPCs: Cape Lookout Coral HAPC, Cape Fear Coral HAPC, Blake Ridge Diapir Coral HAPC, Stetson-Miami Terrace Coral HAPC, and Pourtalés Terrace Coral HAPC	wind; oil and gas; marine hydrokinetic; methane hydrate mining, LNG regasification and pipelines	Coral, Coral Reef, and Live Hard/bottom Habitat
Estuarine emergent and mangrove wetlands	estuarine hydrokinetic; LNG on-shore facilities; and power plants	Shrimp, Snapper Grouper
Seagrass	estuarine hydrokinetic; LNG on-shore facilities; and power plants	Shrimp, Snapper Grouper
State-designated nursery habitats (e.g., Florida Aquatic Preserves)	estuarine hydrokinetic; LNG on-shore facilities; and power plants	Shrimp, Snapper Grouper

7. Habitats likely to be affected by energy activities include many recognized in state level fishery management plans. Examples of these habitats include Strategic Habitat Areas (SHAs) such as those established by the State Marine Fisheries Commissions via FMPs, coastal habitat protection plans, or other management provisions. North Carolina SHAs, are a "subset of the overall system that includes a representative portion of each unique habitat so that overall biodiversity and ecological functions are maintained." NCMFC has established 20 units for Region 1; 67 units for Region 2; and 48 units for Region 3.

Threats to Marine and Estuarine Resources from Energy Exploration and Development Activities

The SAFMC finds that energy exploration and development activities threaten or potentially threaten EFH through the following mechanisms:

1. Direct mortality and displacement of organisms at and near dredging (Clarke et al. 2000), drilling or trenching sites , in addition to the installation of facilities and operation of such facilities .

2. Deposition of fine sediments (sedimentation) and drilling muds down-current from drilling, dredging, trenching, and/or backfilling sites. In a review of over 77 published studies that examine the effects of sedimentation and turbidity with 89 coral species, Erftemeijer et al. (2012) concluded increased sedimentation cause smothering and burial of coral polyps, shading, tissue necrosis, and unhealthy high concentrations of bacteria in coral mucus. Turbidity and sedimentation also reduce the recruitment, survival, and settlement of coral larvae.

3. Chronic elevated turbidity in and near drilling, dredging, trenching, and/or backfilling sites, which can interfere with foraging by fish and shrimp and abrade their gills and other soft tissues (Lindeman and Snyder 1999).

4. Direct mortality of eggs and larvae of marine organisms from water intake (Gallaway et al. 2007); post-larvae, juveniles and adults of marine and estuarine organisms due to spills from pipelines, or from vessels in transit near or close to inlet areas.

5. Alteration of long-term shoreline migration patterns with complex ecological consequences due to the placement of facilities (nearshore/offshore.)

6. One of the risks associated with horizontal directional drilling (HDD) is the escape of drilling mud into the environment as a result of a spill, collapse of the drill hole or the rupture of mud to the surface, which is commonly known as a "frac-out". A frac-out is caused when excessive drilling pressure results in drilling mud leaching vertically toward the surface. Because HDD activities occur in proximity to sensitive habitats (e.g., seagrass, coral), burial of habitat could result from "frac-outs" associated with HDD.

7. Permanent conversion of soft bottom habitat to artificial hardbottom habitat through installing a hard linear structure (i.e., a pipe covered in articulated concrete mats) can occur and the ecological effects of this habitat conversion are not well-understood.

8. Impacts to benthic resources from placement and shifting of anchors (Rogers and Garrison 2001), cables (Messing 2011; Gilliam and Walker 2012), pipelines, and other types of direct mechanical damage such as damage from deployment of instrumentation (e.g., Acoustic Doppler Current Profiles).

9. Alterations in amount and timing of riverflow and significant blockage or reduction in area of critical spawning habitat resulting from damming or diverting rivers

10. Alteration of community diversity, composition, food webs and energy flow due to addition of structure (Sammarco, Paul W. 2014; Claisse et al. 2014).

11. Fish behaviour and health may be negatively impacted by anthropogenic sound depending on sound pressure levels and the duration of the sound producing activity (Popper et al 2014).

12. Operation of power plants can alter water quality The greatest risk to aquatic and estuarine ecosystems posed by power plant cooling systems is continuous exposure to sublethal stressors, such as changes in water quality, rather than the abrupt mortality of large numbers of organisms due to impingement and entrainment (Clark and Brownell 1973; Laws 2000; Kulkarni et al. 2011). Water quality (inclusive of temperature and salinity) is known to be a driver of fine scale spatial variation in nearshore fish communities, e.g., in Biscayne Bay (Serafy et al. 1997; 2003; 2005; Faunce and Serafy 2007).

13. The interactions among all effects (including lethal and sub-lethal; direct and indirect; short-term, long-term, and cumulative) affect the magnitude of the overall impacts. Such interactions may result in a scale of effect that is multiplicative rather than additive. The effects of those interactions are largely unstudied and almost completely unknown.

SAFMC Policies for Energy Exploration and Development Activities

The SAFMC establishes the following policies and best management practices (BMPs) related to energy exploration and development activities and related projects, to clarify and augment the general policies already adopted in the Habitat Plan and Comprehensive Habitat Amendment (SAFMC 1998a; SAFMC 1998b; SAFMC 2009a). The following is intended to include existing relevant guidance documents (e.g., *Alternative Energy Environmental Information Needs* (USDOI, MMS 2007a):

General Policies:

1. Projects should avoid, minimize, and – where possible – offset damage to EFH, EFH-HAPCs, and SHAs. This should be accomplished, in part, by integrating the best available and least damaging technologies into the project design.

2. Projects should avoid intersection or overlap with Allowable Fishing Areas within the Deepwater Coral HAPCs.

3. All facilities associated with energy exploration and development, should be designed to avoid or minimize to the maximum extent practicable impacts on coastal ecosystems and sand sharing systems.

4. Projects should comply with existing standards and requirements regulating domestic and international transportation of energy products including regulated waste disposal and emissions which are intended to minimize negative impacts on and preserve the quality of the marine environment.

5. Open-loop LNG processing facilities should be avoided in favor of closed-loop systems. Water intake associated with closed-loop should be minimized and the effects to fishery resources should be determined through baseline studies and project monitoring.

6. Pilot scale projects should not occur in areas where full-scale efforts are predicted to be environmentally unacceptable (e.g., MPAs, CHAPCs, and Spawning SMZs).

EFH Review, Administrative Policies, Licensing Policies and Best Management Practices:

1. EFH Assessments prepared for energy-related projects include the mandatory components set forth in 50 CFR Part 600, Subpart K:
    - A description of the proposed action;
    - An analysis of the effects, including cumulative effects, of the action on EFH, the managed species, and associated species by life history stage;
    - The Federal agency's views regarding the effects of the action on EFH; and
    - Proposed mitigation

2. Projects requiring expanded EFH consultation should provide a full range of alternatives, along with assessments of the relative impacts of each on each type of EFH, EFH-HAPC, and SHAs. Expanded EFH consultations allow NMFS and a Federal action agency the maximum opportunity to work together in the review of an activity's impact on EFH and the development of EFH conservation recommendations. Expanded consultation procedures must be used for Federal actions that would result in substantial adverse effects to EFH. Federal action agencies are encouraged to contact NMFS at the earliest opportunity to discuss whether the adverse effect of a proposed action makes expanded consultation appropriate.

3. Impact evaluations should include quantitative assessments for each habitat based on recent scientific studies, habitat characterizations, and the best available information. All EFH assessments should be based upon the best available science, be conservative, and follow precautionary principles as developed for various Federal and State policies. EFH Assessments are produced with information gathered from the best available technologies to map and characterize project sites (e.g., see Vinick et al. 2012). The methods used for habitat mapping and characterization work should reflect input from resource trustees and be performed with experienced personnel.

4. Existing transportation infrastructure (e.g., existing cables or pipelines) should be utilized wherever practicable in order to avoid or minimize environmental impacts.

5. The effects of sound from proposed projects on fish behaviour and health should be considered in EFH Assessments.

6. Compensatory mitigation should not be considered until avoidance and minimization measures have been duly demonstrated. Compensatory mitigation should be required to offset losses to EFH, including losses associated with temporary impacts, and should take into account uncertainty and the risk of the chosen mitigation measures inadequately offsetting the impacts. Mitigation

should be local, "up-front," and "in-kind," and include long-term monitoring to assess and ensure the efficacy of the mitigation program selected.

7. Modelling efforts should fully characterize assumptions applied and disclose any potential biases that may affect results

8. Determination of the physical and chemical oceanographic and meteorological characteristics of the area should be done through field studies by lead action agencies, cooperating agencies, academics, or the applicant. These characteristics include but are not limited to, on-site direction and velocity of currents and tides, sea states, temperature, salinity, water quality, wind storms frequencies, and intensities and icing conditions. Studies should also include a detailed characterization of seasonal surface currents and likely spill trajectories. Such studies must be conducted prior to approval of any Exploration Plan or Development and Production Plan in order to have adequate information upon which to base decisions related to site-specific proposed activities.

9. The Environmental Impact Statement (EIS), Environmental Assessment (EA) or EFH Assessment for any outer continental shelf oil and gas lease sale should address impacts, if any, from activities specifically related to natural gas production, safety precautions required in the event of the discovery of "sour gas" or hydrogen sulfide reserves and the potential for cross-shelf transport of hydrocarbons to nearshore and inshore estuarine habitats by Gulf Stream spin-off eddies. The EIS, EA, or EFH Assessment should also address the development of contingency plans to be implemented if problems arise due to oceanographic conditions or bottom topography, the need for and availability of onshore support facilities in coastal areas, and an analysis of existing facilities and community services in light of existing major coastal developments.

10. License or permit decisions for construction projects that penetrate or attach to the seabed should be based on geotechnical studies completed to ensure that the geology of the area is appropriate for the construction method and that geological risks are appropriately mitigated.

11. Adequate spill containment and clean-up equipment should be maintained for all development facilities, and, the equipment shall be available on-site or located so as to be on-site within the landing time trajectory.

12. Bonds must be required and must be adequate to assure that resources will be available for unanticipated environmental impacts, spill response, clean-up and environmental impact assessment.

13. Exploration and development activities should not disrupt or impede known migratory patterns of endangered and threated species, nor shall they disrupt or impede the breeding or nesting seasons of endangered and threatened species.

This may necessitate the imposition of seasonal, spatial, or other constraints on exploration and development activities.

14. Licenses and permits clearly should describe required monitoring before, during and after the project in sufficient detail to document pre-project conditions and the initial, long-term, and cumulative impacts of the project on EFH. Monitoring and, if necessary, for adaptive management shall be required for the life of the project. The monitoring methods should reflect input from resource trustees and be conducted by experienced personnel.

15. Third party environmental inspectors shall be required on all projects to provide for independent monitoring and permit compliance.

16. Hydrotest chemicals that may be harmful to fish and wildlife resources should not be discharged into waters of the United States.

17. Licenses or permits should require all project-related work vessels that traverse any reef system or sensitive habitat to be equipped with standard navigation aids, safety lighting and communication equipment. Equipment, such as tow lines, that could drag along the bottom and impact benthic habitat should be secured during transit. U.S. Coast Guard automated identification system (AIS) requirements must be followed.

18. Any anchor placement should completely avoid corals and be visually verified by diver or remote camera. In addition, measures to avoid anchor sweep should be developed and implemented.

19. Appropriate buffers should be designated around sensitive marine habitats.

20. A contingency plan should be required to address catastrophic blowouts or more chronic material losses from LNG facilities, including trajectory and other impact analyses and remediation measures and responsibilities.

21. Licenses and permits should require the development of resource sensitivity training modules specific to each project, construction procedures, and habitat types found within the project impact area. This training should be provided to all contractors and sub-contractors that are anticipated to work in or adjacent to areas that support sensitive habitats.

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SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

4055 FABER PLACE DRIVE, SUITE 201
NORTH CHARLESTON, SOUTH CAROLINA 29405
TEL 843/571-4366 FAX 843/769-4520
Toll Free 1-866-SAFMC-10
Email: safmc@safmc.net web page: www.safmc.net

Ben Hartig, Chair
Dr. Michelle Duval, Vice Chair

Robert K. Mahood, Executive Director
Gregg T. Waugh, Deputy Executive Director

April 30, 2015

Gary D. Goeke
Chief, Regional Assessment Section
Office of Environment (GM23E)
Bureau of Ocean Energy Management
Gulf of Mexico OCS Region
1201 Elmwood Park Boulevard
New Orleans, Louisiana 70123-2394

Dear Mr. Goeke,

The South Atlantic Fishery Management Council (Council) is providing the following comments concerning the potential environmental effects of conducting seismic surveys in the South Atlantic Region. The Council, pursuant to authority granted by the Magnuson-Steven Act, is charged with conservation of fish stocks and fish habitat and management of recreational and commercial fisheries dependent on those resources in the U.S. Exclusive Economic Zone (3-200 miles) off North Carolina, South Carolina, Georgia, and the East Coast of Florida through the Florida Keys.

The Council has a standing Essential Fish Habitat (EFH) Policy Statement on Energy, Exploration, Development, and Transportation (see included Policy Statement). The present policy statement is clear that seismic testing will directly impact benthic ecosystems, essential fish habitat, managed species, and the fisheries which depend on them. Therefore, the Council recommends that seismic surveys not be conducted in areas that will impact EFH and especially areas designated as EFH- Habitat Areas of Particular Concern including but not limited to deepwater snapper grouper Marine Protected Areas (MPAs), Special Management Zones, tilefish EFH- HAPC, other snapper Grouper EFH-HAPCS including but not limited to (the Georgetown Hole EFH-HAPC, Hoyt Hills EFH-HAPC, Deepwater Coral Habitat Areas of Particular Concern (CHAPCs), and the Oculina Bank Habitat Area of Particular Concern which encompasses the Oculina Experimental Closed Area (see chart included).

The Council appreciates BOEMs willingness to provide input on all related Energy activities in the region but is concerned about the impact of potentially multiple independent surveys being conducted on hard live bottom habitat essential to species in our snapper grouper complex.

Multi-million dollar recreational and commercial fisheries in our region may potentially be affected by seismic testing.

The Council shares the concern over the impact these activities would potentially have on our managed resources and fisheries in concert with our counterpart in the Mid-Atlantic region, the Mid-Atlantic Council.

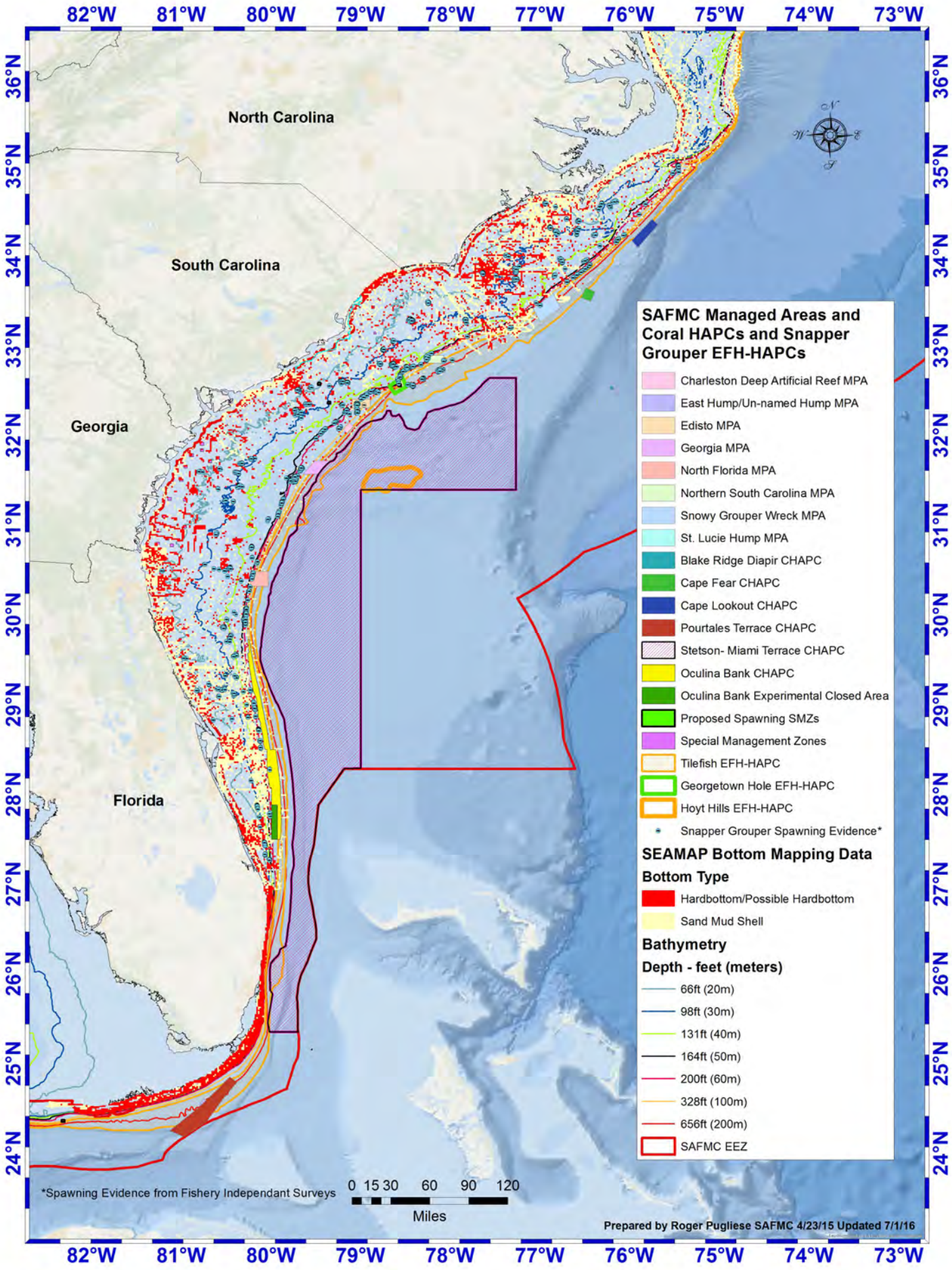
Thank you for your consideration of our comments.

Sincerely,

Ben Hartig, Chairman

Enclosures

cc: Council Members & Staff
Habitat and Ecosystem AP
Bonnie Ponwith, Theo Brainerd & Tom Jamir
Jack McGovern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29°N
28°N
27°N
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24°N
North Carolina
South Carolina
Georgia
Florida
SAFMC Managed Areas and Coral HAPCs and Snapper Grouper EFH-HAPCs
Charleston Deep Artificial Reef MPA
East Hump/Un-named Hump MPA
Edisto MPA
Georgia MPA
North Florida MPA
Northern South Carolina MPA
Snowy Grouper Wreck MPA
St. Lucie Hump MPA
Blake Ridge Diapir CHAPC
Cape Fear CHAPC
Cape Lookout CHAPC
Pourtales Terrace CHAPC
Stetson- Miami Terrace CHAPC
Oculina Bank CHAPC
Oculina Bank Experimental Closed Area
Proposed Spawning SMZs
Special Management Zones
Tilefish EFH-HAPC
Georgetown Hole EFH-HAPC
Hoyt Hills EFH-HAPC
Snapper Grouper Spawning Evidence*
SEAMAP Bottom Mapping Data
Bottom Type
Hardbottom/Possible Hardbottom
Sand Mud Shell
Bathymetry
Depth - feet (meters)
66ft (20m)
98ft (30m)
131ft (40m)
164ft (50m)
200ft (60m)
328ft (100m)
656ft (200m)
SAFMC EEZ
*Spawning Evidence from Fishery Independant Surveys
0 15 30 60 90 120
Miles
Prepared by Roger Pugliese SAFMC 4/23/15 Updated 7/1/16