SAFMC Fishery Ecosystem Plan II Summary and Two Year Roadmap

Draft February 2018

Abbreviations and Acronyms

ABC	Acceptable Biological Catch
ACL	Annual Catch Limits
APNEP	Albemarle Pamlico National Estuary Program
ASMFC	Atlantic States Marine Fishery Commission
BMP	Best Management Practices
BOEM	Bureau of Energy Management
CCFHR	
CFMC	Caribbean Fishery Management Council
CFR	Code of Federal Regulations
CHA	Critical Habitat Area
CHAPC	Coral Habitat Area of Particular Concern
CZM	Coastal Zone Management
DOD	Department of Defense
EA	Environmental Assessment
EBFM	Ecosystem Based Fishery Management
EED	Energy Exploration and Development Policy
EFH	Essential Fish Habitat
EFH-HAPC	Essential Fish Habitat – Habitat Area of Particular Concern
EFP	Experimental Fishing Permit
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FAU	Florida Atlantic University
FDEP	Florida Department of Environmental Protection
FEP	Fishery Ecosystem Plan
FEP I	Fishery Ecosystem Plan I
FEP II	Fishery Ecosystem Plan II
FMP	Fishery Management Plan
FWRI	Florida Fish and Wildlife Resource Institute
GIS	Geographic Information System
GMFMC	Gulf of Mexico Fishery Management Council
HBOI	Harbor Branch Oceanographic Institute
IOOS	Integrated Ocean Observing Network
LNG	Liquid Natural Gas
MPA	Marine Protected Area
MSE	Management Strategy Evaluation
NCCOS	National Centers for Coastal Ocean Science
NCDEQ	North Carolina Department of Environmental Quality
NCDMF	North Carolina Division of Marine Fisheries
NCSU	North Carolina State University
NGO	Non-Governmental Organization
NMFS	National Marine Fisheries
NOAA	National Oceanographic Atmospheric Administration
OHC	Office of Habitat Conservation
OLE	Office of Law Enforcement

NOAA PRD NOAA Protected Resources Division

NOAA RISA NOAA Regional

SAFE Stock Assessment and Fishery Evaluation Report

SAFMC South Atlantic Fishery Management Council

SALCC South Atlantic Landscape Conservation Cooperative

SARP Southeast Aquatic Resources Partnership

SAV Submerged Aquatic Vegetation

SEAMAP Southeast Area Monitoring and Assessment Program

SECAS Southeast Connectivity Adaptation Strategy

SECOORA Southeast Coastal and Ocean Observing Regional Association

SEDAR Southeast Data Assessment and Review

SEFSC Southeast Fisheries Science Center

SERFS Southeast Reef Fish Survey

SHA Special Habitat Area

SMZ Special Management Zone

SSC Scientific and Statistical Committee

TACTS

USACOE United States Army Corps of Engineers

USCG United States Coast Guard

USFWS United States Fish and Wildlife Service

USGS United States Geological Survey

USGS CSC USGC Climate Science Center

Introduction

The South Atlantic Fishery Management Council developed the Fishery Ecosystem Plan (FEP) II as a mechanism, in cooperation with NOAA Fisheries, to incorporate ecosystem principles, goals, and policies into the fishery management process. A core part of the FEP II development process involved engaging the Council's Habitat Protection and Ecosystem Based Management Advisory Panel and regional experts in developing new Sections and ecosystem specific policy statements to address South Atlantic food webs and connectivity and South Atlantic climate variability and fisheries. In addition, the Council also updated standing essential fish habitat policy statements and developed a new artificial reef habitat policy statement. In combination, these statements advance habitat conservation and the move to ecosystem-based fishery management (EBFM) in the region and provided a foundation to develop the FEP II Implementation Plan. Council policies developed through the process support data collection, model and supporting tool development, and implementation of Fishery Ecosystem Plan II. The FEP II, the FEP II Implementation Plan, and this roadmap also provide a metric for determining the incorporation of ecosystem considerations into the management process. The Implementation Plan is not intended to direct or instruct any external program, organization, or entity to undertake a specific action or to reprioritize their work or programs.

Background

Habitat Conservation and the Fishery Ecosystem Plan

The Council, viewing habitat conservation as the foundation in the move to ecosystem-based fishery management in the region, facilitated the evolution of the Habitat Plan into the first FEP (2009). This approach required a greater understanding of the South Atlantic ecosystem and the complex relationships among humans, marine life, and the environment including essential fish habitat. To support this move, the Council adopted broad goals for ecosystem-based fishery management including: maintaining or improving ecosystem structure and function; maintaining or improving economic, social, and cultural benefits from resources; and maintaining or improving biological, economic, and cultural diversity. The original FEP served as a source document describing the South Atlantic ecosystem and the impact of fisheries on the environment.

The Council developed the Fishery Ecosystem Plan II as a mechanism to incorporate the evaluation and consideration of ecosystem principles, goals, and policies into fishery management in the region. The FEP I which has evolved to the living FEP II Dashboard and associated online tools provides a clear description and understanding of the fundamental physical, biological, and human and institutional context of South Atlantic ecosystems within which fisheries are managed. In addition, the FEP II builds on existing and advances new policies that guide future evaluation and implementation and advancement of habitat conservation and ecosystem-based fishery management in the region. The guidance is consistent with the overall habitat protection policies of the SAFMC as formulated and adopted in the Habitat Plan, the Comprehensive EFH Amendment, the Fishery Ecosystem Plan of the South Atlantic Region, Comprehensive Ecosystem-Based Amendment 1, Comprehensive Ecosystem-Based Amendment 2, and the various Fishery Management Plans (FMPs) of the Council.

NOAA Ecosystem-Based Fishery Management Policy and Roadmap
Managing fisheries over the long-term means considering habitat conservation and managing more than just one species at a time. Advancing this more holistic, science-based approach which looks at the entire ecosystem is known as ecosystem-based fisheries management (EBFM).
To support this move, NOAA Fisheries developed an agency-wide EBFM policy and roadmap, (Available through Ecosystem page of the FEP II Dashboard http://safmc.net/fishery-ecosystem-plan-ii-south-atlantic-ecosystem/) outlining a set of principles to guide actions and decisions over the long-term to: implement ecosystem-level planning; advance our understanding of ecosystem processes; prioritize vulnerabilities and risks of ecosystems and their components; explore and address trade-offs within an ecosystem; incorporate ecosystem considerations into management advice; and maintain resilient ecosystems.

The FEP II new sections were developed employing writing and review teams established from the Council's Habitat Protection and Ecosystem Based Management Advisory Panel, and experts from state, federal, NGOs, academia and other regional organizations and associations. The FEP II, unlike the original FEP, is a living and continually developing online information system. It consists of core sections and sections with links to documents or other online resources presenting detailed updated information on species, habitat, fisheries and research. The FEP II for example, provides both concise summaries of Council managed species and a link to detailed species information available through the Ecospecies, developed jointly with Florida Fish and Wildlife Research Institute (FWRI). The online information system provides access to comprehensive information on habitat, life history, the fishery and management.
The more concise and focused FEP II also addresses new key issue areas including highlighting our understanding of the complexity and connectivity of South Atlantic food webs, as well as, the implications of climate variability on fisheries. This information can be used as the basis for the following:

- Further policy development
- Consideration in habitat and fish stock assessment
- Future management of fisheries and habitat
- Support for a more comprehensive view of conservation and management in the South Atlantic
- Identification of long-term and shorter-term information needs

In summary, the FEP II advances the move to EBFM in the region through enhancing the capabilities of available models and tools used to manage habitat and fisheries. A key tenet of EBFM is the consideration of potential indirect effects of fisheries on food web linkages when developing harvest strategies and management plans.

Goals of EBFM in the South Atlantic Region

The FEP II and the implementation plan support the Council's broad goals for ecosystem based fishery management:
GOAL 1: Maintaining or improving ecosystem structure and function.
GOAL 2: Maintaining or improving economic, social, and cultural benefits.
GOAL 3: Maintaining or improving biological, economic, and cultural diversity.

FEP II Implementation Plan Structure and Structure

The Implementation Plan is structured to translate approved policy statements of the SAFMC into actionable items. The plan therefore encompasses chapters beginning with an introduction to the policy statement, a link to the complete policy statement, and a table which translates policies and policy components into potential action items. The actions within the plan are recommendations for activities that could support the Council's FEP II policies and objectives. The Implementation Plan is not intended to direct or instruct any external program, organization, or entity to undertake a specific action or to reprioritize their work or programs. The entities listed in the "Potential Partner" column are suggested partners for the actions. Each year the Habitat Protection and Ecosystem Based Management Advisory Panel, during their spring meeting, will discuss actions addressed in the previous year as summarized by Council staff.

FEP II Two Year Roadmap

This FEP II Two Year Roadmap draws from the Implementation Plan and presents three to five priority actions for each of the nine approved policy statements of the Council which would be initiated or completed over the next two years. The Roadmap provides "Potential Partners" and other potential regional collaborators, a focused list of priority actions they could cooperate with the Council on to advance policies supporting the move to EBFM in the South Atlantic Region.

The following chart visually represents the translation of SAFMC policies presented in policy statements and FEP II sections where appropriate, into actionable items that support the implementation plan for the FEP II.

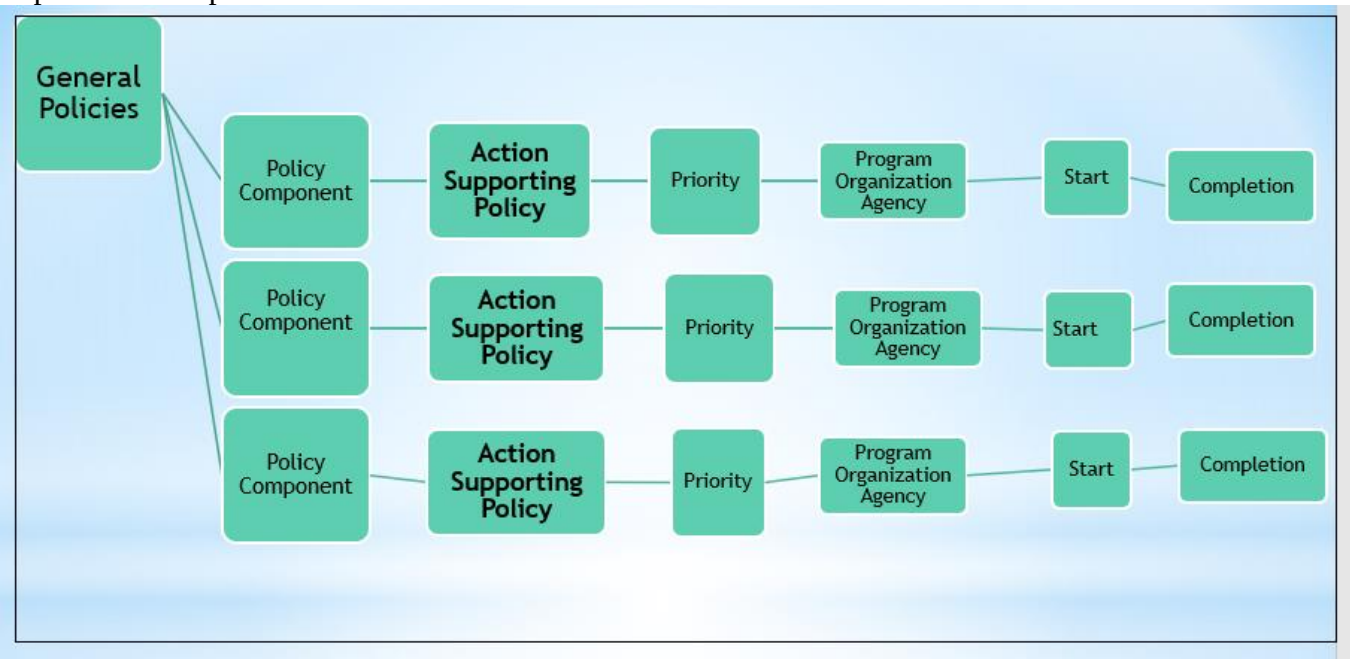

Figure 1. Visual representation of SAFMC policies into action items presented in the Two Year Road Map and supporting the Implementation Plan for FEP II.

Chapter 1. South Atlantic Food Webs and Connectivity

POLICY CONSIDERATIONS FOR SOUTH ATLANTIC FOOD WEBS AND CONNECTIVITY AND ESSENTIAL FISH HABITATS (Adopted December 2016)

Introduction to Policy Statement

This policy provides guidance from the South Atlantic Fishery Management Council (SAFMC) regarding South Atlantic Food Webs and Connectivity and the protection of Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (EFH-HAPCs) supporting the Council move to ecosystem-based fishery management. For the purposes of policy, the findings assess potential threats and impacts to managed species EFH and EFH-HAPCs and the South Atlantic ecosystem associated with changes in food webs and connectivity and processes that could improve those resources or place them at risk. The policies and recommendations established in this document are designed to address such impacts in accordance with the habitat policies of the SAFMC as mandated by law.

Policy Considerations

EBFM addresses unintended consequences of fishing including the over-exploitation of predators, an increase in abundance of their prey, and a decline of organisms two trophic levels below them, a phenomenon known as a trophic cascade. Alternatively, fishing on lower trophic level species, planktivorous "forage" fishes for example, may ultimately lead to predator population declines due to food limitation. Food web linkages connect different components of the larger ecosystem, such as pelagic forage fishes and their piscivorous predators or demersal carnivores. This connectivity between food webs over space, time, and depth creates multiple energy pathways that enhance ecosystem stability and resilience. Food web models are increasingly being utilized by fisheries managers as ecological prediction tools because they provide the capability to simulate the entire ecosystem from primary producers to top predators to fisheries.

Recent activities associated with applying modeling to management were highlighted in a NMFS National Ecosystem Modeling Workshop where all the Science Centers gave brief updates of recent modeling efforts and how they are being used for management. The Alaska Fisheries Science Center indicated food web models are updated frequently and are used regularly in fishery management advice in annual Stock Assessment and Fishery Evaluation reports and management strategy evaluations were conducted for three groundfish species from the Bering Sea. The Northeast Fisheries Science Center created a simple aggregate group production model to explore trade-offs between management objectives related to fisheries and marine mammals. The Pacific Islands Fisheries Science Center built the Guam Atlantis Coral Reef Ecosystem Model which identified management strategies for evaluation as well as metrics for measuring their effectiveness and an Ecopath with Ecosim model to evaluate ecosystem structure and energy flows for two subpopulations of Hawaiian monk seals in the Northwest Hawaiian Islands. The Southeast Fisheries Science Center is collaborating with ASMFC on ecosystem reference points for management use whereby stakeholders have defined goals and objectives. The Northwest Fisheries Science Center is evaluating trade-offs in harvest of forage fish versus predator populations using an Atlantis model, MICE, and Ecopath models.

Food web models can serve to inform single species assessment and management and are capable of generating reference points and ecosystem-level indicators. This policy addresses characterization of food web dynamics, development of food web indicators and evaluation of management actions on these systems.

Link to Complete Policy Statement:
http://safmc.net/download/SAFMC_HabitatPolicy_FoodWebConnectivity_Final_Dec2016.pdf

The following are priority actions on how to best implement the policy statement that can be initated in the next two years as presented in Table 1 Policy to Action Excel spreadsheet for Food Web and Connectivity in the FEP II Implemenation Plan.

Policy Component Addressed:

Forage Fisheries – Consider forage fish stock abundances and dynamics, and their impacts on predator productivity, when setting catch limits to promote ecosystem sustainability. Refine list of forage fish species presented in Appendix A of the Policy Statement. Quantify managed species diet compositions to identify predator dependency of forage species both spatially and temporally in the South Atlantic. Collect more science and monitoring information to improve our understanding of the role of forage fish in the ecosystem. (Forage species life history, ecological roles, and migration patterns

Action 1:

Council facilitate development of intra-state innovative public/private research partnerships that focus on addressing Council forage fish science priorities including predator dependencies. (e.g. Florida Forage Fish Research Program) to:

- *Identify species for which diet data are lacking, and prioritize future research accordingly. Define and prioritize major forage groups in managed species diet composition.*
- *Include forage fish information (species occurrence and distribution of biomass with variable environmental conditions) in the Affected Environment chapter of FMP amendments and other management actions to support the development of sustainable harvest strategies that incorporate ecosystem considerations and trade-off.*
- *Characterize life history of primary prey for Council managed species, including snapper grouper, king and Spanish mackerel, cobia, dolphin and wahoo.*

The Action, to be initated in 2018 and completed in 2019, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, state agencies, NOAA, SERFS and SECOORA Partners, and SALCC.

Policy Component Addressed for Actions 2-3:

Develop Food Web Indicators. Develop food web indicators to inform future management actions.

Action 2:

Develop food web indicators to summarize the state of knowledge of the South Atlantic food web/ecosystem.

The Action, to be initated in 2018 and completed in 2020, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries, SALCC, Ecospecies, Academia.

Action 3:

Develop ecosystem indicators that could be included in a NOAA South Atlantic Ecosystem Status Report that documents and characterizes key managed and prey species, environmental drivers of those species, and mechanisms to monitor those drivers / species, etc.

The Action, to be initated in 2018 and completed in 2019, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries, SALCC, Ecospecies, Academia.

Policy Component Addressed for Actions 2-3:

Food Web Connectivity – Separate food webs exist in the South Atlantic: inshore-offshore, north-south, and benthic-pelagic, connected by species that migrate between them such that loss of connectivity could have impacts on other components of the ecosystem that would otherwise appear unrelated and must be accounted for. Refine understanding of species use of habitat by season

Action 4:

Characterize seasonal patterns for managed species exhibiting seasonal north-south movement: major snapper grouper species including gag, jacks, cobia, dolphin, mackerels etc. Complete in coordination with the climate team.

The Action, to be initated in 2018 through 2020 and ongoing, is identified as High Priority and Potential Partners include but are not limited to: SERFS and State Agencies.

Policy Component Addressed for Action 5:

Trophic Pathways – Managers should aim to understand how fisheries production is driven either by bottom-up or top-down forcing and attempt to maintain diverse energy pathways to promote overall food web stability. Understand bottom-up forcing in South Atlantic fisheries production

Action 5:

Compile time series and/or spatial maps of temperature, chlorophyll -a, freshwater flow, salinity, etc.

The Action, to be initated in 2018 and completed in 2023, is identified as High Priority and Potential Partners include but are not limited to: Academia.

Chapter 2. South Atlantic Climate Variability and Fisheries

POLICY CONSIDERATIONS FOR SOUTH ATLANTIC CLIMATE VARIABILITY AND FISHERIES AND ESSENTIAL FISH HABITATS (Adopted December 2016)

Introduction to Policy Statement

This policy provides guidance for the SAFMC supporting the Council's interest in ecosystem based fishery management, in particular South Atlantic climate variability and fisheries and the protection of Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (EFH-HAPCs). The policy assesses potential threats and impacts to managed species EFH and EFH-HAPCs and the South Atlantic ecosystem associated with climate variability or change and processes that could improve those resources or place them at risk.

Policy Considerations

The marine environment is constantly in flux and today, many parts of the ocean are changing quickly due to such factors as varying temperatures and salinities, fluctuating productivity, rising sea levels, ocean acidification and growing coastal populations. While the extent and types of changes occurring vary from region to region, these changes are a major driver of ecosystem dynamics and the impacts are already being observed by scientists, managers, and fishermen in the South Atlantic. Fish populations can react to changing ocean conditions. For example, as the ocean warms, many fish species are expanding their range or shifting their distributions toward the poles or into deep areas to find cooler waters. This policy addresses management of shifting species distributions, development of climate indicators, evaluation of tradeoffs, and scientific and management implications of new fisheries that develop as a result of climate variability.

Link to Complete Policy Statement:
http://safmc.net/download/SAFMC_HabitatPolicy_ClimateVariabilityFisheries_Final_Dec2016.pdf

The following are priority actions on how to best implement the policy statement that can be initated in the next two years as presented in Table 2 Policy to Action Excel spreadsheet for Climate Variability and Fisheries in the FEP II Implemenation Plan.

Policy Component Addressed:

As species expand/shift their distributions due to changing ocean conditions and/or market demands, the SAFMC will proactively work to manage species that span multiple jurisdictions. Coordination with State Agencies (Document Species Distribution. Characterize annual and seasonal South Atlantic Ocean conditions.

Action 1:

Council develop and engage in a cooperative process with the MAFMC, ASMFC, GMFMC, and/or CFMC to explore ways to adaptively manage species that are or are expected to shift/expand their ranges.

The Action, to be initated in 2018 and completed in 2020, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, ASMFC, MAFMC, GMFMC, CFMC.

Policy Component Addressed:

NOAA or regional partners develop a priority list of climate indicators that likely track ecological, social, and economic trends and status and annual summaries documenting species likely to be influenced, and fisheries trends that appear to be due to changing ocean environmental conditions in the South Atlantic ecosystem. Develop ecological indicators, social indicators, and indicators of economic status and trends.

Action 2:

Develop or select previously developed climate indicators and define triggers for when management action is needed.

The Action, to be initated in 2018 and completed in 2020, is identified as High Priority and Potential Partners include but are not limited to: NOAA Fisheries, SALCC, USGS CSCs SAFMC.

Policy Component Addressed:

Climate change requires the consideration of tradeoffs. Council consider tradeoffs. As appropriate, climate data and the effects of climate variability should be integrated into stock assessments. Climate impacts could also be a focus of the new proposed stock assessment research cycle.

Action 3:

Council in cooperation with NOAA Fisheries, discusses and considers action to include climate impacts in the ABC Control Rule. Where appropriate, develop methodologies to include climate variability into stock assessments. This should include a best practices workshop including lessons from other regional or national climate experts.

The Action, to be initated in 2019 and completed in 2019, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries, SAFMC SSC, regional and national experts.

Chapter 3. Marine Aquaculture

POLICY CONSIDERATIONS FOR THE INTERACTIONS BETWEEN ESSENTIAL FISH HABITATS AND MARINE AQUACULTURE (Adopted June 2014)

Introduction to Policy Statement

This policy provides the SAFMC guidance regarding interactions of marine aquaculture with Essential Fish Habitat (EFH) and Essential Fish Habitat - Habitat Areas of Particular Concern (EFH-HAPCs).

Policy Considerations

This policy addresses concerns related to the production of seafood and other non-seafood related products (*e.g.*, biofuels, ornamentals, bait, pharmaceuticals, and gemstones) by aquaculture, but does not specifically address issues related to stock enhancement. The policy assesses potential impacts, negative and positive, to EFH and EFH- HAPCs posed by activities related to marine aquaculture in offshore and coastal waters, riverine systems and adjacent wetland habitats, and the processes that could improve or place those resources at risk.

The recommendations presented apply to aquaculture activities that may impact EFH and EFH-HAPCs. Aquaculture activities have the potential to interact both positively and negatively with EFH and EFH-HAPCs when conducted in onshore, nearshore, and offshore environments.

Link to Complete Policy Statement:

http://cdn1.safmc.net/wp-content/uploads/2016/11/28102847/SAFMCAquaPolicyFinalJune14.pdf

The following are priority actions on how to best implement the policy statement that can be initated in the next two years as presented in Table 3 Policy to Action Excel spreadsheet for Marine Aquaculture in the FEP II Implemenation Plan.

Policy Component Addressed:

Given the critical nature of proper siting, the permitting agency should require the applicant to provide all information necessary to thoroughly evaluate the suitability of potential aquaculture sites. If sufficient information is not provided in the time allotted by existing application review processes, the permitting agency should either deny the permit or hold the permit in abeyance until the required information is available.

Action 1:

Develop a non-fishing research priorities document specific to aquaculture in order to identify data gaps related to siting and species interactions with aquaculture facilities. Proper siting can prevent negative impacts of marine aquaculture on EFH. More information is needed on proper siting and potential species interactions with aquaculture facilities in the South Atlantic.

The Action, to be initated in 2018 and completed in 2020, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries, State Agencies.

Policy Component Addressed:

Given the critical nature of proper siting, the permitting agency should require the applicant to provide all information necessary to thoroughly evaluate the suitability of potential aquaculture sites. If sufficient information is not provided in the time allotted by existing application review processes, the permitting agency should either deny the permit or hold the permit in abeyance until the required information is available.

Action 2:

Work with grant funding agencies to identify data gaps related to siting and species interactions with aquaculture facilities and prioritize projects to develop site-selection tools for applicants.

The Action, to be initated in 2018 and will be ongoing, is identified as High Priority and Potential Partners include but are not limited to: NOAA, NMFS, EPA, State Agencies.

Chapter 4. Submerged Aquatic Vegetation (SAV)

SAFMC POLICY FOR PROTECTION AND ENHANCEMENT OF ESTUARINE AND MARINE SUBMERGED AQUATIC VEGETATION (SAV) HABITAT (Adopted June 2014)

Introduction to Policy Statement

The SAFMC and the Habitat Advisory Panel considered the issue of the decline of estuarine and marine submerged aquatic vegetation (SAV) or seagrass habitat in Florida and North Carolina as it relates to Council habitat policy. Subsequently, the Council's Habitat Committee requested

that the Habitat Advisory Panel develop the following policy statement to support Council efforts to protect and enhance habitat for managed species.

Policy Considerations

In the South Atlantic region, SAV is found primarily in the states of Florida and North Carolina where environmental conditions are more favorable than in South Carolina and Georgia. The distribution of SAV habitat is indicative of its importance to economically important fisheries: in North Carolina, total coverage is estimated to be 130,000 acres; in Florida, the nearshore seagrass coverage is estimated to be 2.2 million acres with an additional 2-3 million acres offshore in the Gulf of Mexico.

SAV is designated through Fishery Management Plans as Essential Fish Habitat for several federally managed species, including Penaeid shrimp, spiny lobster, snapper-grouper species, and cobia. It is also designated as habitat area of particular concern for snapper-grouper species and juvenile summer flounder. SAV is critically important to numerous state managed species, and a diverse assemblage of fauna that are prey to federally managed species; SAV provides valuable ecological and economic functions. Food and shelter afforded by SAV result in a complex and dynamic system that provides a primary nursery habitat for various organisms important both to the overall system ecology, to commercial and recreational fisheries, and to non-harvested fish, shellfish, manatees, and sea turtles. Using ecological services valuations, Florida seagrass ecosystems alone provide services worth more than $20 billion a year. This policy addresses monitoring and research needs, management actions that impact SAV, and education and enforcement to aid in fostering public understanding of the importance of the resource.

Link to Complete Policy Statement:

http://cdn1.safmc.net/wp-content/uploads/2016/11/28102847/SAFMCSAVPolFinalJune14.pdf

The following are priority actions on how to best implement the policy statement that can be initated in the next two years as presented in Table 4 Policy to Action Excel spreadsheet for Submerged Aquatic Vegetation in the FEP II Implemenation Plan.

Policy Component Addressed:

Monitoring and Research: Periodic mapping and monitoring of SAV in the region are required to determine how distribution has changed spatially over time, the progress toward the goal of a net resource gain, and what management actions are needed to reach established goals. Develop and standardize imagery acquisition and resource mapping protocols, with regional modification as necessary to achieve effective results.

Action 1:

Council work with regional partners to:

- *Review existing mapping efforts to determine the geographic extent and identify data gaps;*
- *Review and summarize mapping protocols employed by various SAV monitoring programs and host a workshop to develop standard protocols and standardized indicators to assess SAV condition which can be monitored on a regular basis*

The Action, to be initated in 2018, completed in 2020 and ongoing, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, FWC, NCDMF, NOAA/NCCOS/CCFHR, APNEP, and FDEP.

Policy Component Addressed:

Monitoring and Research: Periodic mapping and monitoring of SAV in the region are required to determine how distribution has changed spatially over time, the progress toward the goal of a net resource gain, and what management actions are needed to reach established goals. Develop and standardize imagery acquisition and resource mapping protocols, with regional modification as necessary to achieve effective results. Evaluate water quality criteria needed to support SAV survival and growth and support policy making to manage quality and quantity of surface runoff.

Action 2:

Council partners compile existing information on water quality requirements for SAV within specific water bodies and identify data gaps.

The Action, to be initated in 2018, completed in 2019, is identified as High Priority and Potential Partners include but are not limited to: State agencies, water management districts, SAFMC, NOAA, USFWS, and Academia.

Policy Component Addressed:

Monitoring and Research: Periodic mapping and monitoring of SAV in the region are required to determine how distribution has changed spatially over time, the progress toward the goal of a net resource gain, and what management actions are needed to reach established goals. Develop and standardize imagery acquisition and resource mapping protocols, with regional modification as necessary to achieve effective results. Evaluate water quality criteria needed to support SAV survival and growth and support policy making to manage quality and quantity of surface runoff. Research potential effect of climate change on SAV habitat.

Action 2:

Regional partners in cooperation with Council, investigate potential effects of climate change and sea level rise on SAV communities within the South Atlantic coastal region.

The Action, to be initated in 2018, completed in 2020, is identified as High Priority and Potential Partners include but are not limited to: USGS, SECAS, SALCC, SAFMC, and NOAA.

Chapter 5. Beach Dredging/Re-nourishment and Large Scale Coastal Engineering

POLICIES FOR THE PROTECTION AND RESTORATION OF ESSENTIAL FISH HABITATS FROM BEACH DREDGING AND FILLING, BEACH RENOURISHMENT, AND LARGE-SCALE COASTAL ENGINEERING (Adopted March 2015)

Introduction to Policy Statement

This policy of the SAFMC establishes protection for essential fish habitats (EFH) and habitat areas of particular concern (EFH-HAPCs) impacted by beach dredge-and-fill activities, and

related large-scale coastal engineering projects (e.g., beach scraping). This policy does not supersede any other applicable state or federal policy or regulation pertaining to beach dredge-and-fill projects, but intended to complement existing policies or regulations for the benefit of protecting essential fish habitat managed by the SAFMC.

Policy Considerations

The policy assesses the threats to EFH potentially posed by activities related to the large-scale dredging and disposal of sediments in the coastal ocean and adjacent habitats, and the processes whereby those resources are placed at risk. The policy is designed to avoid, minimize and offset damage caused by these activities, in accordance with the general habitat policies of the SAFMC as mandated by law and addresses the information needed to effectively review these activities.

Link to Complete Policy Statement:

http://cdn1.safmc.net/wp-content/uploads/2016/11/28102847/SAFMCFinalEFHBeachPolicyMarch15.pdf

The following are priority actions on how to best implement the policy statement that can be initated in the next two years as presented in Table 5 Policy to Action Excel spreadsheet for Beach Dredging/Re-nourishment and Large Scale Coastal Engineering in the FEP II Implemenation Plan.

Policy Component Addressed:

For each project, a comprehensive environmental document should be prepared based on the best available information, and address detailed components specified in the Council Policy Statement. Defined areas of direct and indirect impact, using guidance provided in 40 CFR Section 1508.8 Effects. Baseline surveys designed with appropriate methodology to adequately document pre-project conditions for biological, physical and water resources in both direct and indirect impact areas Baseline surveys should follow the BACI (Before-After, Control-Impact) sampling framework (Stewart-Oaten 1986).

A full range of alternatives, including alternatives that may minimize future need for additional nourishment activities (e.g., sand bypass). Impact assessment for each alternative using ecologically conservative assumptions and worst-case scenarios. A compensatory mitigation plan be developed

A during-construction monitoring plan as deemed necessary for a specific project. A post-construction monitoring plan for biological, physical and water resources designed with appropriate methodology to adequately detect and document both direct and indirect project impacts.

Action 1:

The Council provide policy statement with all the components to regulatory agencies and request that it be provided to applicants to increase awareness of and minimize impacts to Council-managed species and associated EFH.

The Action, to be initated in 2018 and will be ongoing, is identified as Medium Priority and Potential Partners include but are not limited to: NOAA Fisheries, SAFMC, State Agencies, USACOE, and USFWS.

Policy Component Addressed:

Fill material should match the sediment characteristics of the recipient beach as closely as possible.

Action 2:

Council to provide supporting information on grain size compatibility and ecological and economic benefits of using compatible sand to the USACOE and CZM agencies. Council recommend to permitting agencies that applicants perform sediment analyses (e.g., grain size, sorting, and mineralogy) to determine compatibility of dredged sediments with recipient beach sediments.

The Action, to be initated in 2018 and will be ongoing, is identified as Medium Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries, State Agencies, and USACOE.

Policy Component Addressed:

Dredging should be: limited to bathymetric peaks (rather than depressions or level sea bottom) in areas characterized by strong currents and sand movement, in order to increase sediment infilling rates and decrease the duration of impacts to benthic habitats limited to the shallowest depths possible to minimize changes in wave energy and currents, thus reducing the likelihood of infilling with fine-grained sediments.

Action 3:

Work with SEAMAP-SA to prioritize topographic mapping of ocean soft bottom and compile existing bathymetric and hydrologic information to develop bathymetric maps of ocean soft bottom habitat and identify gaps. Provide resulting maps to the regulatory agencies to so they can aid in minimizing long term habitat impacts from dredging. where information gaps exist.

The Action, to be initated in 2018 will be ongoing, is identified as Medium Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries, SAFMC, State Agencies, USACOE, and SEAMAP-SA.

Policy Component Addressed:

Reduce the impact of large scale dredging and coastal engineering projects on EFH.

Action 4:

The Council provide policy statement with all the required components to regulatory agencies reviewing large scale dredging and coastal engineering projects.

The Action, to be initated in 2018 will be ongoing, is identified as Medium Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries, State Agencies, USACOE.

Chapter 6. Energy Exploration and Development

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

Introduction to Policy Statement

This policy provides the SAFMC guidance 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. This policy also provides guidance regarding mitigation of those impacts, including avoidance, minimization and compensatory mitigation.

Policy Considerations

The types of activities within the scope of this policy 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 are designed to avoid and minimize impacts and optimize benefits from these activities.

Link to Complete Policy Statement:

http://cdn1.safmc.net/wp-content/uploads/2016/11/28102846/SAFMCEnergyPolicyDec1415.pdf

The following are priority actions on how to best implement the policy statement that can be initated in the next two years as presented in Table 6 Policy to Action Excel spreadsheet for Energy Exploration and Development in the FEP II Implemenation Plan.

Policy Component Addressed:

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.

Action 1:

The Council provides EED policy with all components to the regulatory agencies to ensure project compatibility compliance with the SAFMC policy and cooperate with regional partners to develop a best management practices document in order to reduce impacts to fish, fish habitat, and fisheries.

The Action, to be initated in 2018 will be ongoing, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries, BOEM, USACOE, NOAA Fisheries, State Agencies.

Policy Component Addressed:

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

Action 2:

The Council provide maps of priority fishing areas, MPAs, and EFH-HAPC to be avoided in federal and state waters for energy exploration and development activities.

The Action, to be initated in 2018 will be ongoing, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries.

Policy Component Addressed:

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.

Action 3:

In Council review and comment on projects, request companies associated with energy development to fund compliance monitoring positions that will inspect and assess if requirements are being adhered to.

The Action, to be initated in 2018 will be ongoing, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries.

Policy Component Addressed:

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

Action 4:

Provide information to federal agencies on fish, habitat, and fisheries data available on the SAFMC GIS portal that can be used in the EFH consultation process as a tool for evaluating alternatives.

The Action, to be initated in 2018 will be ongoing, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, BOEM, NOAA NMFS, USACOE.

Policy Component Addressed:

EFH Review, Administrative Policies, Licensing Policies and Best Management Practices: 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. The methods used for habitat mapping and characterization work should reflect input from resource trustees and be performed with experienced personnel.

Action 5:

Work with federal agencies to identify information gaps and prioritize research needs and develop a non-fishing research and monitoring document in order to identify data gaps and monitoring protocols related to siting and species interactions with offshore energy facilities.

The Action, to be initated in 2018 will be ongoing, is identified as High Priority and Potential Partners include but are not limited to: BOEM, NOAA NMFS, USACOE.

Chapter 7. Alterations to Riverine, Estaurine, and Nearshore Flows

POLICIES FOR THE PROTECTION AND RESTORATION OF ESSENTIAL FISH HABITATS FROM ALTERATIONS TO RIVERINE, ESTUARINE, AND NEARSHORE FLOWS (Adopted June 2014)

Introduction to Policy Statement

This policy establishes the SAFMC's guidance regarding protection of the essential fish habitats (EFH) and habitat areas of particular concern (EFH-HAPCs) associated with alterations of riverine, estuarine and nearshore flows. Such hydrologic alterations occur through activities such as dam operations, water supply and irrigation withdrawals, and other modifications to the normative hydrograph.

Policy Considerations

The policy assesses the threats to EFH potentially posed by activities related to the alteration of flows in southeast rivers, estuaries and nearshore ocean habitats, and the processes whereby those resources are placed at risk. The policies are designed to avoid, minimize and offset damage caused by these activities, in accordance with the general habitat policies of the SAFMC as mandated by law. The policy addresses scheduling of construction activities, siting of intakes, and maintenance and monitoring activities.

Link to Complete Policy Statement: http://cdn1.safmc.net/wp-content/uploads/2016/11/28102846/SAFMCInstreamFlowPolFinalJune14.pdf

The following are priority actions on how to best implement the policy statement that can be initated in the next two years as presented in Table 7 Policy to Action Excel spreadsheet for Alterations to Estuarine, Riverine and Nearshore Flows in the FEP II Implemenation Plan.

Policy Component Addressed:

Projects should avoid, minimize and where possible offset damage to EFH and EFH-HAPCs, diadromous fishes, state and federally-listed species, Federal critical habitat, and State Critical Habitat Areas (CHAs).

Action 1:

Council to cooperate with federal, state, and university scientists characterizing baseline natural flows and flow regimes for each South Atlantic river basins, estuary and nearshore habitats natural function necessary to support healthy ecosystem function and fishery production. Provide resulting information to appropriate federal and state agencies, as well as applicants.

The Action, to be initated in 2018, completed in 2020 and ongoing, is identified as High Priority and Potential Partners include but are not limited to: USGS, USFWS, NOAA, State Agencies, Academia, SAFMC.

Policy Component Addressed:

Projects should:

- Provide detailed analyses of a full range of alternatives, along with assessments of the relative impacts of each on each type of EFH, EFH-HAPC, diadromous fishes, state and federally-listed species, Federal critical habitat, and CHAs.
- Avoid impacts on EFH, EFH-HAPCs, diadromous fishes, state and federally-listed species, Federal critical habitat, and CHAs that are shown to be avoidable through the alternatives analysis, and minimize impacts that are not.
- Include assessments of potential unavoidable damage to EFH and other marine resources.
- Be conditioned on the avoidance of impacts, and the minimization of unavoidable impacts. Compensatory mitigation should be required for all unavoidable impacts
- Include baseline and project-related monitoring be adequate to document pre-project conditions and impacts
- All assessments should be based upon the best available science and take into account the cumulative impacts associated with other projects in the same southeast watershed.
- Meet state and Federal water quality standards.

Action 2:

Council in cooperation with NOAA Fisheries provide the policy with all the components to appropriate federal and state agencies, as well as applicants to support compliance with the SAFMC policy.

The Action, to be initated in 2018, completed in 2020 and ongoing, is identified as Medium Priority and Potential Partners include but are not limited to: SAFMC, NOAA, USFWS..

Policy Component Addressed:

To the extent that it is reasonably practicable, construction activities should not be scheduled to coincide with the spawning migrations or early development of sensitive species that are present in the proposed project areas.

Action 3:

NOAA Fisheries in cooperation with the Council, develop a list of regionally specific requirements or Best Management Practices for flow-altering projects that can potentially impact EFH or other resources and support scheduling projects to not coincide with spawning migrations or early development of sensitive species.

The Action, to be initated in 2019, completed in 2020 and ongoing, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries, USFWS, State Agencies.

Policy Component Addressed:

Components of the natural flow regime should be altered as little as possible. Although achieving a natural hydrograph in its entirety may not be possible, restoration of some of the natural flow regime components can restore ecosystem elements that would be lost or reduced as a consequence of flow regulation.

Action 4:

Council provide the policy with all the required components to the appropriate federal and state regulatory agencies to emphasize the importance of selecting the alternative that retains as much of the natural flow regime as possible.

The Action, to be initated in 2018, completed in 2019 and ongoing, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries, USFWS, SARP, Instream Flow Network, and SALCC.

Chapter 8. Non-Native and Invasive Species

POLICIES FOR THE PROTECTION OF SOUTH ATLANTIC MARINE AND ESTUARINE ECOSYSTEMS FROM NON-NATIVE AND INVASIVE SPECIES (Adopted June 2014)

Introduction to Policy Statement

This policy establishes the SAFMC's guidance regarding protection of South Atlantic estuarine ecosystems from potential impacts associated with invasive species.

Policy Considerations

The policy assesses potential impacts to the South Atlantic's marine and estuarine ecosystems posed by invasion of non-native species and the processes which could place those resources at risk. In adhering to a precautionary approach to management, the SAFMC establishes in this document policies and recommendations designed to avoid, minimize, and offset potential impacts to South Atlantic estuarine ecosystems. The policy addresses removal of invasive species, coordination with national and regional bodies on invasive species efforts, and activities that might result in non-native species introduction.

Link to Complete Policy Statement: http://cdn1.safmc.net/wp-content/uploads/2016/11/28102846/SAFMCMarEstInvasPolFinalJune14.pdf

The following are priority actions on how to best implement the policy statement that can be initated in the next two years as presented in Table 8 Policy to Action Excel spreadsheet for Non-Native and Invasive Species in the FEP II Implemenation Plan.

Policy Component Addressed:

The Council encourages the development of novel gears (other than those prohibited by the Council, such as fish traps) that effectively remove invasive species but do not compromise the integrity of South Atlantic habitats and ecosystems. The Council encourages consulting with appropriate law enforcement agencies to ensure compliance with existing regulations and to address possible enforceability challenges.

Action 1:

Give consideration to EFP applications for the development of novel gears that target non-native and invasive species. Provide support for these applications, as merited.

The Action, to be initated in 2019, completed in 2019, is identified as Medium Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries.

Policy Component Addressed:

The Council strongly suggests inspection and thorough cleaning of surfaces prior to placement of reef building materials and Fish Attracting Devices (FAD). The potential risk of inadvertently expanding the range of a non-native species through transport or establishment of new habitats should be carefully considered.

Action 2:

Provide NOAA Fisheries HCD with the Non-Native and Invasive Policy to develop and provide a condition that requires the inspection and thorough cleaning of surfaces prior to placement of reef building materials or FADs for HCD to put forward in their comments, and also provide HCD with an SAFMC contact for them to coordinate with if needed.

The Action, to be initated in 2018, completed in 2018, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries HCD.

Policy Component Addressed:

The Council supports its regional partners in their endeavor to promulgate regulations for ballast water and their efforts toward research and development to advance treatment technology for ballast water.

Action 3:

Evaluate annual level of ballast water from vessels transiting the South Atlantic region.

The Action, to be initated in 2018, completed in 2018, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries HCD.

Policy Component Addressed:

The Council supports programs to control invasive species' populations in areas for eradication (isolated populations) is possible. The Council supports harvest, eradication, and/or removal strategies that do not impact populations of managed species or their habitats.

Action 4:

Provide support as opportunities present themselves (whether it be with a letter from the Council or voicing support in a meeting) for invasive species control programs and strategies in areas of high ecological/economic importance that do not impacts populations of managed species or their habitats.

The Action, to be initated in 2019 will be ongoing, is identified as Medium Priority and Potential Partners include but are not limited to: SAFMC, NOAA Fisheries HCD, SARP.

Chapter 9. Artificial Reefs

POLICY CONSIDERATIONS FOR DEVELOPMENT OF ARTIFICIAL REEFS IN THE SOUTH ATLANTIC REGION AND PROTECTION OF ESSENTIAL FISH HABITAT (September 2017)

Introduction to Policy Statement

This policy establishes the SAFMC guidance regarding protection and mitigation of Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (EFH-HAPCs) related to artificial reef development, placement, and maintenance.

Policy Considerations

In addition to serving as EFH, this policy highlights that the Council has designated artificial reefs Special Management Zones (SMZs) as EFH-HAPCs. For the purposes of policy, the findings assess potential threats and impacts to managed species EFH and EFH-HAPCs and the South Atlantic ecosystem associated with artificial reefs and processes that could improve those resources or place them at risk. The policy addresses issues related to siting, design and construction, as well as monitoring and assessment activities.

Link to Complete Policy Statement:
http://safmc.net/download/SAFMCArtReefEFHPolicyStatementSept17.pdf

The following are priority actions on how to best implement the policy statement that can be initated in the next two years as presented in Table 8 Policy to Action Excel spreadsheet for Non-Native and Invasive Species in the FEP II Implemenation Plan.

Policy Component Addressed:

Uses: Artificial reefs can be used to support fisheries management by providing a more standardized comparison for scientific investigations.

Action 3:

Prioritize research needs and explore mechanisms (including designated research areas) to support, coordinate and accomplish research necessary to answer questions related to using artificial reefs in ways that better support fisheries management.

The Action, to be initated in 2019 will be ongoing, is identified as High Priority and Potential Partners include but are not limited to: State Agencies, ASMFC Artificial Reef Committee, SAFMC, USACOE, NOAA.

Policy Component Addressed:

Construction- The SAFMC requires the use of environmentally-safe, long-lasting materials for reef construction, which are stable in their location and avoid any potential danger to other species (e.g., sea turtles).

Action 4:

Review Federal management and operation plans for artificial reefs to determine if they are up to date and meet the guidelines put forth by ASMFC Artificial Reef Committee and as permitted by USCOE, and update as necessary. Encourage state partners to do the same.

The Action, to be initated in 2018 and completed in 2019 will be updated every 5 years, is identified as High Priority and Potential Partners include but are not limited to: State Agencies, USACOE, USCG, NOAA PRD, SAFMC.

Policy Component Addressed:

Mitigation: There should be mitigation measures specified if the function of an artificial reef is lost. Artificial reefs can be used to mitigate for damage to natural reefs and for damage to artificial reefs. However, natural (and to an extent artificial) reef habitat is not perfectly

replaceable, so caution should be taken to reduce damage to natural and artificial reefs when possible.

Action 5:

SAFMC and NOAA Fisheries also encourage use of artificial reefs as mitigation for offshore dredging operations - whether it is permitting for sand mining or creating offshore dredge spoil areas.

The Action, to be initated in 2018 will be ongoing, is identified as High Priority and Potential Partners include but are not limited to: State Agencies, ASMFC Artificial Reef Committee, SAFMC, USACOE, NOAA.

Policy Component Addressed:

Other Priority Needs Long-term, multi-year standardized monitoring of artificial reefs and their communities, with the necessary long-term funding to provide multi-year trends in reef fish productivity and allow valid future comparisons of temporal and spatial data.

Action 6:

Cooperate with State partners to secure funding for programs to support long-term, multi-year standardized monitoring of artificial reefs and their communities, with the necessary long-term funding to provide multi-year trends in reef fish productivity and allow valid future comparisons of temporal and spatial data.

The Action, to be initated in 2019 and be completed in 2020, is identified as High Priority and Potential Partners include but are not limited to: SAFMC, State Agencies, ASMFC.