Fishery Ecosystem Plan II Dashboard Layout (online and developing) November 2017

Fishery Ecosystem Plan II – Introduction

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- Fishery Ecosystem Plan II Introduction

Fishery Ecosystem Plans

The South Atlantic Fishery Management Council developed Fishery Ecosystem Plan II as a mechanism, in cooperation with NOAA Fisheries, to incorporate ecosystem principles, goals, and policies into the fishery management process. Fishery ecosystem plans are developed to provide the Council with a clear description and understanding of the fundamental physical, biological, and human/institutional context of ecosystems within which fisheries are managed. The plan also identifies information needed and how that information should be used in the context of fishery management plans. Council policies developed through the process support data collection, model and supporting tool development and implementation of Fishery Ecosystem Plan II. FEP II and the developing implementation plan will provide a metric for determining the incorporation of ecosystem considerations into the management process.

Habitat Conservation and 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 Fishery Ecosystem Plan. 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 Fishery Ecosystem Plan served as a source document describing the South Atlantic ecosystem and the impact of fisheries on the environment.

Fishery Ecosystem Plan II Development

Fishery Ecosystem Plan II was 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. Fishery Ecosystem Plan II, unlike the original Plan, is a living continually developing online information system presenting core Sections and Sections with links to documents or other online systems presenting detailed updated information on species, habitat, fisheries and research. The Plan for example, provides both concise summaries of Council Managed Species while operationalizing the South Atlantic Ecospecies online species information system cooperatively developed with FWRI, to provide online access to detailed information on habitat, life history, the fishery and management. This more concise and focused Fishery Ecosystem Plan II also addresses key new issue areas including highlighting our understanding of the complexity and connectivity of South Atlantic food webs and the implications of climate variability and fisheries as the basis for further policy development, consideration in habitat and fish stock assessment and future management of fisheries and habitat supporting more a more comprehensive view of conservation and management in the South Atlantic and the ability to identify long-term information needs available models, tools and capabilities that will advance the move to ecosystem based fishery management in the Region.

Fishery Ecosystem Plan II – South Atlantic Ecosystem

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- Fishery Ecosystem Plan II South Atlantic Ecosystem
 - South Atlantic Food Web and Connectivity coming soon!
 - POLICY CONSIDERATIONS FOR SOUTH ATLANTIC FOOD WEBS AND CONNECTIVITY AND ESSENTIAL FISH HABITATS (December 2016)
 - South Atlantic Climate Variability and Fisheries coming soon!
 - POLICY CONSIDERATIONS FOR SOUTH ATLANTIC CLIMATE VARIABILITY AND FISHERIES AND ESSENTIAL FISH HABITATS (December 2016)

SAFMC Fishery Ecosystem Plan II Implementation Plan - coming soon!

Ecosystem Health

http://safmc.net/ecosystem-management/ecosystem-health/

SALCC State of the South Atlantic

 $http://data.southatlanticlcc.org/StateOfTheSouthAtlantic2015_web.pdf$

Ecosystem Modeling

Presentations on Ecosystem Modeling:

The South Atlantic Region Ecopath Model: Advancing the Ecopath/ Ecosim/ Ecospace approach - Thomas A. Okey to SAFMC SSC October 2017

Perspectives on Modeling for Ecosystem Based Fishery Management (EBFM) – Howard Townsend to SAFMC SSC October 2017

Spatial ecosystem modelling using Ecopath with Ecosim - Jeroen Steenbeek Ecopath International Initiative, Spain Webinar, 29 August 2016 EcoSpace Webinar May 2017

Publications:

A Preliminary Ecopath Model of the Atlantic Continental Shelf Adjacent to the Southeastern United States. Thomas A. Okey and Roger Pugliese

Exploring the Trophodynamic Signatures of Forage Species in the U.S. South Atlantic Bight Ecosystem to Maximize System-Wide Values. Thomas A. Okey, Andrés M. Cisneros-Montemayor, Roger Pugliese, Ussif R. Sumaila

Ecosystem Based Fishery Management Background

NMFS EBFM Roadmap

http://www.st.nmfs.noaa.gov/Assets/ecosystems/ebfm/EBFM_Road_Map_final.pdf

NMFS EBFM Policy

http://www.nmfs.noaa.gov/op/pds/documents/01/01-120.pd

Climate Links

Rutgers in collaboration with NOAA Fisheries, built a website called OceanAdapt http://www.st.nmfs.noaa.gov/ecosystems/climate/activities/oceanadapt where users can search and download data on the geographic and depth ranges of more than 650 species of fish and invertebrates and track how those distributions have changed over time: a valuable tool for the fishermen, fishery managers, and scientists who are grappling with the challenge of adapting to a changing ocean environment.

National Climate Indicators System - http://www.globalchange.gov/what-we-do/assessment

National Climate Assessment Link - http://nca2014.globalchange.gov/

Fishery Ecosystem Plan II – South Atlantic Habitats

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Fishery Ecosystem Plan II - South Atlantic Habitats

- Artificial Reef Habitat coming soon!
- Shallow Water Coral Habitat coming soon!
- Live/Hard Bottom Habitat coming soon!
- Deepwater Coral Habitat Coral Amendment 8
- Pelagic Sargassum Habitat http://safmc.net/fishery-management-plansamendments/sargassum-2/
- Estuarine Emergent Marsh Habitat -FEP I
- Mangrove Habitat-FEP I
- Seagrass/SAV Habitat-FEP I
- Oyster Reef and Shell Habitat-FEP I
- Intertidal Flats Habitat-FEP I
- Estuarine Water Column Habitat-FEP I
- Soft Bottom Subtidal Habitat-FEP I.

Links to Updated Habitat Information in North Carolina Coastal Habitat Protection Plan and North Carolina, South Carolina, Georgia and Florida State Wildlife Action Plans (SWAPS)

North Carolina Coastal Habitat Protection Plan (CHPP)

North Carolina Coastal Protection Plan

Link - http://portal.ncdenr.org/web/mf/habitat/CHPP

 $\label{lineary/get_file} Plan-http://portal.ncdenr.org/c/document_library/get_file?uuid=68734102-5af8-462a-8562-734562dc965f\&groupId=38337$

The CHPP is a guidance document providing the latest science on North Carolina's coastal fish habitats, their ecological functions, values, and threats, as well as goals and recommendations to protect, enhance, and restore fish habitat. In this plan, there is information on past implementation progress, updated recommendations, and priority issues to focus actions. Background on the six fish habitats, their status, and pertinent threats are included. Full details are in the 2015 CHPP Source Document.

Plan Source

Document: http://portal.ncdenr.org/c/document_library/get_file?uuid=5d02ccd2-3b9d-4979-88f2-ab2f9904ba61&groupId=38337

State Wildlife Action Plans (SWAP)

North Carolina SWAP Link - http://www.ncwildlife.org/Plan

NC

SWAP- http://www.ncwildlife.org/Portals/0/Conserving/documents/2015WildlifeAction Plan/NC-WAP-2015-All-Documents.pdf

North Carolina's Wildlife Action Plan is a comprehensive planning tool developed by the N.C. Wildlife Resources Commission in cooperation with numerous partners, including federal and state agencies, conservation organizations, and stakeholders to help conserve and enhance the state's full array of fish and wildlife species and their habitats. The N.C. Wildlife Resources Commission received approval from the U.S. Fish & Wildlife Service for the comprehensive revision of the N.C. Wildlife Action Plan on March 30, 2016.

South Carolina SWAP Link - http://dnr.sc.gov/swap/index.html

SC SWAP - http://dnr.sc.gov/swap/main/2015StateWildlifeActionPlan-chaptersonly.pdf

The SC SWAP presents condition and location of habitats and challenges to the management, lists the species of concern and their habitat associations, identifies Statewide conservation strategies and conservation actions to address species and habitat challenges. A Supplemental Volume presents reports for the species of greatest conservation need describing their distribution, abundance and habitat requirements, the challenges that the species faces, and specific conservation actions for addressing those challenges and ways to work with public and private entities toward conservation as well as strategies for monitoring species, habitats, and effectiveness of conservation actions._Supplemental Volume (Priority Species): http://dnr.sc.gov/swap/species2015.html

Georgia SWAP Link - http://georgiawildlife.com/SWAP

GA SWAP -

http://georgiawildlife.com/sites/default/files/wrd/pdf/swap/SWAP2015MainReport_920 15.pdf

The GA SWAP was developed to conserve Georgia's animals, plants, and natural habitats through proactive measures emphasizing voluntary and incentive-based programs on private lands, habitat restoration and management by public agencies and private conservation organizations, rare species survey and recovery efforts, and environmental education and public outreach activities. Ranges of distribution, habitat associations,

conservation needs, and research priorities for high priority animals and plants are described and high priority habitats are defined for each ecoregion and management needs for these habitats are discussed. Conservation goals, strategies and partnerships are identified for each of the five ecological regions of the state.

GA SWAP

Appendices- http://georgiawildlife.com/sites/default/files/wrd/pdf/swap/2015_SWAP_Appendices_Complete.pdf

High Priority

Habitats http://georgiawildlife.com/sites/default/files/wrd/pdf/swap/HighPriorityHabitats_ExcerptGaSWAP2015.pdf

Florida SWAP Link - http://myfwc.com/conservation/special-initiatives/fwli/action-plan/

FL SWAP - http://myfwc.com/media/2663010/StateWildlifeActionPlan.pdf

The Florida SWAP encompasses the broad array of Florida's native wildlife including vertebrate and invertebrate species in aquatic (freshwater, estuarine, and marine) and terrestrial habitats. The plan takes a habitat-based approach for initiating a comprehensive approach to conservation of terrestrial, freshwater and marine ecosystems and identifies 1036 Species of Greatest Conservation Need.

Note: Florida's State Wildlife Action Plan is currently under revision and is scheduled to be complete December 2017.

Links to FL Marine Habitat Descriptions, Associated Species and Threats:

Annelid Reef, Artificial Structure, Bivalve Reef, Coral Reef, Hard Bottom, Inlet, Mangrove Swamp, Salt Marsh, Seagrass, <u>Tidal Flat</u>

Fishery Ecosystem Plan II – All Managed Species

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Fishery Ecosystem Plan II SAFMC Managed Species (Live Online Doc)

• Fishery Ecosystem Plan II SAFMC Managed Species (PDF)

South Atlantic Species Information System - EcoSpecies Database

Other Managed Species

- Fishery Ecosystem Plan II Managed by ASMFC
- Fishery Ecosystem Plan II Managed by MAFMC
- Fishery Ecosystem Plan II Managed by NEFMC
- Fishery Ecosystem Plan II Managed by NMFS

Fishery Ecosystem Plan II – The Human Environment

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(Latest Approved SAFMC FMP Amendment: Chapter 3 Affected Environment - Economic and Social Characteristics of the Fishery)

Snapper Grouper Fishery -

Comprehensive Allowable Catch Limit Amendment for the South Atlantic Region Regulatory Amendment 25 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region

Coastal Migratory Pelagics Fishery -

Snapper Grouper Regulatory Amendment 25

King Mackerel Amendment 26 to the Fishery Management Plan for the Coastal Migratory Pelagics Fishery of the Gulf of Mexico and Atlantic Region Coastal Migratory Pelagics Amendment 26

Spanish Mackerel Framework Amendment 1 to the Fishery Management Plan for Coastal Migratory Pelagic Resources in the Gulf of Mexico and South Atlantic Region

Coastal Migratory Pelagics Framework Amendment 1

Cobia Framework Amendment 4 to the Fishery Management Plan for Coastal Migratory Pelagic Resources in the Gulf of Mexico and Atlantic Region Coastal Migratory Pelagics Framework Amendment 4

Dolphin Wahoo Fishery - Regulatory Amendment 1 to the Fishery Management Plan for the Dolphin and Wahoo Fishery of the Atlantic Dolphin Wahoo Regulatory Amendment 1

South Atlantic Shrimp Fishery -

Penaeid Shrimp Fishery - Amendment 9 to the Fishery Management Plan for the Shrimp Fishery of the South Atlantic Region Shrimp Amendment 9

Deepwater Shrimp Fishery - Amendment 8 to the Fishery Management Plan for Coral Coral Amendment 8

Golden Crab Fishery – Amendment 8 to the Fishery Management Plan for Coral Coral Amendment 8

Spiny Lobster Fishery - Final Amendment 11 to the Fishery Management Plan for Spiny Lobster in the Gulf of Mexico and South Atlantic Regions

<u>Spiny Lobster Amendment 11</u>

Fishing Communities Represented in FEP I - http://safmc.net/ecosystem-library/volume-iii-human-and-institutional-environment/

Fishery Ecosystem Plan II – Essential Fish Habitat and Habitat Conservation

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- Fishery Ecosystem Plan II Essential Fish Habitat and Habitat Conservation

SAFMC EFH and EFH- Habitat Areas of Particular Concern (HAPC) Designations - <u>EFH</u> Users Guide PDF

Essential Habitat Viewer - http://ocean.floridamarine.org/sa efh/

South Atlantic Species Information System - EcoSpecies

Database - http://saecospecies.azurewebsites.net

SAFMC Habitat Fishery Management Plans (FMP)

Coral FMP: http://safmc.net/fishery-management-plans-amendments/coral/

Sargassum FMP: http://safmc.net/fishery-management-plans-amendments/sargassum-2/

SAFMC EFH Policy Statements - http://safmc.net/ecosystem-management/habitat-protection-policies/

EFH Policy Statement on South Atlantic Climate Variability and Fisheries (December 2016)

EFH Policy Statement on South Atlantic Food Webs and Connectivity (December 2016)

Protection and Restoration of EFH from Marine Aquaculture (June 2014)

Protection and Enhancement of Marine Submerged Aquatic Vegetation (June 2014)

<u>Protection and Restoration of EFH from Beach Dredging and Filling, Beach Re-nourishment and Large Scale Coastal Engineering (March 2015)</u>

<u>Protection and Restoration of EFH from Energy Exploration, Development, Transportation and Hydropower Re-Licensing (December 2015)</u>

<u>Protection and Restoration of EFH from Alterations to Riverine, Estuarine and Nearshore</u> Flows (June 2014)

Policies for the Protection of South Atlantic Marine & Estuarine Ecosystems from Non-

Native and Invasive Species (June 2014)

Artificial Reefs (September 2017)

Threats to EFH from FEP I http://safmc.net/ecosystem-library/volume-iv-threats-to-the-south-atlantic-ecosystem-recommendations/

Threats from Non-Fishing Activities

Threats from Fishing and Cumulative Impacts

Threats Addressed by Council Policies Matrix - Under Development

Fishery Ecosystem Plan I - Fishery Ecosystem Plan

SARP Habitat Plan: http://southeastaquatics.net/about/our-work/conservation-planning/sahp

Fishery Ecosystem Plan II SAFMC Managed Areas

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Story Map for SAFMC Managed

Species - http://myfwc.maps.arcgis.com/apps/MapJournal/index.html?appid=7318c4f222 ce47599733583c249bf36c#

Managed Areas Web Application

http://ocean.floridamarine.org/safmc managedareas/ provides users an opportunity to view managed areas in the SAFMC's jurisdiction including but not limited to Deepwater Marine Protected Areas, Deepwater Coral HAPCs, Special Management Zones, Allowable Golden Crab Fishery Areas, Shrimp Fishery Access Areas, Oculina Bank CHAPC, SAFMC Gear and Area Restrictions, Danger Zones, and other Federal Marine Managed Areas.

Deepwater Marine Protected Areas – http://safmc.net/safmc-managed-areas/marine-protected-areas/

Special Management Zones – http://safmc.net/safmc-managed-areas/special-management-zones-smzs/

Deepwater Coral HAPCs – http://safmc.net/safmc-managed-areas/deep-water-corals/

Oculina Bank CHAPC - http://safmc.net/safmc-managed-areas/oculina-bank-2/

Spawning Special Management Zones – http://safmc.net/safmc-managed-areas/spawning-special-management-zones-2/

Managed Area Coordinates - http://ocean.floridamarine.org/safmc_dashboard/gis-data.html

Web Mapping Applications - http://safmc.net/habitat-and-ecosystems/web-mapping-applications/

South Atlantic Habitat and Ecosystem Atlas - http://safmc.net/habitat-and-ecosystem-atlas/ is a comprehensive site to view a variety of map services supporting fishery management issues in the South Atlantic Bight.

South Atlantic Digital Dashboard SAFMC - Digital Dashboard

SALCC Conservation Blueprint - http://www.southatlanticlcc.org/blueprint/

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Click the links to explore these useful tools!

- Ecospecies Database
- Habitat & Ecosystem Atlas
- <u>Digital Dashboard</u>
- Web Mapping Applications