
# NOAA's Gulf of America Integrated Ecosystem Assessment (IEA) Program

Habitat and Ecosystem Advisory Panel Meeting

June 30 - July 1, 2026

NOAA FISHERIES

NCCOS

UNIVERSITY OF MIAMI
COOPERATIVE INSTITUTE for MARINE & ATMOSPHERIC STUDIES

# NOAA's Integrated Ecosystem Assessment Program provides an analytical framework to implement ecosystem-based management

**History:**

2005: IEAs first proposed

2010: IEA funding began

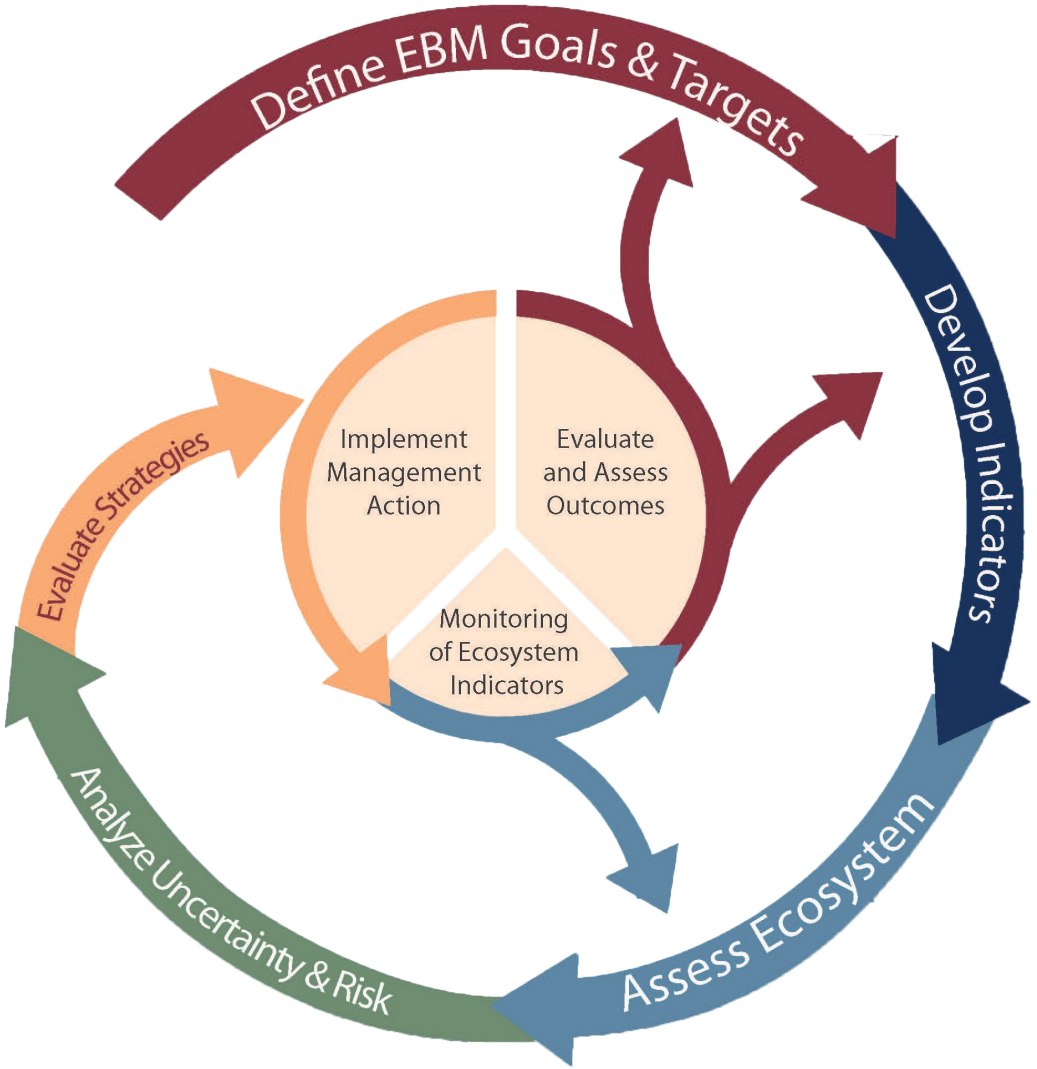
2012: First IEA Steering Committee

2019: 10-year anniversary

2026: Merger with CEFI

# NOAA Integrated Ecosystem Assessment Program

- Is a decision-support process that synthesizes and analyzes diverse data and model outputs
- Is modular, iterative, scalable, adaptable
- Shares a common national framework with regional variation in implementation
- Provides assessments of the ecosystem across and within multiple ocean-use sectors



# NOAA Integrated Ecosystem Assessment Program

## Gulf IEA Mission Statement:

Balancing the needs of nature and society through integrated science for current and future generations in the Gulf of America

# IEA Program Funding

- The Integrated Ecosystem Assessment (IEA) refers to both a ***process*** and a ***program.***
- The Gulf region has received level funding of 300K per year for the past 15 years - split among NOAA line offices (NMFS, AOML, NCCOS)
- The program has never been sufficiently funded to support its broad mission (e.g., no consistent funding for US South Atlantic or US Caribbean)
- Funding has supported synthesis NOT data collection
- Funding to the SEFSC has always been intended to support the Gulf IEA activities (not SA or Caribbean) - but some leveraging of resources (e.g., Ecosystem Status Reports, Shrimp Futures initiative)

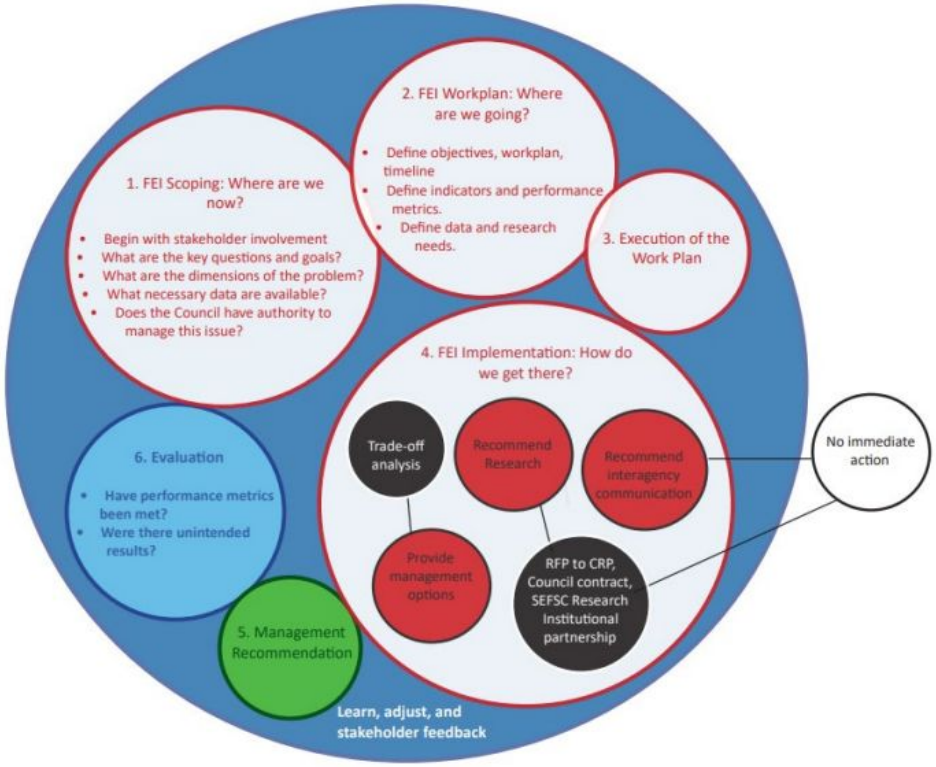
# Gulf Region 3-Year Work Plan (FY2025-FY2027)

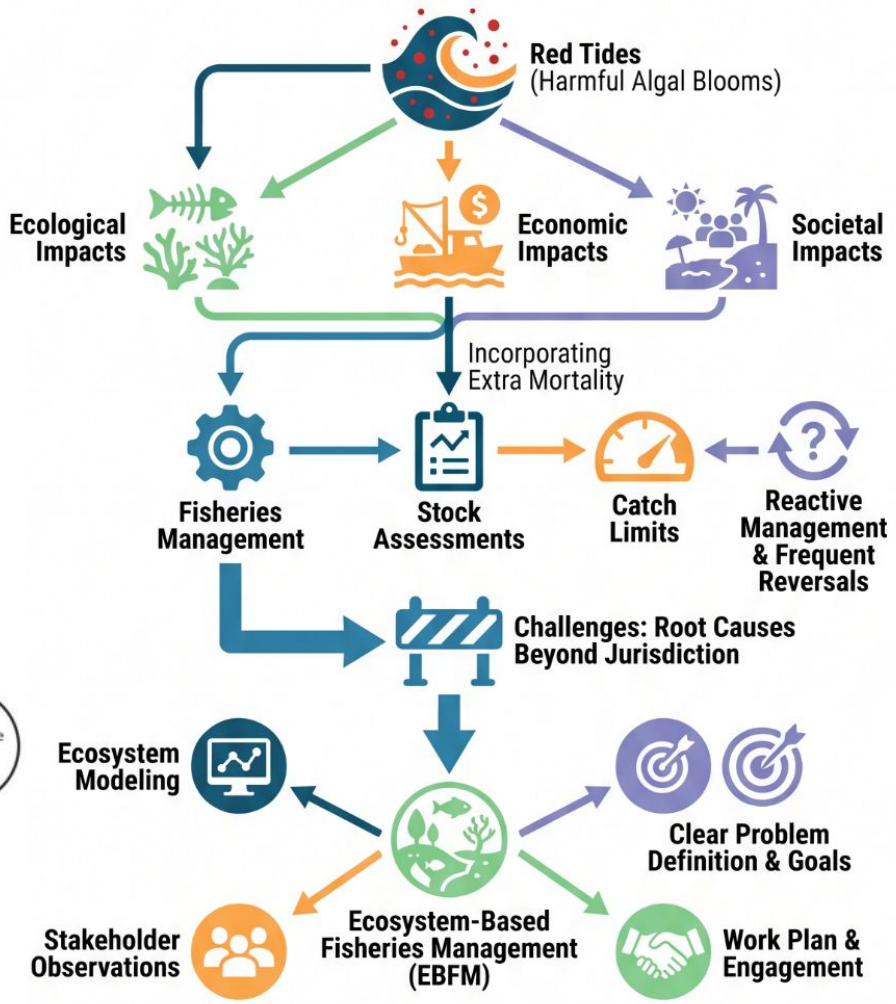
## Four major goals:

1. Inform Fisheries Ecosystem Planning and Ecosystem-Based Fisheries Management in the Gulf of America
2. Inform marine spatial planning in the Gulf of America
3. Inform National Marine Sanctuary resource assessment, management, and decision-making
4. Examine patterns of change and resilience in fishing communities in the Gulf of America

# Goal 1: Inform Gulf FEP and EBFM

## Gulf Council's Fishery Ecosystem Issue Loop



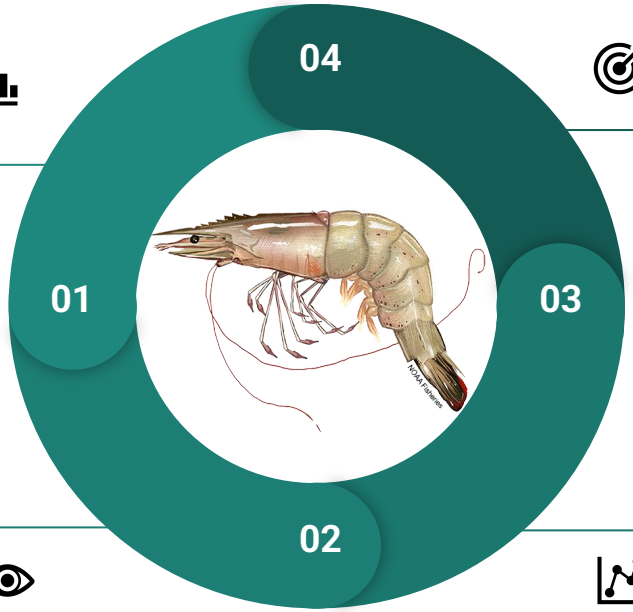

**Turley et al. 2026**
DOI: 10.1007/s11160-026-10052-5

# Goal 1: Inform Gulf FEP and EBFM

**100+** interviews

## Shrimp Futures Scenario Planning

***Whole-of-government approach (USDA, Sea Grant, other agencies will be involved)***




**Assess current financial state and issues**

**Identify and prioritize actions**

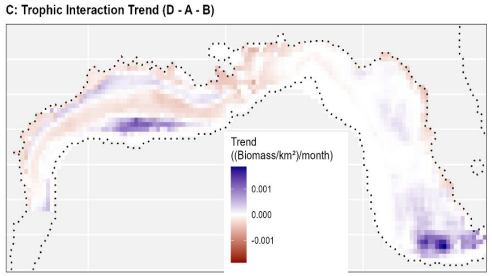
**Identify business objectives & future vision**

**Develop future scenarios**

**NEW AI qualitative data analysis workflow**

MAXQDA TAILWIND

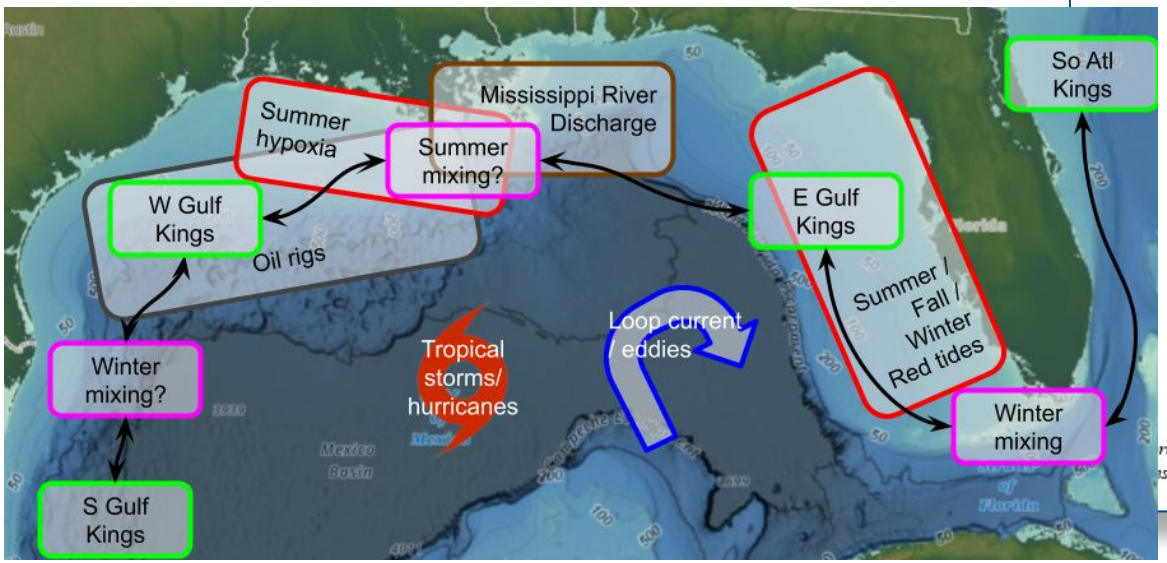
Gemini




**1993-2033 biomass trend - CEFI models**

# Goal 1: Inform Gulf FEP and EBFM

- Coastal Migratory Pelagic Technical Team analysis on King Mackerel for Gulf Council and SEDAR99
- Working on King Mackerel Environmental and Socio-Economic Profile (**ESP**) for SEDAR99

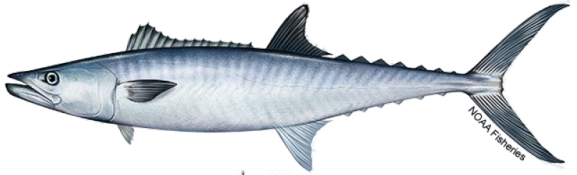



Gulf of America King Mackerel: An investigation of social, economic, and environmental influences on recent fishery dynamics

Brendan Turley, Mandy Karnauskas, Read Hendon, Walter Ingram, and Taylor Shropshire

SEDAR99-WP-15

27 March 2026





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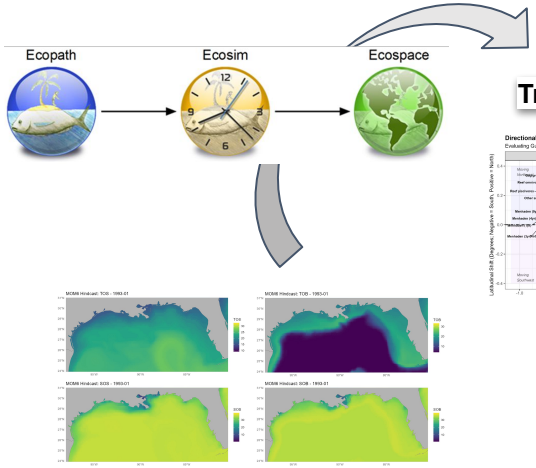
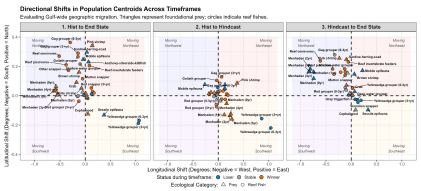
# Goal 1: Inform Gulf FEP and EBFM

- Ecosystem modeling analysis to identify mechanisms driving key fish populations
- Capable of exploring “alternative” ecosystem-based hypotheses for assessments

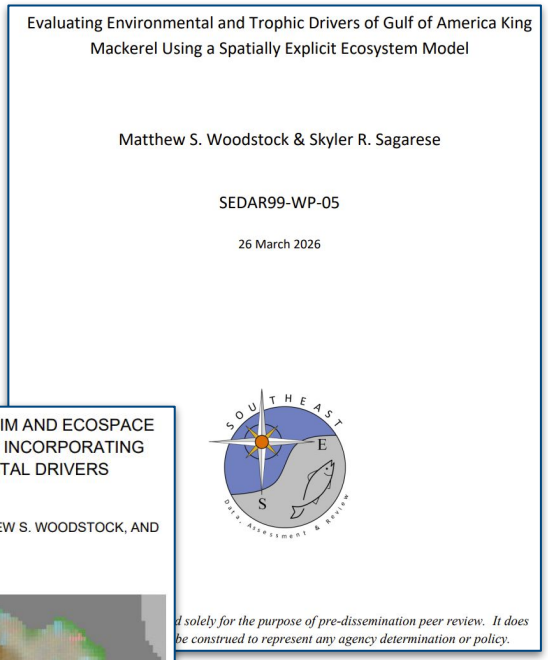



**Environmental-Driven Trajectories & Other Results**



**Dynamic Environmental Hindcast & Forecasts**





Evaluating Environmental and Trophic Drivers of Gulf of America King Mackerel Using a Spatially Explicit Ecosystem Model

Matthew S. Woodstock & Skyler R. Sagarese

SEDAR99-WP-05

26 March 2026

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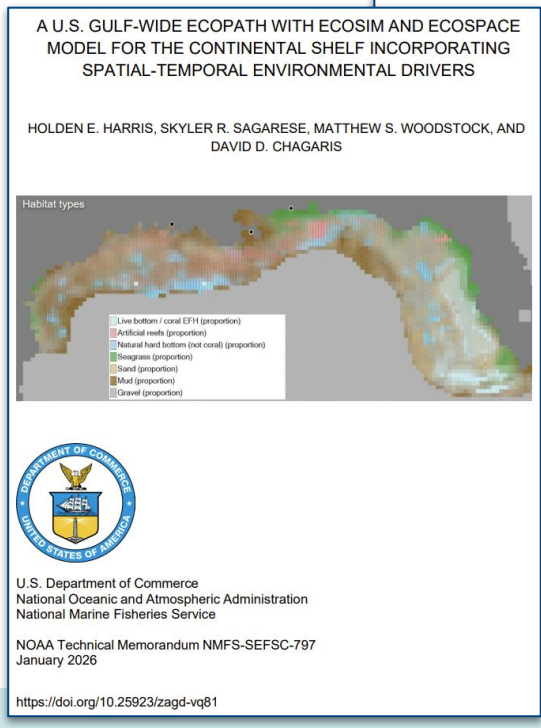


A U.S. GULF-WIDE ECOPATH WITH ECOSIM AND ECOSPACE MODEL FOR THE CONTINENTAL SHELF INCORPORATING SPATIAL-TEMPORAL ENVIRONMENTAL DRIVERS

HOLDEN E. HARRIS, SKYLER R. SAGARESE, MATTHEW S. WOODSTOCK, AND DAVID D. CHAGARIS



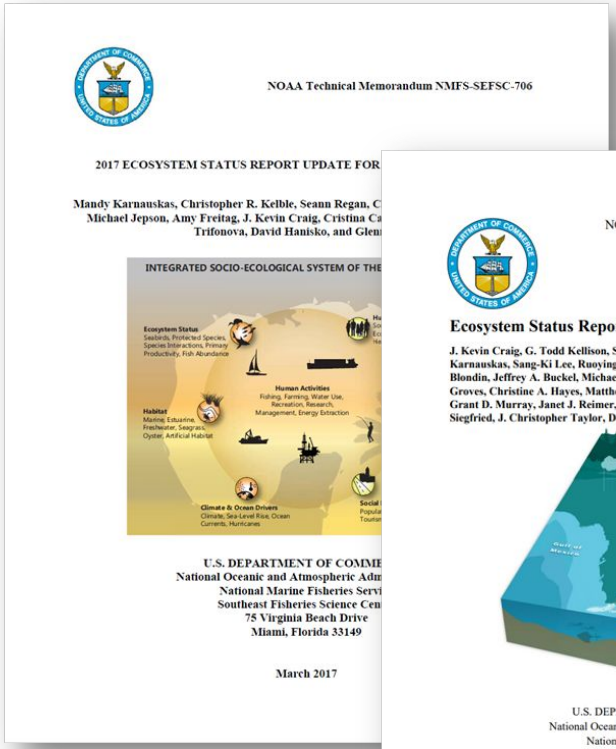
U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

NOAA Technical Memorandum NMFS-SEFSC-797
January 2026

https://doi.org/10.25923/zagd-vq81

# Goal 1: Inform Gulf FEP and EBFM

## “Objective-focused” Ecosystem Status Reports (**ESRs**)


NOAA Technical Memorandum NMFS-SEFSC-706

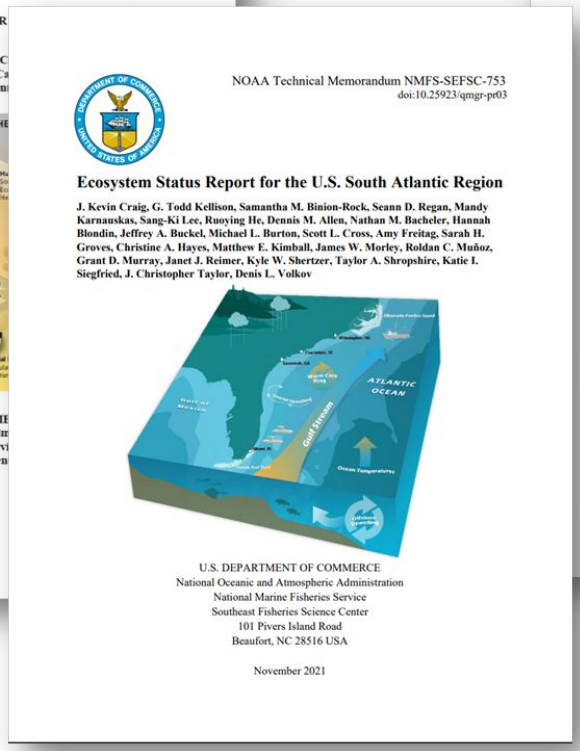
2017 ECOSYSTEM STATUS REPORT UPDATE FOR

Mandy Karnauskas, Christopher R. Kelble, Seann Regan, C
Michael Jepson, Amy Freitag, J. Kevin Craig, Cristina Ca
Trifonova, David Hanisko, and Glen

INTEGRATED SOCIO-ECOLOGICAL SYSTEM OF THE

U.S. DEPARTMENT OF COMME
National Oceanic and Atmospheric Adm
National Marine Fisheries Servi
Southeast Fisheries Science Cen
75 Virginia Beach Drive
Miami, Florida 33149

March 2017


NOAA Technical Memorandum NMFS-SEFSC-753
doi:10.25923/qmgr-pr03

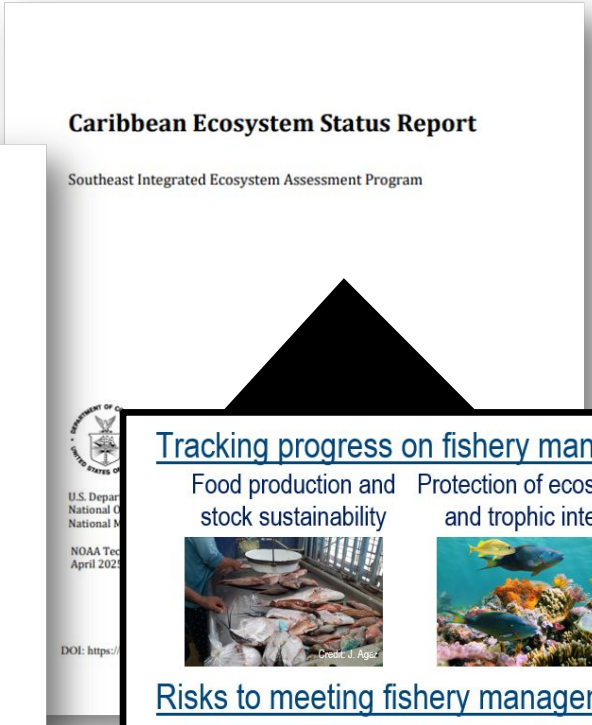
Ecosystem Status Report for the U.S. South Atlantic Region

J. Kevin Craig, G. Todd Kellison, Samantha M. Binion-Rock, Seann D. Regan, Mandy Karnauskas, Sang-Ki Lee, Ruoying He, Dennis M. Allen, Nathan M. Bacheler, Hannah Blondin, Jeffrey A. Buckel, Michael L. Burton, Scott L. Cross, Amy Freitag, Sarah H. Groves, Christine A. Hayes, Matthew E. Kimball, James W. Morley, Roldan C. Muñoz, Grant D. Murray, Janet J. Reimer, Kyle W. Shertzer, Taylor A. Shropshire, Katie I. Siegfried, J. Christopher Taylor, Denis L. Volkov

ATLANTIC OCEAN

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
101 Pivers Island Road
Beaufort, NC 28516 USA

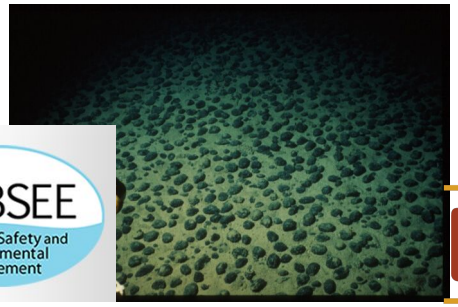
November 2021


Caribbean Ecosystem Status Report

Southeast Integrated Ecosystem Assessment Program

# Goal 2: Inform marine spatial planning

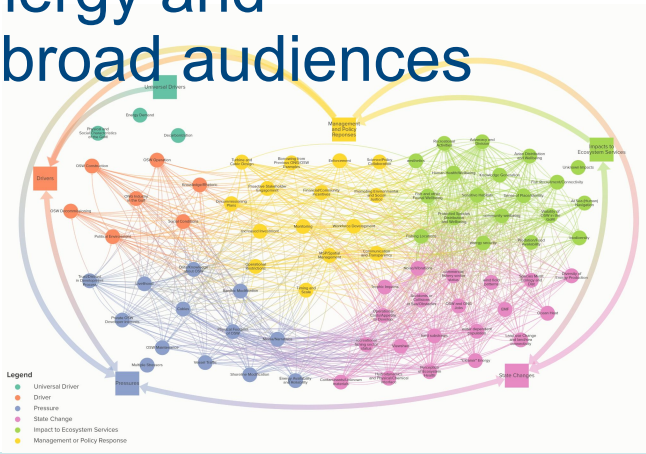
- Create community, ecological, and fishery baselines to assess the potential effects of new ocean uses
- Support science, planning, and data needs of SEFSC, SERO, NOS, and NOAA HQ related to infrastructure planning in Gulf
- Expand partnerships with interagency, state, stakeholder, and NGO partners in the Gulf offshore energy space
- Communicate about the known, anticipated, and unknown environmental impacts of energy and aquaculture activities in the region to broad audiences



BOEM
Bureau of Ocean Energy Management

BSEE
Bureau of Safety and Environmental Enforcement

NCEAS



# Goal 3: National Marine Sanctuary Management

- Support the selection of proposed indicators of the health and condition of National Marine Sanctuaries
- Support and respond to science needs relating to management plans
- Support regulatory and policy development, sanctuary expansions or boundary and zoning changes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Contents lists available at ScienceDirect

Marine Policy

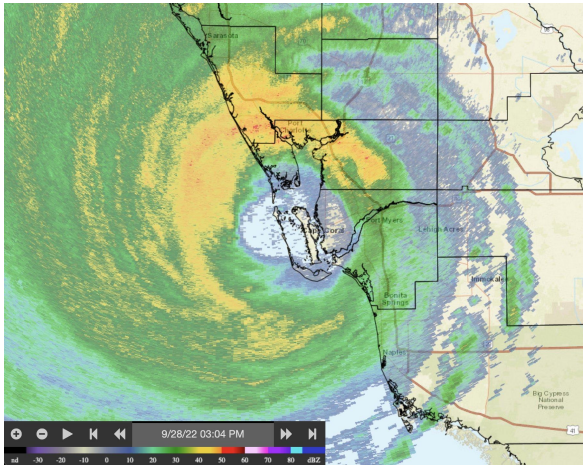
journal homepage: http://www.elsevier.com/locate/marpol

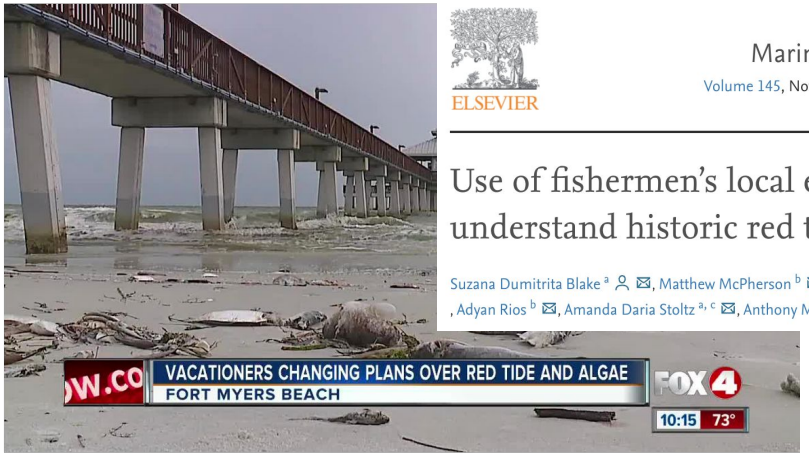
A quantitative and qualitative decision-making process for selecting indicators to track ecosystem condition

Kelly Montenero [a,b,*], Chris Kelble [b], Kathy Broughton [c]

# Goal 4: Understand fishing community resilience

- Investigate factors that predict vulnerability and resilience
- Boost ability of fisheries to adapt to environmental change
- Climate change community vulnerability assessments and fishery vulnerability
- Coordinate with disaster assessment teams to streamline data collection for future resilience assessments




$48.8M lost revenue in 156 Ft. Myers Beach businesses during 13-week period (7/27/18-10/26/18)

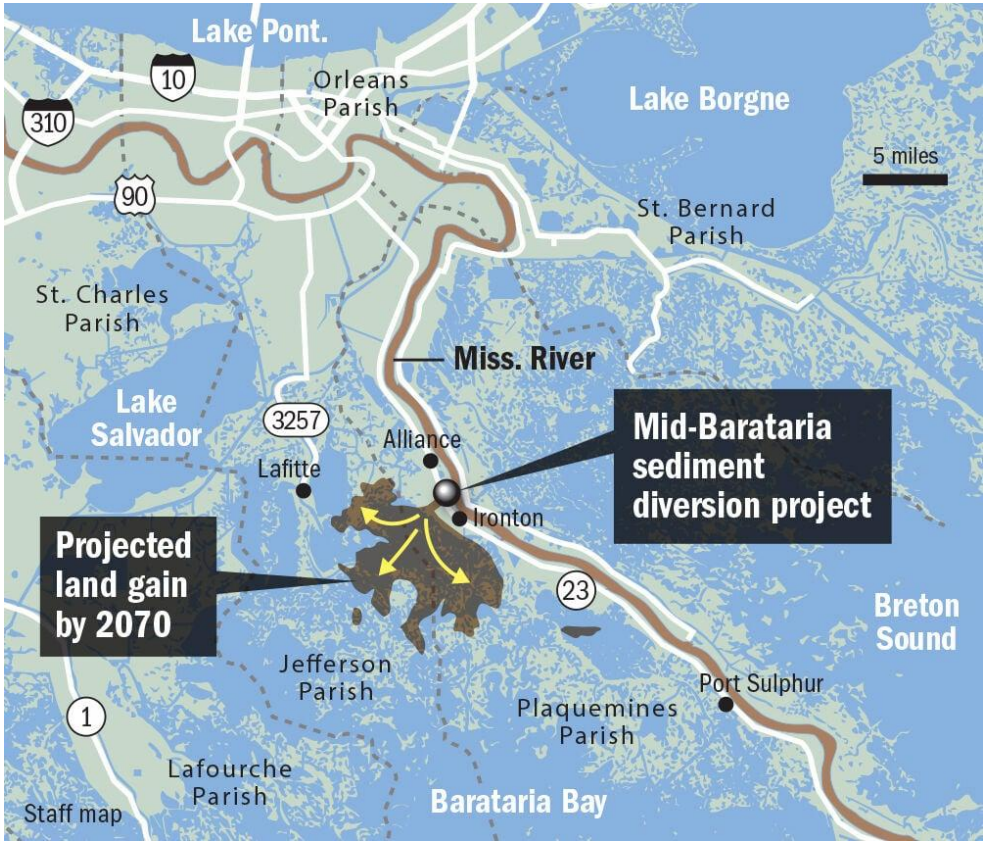

ELSEVIER
Marine Policy
Volume 145, November 2022, 105253

Use of fishermen's local ecological knowledge to understand historic red tide severity patterns

Suzana Dumitrita Blake [a], Matthew McPherson [b], Mandy Karnauskas [b], Skyler Rose Sagarese [b], Adyan Rios [b], Amanda Daria Stoltz [a, c], Anthony Mastitski [a, d], Michael Jepson [e]

# Barataria Bay sediment diversions

- Apply IEA framework to sediment diversion planning
- SES Modeling
- Spatiotemporal distribution modeling for use in Essential Fish Habitat (**EFH**) consultations




Scale Matters

Relating Wetland Loss and Commercial Fishing Activity in Louisiana across Spatial Scales

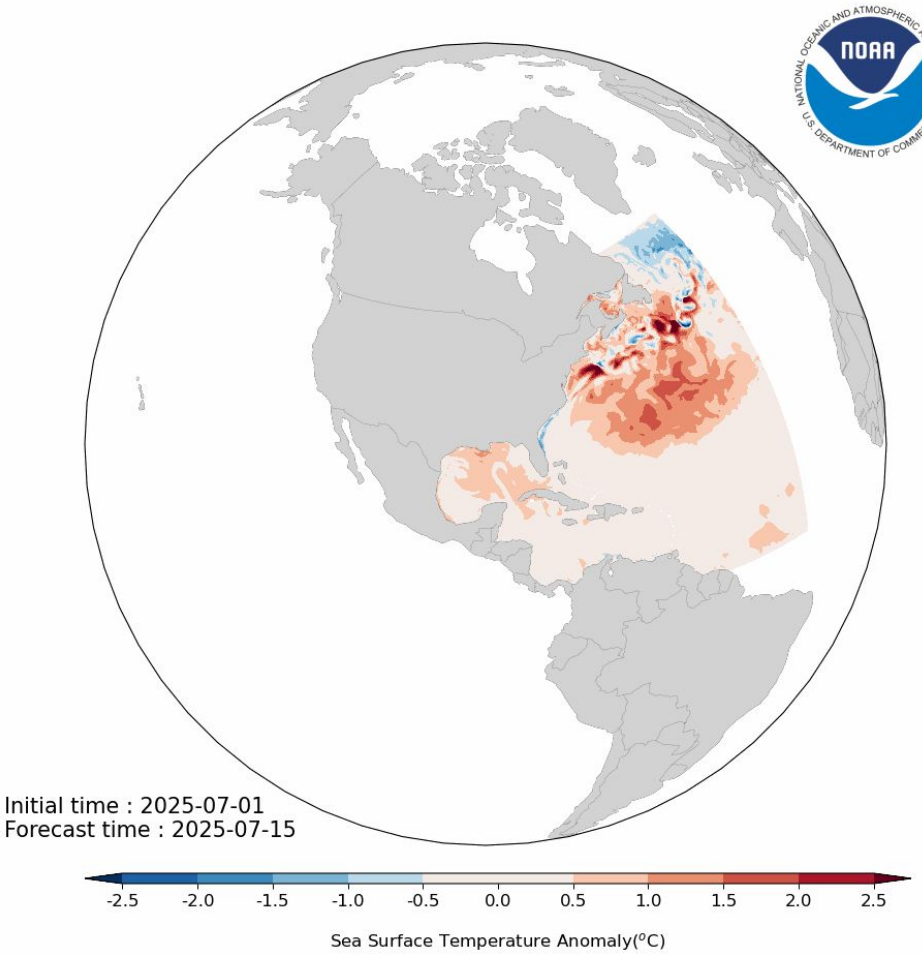
*Amy Freitag, Suzana Blake, Patricia M. Clay, Alan C. Haynie, Chris Kelble, Michael Jepson, Stephen Kasperski, Kirsten M. Leong, Jamal H. Moss, and Seann D. Regan*

# Near-future prospects

- Due to shrinking budgets and recent staff losses, NMFS HQ combined **IEA** with Changing Ecosystems and Fisheries Initiative (**CEFI**) into new National Ecosystem Assessment Program (**NEAP**)
- Full evolution of this change still unclear, but large focus on: **Ecosystem Status Reports**, short-term **ecological forecasts**, support of **Fishery Ecosystem Plans**
- Shrinking budgets → challenging to meet needs of all ocean user groups → increased focus on FMCs?

# Changing Ecosystems and Fisheries Initiative (CEFI)

- Seasonal, decadal, and long term forecasts for many physical and ecological (planned) indicators from NOAA-led regional model
- Many available to public now: https://psl.noaa.gov/cefi_portal/
- Discussions for increased East Coast-wide collaboration (NEFSC-SEFSC)



# Thank you!

Mandy Karnauskas
NOAA Southeast Fisheries Science Center
Miami, FL
Mandy.Karnauskas@noaa.gov

Brendan Turley
Cooperative Institute for Marine and Atmospheric Studies
University of Miami
in support of NOAA Southeast Fisheries Science Center
Miami, FL
Brendan.Turley@noaa.gov

Thank you to many, many others for their contributions to the Gulf IEA

# Acknowledgments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Verena Wang
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Ryan Rindone

**Fishermen Collaborators**




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