

# Ecosystem-Based Management Practices in the Gulf of Mexico

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## Abstract

This study examines the application of ecosystem-based management within resource management practices in the Gulf of Mexico by analyzing responses from the first dissemination of the NOAA RESTORE Science Program (hereafter referred to as the Science Program) “State of Resource Management Practices in the Gulf of Mexico” survey. The survey was distributed from February-May 2021 to 54 resource managers in the United States (U.S.) Gulf of Mexico region (hereafter referred to as the Gulf region) to gauge their familiarity with, and application of, ecosystem-based management (EBM). The goal of administering this survey is to develop a baseline understanding for how EBM is used and applied by resource managers in the Gulf region. Our effort provides foundational information on the application of EBM in the Gulf region and on the progress made towards the Science Program’s goal of improving the use and uptake of EBM throughout Gulf region resource management institutions.

## Literature Review

**What is EBM** - EBM is a holistic resource management approach that enshrines sustainable development by considering ecological and social relationships while aiming to improve ecosystem services (Endter-Wada et al., 1998; Tallis, 2010)

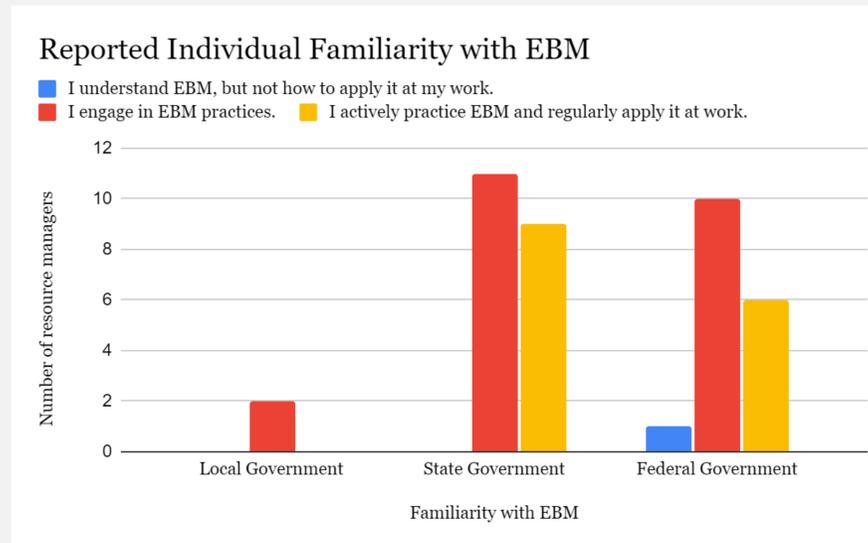
### Major themes

- Standardizing frameworks** for EBM is limited by the difficulty of integrating scientific research and multiple, disparate sources of information into policy and practice (Long et. al 2015, Olsson et. al 2008, Moreno et. al 2014)
- Excessive legislative complexity** and limited policy coherence preclude advancements in the standardization and implementation of EBM (Long et. al 2015)
- Working within uncertainty through adaptive frameworks** is the natural progression of acclimating to the progressively corrosive effects of climate change on ecosystems (Schoeman et. al 2014)
- Implementing uncertainty-averse frameworks** (that require extensive research to account for limited variability) is precluded by limited and inconsistent funding for EBM (Olsson et. al 2008, Moreno et. al 2014)

## Methods

- A survey instrument was distributed that consisted of 15 questions concerning the state of Ecosystem-Based Management in the U.S. Gulf of Mexico region
- The survey was made available via Qualtrics from February 2021-May 2021
- Resource managers were emailed and asked to participate in the survey
- Respondents were asked to identify their role as it relates to resource management, self-report their familiarity with EBM, and respond to short-answer survey questions that investigate the specifics of whether/how they use EBM

## Results



**Figure 1. Familiarity of responders working in government organizations with EBM**

In the past five years, your office's EBM efforts have:	Remained the same	Slightly increased (<50% increase)	Increased (≥50% increase)	N/A
Local Government	1	0	1	0
State Government	6	11	3	0
Federal Government	7	7	4	0
Non-profit Institution	1	0	2	2
University/Primary Research Institution	1	0	0	1
Private Industry	1	0	0	0
Other	0	2	1	1

**Figure 2. Notable trends in EBM efforts by respondent organizations**

## Results Continued

Barrier Identified	Identified By	Relevant Response
Nonexistent, not readily available data	Federal (6), state (2), local (1)	
Overworked/short-staffed	Federal (4), state (5)	Need triple the staff to be effective (state, FL).
Lack of supporting/presence of limiting policies/regulations	Federal (3), state (3)	Clean Water Act Section 404 permit process needs to be recalibrated to separate resource consumptive from restorative uses (state AL, LA, MS)
Lack of Funding (e.g., needs to be multi-year, consistent, well time)	Federal (4), state (3)	No funding dedicated to EBM until this year, and I've been here since 2006 (state, AL, LA, MS).
Lack of political will/public opinion	State (3), local (1)	Hard to compete with hardened structures/tax revenue (state, TX).
Lack of decision-making authority	State (3)	
Inadequate modeling	Federal (2), Research (1)	Focus on single-species assessments, lack of models at appropriate scales.
Timing restrictions	Federal (1), State (1)	Funding/policy timelines do not support EBM timelines (state, FL).

**Figure 3. Summary of barriers identified by respondents**

## Discussion

- 92 percent of respondents report that EBM practices stayed the same or increased over the past five years (Figure 1).
- State and federal government respondents indicated the greatest level of interaction with and increase in EBM practices
  - 36.4% of federal government respondents reported a 50% increase over the last 5 years
- A lack of funding, support, and time hinders the implementation of EBM (Figure 3)
- EBM was not adequately incorporated into policy and regulatory frameworks
- Effectively integrating EBM is hindered by a lack of supporting policies/regulations or the presence of limiting policies/regulations.

## References

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