

Proposed Work for Council Review and Approval

Gulf of Mexico Fishery Management Essential Fish Habitat Project Contract Proposal

Project title: Updating descriptions of Essential Fish Habitat (EFH) for federally managed Gulf of Mexico finfish and shrimp species

Council staff leads: Drs. John Froeschke and Lisa Hollensead

Term monetary request: Maximum of \$85,000

Contract period: 14 months

Project background: The Gulf of Mexico Fishery Management Council (Council) is required by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) to identify and describe EFH for all federally managed species. EFH is defined in MSA as “those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity.” The Council is interested in updating the information used to identify and describe EFH for its managed finfish and shrimp species. To accomplish this goal, a thorough and comprehensive examination of available and contemporary spatial habitat data layers for the Gulf of Mexico is required.

Project need and request rationale: The Council’s current descriptions of EFH for managed finfish and shrimp species are outdated. The benthic habitat data layers used to inform these descriptions are derived from the NOAA Gulf of Mexico Habitat Data Atlas completed in 1986 (GMFMC 2005). While some benthic habitat features are largely static and have not experienced marked changes in distribution (i.e. shelf edge/slope and rock bottom), many other biological habitat types (i.e. submerged aquatic vegetation, mangrove, oyster reef, etc.) have likely changed distributions substantially in 40 years. Additionally, non-benthic habitat categories, specifically drifting algae (*Sargassum*), have been largely omitted from EFH description visualizations due to its dynamic behavior and resulted in EFH descriptions which includes the entire economic exclusion zone in certain cases. Acknowledging these shortfalls, the Council has chosen to address this management issue by codifying updated EFH descriptions through a Generic Plan Amendment.

Advancements in computing technology, data collection methods, increased research on species habitat associations, and improved habitat distribution monitoring has provided the ability to refine EFH descriptions. Several state and government agencies, academic investigators, and other groups now have spatial datasets available for download through various websites. However, the metadata associated with these downloadable feature layers are often incomplete, making it difficult to interpret and appropriately analyze these datasets. Without a thorough examination and/or understanding of available spatial habitat data layers, it is likely EFH descriptions would be misidentified, even using more contemporary data sources.

Properly identifying, analyzing, and developing metadata is an essential and foundational step to constructing a Generic Amendment to update the Council’s EFH descriptions. This initial

process requires a substantial time and resource commitment to inform updated EFH descriptions and ensure those descriptions are as reflective of contemporary knowledge as practicable. These tasks should be completed by someone who can devote ample time to exploring all available spatial habitat data sources for the entire Gulf of Mexico, contacting potential collaborators for contributing spatial data, assessing available data feature layers for appropriateness in project inclusion, creating metadata documentation for each spatial habitat layer, completing spatial statistical work necessary for creating Gulf-wide habitat maps for each habitat type, and communicating project findings.

We propose hiring a contractor with expertise in marine spatial ecology, that is familiar with programming in ArcGIS and R statistical software, spatial databases, spatial analytic tools, spatial statistics, and habitat data visualization to complete this work. The contractor would perform all tasks outlined in the project description including presenting a draft of the project to the Council's Scientific and Statistical Committee (SSC) for review. The contractor would address and/or incorporate any and all SSC's recommendations before final submission. The broader objectives of this work would be to establish the foundational knowledge to continue work on the Council's EFH Generic Amendment, provide the Council with the best available EFH description information for future management action, and inform an associate EFH decision webtool. Assigned Council staff would work closely with the contractor to oversee that the project goals are completed in a timely manner.

Expected products from contractor:

- A comprehensive inventory of contemporary spatial habitat data in the Gulf of Mexico along with detailed associated metadata documentation. These spatial files will be stored using the Council's ArcGIS server for data warehousing.
- Gulf-wide habitat distribution maps by species and life stage for all federally managed finfish and shrimp and provided to Council staff for data warehousing. Additionally, a detailed report on analytical methods used (supported by peer-reviewed literature) to construct maps will be completed.
- A presentation to the Council's SSC on the project.
- A final project report synthesizing all expected products.

Reference:

GMFMC. 2005. Generic Amendment Number 3 for Addressing Essential Fish Habitat Requirements, Habitat Areas of Particular Concern, and Adverse Effects of Fishing in the following Fishery Management Plans of the Gulf of Mexico: Shrimp Fishery of the Gulf of Mexico, United States Waters Red Drum Fishery of the Gulf of Mexico Reef Fish Fishery of the Gulf of Mexico Coastal Migratory Pelagic Resources (Mackerels) in the Gulf of Mexico and South Atlantic Stone Crab Fishery of the Gulf of Mexico Spiny Lobster in the Gulf of Mexico and South Atlantic Coral and Coral Reefs of the Gulf of Mexico. Gulf of Mexico Fishery Management Council, Tampa, Florida, 106 pp. https://gulfcouncil.org/wp-content/uploads/FISHERY%20MANAGEMENT/GENERIC/FINAL3_EFH_Amendment.pdf