

Gray's Reef National Marine Sanctuary

Benthic Pelagic Coupling

Management Issue

Recreational fishing activities in Gray's Reef National Marine Sanctuary (GRNMS or Sanctuary) frequently target large pelagic species. Managers need to understand how the extraction of pelagic species impacts bottom associated (benthic) species.

Description

The Sanctuary is a popular destination for recreational fishing enthusiasts. Many fishermen visiting Gray's Reef target pelagic species, such as king and Spanish mackerel. Fishermen troll or drift-fish for pelagic species in the Sanctuary. Recent studies have suggested that pelagic fishing can have impacts on benthic communities. GRNMS managers need better information on how pelagic fishing activities in the Sanctuary may be impacting species beyond those targeted by the fishery.



Amberjack are pelagic predators which drive their prey of baitfishes close to the bottom when feeding. Photo credit: GRNMS

Questions and Information Needs

- 1) What is the level of effort for recreational pelagic fishing activities within the sanctuary?
- 2) Is pelagic fishing compatible with efforts to protect benthic species in the Sanctuary?
- 3) Are Gray's Reef's benthic communities functionally distinct from pelagic populations?
- 4) Does pelagic fishing cause changes in abundance, species composition, and size structure of the benthic community?

Scientific Approach and Actions

- Conduct diet content studies of targeted pelagic species along with environmental data (depth and habitat type)
- Conduct diet studies of benthic species along with environmental data (depth and habitat type).
- Evaluate overlap in benthic and pelagic diets to determine potential competition for prey or predator-prey relationships between species from the two habitats
- Develop trophic model for the sanctuary
- Track population characteristics of benthic communities in areas where pelagic fishing occurs and where pelagic fishing is absent

Potential Key Partners and Information Sources

Georgia Department of Natural Resources; NOAA National Marine Fisheries Service; South Carolina Department of Natural Resources; NOAA Office of Law Enforcement; Fishing clubs/organizations

Management Support Products

- Analysis of the impacts to benthic communities from pelagic fishing activities
- Trophic model for the Sanctuary

Updated: 5/1/2010

For More Information -- <http://www.sanctuaries.noaa.gov/science/assessment>

Planned Use of Products and Actions

- Draft scientific papers and reports
- Present at scientific meetings, workshops, symposia and conferences
- Develop education and outreach products to inform general public about the impacts of pelagic fishing activities on benthic communities
- Manage recreational fishing in regard to its impacts on benthic communities

Program References

GRNMS Management Plan

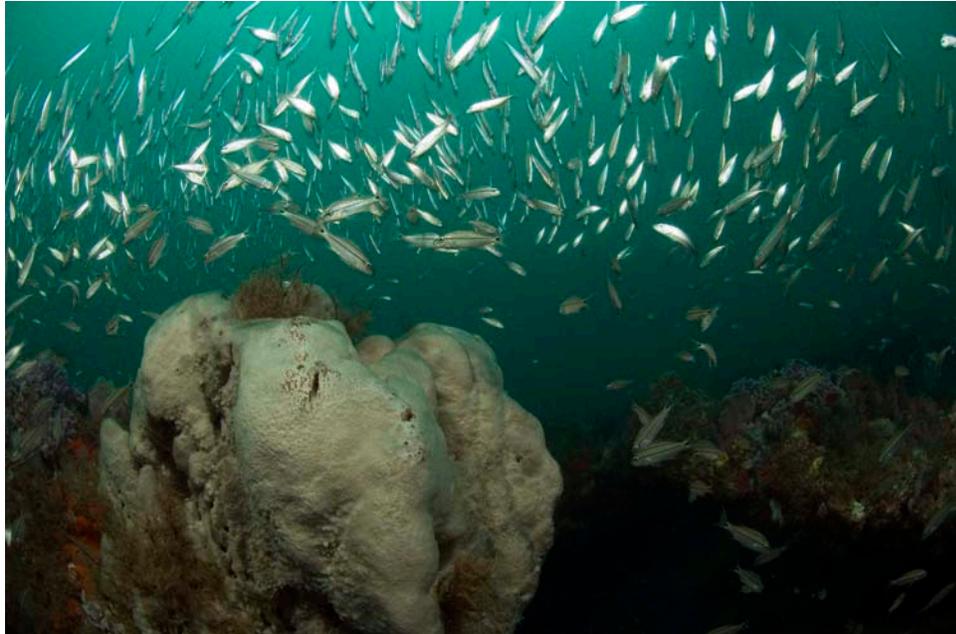
- Strategy RM-1: Investigate Ecosystem Processes
Activity A: Characterize trophic dynamics
Activity B: Develop trophic model of the sanctuary
- Strategy RM-2: Investigate Designation of a Marine Research Area
- Strategy RM-4: Maintain and Enhance Monitoring Programs
Activity A: Monitor the status and health of fish
Activity B: Design and implement an invertebrate monitoring program
Activity F: Expand and update socioeconomic assessment

GRNMS Condition Report

- Questions 9, 10, and 14

ONMS Performance Measures

- Number of sites in which living marine resources, based on long-term monitoring data, are being maintained or improved



Baitfishes such as anchovies, sardines and grunts are the common prey items of both benthic and pelagic predators. Photo Credit – GRNMS

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