

Flower Garden Banks National Marine Sanctuary

Impacts from Divers

Management Issue

The impacts of the diving public on the resources of the Flower Garden Banks National Marine Sanctuary (FGBNMS or Sanctuary) are of persistent concern, but they have not been evaluated in an objective way.

Description

Recreational and research diving activities, as well as human/wildlife interactions can adversely affect sanctuary resources. Divers have reported careless diving practices by recreational and research divers that resulted in damage to benthic organisms, and witnessed potentially dangerous wildlife responses to diver interactions. If visitor use increases, the concentration of diving at existing mooring buoys will increase. Discussions with the Sanctuary Advisory Council and comments submitted during the public scoping process for the sanctuary management plan review revealed that impacts on the sanctuary from divers should be of concern, and should influence future management. To date, there has been a lack of research and monitoring of direct and indirect human impacts to the sanctuary. Further research is needed to determine the threats posed by divers as well as the carrying capacity of the heavily dived areas of the Sanctuary.



Diver hitching a ride on a manta ray at the FGBNMS. This is potentially hazardous behavior for both the diver and the manta ray. Photo credit: Dick Zingula

Questions and Information Needs

- 1) Does diver contact with the bottom affect corals, sponges, and other benthic resources?
- 2) Does the use of lights at night adversely affect fish behavior or affect the vulnerability of certain species to predation?
- 3) Do divers put certain species at risk by close interactions (e.g., petting or riding manta rays, sea turtles, or whale sharks)?
- 4) Are specific diving activities (photography, videography, fish censuses, etc.) or levels of experience more likely to result in injuries to resources than others?
- 5) Does the presence of dive boats alter feeding and other behaviors by water column organisms?
- 6) Can an appropriate carrying capacity be established, allowing levels of impact to be controlled?
- 7) Is there a need to rotate buoys in order to regulate use by divers?

Scientific Approach and Actions

- Literature reviews on diver impacts elsewhere
- Surveys of divemaster and other divers with considerable experience at the Sanctuary
- Quantitative benthic surveys near and away from high-use dive sites (mooring buoys)
- Counts and measurements of impacts of divers conducting different activities and divers with differing experience levels
- Model cumulative impacts with different diving amounts, types, and experience levels, taking into consideration rates of recovery and realistic patterns of use
- Observe and quantify wildlife responses to various diver behaviors
- Observe and quantify wildlife responses to presence and absence of dive vessels, and presence and absence of deck lighting

Updated: 5/1/2010

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

Potential Key Partners and Information Sources

Gulf Diving; Spree Expeditions; True Blue Watersports; Selected recreational divers; Reef Environmental Education Foundation; Harte Research Institute; Texas A&M University; National Centers for Coastal Ocean Science

Management Support Products

- Monitoring data from buoyed dive sites
- Models estimating levels of damage caused by different numbers of divers and dive boats, taking into consideration rates of damage and recovery
- Models estimating cumulative damage under various mooring buoy rotation scenarios
- Video documentation of impacts of adverse wildlife interactions

Planned Use of Products and Actions

- Increase number of mooring buoys locations
- Change placement of mooring buoys
- Rotational scheduling of mooring buoy to control access to dive sites
- Dive training and briefing modules

Program References

FGBNMS Management Plan Review Process

- Public Scoping Reports

FGBNMS Condition Report

- 4, 5, 8

Other Documents

- 2002 ONMS Science Needs Assessment



Recreational dive vessel, M/V Spree, on mooring buoy maintained by FGBNMS. Photo credit: Russ Wilkins

Updated: 5/1/2010

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