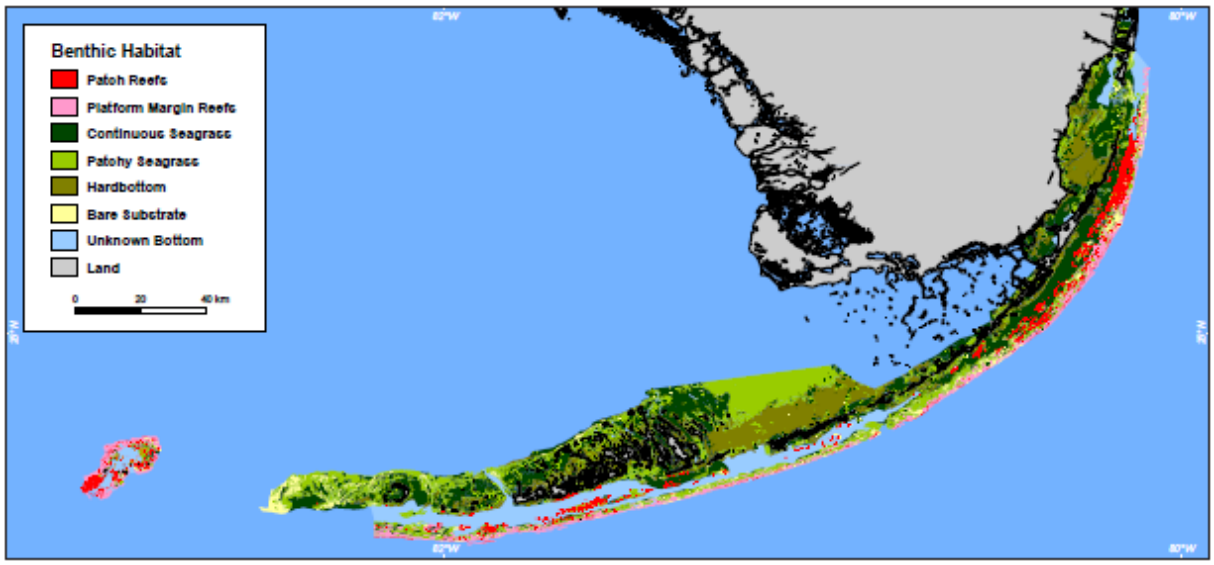
Habitat Protection and Management

Management Issue

The Florida Keys National Marine Sanctuary (FKNMS or Sanctuary) seascape has a complex, yet intimately connected set of plant and animal communities. Although coral resources are a subject of intense research, other habitat types are critical components of the overarching coral reef ecosystem; hard-bottom, seagrass, algal, and mangrove habitats all share a critical role in sustaining our marine ecosystem health and function.



Nearshore habitat maps were developed by CCMA-BB based on visual interpretation of aerial photography and hyperspectral imagery. Map credit: NOAA

Description

Hard-bottom, seagrass, algal, and mangrove habitats are each experiencing their share of anthropogenic stressors in the Sanctuary. Because these habitats can respond more rapidly to management actions than corals, there is a need to understand the population dynamics of each community's constituents, as well as their functional significance to the ecosystem. Seagrass ecology is better understood than the others, however each of these communities would benefit from the same level of research and monitoring.

Questions and Information Needs

1) What is the status and trends of local hard-bottom, seagrass, algal, and mangrove populations?

2) What is the functional significance of hard-bottom, seagrass, algal, and mangrove habitats?

3) What is the anthropogenic influence on hard-bottom, seagrass, algal, and mangrove habitats?

4) What is the habitat value of commercial sponges found in hard-bottom habitat and what is the impact of harvesting on habitat and water quality?

5) What is the role of each of these communities in the life cycles of reef fishes?

6) What are the correlations between water quality and the distribution and abundance of the members of each habitat type?

Scientific Approach and Actions

- Determine the status and trends of local hard-bottom, seagrass, algal, and mangrove populations
- Determine the functional significance of hard-bottom, seagrass, algal, and mangrove habitats.
- Assess the correlations between water quality and the distribution and abundance of the members of each habitat type
- Assess historic (mangrove) shoreline conditions using archival remote sensing and aerial photography

Potential Key Partners and Information Sources

NOAA/NESDIS; Monroe County; FWC/Florida Wildlife Research Institute; NOAA/AOML; Florida Institute of Oceanography; Academic partners such as UM/RSMAS, UNCW, FIU, FIT, etc; NGOs such as WWF and TNC

Management Support Products

- Aerial photographs of habitat types
- Growth and survival predictions of guild members
- Updated conceptual model of food web linkages

Planned Use of Products and Actions

- The results of these products would be used during management plan review, specifically for marine zoning evaluation and development.
- This information will help managers to distinguish natural variation in community composition from anthropogenic influences, which in turn will facilitate the development of management strategies that will contribute to the long-term maintenance and enhancement of the marine ecosystem of the Florida Keys.
- The results of these products would also complement those in the physical oceanography and water quality issues for the FKNMS

Program References

FKNMS Management Plan

- Research and Monitoring Action Plan (Chapter 3.1.2)

ONMS Performance Measures

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

Other Documents

- FKNMS Comprehensive Science Plan (2002)