

Vital Sign: Focal fish species
[shortened name: Focal_Fish]

Parks Where Vital Sign will be Implemented:

BISC, BUIS, DRTO, EVER, SARI, VIIS – SFCN analyzes existing data and summarizes reports

Justification/Issues being addressed: Focal Fish Species ranked 30th among the SFCN vital signs. Focal fish species includes large predatory fish that are popular targets of fisherman and thus of particular concern for management. Community status, structure and trends can reflect changes in marine habitat quality, food-web structure, fishing pressure, and long-term ecosystem resilience. Balancing resource extraction with sustainability is a key management concern.

- Goliath grouper (*Epinephelus itajara*), a top marine food-web predator, has been so over-fished that it is now a rare and protected species in the state of Florida and USVI. The Goliath Grouper has all but disappeared in the USVI, as well as the Nassau Grouper (*Epinephilus striatus*) although recently a number of juveniles were seen at VIIS/MICR during a University of Virgin Islands project by Rick Nemeth (Rafe Boulon, personal communication). As such, red hind (*Epinephelus guttatus*) in the USVI is recommended instead as a top-predator to monitor, although it is also under heavy fishing pressure.
- Sharks, as top marine food-web predators, have been fished to such an extent that their numbers are reduced in South Florida and the USVI. Sharks mature late in life, have slow growth rates and produce few offspring.
- The Spotted Sea Trout (*Cynoscion nebulosus*) is a bottom-feeding intermediate trophic level species targeted as a sport fish and for human consumption within and outside SFCN parks boundaries. It is the only major sport fish in South Florida that spends its entire life cycle in bays. Spotted Sea Trout are sensitive to hypersaline conditions and thus, may respond to changes in South Florida water management restoration. Mercury bioaccumulation is also a concern in sea trout and other long lived fish in South Florida.
- The Snook (*Centropomus undecimalis*) is a euryhaline, diadromous, estuarine-dependent species targeted as a sport fish and for human consumption within and outside SFCN parks boundaries. Snook are under strong fishing pressure. Prey source varies with life stage (juveniles - small fish, plants; adults - fish, crabs).

General Monitoring Questions to be Addressed by the Vital Sign:

- What are the status, trends, and variability of focal fish species within and near parks, specifically Goliath grouper (*Epinephelus itajara*), Nassau Grouper (*Epinephilus striatus*), Red hind (*Epinephelus guttatus*), Sharks (Bonnethead (*Sphyrna tiburo*), Lemon (Negaprion brevirostris), Bull (*Carcharhinus leucas*), and Nurse (*Ginglymostoma cirratum*) sharks), Spotted sea trout (*Cynoscion nebulosus*), and Snook (*Centropomus undecimalis*)

Measures

Goliath Grouper, Nassau Grouper (Red Hind in USVI), Sharks, Spotted Sea trout, Snook – relative abundance/density, occupancy, spatial/ temporal distribution, density, size structure, catch per unit effort

Basic Approach:

Creation of a monitoring program that is species specific is cost prohibitive at this time; however there are some efforts underway to track these species by other groups which SFCN can draw upon. SFCN will gather reports and links to web pages of existing monitoring programs including but not limited to: NOAA/NOS Allyn Powell's long-term juvenile spotted sea trout monitoring trawl study in NW Florida Bay; Tonya Wiley Mote Marine/NOAA continues with deployment of long lines for 7-8 shark species, i.e. bull/nurse sharks; USVI: University of the Virgin Islands has been conducting sex ratio, size, number, and tagging on 3 species of grouper (Red Hind, Nassau and Yellow Fin) at their aggregation sites 8 miles off of St Thomas.

SFCN will gather reports and/or post links and if necessary gather data from fish community monitoring conducted by: NOAA, FWRI, territorial, and university researchers to assess distribution and occupancy of these focal species.

Creel Census data from BISC, EVER, and possibly DRTO may also be used to evaluate catch in parks.

Principal Investigators/Key Contacts and NPS Lead:

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- MOTE Marine Laboratory - Robert E. Hueter, Ph.D.

Development Schedule, Budget, and Expected Interim Products:

By the end of 2009, SFCN will coordinate with the various Principal Investigators to place summaries on the SFCN public web page and reports on the intranet page. Estimated time required: Initial set up 1 month and 1-2 weeks on going maintenance by a combination of Marine Ecologist, Quantitative Ecologist and support staff. Commercial landing and creel census information will begin being compiled by 2009. Creel census summary information will be requested from parks and shared on the intranet site.

Expected SFCN staff time requirements once program is fully implemented in 5 years:

SFCN Staff	Full Time Equivalent (FTE)
Coordinator	

Marine Ecologist	0.02
Fisheries Biologist	
Marine Biologist Technician (So FL)	
Marine Biologist Technician (VI)	
Community Ecologist	
Wildlife Technician (Wildlife)	
Wildlife Technician (Vegetation)	
Quantitative Ecologist	
Data Manager	0.04
GIS/Data Tech	0.07
Interns	
SFCN Total	0.13