Vital Sign: Sea Turtles

[shortened name: Sea_Turtles]

Parks Where Vital Sign will be Implemented:
BISC, BUIS, DRTO, EVER, VIIS – SFCN assists with some analysis; summarizes reports

Justification/Issues being addressed: Sea Turtles ranked 20th among the 44 SFCN vital signs. Four species of sea turtles nest on beaches within SFCN parks, all of which are federally endangered or threatened. The most prevalent species are the hawksbill, green, and loggerhead sea turtles with occasional leatherbacks. Nesting activities on historic turtle nesting beaches reflect the habitat quality of the nesting beaches, species population dynamics and health of local and regional seagrass beds, coral reef areas, and oceanic areas. Sea turtles may return to their natal nesting beaches to nest every 2-3 years. Some juvenile and adult sea turtles remain in the general area and are affected by stressors and management within the park. Currently, the greatest threats to sea turtle populations include loss of nesting beaches, degradation in quality of nesting beaches, nest predation, degradation in quality of foraging habitats, collisions with boats, being trapped in fishing gear or trash, and disease. Artificial lighting may be an issue at VIIS, but is not an issue at other SFCN parks.

General Monitoring Questions to be Addressed by the Vital Sign:

- What are the status and trends by species in the number of sea turtle nests, distribution of nests, proportion of aborted nest crawls, nesting outcome, # eggs laid/nest, hatching success, and recruitment?
- What are the status and trends in the population size of nesting sea turtles (at BUIS only)?

Measures:
Nest counts by species, distribution of nests, nest crawl outcome (nest, no nest), egg counts/nest, nesting outcome, hatching success

Basic Approach:
The parks currently monitor sea turtle nesting and report their annual results to USFWS as part of the endangered species program. SFCN will not be doing any monitoring, but as desired will provide assistance to park resource managers with developing multi-year indicators to be reported in park reports as well as the SFCN web page. All parks are also requesting assistance with database development. BUIS is working with NOAA to convert their database from FoxPro to MS ACCESS. The WASO Inventory and Monitoring program has agreed to develop a generalized database with SFCN providing advice. After this is complete the SFCN quantitative ecologist will assist with developing multi-year indicators. The SFCN data manager will continue to help with data base updates and modifications.

1) BUIS

BUIS has an intensive nightly monitoring program (Buck Island Reef National Monument Sea Turtle Research Program) which identifies and tags each female that comes ashore in addition to nesting information. The BUIS protocol is available at: http://cars.er.usgs.gov/Coral_Reef_Ecology/Buck_Is_Sea_Turtle_Protocols/buck_is_sea_turtle_protocols.html.

The link to the protocol itself is: http://cars.er.usgs.gov/Seaturtles.pdf

BUIS is also conducting a juvenile sea turtle in coral reef habitat monitoring protocol initiated under the prototype Inventory and Monitoring Program in which juvenile/sub-adult sea turtles are captured by divers, tagged, and data on growth, foraging, distribution and residency collected. The program ran from 1994-2002 and will be starting again in 2008.

2) BISC, VIIS
The other parks in the network are using a reduced version of the protocol in which they are conducting daytime track and nest surveys. Thus they collect the nest information similar to BUIS, but details on individual nesting females are not collected. All have requested assistance with database development.

3) DRTO, EVER
Monitoring at DRTO and EVER has lapsed for several years but is starting again. DRTO has also started funding for a USGS sea turtle project to see relationships with local habitat use and movement

4) SARI
VIDFW has conducted daytime nest surveys. Park staff will take over with weekly surveys once they have the staff.

Principal Investigators/Key Contacts and NPS Lead:

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Development Schedule, Budget, and Expected Interim Products:
WASO should complete a database probably by early 2008. The SFCN quantitative ecologist will assist with developing multi-year indicators to be completed no later than

December 2009 with SOPs written for data analysis and reporting. The Data manager will continue to help with data base updates and modifications.

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

SFCN Staff	Full Time Equivalent (FTE)
Coordinator	
Marine Ecologist	
Fisheries Biologist	
Marine Biologist Technician (So FL)	
Marine Biologist Technician (VI)	
Community Ecologist	
Wildlife Technician (Wildlife)	
Wildlife Technician (Vegetation)	
Quantitative Ecologist	0.02
Data Manager	0.02
GIS/Data Tech	
Interns	
SFCN Total	0.04