

Vital Sign: Estuarine salinity patterns

[shortened name: Estuarine_Salinity]

Parks Where Vital Sign will be implemented:

BISC, EVER – SFCN analyzes existing data sets; summarizes existing reports
SARI - deferred

Justification/Issues being addressed: Estuarine salinity patterns ranked 9th among the 44 SFCN vital signs. Physical characteristics of marine water bodies establish environmental constraints within which other organisms must survive. Understanding the spatial and temporal distribution of the physical characteristics within marine water bodies allows more complete interpretation of other indicators. For example, historically, salinity monitoring has been correlated with benthic community monitoring, productivity analysis, fish and other organism sampling. Some parks have had continuous sampling at permanent locations for a number of years and understanding the pattern can help explain patterns observed.

General Monitoring Questions to be Addressed by the Vital Sign:

- What are the spatial and temporal changes in distributions of physical characteristics (conductivity converted to practical salinity units, pH, dissolved oxygen, temperature) in the marine water bodies of Florida Bay (coastal embankments, central bay, "open" bay), Biscayne Bay, and Salt River Bay?

Measures:

Conductivity converted to practical salinity units, pH, dissolved oxygen, and temperature in Florida Bay and Biscayne Bay.

Basic Approach:

For EVER, we can combine NPS continuous station monitoring data with Florida International University Southeastern Environmental Research Center (FIU SERC) monthly water surveys to krig salinity and temperature profiles for marine water bodies for Florida Bay and relate this to the model results for Florida Bay. For pH and dissolved oxygen we would just report from the FIU SERC monthly grab samples.

For BISC, we can combine park service continuous conductivity sampling at 30 stations (funded by CERP RECOVER Monitoring and Assessment Program) with FIU SERC 25 water quality monthly grab sample stations (funded by the South Florida Water Management District water quality program) and Miami-Dade County Department of Environmental Research (DERM) 13 water quality monthly grab sample stations to krig salinity and temperature patterns in the Biscayne Bay. For pH and dissolved oxygen we would just report from the FIU SERC and DERM monthly grab samples.

Principal Investigators/Key Contacts and NPS Lead:

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Development Schedule, Budget, and Expected Interim Products:

The Standard Operating Procedures (SOPs) involved are expected to take about 6 months of SFCN staff time (by Marine Post-doc) to document the protocols from implementing agencies and to draft and test the SOPs. SFCN staff (Marine Ecologist and Fisheries Biologist) will be responsible for this indicator. SOP development will be completed by 2009 with implementation in 2011. Table indicates proposed SFCN workload upon full monitoring implementation.

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	0.02
Marine Biologist Technician (So FL)	
Marine Biologist Technician (VI)	
Community Ecologist	
Wildlife Technician (Wildlife)	
Wildlife Technician (Vegetation)	
Quantitative Ecologist	0.04
Data Manager	0.02
GIS/Data Tech	0.04
Interns	
SFCN Total	0.14