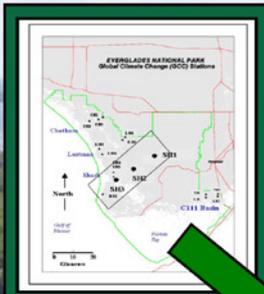


# Long-Term Data from the USGS-BRD Mangrove Hydrology Sampling Network in Everglades National Park

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## Hydrology Network



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## Station Typical

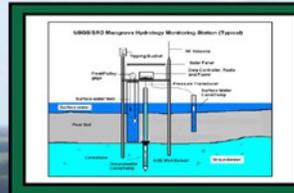


Figure 3.

Figure 2.

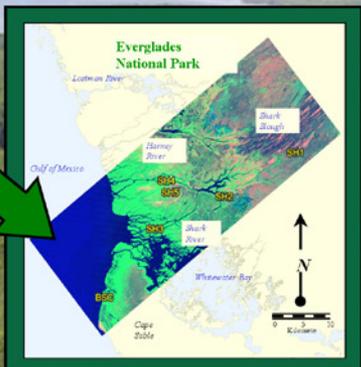
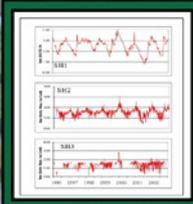


Figure 4.



SH1, SH2, SH3  
Daily Surface  
Water Levels  
WY 1996-2002

## Shark Transect Data

## Discussion

- Each gage station monitors hourly surface water and groundwater levels, salinity ( $S$ ) and temperature. Rainfall is collected at sites without tree canopies. Figure 3.
- Water quality and pore water salinity and temperature are sampled periodically.
- Hydrology monitored since 1995. Table 1. Daily surface water levels. Figure 4.
- Hourly surface and ground, salinity ( $S$ ) and temperature water levels (two week time series) Figure 5.
- The principal influence on daily (sub-tidal) water levels at SH1 is rainfall and freshwater discharges, at SH2 it is surface flow and tides, and SH3 diurnal tides. Table 2.

## Results

- Seven year time series hydrology data set. Shark transect hydrology data (WY 1996-2002) to be released in USGS publication OF-02-457 (publication pending, in review). Provisional data locally available.
- Development of common vertical reference for entire southwest gage networks - including NPS and other USGS gages.
- Secondary scientific investigations by authors, support staff and collaborators.
- Data from sampling sites provides real numbers for resource managers and decision makers; baseline physical data for a variety of meaningful ancillary scientific studies; and to assist with the calibration of Everglades restoration models.
- Productive integration efforts with ALL Florida USGS centers, divisions and with USGS research staff at Reston, Denver, Lafayette, Patuxent, and Menlo Park. Strong collaboration with our principal client Everglades National Park - especially via CESI and CERP programs. And close association with Florida International University through SERC and LTER; University of Florida, University of Miami, University of Louisiana at Lafayette, Yale University, University of Virginia, University of South Florida, Wageningen University and Larenstein College.

## Introduction

- In 1992 this project was proposed by the National Park Service and University of Virginia and funded through the Global Climate Change Research Program. In 1994, Project was transferred to the National Biological Survey and subsequently merged into the USGS in 1996. Dr. Thomas J Smith III is the GCC project principal investigator.
- Study Hypothesis: Changes in coastal hydrology, caused by rising sea level rise and changes in freshwater discharge related to climate change over inland areas will contribute to greater changes in the vegetation and soil at the coastal mangrove/freshwater marsh interface or ecotone.
- The Mangrove hydrology network is comprised of 17 gages located on the southwest coast and C111 basin of Everglades National Park. (figure 1.)
- There are Five Transects: Three on the southwest coast: Shark, Lostman and Chatham. Two transects are within the C111 basin. The Shark Transect ( SH1, SH2, SH3, SH4 SH5 and BSC ) is the principal transect since it follows the Shark Slough/Shark River.
- Meso-scale sites SH1, SH2 and SH3 are the focus of this presentation (figure 2).

## Shark Transect

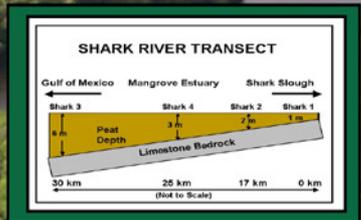


Figure 5.

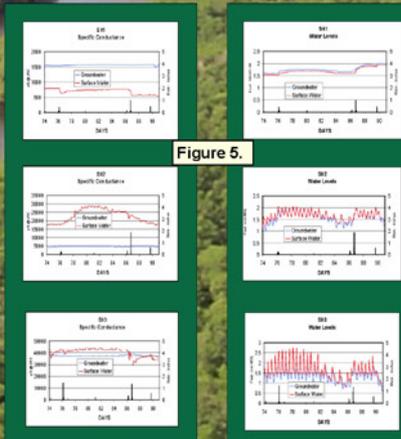


Table 2. Station's Correlation to Sea Level

Station	Correlation Coefficient (R)	Period of Record (Start-End)
SH1	0.95	1995-2002
SH2	0.98	1995-2002
SH3	0.99	1995-2002

## Acknowledgements

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Table 1. Hydrologic Parameters - Period of Record

Station	Parameter	Period of Record
SH1	Surface Water Level	1995-2002
	Groundwater Level	1995-2002
	Salinity	1995-2002
SH2	Surface Water Level	1995-2002
	Groundwater Level	1995-2002
	Salinity	1995-2002
SH3	Surface Water Level	1995-2002
	Groundwater Level	1995-2002
	Salinity	1995-2002