

**Big Cypress Watersheds  
Restoration Coordination Team  
2009-2010  
Annual Report**

# Big Cypress Watersheds Restoration Coordination Team

October 1, 2009 – September 30, 2010

## Annual Report

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### Mission

“To foster coordinated efforts among agencies and interested parties with respect to identifying, monitoring and restoring environmental conditions in the Big Cypress watersheds and downstream estuaries.”

- ◆ The Big Cypress Watersheds Restoration Coordination Team (BCW-RCT) began its tenth year of operation thanks to renewed support from the Big Cypress Basin of the South Florida Water Management District. The BCW-RCT has made a concerted effort to encourage participation from all respective agencies and stakeholders within the Big Cypress watersheds. Considerable participation continued during the past year, holding meetings locally at the Freedom Park, Big Cypress Basin Water Management District Office, Rookery Bay National Estuarine Research Reserve, and the Southwest Florida Research and Education Center. Agencies participating in BCW-RCT meetings this past year included:
  - FGCU
  - FWC-FWRI
  - UF/IFAS
  - RBNERR
  - Collier County
  - SFWMD
  - Conservancy of SWFL
  - SDS
  - US FWS
  - USGS
  - NPS
  - City of Naples
  - Audubon
  - CDES/Trans
  - DEP
  - Collier County Stormwater

### Goal 1

“To provide a forum for exchange of information relevant to the Big Cypress watersheds and downstream estuaries.”

- ◆ Quarterly meetings of the BCW-RCT bring members of the Big Cypress watersheds community together to discuss pertinent information regarding the hydrologic conditions throughout the Big Cypress watersheds. During meetings, members have an opportunity to update each other on news and issues pertaining to the Big Cypress watersheds. This forum for discussion provides a platform for exchange of advice and insight. Over the past year, research presentations from guest agencies have provided excellent opportunities to foster collaboration among participants. Minutes from the following meetings are attached to this report.
  - December 10, 2009 - Freedom Park, Naples
  - January 22, 2010 - Big Cypress Basin Water Management District Office, Naples
  - May 7, 2010 - Rookery Bay Estuarine Research Reserve, Naples
  - August 6, 2010 – Southwest Florida Research and Education Center, Immokalee
- ◆ In collaboration with the Instructional Technology and Broadcasting Services department at Florida Gulf Coast University, the BCW-RCT developed a webpage where meeting announcements, meeting minutes, and other team information can be posted. The website

address is [www.fgcu.edu/bcw](http://www.fgcu.edu/bcw). Over the past year, meeting information on the BCW-RCT website was updated and meeting minutes and reports were posted.

- Website traffic included an average of 252 visits per day over the past year.

## Goal 2

“To provide enhanced communication and dissemination of information relevant to monitoring current environmental conditions and timely generating information concerning the health of the Big Cypress watersheds and downstream estuaries.”

- ◆ The “South Florida Watershed Journal” (SFWJ), authored and managed by Robert Sobczak, was created as a way to enhance the timely spread of hydrologic data and watershed news to the Big Cypress watersheds community and beyond. Over the past year, updates to the SFWJ were produced once a week, illustrating regional hydrologic conditions and water policy issues. The SFWJ was advertised weekly to members of the scientific community through mass email announcements to the BCW-RCT and the Math, Science and Engineering Faculty of Florida Gulf Coast University. Last quarter the website address for the SFWJ was changed from <http://sfwj.blogspot.com> to [www.gohydrology.org](http://www.gohydrology.org).
  - Website traffic averaged approximately 230 visits per day over the past year.
  - Subscribers to the website included approximately 270 by reader and 72 by email.
- ◆ Over the past year, Robert Sobczak has revamped the BCW-RCT hydrologic database into a user-friendly format which provides easy-to-access watershed data including rainfall, swampstage, hydroperiod (in terms of depth or habitat type), and sheetflow. This revamped database has been dubbed the “Swamporeatron”. Frequent updates to the Swamporeatron allow users to track the hydrologic ecosystem as it unfolds, week to week. It also allows for quick and easy annual comparisons for all data types. It is even possible to see how the hydrologic regime has changed over multiple decades in certain places. Database and graphic updates were performed weekly since the creation of the Swamporeatron. The website address for the Swamporeatron is <http://fgcu.edu/bcw/swamp/water.htm>.
  - Website traffic has included 332 visits.

## Goal 3

“To provide enhanced communication and dissemination of information with respect to conservation and restoration of ecosystems of the Big Cypress watersheds and downstream ecosystems.”

- ◆ Through the use of a mass-emailing system, BCW-RCT members are able to stay connected, enabling greater collaboration and communication between the Big Cypress watersheds community. Over the past year, many emails relating to regional issues in Environmental Science were distributed amongst members of the BCW-RCT by way of the BCW-RCT Executive Assistant. Emails included material such as program, event, and webinar announcements, as well as local agency news.
- ◆ This is the first year that the BCW-RCT has created a partnership with the Coastal Training Program at Rookery Bay National Estuarine Research Reserve (RBNERR) and their “Florida Coastal Strategies” website. During the year, RBNERR Coastal Training Program workshop events were advertised through mass email to the

BCW-RCT and the Math, Science, and Engineering Faculty of Florida Gulf Coast University. Also, Coastal Training Program workshop events for Florida's National Estuarine Research Reserves were formatted and posted, website information was updated, and deadlinks were corrected on [www.floridacoastalstrategies.org](http://www.floridacoastalstrategies.org).

## Final Summary

- ◆ The Big Cypress Watersheds Restoration Coordination Team has continued to successfully
  - foster coordinated efforts among agencies and interested parties with respect to identifying, monitoring and restoring environmental conditions in the Big Cypress watersheds and downstream estuaries.
  - provide a forum for exchange of information relevant to the Big Cypress watersheds and downstream estuaries.
  - provide enhanced communication and dissemination of information relevant to monitoring current environmental conditions and timely generating information concerning the health of the Big Cypress watersheds and downstream estuaries.
  - provide enhanced communication and dissemination of information with respect to conservation and restoration of ecosystems of the Big Cypress watersheds and downstream ecosystems.
  
- ◆ We continue to encourage membership and participation at the quarterly meetings and look forward to another successful year in 2010-2011.

## Meeting Agenda 2010-2010

- ◆ November, 2010 Meeting
- ◆ February, 2011 Meeting
- ◆ May, 2011 Meeting
- ◆ August, 2011 Meeting

## Attachments

- ◆ December 10, 2009 Meeting Minutes
- ◆ January 22, 2011 Meeting Minutes
- ◆ May 7, 2011 Meeting Minutes
- ◆ August 6, 2011 Meeting Minutes

## Co-coordinators BCW-RCT

**Robert Sobczak**  
Big Cypress National Preserve,  
HCR 61, Box 110  
Ochopee, FL 33141  
[Robert\\_Sobczak@nps.gov](mailto:Robert_Sobczak@nps.gov)  
239-695-1151

**Megan Andresen**  
Florida Gulf Coast University  
10501 FGCU Blvd. South  
Fort Myers, FL 33965  
[mandresen@fgcu.edu](mailto:mandresen@fgcu.edu)  
239-590-7174

\*Cover photo courtesy of Robert Sobczak, 2010



# Big Cypress Watersheds Restoration Coordination Team

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Thursday, December 10, 2009 – 9:30 a.m. – 1:30 p.m.  
Freedom Park (aka Gordon River Water Quality Park), Naples

## Meeting Minutes

### 1. Welcome/Call to Order

- ◆ The meeting was called to order at 9:40 a.m.
- ◆ Megan Andresen welcomed everyone to the Freedom Park.
- ◆ Minutes from the last meeting were reviewed and accepted.

### 2. Introduction of Members

Mike Savarese, FGCU  
Wesley R. Elsberry, FWC-FWRI  
Ed Hanlon, UF/IFAS  
Sue Leitholf, RBNERR  
Mike Parsons, FGCU  
Mac Hatcher, Collier County  
Molly Meadows, SFWMD  
Adrienne Ruga, FWC-FWRI  
Shane Collier, FWC-FWRI

John Aquilino, Conservancy SWFL  
Eliza Davis, Conservancy SWFL  
Annji Greenwood, US FWS  
Amanda Booth, USGS  
Greg Tolley, FGCU  
Ananta Nath, SFWMD  
Bob Sobczak, NPS  
Megan Andresen, FGCU/BCW-RCT

### 3. Eyes on the Watershed – Research Photo Exchange

- ◆ Multiple research photos were shared with the group:
  - Bob Sobczak showed a photo from the Big Cypress National Preserve, noting the importance of trees, and the changing of “seasons” in SW Florida.
  - Amanda Booth shared photos and discussed some USGS projects being conducted within the Caloosahatchee Estuary and the Ten Thousand Islands.
  - Megan, Greg Tolley, and Mike Parsons talked about a collaborative FGCU project in the Caloosahatchee Estuary, while sharing photos of their night-time field work.
  - Eliza Davis presented photos from Conservancy projects including Gopher Tortoise monitoring, filter marsh instillation and monitoring, and the Picayune Strand restoration biological monitoring.
- ◆ Mike Savarese suggested archiving and annotating Eyes on the Watershed photos. It was determined that this could be done on the BCW-RCT website.

### 4. Freedom Park Introduction – Mac Hatcher

- ◆ Mac Hatcher gave an introduction to the freedom park, noting the new facility was created for water treatment which was needed following the expansion of Goodlette-Frank Road. He thanked those involved in funding the project, including the Water Management District, Big Cypress Basin, and the Florida Trust.
- ◆ The 13 acre park has landscaping similar to that of the Florida Yards and Neighborhoods program, including native plants which require no fertilization or extra watering.

- ◆ Molly Meadows added that water is treated by first pumping it into a deep well lake and then shifting it between ponds or 'cells' which have different types of vegetation with filtration capabilities. Water is emptied from the final cell into a wetland preserve located within the park.
- ◆ A boardwalk allows visitors to experience wetland areas, and a paved path can be followed through an urban-type area where the water treatment cells are located.
- ◆ Ananta Nath explained to the group that the park system may be used in the future to treat canal water by pumping it from, and back into, the Gordon River.

## 5. Combining Resources: CWI and the RCT – Mike Savarese

- ◆ Mike S. handed out a 'whitepaper' to the group, outlining a proposed idea to combine resources between the Coastal Watershed Institute (CWI) of FGCU and the BCW-RCT.
- ◆ As introduced by Greg Tolley, the CWI addresses scientific issues of regional concern, working with agencies and citizens in the Southwest Florida area. The group consists of around 20 members, including FGCU faculty and affiliates.
- ◆ Graduate student funding has not increased with increased enrollment in FGCU. The result has been fewer funding opportunities for graduate students involved with environmental research.
- ◆ The proposed collaboration includes having the BCW-RCT outline regional restoration science needs and their priorities and then fulfilling one of these needs by funding an FGCU graduate student through the help of multiple agencies.
- ◆ Grant writing was discussed as a positive aspect to the collaboration. Such combined efforts could lead to a grant writing process which would include CWI members and local agencies.
- ◆ Bob Sobczak noted that the NPS collaborates with universities through a CESU and that students can intern through NPS as a SCA.
- ◆ Shane Collier acknowledged that it may be possible to find a small amount of money to put towards a CWI graduate student.
- ◆ The group decided to identify a list of restoration science needs, choose two of these needs and try to fund graduate student work towards such needs. It was noted that restoration science needs should be chosen by February in order to budget for funding by mid-March, 2010.
- ◆ It was determined that the next quarterly meeting should be moved up to January 22<sup>nd</sup> in order to facilitate budget deadlines.
- ◆ For the next meeting, bring ideas of regional restoration science projects which have been completed or need to be completed. The Big Cypress Science Plan and Restoration Science List previously written for the BCW-RCT will be located and provided.

## 6. Florida Coastal Strategies Website – Megan Andresen

- ◆ Megan briefly asked for suggestions about marketing strategies for the Florida Coastal Strategies Website which was introduced to the group at the previous quarterly meeting.
- ◆ Shane recommended using the website itself as a marketing tool by creating useful links to and from other environmental websites. Wesley Elsberry proposed adding an RSS feed to the site to help increase traffic.

## 7. End of the Year Water Report – Bob Sobczak

- ◆ Bob presented an informative end of the year water review. One consistent theme throughout the presentation was that baselines are constantly shifting and sometimes this causes difficulty in the management of natural areas.

## 8. Other Watershed News

- ◆ Ed Hanlon discussed his biofuels and ecosystem services project, stating reasons for linking agriculture to natural systems with agricultural ecosystem services.
- ◆ Ananta extended an invitation to the Picayune groundbreaking ceremony on January 7, 2010. He also noted that bidding for the Faka Union project should be complete soon, and depending on the budget, the project could be finished in two or more years.
- ◆ The BCB board meeting will be held on December 11, 2009. Molly will be giving the status of projects included in the Naples Bay Management Plan, adopted in 2007. This information will also be listed on the BCB website.
- ◆ Shane informed the group that Florida will have two data centers in Tallahassee to store metadata, which will make the metadata closer to real-time. Currently, metadata is in a repository housed by NOAA.
- ◆ Shane and Adrienne Ruga also noted that the metadata entry tool linked to the BCW-RCT website is now faster and more user-friendly.

## 9. Set Next Meeting Date and Adjourn meeting

- ◆ The meeting was adjourned at 1:30 p.m.
- ◆ **Next Meeting: Friday January 22nd, 2010 – BCB Water Management Office, Naples**

## 10. Freedom Park Tour with Mac Hatcher

- ◆ Mac provided a wonderful tour of the Freedom Park, giving insight into planning, building, and monitoring the water quality parameter of the park.

# Big Cypress Watersheds Restoration Coordination Team

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Friday, January 22, 2010 – 1:00 p.m. – 4:30 p.m.  
Big Cypress Basin Water Management District Office, Naples

## Meeting Minutes

### 1. Welcome/Call to Order

- ◆ Megan Andresen called the meeting to order at 1:10 p.m. and welcomed everyone to the Big Cypress Basin office.
- ◆ Minutes from the last meeting were reviewed and accepted.

### 2. Introduction of Members

Mike Savarese, FGCU  
Mike Bauer, City of Naples  
Ed Hanlon, UF/IFAS  
Mike Bush, Audubon  
Nick Casalanguida, CDES/Trans  
Mac Hatcher, Collier County  
Molly Meadows, SFWMD  
Daryl Thomas, USFWS  
Alicia Abbott, Collier County  
Ron Wallace, City of Naples  
Shane Collier, FWC-FWRI  
John Aquilino, Conservancy SWFL  
Eduardo Patino, USGS

Lars Soderquist, USGS  
Jennifer Nelson, DEP  
Alicia Campanella, DEP  
Ananta Nath, BCB SFWMD  
Bob Sobczak, NPS  
Paul Mattausch, Collier County  
Bob Middleton, City of Naples  
Jennifer Hecker, Conservancy SWFL  
Rhonda Haag, DEP  
Brandy Otero, CC Stormwater  
Jerry Kurtz, Collier County  
Clarence Tears, BCB SFWMD  
Megan Andresen, FGCU/BCW-RCT

### 3. Big Cypress Basin 10 Year Strategic Plan – Clarence Tears

- ◆ Clarence presented the Big Cypress Basin Water Management District 10 year Strategic Plan Draft, including the project priorities and goals of the BCB.
- ◆ Multiple projects were discussed, along with their potential success indicators. Clarence asked the group to provide feedback on the project priorities and success indicators. Projects include:
  - Lake Trafford – dredge, remove material, native species restoration
  - Camp Key Strand – critical habitat and sheet flow restoration
  - Henderson Creek Diversion – rehydrate Henderson Creek area
  - Belle Meade Rehydration – rehydrate area and reduce flow to Naples Bay
  - Barron River Restoration – restore sheet flow
  - Okaloacoochee Slough Flowway Enhancement – restore native vegetation
  - Miller Canal – increase flow to S. Golden Gate, reduce flow to Naples Bay
  - Multiple Canal Improvements – reduce over-drainage, protect water resource
  - Multiple Structure Modifications – create environmentally effective flow conditions
- ◆ Overall goals for the BCB 10 year plan include improving ground water storage, water quality, and sheet flow, and reducing point source discharges.
- ◆ A timeline for the 10 year strategic plan was discussed:
  - February, 2010: Receive Board Input

- March-April 2010: Draft Strategic Plan
- May 2010: Present Plan with budget presented for 2011
- ◆ The BCW-RCT is invited to share their opinions and ideas on the 10 year strategic plan at the BCB Board Meeting on February 26<sup>th</sup>, 2010. The meeting will be held at North Collier Regional Park from 9 a.m. – 12:00 p.m.
- ◆ \*Please note that the old BCB 5 year plan is located on the BCB website.

#### 4. Identification and Prioritization of Restoration Science Needs – Mike Savarese

- ◆ Mike led the group in listing and prioritizing regional restoration science needs. These restoration science needs can be used to pair graduate students at FGCU with funds and research opportunities. They can also be utilized for discussion of the BCB 10 Year Strategic Plan project priorities.
- ◆ Each RCT member was allotted two restoration science needs questions to add to the master list. Fourteen agencies were represented and twenty restoration science needs were listed.
- ◆ A straw poll was taken to prioritize the list. Each member voted for their top three choices.
- ◆ Restoration science needs list results:

- **Estuarine effects of Picayune Strand restoration?**

Author: Mike Savarese; Votes: 10

- **Effects of sea level rise on the ecology and geomorphology of freshwater to brackish water marshes in southwest Florida and the commensurate effects of restoration?**

Author: Mike Savarese; Votes: 5

- **Effects of agriculture-based ecological services on water quality improvement, carbon sequestration and water storage?**

Author: Ed Hanlon; Votes: 1

- **Are suspended sediments part of the pre-alteration state of southwest Florida estuaries?**

Author: Mike Bauer; Votes: 3

- **Effectiveness of small filter marshes, littoral plantings, and floating islands on pollution load reduction?**

Author: Mike Bauer; Votes: 8

- **New technologies (laminar flows, algal turf scrubbers, etc.) and their effects on nutrient load reduction?**

Author: Daryl Thomas; Votes: 2

- **Assessment of the impact of Picayune Strand Restoration project on the manatee refugia of the Port of the Islands marina, and measures to protect/enhance the habitat**

Author: Ananta Nath; Votes: 4

- **Can we predict the effects on manatees by Route 29/Barron River Canal restoration? [Requires describing manatee use there.]**

Author: Daryl Thomas; Votes: 1

- **Quantification of flow required for optimum salinity distribution in Rookery Bay National Estuarine Research Reserve (RBNERR).**

Author: Ananta Nath; Votes: 0

- **Delineation of the groundwater/salinity interface.**

Author: Eduardo Patino; Votes: 1

- **Empirically test the “pulsed flow” concept used on agriculture lands.**

Author: Ed Hanlon; Votes: 0

- **How are natural lakes and stormwater managed ponds stratified in southwest Florida, and what are the implications?**

Author: Jennifer Hecker; Votes: 2

- **Ecological impacts of using uplands and short hydroperiod wetlands for storm water disposal?**

Author: Jennifer Hecker; Votes: 2

- **What is the relationship between watershed area and filter marsh size/design features?**

Author: Jerry Kurtz; Votes: 1

- **Can aquatic biology be used to evaluate adverse impacts from nutrients in primary, secondary or tertiary canals?**

Author: Mac Hatcher; Votes: 8

- **Can we develop a “condition index” for rapid assessment of southwest Florida estuaries?**

Author: Jennifer Nelson; Votes: 4

- **The effects of off-road vehicle usage on landscape and subsequent trail recovery?**

Author: Bob Sobczak; Votes: 1

- **What potential do conservation practices have on reducing water resource demands?**

Author: Bob Sobczak; Votes: 2

- **What effects does canal design have on perpetuating invasive exotic species?**

Author: Mike Bush; Votes: 1

- **How are our natural resources (park facilities, conservation lands, etc.) used? (over vs. under-utilized)**

Author: Bob Sobczak; Votes: 1

- ◆ Authors were asked to send Megan a brief description of their restoration science need through email as soon as possible.
- ◆ RCT members were asked to talk to their respective agencies to determine if funding may be available for graduate student research pertaining to any of the restoration science needs listed and to send that information along to Megan.

## 5. Set Next Meeting Date and Adjourn meeting

- ◆ The meeting was adjourned at 4:00 p.m.
- ◆ **Next Meeting: Friday, April 23rd, 2010 – Rookery Bay, Naples (tentative location)**

## 6. Earthquake Haiti Photo Presentation – Ed Hanlon

- ◆ Ed was working in Haiti when the devastating earthquake hit in January. He was able to help people out of his hotel before it collapsed and he and his friend set up a make-shift medical center, with what little supplies they had, to save the lives of many injured Haitians.
- ◆ Ed presented some photos and told his story. Thank you, Ed, for sharing your experience with us. We are happy you made it home safely.

# Big Cypress Watersheds Restoration Coordination Team

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Friday, May 7, 2010 – 1:00 p.m. – 3:30 p.m.  
Rookery Bay Estuarine Research Reserve, Naples

## Meeting Minutes

### 1. Welcome/Call to Order

- ◆ Megan Andresen called the meeting to order at 1:08 p.m. and welcomed everyone to the Rookery Bay Education Center.
- ◆ Minutes from the last meeting were reviewed and accepted.

### 2. Introduction of Members

Ananta Nath, BCB SFWMD  
Mike Bauer, City of Naples  
Ed Hanlon, UF/IFAS  
Mike Bush, Audubon  
John Aquilino, Conservancy SWFL  
Bob Sobczak, NPS

Amanda Booth, USGS  
Marty Berry, USGS  
Dave Ceilley, FGCU  
Susan Denham, RBNERR/FGCU  
Megan Andresen, FGCU/BCW-RCT

### 3. Eyes on the Watershed Research Photo Exchange

- ◆ Ananta Nath shared photos of the Opryland Hotel and Opry Mills under water during the recent flooding event in Nashville.

### 4. Rookery Bay Seagrass Research Talk and Tour – Susan Denham

- ◆ Susan is a graduate research fellow at Rookery Bay, focusing on seagrass work in the Ten Thousand Islands. She presented her research to the group, as well as some preliminary results.
- ◆ Field components include two sites, Round Key and Cape Romano. Within each site, she looks at water quality parameters which may influence the health of seagrasses in the area, such as TSS, CDOM, and light attenuation. Seagrass abundance, growth rates, and present species are noted during the work and seagrass is taken to the lab to measure photosynthetic health using PAM fluorometry.
  - Mike Bauer noted that a similar study has been performed in Naples Bay for a few years and that he would be interested in comparing data.
- ◆ Susan also has been working on a laboratory set-up at Rookery Bay which will be used to grow seagrass in order to obtain growth rates under specific light conditions.
- ◆ The group took a tour of Susan's seagrass-growing tank while she explained all aspects of the in-depth set-up.

### 5. Water Update – Bob Sobczak

- ◆ Bob announced the celebration of the new water year on May 1<sup>st</sup> and that April showed the highest water levels since 1970 in the Big Cypress Swamp. Prairie wetlands have been wet for 12 months straight, whereas in normal years they are only wet for 6 months. We had a very wet winter in 2010.

- ◆ Bob presented his newest data usage/graphing idea, the “Swamporeatron”, which includes decades of hydrologic data across Southwest Florida. He takes numerical data and puts it into an easy database which is available to a wider audience for quick data assessment. Historical hydroperiod calendars, as well as habitat-specified hydroperiod calendars, flow, and rain data are provided on the site. ([www.fgcu.edu/bcw/swamp/water.htm](http://www.fgcu.edu/bcw/swamp/water.htm))
- ◆ Dave Ceilley noted that many of his restoration projects include hydrologic restoration, so these types of databases are very important for baseline values used when manipulating fixed hydroperiod basins.
- ◆ Ed Hanlon added that some of his work has shown that a change in the hydroperiod over time is changing vegetation in some areas of the Everglades. Ed would like to present his scenario of what’s affecting nutrients in the park at the next meeting.
- ◆ Frustration with the Southwest Florida Feasibility Study was also noted due to the fact that water modeling has been simplified in the study. The ‘duration in depth of water’ has been morphed into ‘flows to the coast’ because it is too complicated to model, although it is very important, as noted by multiple group members. It was also noted that the original “Feasibility Study” has been stopped and it will now be morphed into a “Watershed Management Plan” due to financial constraints.

## 6. Other Watershed News

- ◆ June 23<sup>rd</sup>, Big Cypress Basin 10 year strategic plan workshop. Info: TBA (will send email)
- ◆ Oil Spill Preparation:
  - Ananta stated that SFWMD has been told to prepare for freshwater releases if needed, although there isn’t much water stored to release.
  - Mike Bauer said that the City of Naples is concerned about availability of resources if the oil does come to SWFL. Also, he suggested that agencies need to coordinate for a better relief effort.
  - Multiple agencies noted that they are doing pre-event sampling in order to get baseline values prior to any oil coming to our area.
  - Ed noted that there are many websites with good information about the oil spill, including infrared aeriels and oil spill movement modeling.

## 7. Set Next Meeting Date and Adjourn meeting

- ◆ The meeting was adjourned at 3:30 p.m.
- ◆ **Next Meeting: Friday, August 6, 2010, 1:00pm – UF/IFAS Southwest Florida Research and Education Center, Immokalee**

# Big Cypress Watersheds Restoration Coordination Team

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Friday, August 6, 2010 – 1:00 p.m. – 3:45 p.m.  
Southwest Florida Research and Education Center (SWFREC)

## Meeting Minutes

### 1. Welcome/Call to Order

- ◆ Megan Andresen called the meeting to order at 1:15 p.m. and welcomed everyone to the Southwest Florida Research and Education Center (SWFREC).
- ◆ Minutes from the last meeting were reviewed and accepted.

### 2. Introduction of Members

Ananta Nath, BCB SFWMD  
Ed Hanlon, UF/IFAS  
Bob Sobczak, NPS  
Victoria Vasquez, RBNERR  
Mac Hatcher, Collier County  
Marty Main, UF  
Eboki Mespmin, SDS

Ouael Eleuchi, SDS  
John Capece, SDS  
Milion Christophe, SDS  
Daryl Thomas, USFWS  
Sophie Burfeind, SDS  
Bob Rouse, UF/IFAS  
Megan Andresen, FGCU/BCW-RCT

### 3. Welcome to SWFREC – Ed Hanlon

- ◆ Ed Hanlon welcomed everyone to the 320 acre, SWFREC. He explained that one third of the work performed at the center is focused on environmental issues such as water quality and water control, while the rest of the work involves agricultural studies such as irrigation controls and biomass production.
- ◆ Faculty members working at the center are representatives of one of the University of Florida extension agencies and there are also graduate students living and working on-site.

### 4. Restoring the Everglades: Some Current Impediments to Restoring Flow to the Southern Everglades – Ed Hanlon

- ◆ Ed provided a riveting presentation pertaining to water quality restoration within the Everglades. Ed's findings are currently in review for publication. \*Please see a full summary of his work below.

### 5. Rhizomal Perennial Peanut Talk and Tour – Dr. Bob Rouse

- ◆ Bob Rouse discussed the economic and environmental benefits of using rhizomal perennial peanuts in urban landscaping, as compared to commonly used lawn grasses in Florida. Utilizing this type of peanut instead of lawn grass will save money on water usage and energy and will reduce environmental impacts. Benefits include:
  - High drought resistance – unlike St. Augustine grass
  - No pathogens

- No nematodes
- Low maintenance needs - only mow about 3 times a year
- Minimal to no fertilizer needed
- No nitrogen or phosphorus needed
- No insect pest control needed
- High degree of beautification – lush greenery and bright yellow flowers
- Edible flowers – taste like raw peanuts
- Lowers erosion potential
- Very hearty
- Can harvest as feed for animals – very high protein content
- Multiple varieties and types depending on needs
- ◆ The rhizomal perennial peanut has been planted on the UF campus, Marco Island as a groundcover project, and at the SWFREC. The initial cost is more than St. Augustine grass, but in the long run, the cost evens out with savings on water and energy.
- ◆ Bob took the group on a tour of the grounds to see where it has been planted and to taste the flowers. He also showed the group examples of different varieties of the plant which he had been growing in a greenhouse on-site.

## 6. Hydrology and Water Quality Monitoring Partnership – Bob Sobczak

- ◆ Bob Sobczak announced that a draft of the twenty-year anniversary hydrology and water quality report, pertaining to the monitoring partnership between the Big Cypress Preserve and the South Florida Water Management District, has been created.
  - Water quality monitoring has included 20 hydro stations throughout the preserve, with both natural and managed components.
  - In 1995, monitoring was expanded and a common datum was created.
  - The ability to collect real-time data from the stations has been in place since 2005.
- ◆ The hydrology and water quality report is very important to show progress through time. The report can be used to justify the importance of the water quality monitoring stations so that each station can continue to be funded.
- ◆ Data collected through hydrology and water quality monitoring is updated weekly by Bob and is available on the internet within the “Swamporeatron”.
  - The Swamporeatron provides users with easy-to-access water data including rainfall, swampstage, hydroperiod (in terms of depth or habitat type), and sheetflow. Frequent updates allow users to track the hydrologic ecosystem as it unfolds, week to week.
  - Also, the Swamporeatron allows for quick and easy annual comparisons for all data types. It is even possible to see how the hydrologic regime has changed over multiple decades in certain places.

## 7. Other Watershed News

- ◆ Daryl Thomas announced that the Southwest Florida Feasibility Study is being changed to a Watershed Management Plan. The approx. 1,000 page report will be reduced to about 100 pages and will be given to Congress only for information purposes, whereas the Feasibility Study would have been given to Congress as a means to request project funding. The Feasibility Study outlined the need for many restoration projects throughout Southwest Florida.
  - Daryl noted, however, that the Army Corps wants to evaluate the feasibility of funding one of the high-need projects listed in the Feasibility Study. The project would include restoration of oxbows in the Caloosahatchee River.
  - John Capece told the group that he had been previously involved with Caloosahatchee oxbow restoration efforts, including baseline work, experiments, and

one restoration in Lee County. He noted that the Caloosahatchee River has been changed to a wetland system over time so if oxbow restoration is not well-planned and done properly, it might not have a positive impact on the system.

- John also noted that individuals and agencies need to advocate for meaningful shoreline easements, with great attention to littoral zone protection.
- ◆ Mac Hatcher announced that the Collier County Watershed Management Plan updated BCB model and reports are available on the internet. The final version is projected to be completed by December.
- ◆ Ananta Nath told the group that the Lake Trafford dredging will hopefully be done by spring of next year. Also, Picayune is under construction and there is a bid out on the pump station for Faka Union.
- ◆ John Capece noted that he finds useful information pertaining to projects and environmental happenings on Caloosahatchee.org and eco-voice.org.
- ◆ Daryl Thomas stated that the Conservancy was approached by Edison Farms to buy out their land. This is a key area of restoration for Estero Bay, and so they are seeking funding from Lee County Conservation 20/20.

## 8. Set Next Meeting Date and Adjourn meeting

- ◆ Ed Hanlon noted a conflict with BCW-RCT meetings and CHNEP meetings on Fridays. We will try to avoid that conflict in the future.
- ◆ The meeting was adjourned at 3:45 p.m.
- ◆ **Next Meeting: Friday, November 12, 2010, 1:00pm – Pepper Ranch (Tentative)**

## EVERGLADES WATER QUALITY TRENDS WITH TIME, 1977-2005

The Florida Everglades is a highly visible symbol of human efforts to preserve and restore the health of our natural system, including both the “River of Grass” and its downstream estuaries. The Everglades National Park (ENP) receives water from a large watershed through a series of water control structures and canals. Most of this water conveyance and control was originally designed for drainage purposes, some dating back to the beginning of the 20<sup>th</sup> century. However, current focus on ecosystem management has also added the need to provide the ENP with water of high quality.

Researchers at the University of Florida Research and Education Centers located at Immokalee and Homestead, Florida, teamed with scientists at the South Florida Water Management District to study water quality records. We hoped to provide insight regarding past and present changes in water quality produced from the complex system of Stormwater Treatment Areas (STAs) and Water Conservation Areas (WCAs) used to control flooding, improve water quality, and finally to supply water to the ENP.

Using water quality monitoring data from 1977 through 2005, we elected to study seven inflows to the ENP for Phosphorus (P) and Nitrogen (N). Five inflows, S12 A through D and S333, were located along the northern boundary of the ENP and received water from a canal running east-west (Fig. 1). In turn, this canal received water from the large conservation area, WCA-3, just to the north of the ENP. All of these structures are located along the Tamiami Trail (Route 41), which links east and west peninsular Florida. Two additional inflows, S18C and S332, were selected on the eastern side of the ENP. These inflows are located 30 miles southeast from the other inflows and receive water from unlined canals.

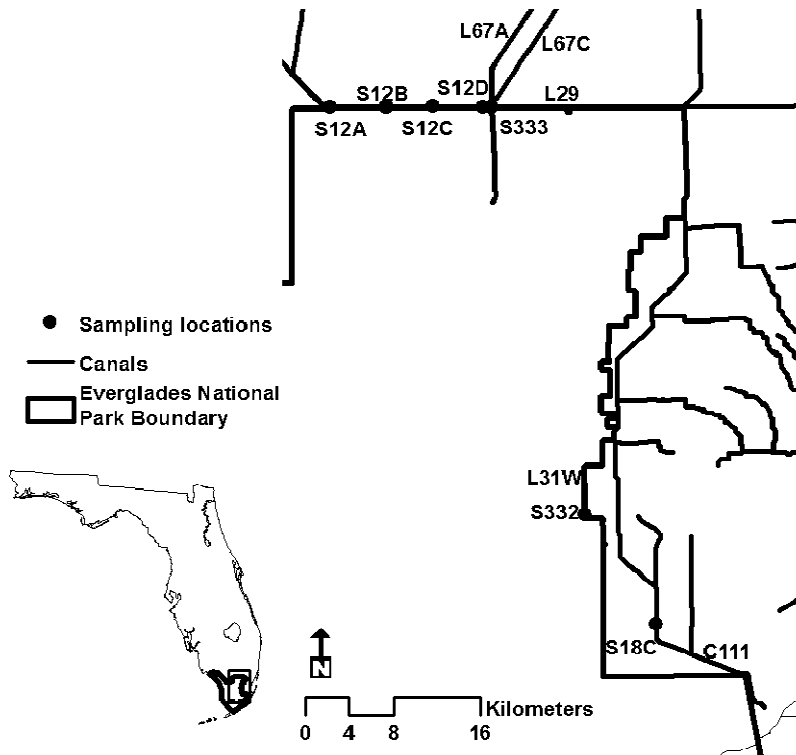


Figure 1. Location of inflow water quality monitoring stations to the Everglades National Park (ENP). Sampling locations: "S"; Canals: "C"; and Levees: "L."

After verifying the data and adjusting for statistical normality, the data were analyzed using Principal Component Analysis (PCA) and Factor Analysis (PFA) without flow adjustments. These procedures allowed us to identify related sampling locations. We found that the northern sampling sites were statistically related and were different from the eastern sampling sites. This finding could be used to reduce monitoring costs, for example. We also showed that water quality entering the northern part of the ENP was different from that entering the eastern inflows. These findings can be used in designing management strategies for targeted water quality improvement and in creating water quality monitoring programs to maximize the amount of variability captured in as few stations as possible.

Further analysis of the data by Locally Estimated Scatter Plot Smoothing (LOESS) produced three distinct time periods of changing trend in total P (TP) (Fig. 2).

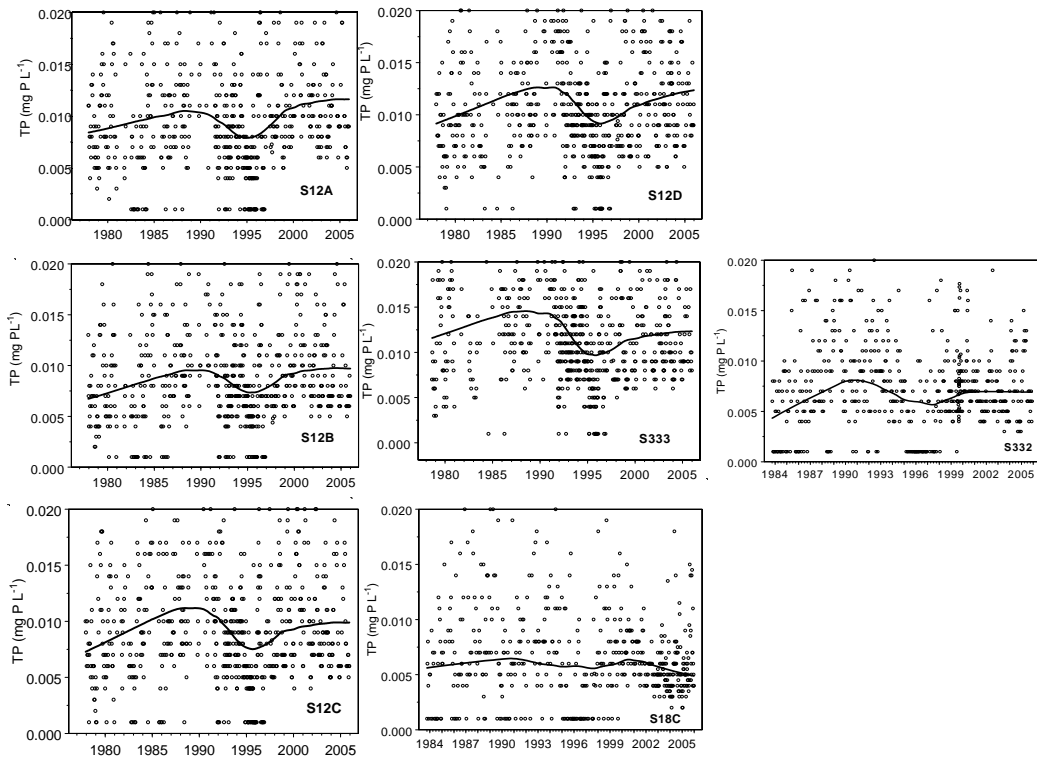


Figure 2. Time series plot of TP at S12A, S12B, S12C, S12D, S333, S18C, and S332 with LOESS smoothing.

Interventions, such as best management practices (BMPs) in the agricultural area to the north and the urban area to the east, have had an impact on TP concentrations. BMPs were implemented throughout the region in the early 1990s, as was the construction and management of STAs. TP concentrations are also likely a function of the complex hydrology of the region, which is partially substantiated by the negative relationship we found between TP and water flow. Hydroperiod in the WCA-3 may also be a contributing factor. Higher water tables in the western part of WCA-3 address the need to avoid seepage toward the east that might adversely affect the highly populated region in the low-lying land inland from the Miami ridge. In turn, higher water tables in WCA-3 affect the vegetation in the tree islands, which are known to contain considerable P, compared to the adjacent sloughs.

Nitrogen generally decreased at inflow sites, indicating that STA and WCA management was contributing to N concentration reduction. However, total N and ammonium-N water quality standards were exceeded at selected sites during the study period.

Ed Hanlon, the lead author of this work, stated that our study results suggest that water quality data analyses could provide additional insight into the success of a restoration management plan and on how monitoring may be modified for more efficient use of resources. Additional research with physical properties monitored at these same inflows to the ENP is ongoing as a cooperative effort between the University of Florida and the South Florida Water Management District.

**Author:** Ed Hanlon, University of Florida, Soil and Water Science Dept.,  
Southwest Florida Research and Education Center

2685 St. Rd. 29 N

Immokalee, FL 34142-9515

**Phone:** 239 658-3400, Email: [eahanlon@ufl.edu](mailto:eahanlon@ufl.edu)

**Media Contact:** Julie Carson, [carsonj@ufl.edu](mailto:carsonj@ufl.edu)

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