



News from the Sloughs

News from the researchers,
students, and educators of FCE
LTER

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Sailing the Shark River Slough- For Real!

While scanning the horizon for panthers, eagles, gators, deer and a plethora of wildlife in Everglades National Park, visitors recently saw this sight from Shark Valley observation tower.

Although it may look like a picture from a magical children's book, this is an actual photo from the adventures of two brave naturalists in a homemade boat!

Check out an exclusive on this remarkable feat and daring adventure in this issue. [Check out the video link too!](#)

Find this story and more from our Lead Principle Investigator, Students, and Educators of YOUR FCE LTER.

IMPORTANT: FCE LTER All Scientists Meeting: Deering Estate March 10-11, 2014



The Winter Gaiser Address- News from our FCE Lead Principal Investigator

Hi Everyone:

Happy Holidays! I hope everyone is getting a much-deserved break and enjoying the holidays with family and friends.

I wanted to begin by thanking everyone for their contributions to our annual reports to NSF and the LTER Network! It was great to be able to highlight our three special issues this year: *Science for the Management of Subtropical Embayments: Examples from Shark Bay and Florida Bay* (Kendrick et al., *Marine and Freshwater Research* 63:11); *Paleoenvironmental Change in Wetlands of the Florida Everglades, Southeast USA* (Anderson and Gaiser, *Journal of Paleolimnology*); and *Wetland Ecosystem Response to Hydrologic Restoration and Management: The Everglades and its Urban-Agricultural Boundary* (Sullivan et al., *Wetlands*). Also featured were



three notable papers - about the global black carbon budget (Jaffé et al. 2013, *Science*), ecological novelty and the emergence of evolutionary traps (Robertson et al. 2013, *TREE*), and carbon sequestration in seagrass beds (Fourqurean et al. 2012, *Nature Geoscience*). The latter was summarized into a new transformational “key finding” that will appear soon on our website. We also highlighted the completion of our submission of FCE datasets to the Network Information System – a herculean effort by Linda and Mike (with help from the LNO) that provides broader access and will hopefully promote more coordinated analyses of LTER data. Details can be found in our 2013 report

(http://fcelter.fiu.edu/research/proposals_reports/FCEIII_2013_Annual_Report.pdf) (Click here for FCE III Year 1

[Report](#)) and publication list. Congratulations to all!

The semester has come to a close and so has the cross-site coastal LTER workshop “*Linking Biology and Geomorphology in Coastal Wetlands*” coordinated by our colleague Steve Pennings (GCE LTER). This workshop was a grand success, attended by >100 people across the coastal LTER sites. We offered this as a graduate workshop at FIU, and had 8 students enrolled (see photo). Every week we listened into lectures ranging from hydrodynamics in seagrass beds to bioturbation by fiddler crabs, and learned much from our LTER colleagues and weekly readings. New collaborations are forthcoming from this workshop, and we plan to run it again (perhaps in Fall 2015, topics welcome). Steve will be attending our ASM in March, and we can thank him and discuss future ideas at that time. It’ll also be a great opportunity to learn about opportunities with the collaborative research he’s leading in the invading mangrove front in Texas – currently joined in collaboration by Anna Armitage and John Kominoski.

Regarding the ASM – I hope you can all attend again at the beautiful grounds of the Deering Estate at Cutler. Our theme this year will be “*Integration*” – there will be a series of working group reports geared toward helping us think about ways in which our thematic research comes together to answer our holistic FCE III questions. We’ll have ample time to break-out into discussion groups where the key discussion will be around where we would like to be by our mid-term review (2015), and what steps we need to take to get there. We’ll also hear an update from Laura Ogden about progress with the synthesis book, led by Dan Childers – I’m extremely excited about the topical, integrated outline that is forming and the depth of enthusiasm and engagement expressed across our collaboration! After the ASM, there will be a follow-on group meeting Wednesday-Thursday led by Tiffany Troxler to move forward with our integrative carbon research. [P.S. We are very, very glad to have Tiffany back from her time at the IPCC in Japan – welcome home!!!].

Best wishes to all for a fun, healthy, and productive 2014!

Evelyn

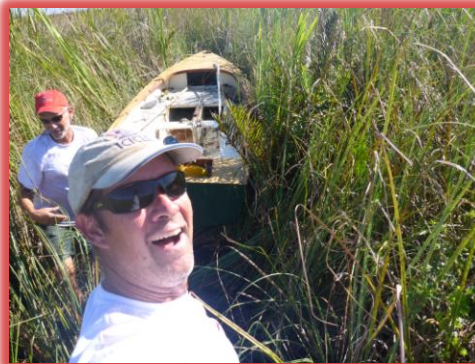
Sailing The Sawgrass Sea?

When FCE Investigator Dr. Laura Ogden and her husband Pat Kelly sit down at their dinner table together they have great adventures to share with each other. Laura passed this adventure along to us and I assaulted Pat with a barrage of questions about the trip. Here is what Pat wrote in his own words.

“I am glad you like the boat and the trip, how can you not like the idea of a sailboat trip through Shark River Slough? The boat is a Core Sound 20, designed by Graham Byrnes in North Carolina modeled after the shallow draft sailboats of the Core Sound area. I built it in our barn in Gainesville over the course of a year in 2002 while Laura was finishing up her Phd at UF. It is 20 feet long, 6’6” wide, weighs about 800 pounds and us rigged as a “cat ketch” with a kick up centerboard and rudder is able to sail in 6 inches of water.

The trip was conceived after reading about some guys that canoed down the same stretch a couple years ago, I don’t think anyone has run a non-motorized boat through that stretch since at least the park was formed and I love an adventure. I started planning it last year as it is only possible in high water with a good north wind like the kind we get after a cold front. I went with Tony Pernas who works for the park service and had canoed that trip before and knew it well.

We launched on the south side of Tamiami Trail by the L67 canal before dawn on November 8th, Laura (Ogden) and my



daughter dropped us off and agreed to pick us up in Flamingo when we arrived. The first day we made it 35 miles down the canal, across some really heavy grass, up almost to the observation tower, and down the entire slough. We slept in the boat in the bottom of the slough surrounded by sawgrass and mosquitos just before the mangrove line of the upper reaches of Shark River. The next day was another 14 -hour day and we made it into Bottle Creek by 10 AM and sailed the entire run of Shark River, across Tarpon Bay, past the Cane Patch, through Avocado Creek, and across Whitewater Bay and into Flamingo (another 30 miles). We arrived before just dark. Two full days of sailing over 65 miles.

Of course it wasn’t all smooth sailing, we had to push the boat over a mile overall through sometimes overhead cattails and sawgrass. Once having to unload the masts and heavy gear to lighten up the boat and making three trips to connect to a park airboat trail. On those hard slogs we could push only 30 feet at a time, rest and push again. At one point we were within sight of the Shark River observation tower off Tamiami Trail and I am sure we were seen by the tourists there who no doubt wondered what a red-sailed boat was doing in the Everglades.

I am happy that you are going to post the photo and some news of the trip, it was a fantastic adventure. “

Thank you for sharing Pat! We will look forward to hearing about your next adventure!

FCE Student Spotlight: Sean Charles in the Heart of Texas- Mangrove Migration;

Where mangroves are marching to the tune of the sea....

Sea-level rise, that is. In this student spotlight, Sean describes mangrove migration in TX and what that means for Florida coastal mangroves.

As the range occupied by mangrove species is altered globally with climate change, we hope that data collected in Port Aransas, Texas will be highly relevant to the FCE and to understanding the functional impacts of mangrove migration overall. In both areas, mangroves are moving into environments that were previously herbaceous marsh in response to climate change. The causes and specifics of mangrove migration into marshes are different in the two regions. Warming drives mangroves to be increasingly dominant along the Gulf Coast of Texas, where occasional hard freezes have historically favored marshes dominated by *Batis maritima*, *Salicornia bigelovii*s, *Lycium carolinianum* and



Spartina alterniflora, whereas recent models indicate black mangroves, *Avicennia germinans*, may become 100% dominant along the Texas Coast (Osland et al. 2013). In the everglades, sea level rise enables red mangroves, *Rhizophora mangle*, to become established in areas previously dominated by sawgrass, particularly during storm surges. This has caused saline wetlands to move toward the interior

of the everglades at a rate of 1 to 4 kilometers over 50 years (Ross et al. 2000). As sea level continues to rise, conditions become increasingly favorable for red mangroves in the mangrove marsh ecotone, through increased phosphorus

delivery and a competitive advantage based on salinity. Alterations in vegetation communities may have widespread impacts on ecosystem functions and services provided by marshes. Habitat changes can be a concern for wildlife adapted to life in the marsh, for example, the whooping cranes, one of the rarest birds in North America, currently migrate to Texas saltmarshes, but may be negatively impacted if the vegetation changes to mangrove dominance. Similarly, numerous everglades species could be affected by



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Above: Dr. John Kominoski, Sean Charles' Major Advisor for Graduate Research

Left: Sean Charles deep in the mangrove marsh with a syringe chock full of marsh mud

vegetation community change. However, our contribution to the understanding of changes in ecosystem function are focused on how mangrove migration in both areas alter carbon dynamics through above and below ground productivity and respiration rates, and how changes in carbon dynamics and sedimentation combine to affect the ability of coastal environments to cope with sea level rise. In both environments, mangroves are on the frontlines of a dynamic battle between land and sea to determine whether the coastline will stay above water in the face of rising sea-levels. We hope that understanding gained from each environment will help inform the other, and help answer our questions as a whole.

Story contributed by FCE Graduate Student Sean Charles

FCE Students Celebrate With an end of semester BBQ



It was a beautiful day at A.D. Barnes Park for the end of the year FCE barbeque. Thanks to the FIU student government association that generously provided 250 dollars for food and non-alcoholic beverages, the barbeque was a success. The weather was sunny and the graduate students were all smiles as the semester had come to a close. Close to 20 graduate students attended the event, many of which were new students. The student group aims to hold a beginning of the semester social event for faculty, staff, and students sometime in January, so stay tuned and hopefully we will see everyone at the next event.

(Left to Right) Ross Boucek (current president), Sean Charles, BJ Wilson, and Shelby Servais (all 3 new members), Jenn Sweatman (treasurer), Kristie Wendelberger (vice president), and Mike Bush (BBC campus liaison) took the photo. Story by Ross Boucek

FCE's RESSt students ON DISPLAY!

Two of our Research Experience for Secondary Students (RESSt) students will present their research on January 11th, 2014 at 2 pm in the Keller Theatre at The Museum of Discovery and Science in Ft Lauderdale. They are working with their advisors to prepare a brief presentation and each will last about 15 minutes. RESSt is an FCE program pairing FCE researchers directly with students for real FCE science. The program was founded 2001 with over 70 students to date.

RESSt Sara Osorio is working with Dr. Evelyn Gaiser, and is a senior in the Global Studies Magnet at Felix Varela Senior High School, an intern with the Florida Coastal Everglades Long Term Ecological Research (FCE LTER) Program and a member of the South Florida Periphyton Group. Sara's research was conducted in collaboration with the Deering Estate at Cutler in conjunction with their Cutler Slough Rehydration Project. The title of Sara's talk, Changes in diatom assemblages along a salinity gradient in a restored

mangrove forest, is based on a poster of the same title, at the 2013 North American Diatom Symposium in Bar Harbor, ME.

RESSt Felipe Tamayo is a sophomore in the IPREP Magnet at Felix Varela Senior High School. Last year, Felipe presented an overview of his research experience in the mangroves with Dr. Victor Rivera-Monroy at the Deering Estate. He is currently working under the direction of Dr. Jennifer Rehage and Ross Boucek on understanding the factors affecting the fitness of invasive and native fish in south Florida.

To find out more about this event contact: Nick Oehm, FCE LTER Education and Outreach Coordinator or Diane Robaina- Manager of Programs and Special Projects, Museum of Discovery and Science, 401 SW 2nd Street, Fort Lauderdale, Florida 33312.

Story Contributed by Nick Oehm

Rich Kern's Update from the field: ARRIBADA!

Our FCE Partner Rich Kern, wildlife photographer and educator, has been cranking out the reels of film this year and will be presenting FCE researchers and their findings in a new addition to the massive film project that he and his father have been producing and presenting to over 100,000 Miami Dade Public School students for over a decade. Check out the new videos he and his father Richard Kern have been posting on their website at Odyssey Earth. <http://www.odysseyearth.com/> Rich and Richard Kern recently took their cameras to Playa Ostional on the Pacific coast of Costa Rica to document one of nature's great spectacles: The olive ridley sea turtle arribada. Not only is Playa Ostional famous for the annual mass-landing of thousands of sea-turtles at a time, but it also happens to be the only beach in the world where the collection of sea turtle eggs is sanctioned by the government.

"The turtle adventure was pretty incredible. We were pretty lucky to nail a nice Arribada. We had planned the trip knowing that if we were lucky we would witness the first Arribada of the season, but we only had a small window of time we could do it and we got lucky!"-Rich Kern



FCE's New Collaborator Spotlight: Dr. Katrina Schwartz

Dr. Katrina Schwartz is one of our new Florida Coastal Everglades LTER collaborators and has arrived just in time to join us in kicking off our first official year of FCE III. Katrina brings knowledge to a black box that will help unlock the wonders of environmental politics and restoration in our Everglades. An assistant professor of political science at the University of Florida, where she teaches environmental and water politics, she has a Ph.D. from the University of Wisconsin-Madison. Dr. Schwartz received funding from FCE last summer and went out in the field to research the political and institutional challenges of implementing Everglades restoration. Building on research conducted over the past two years, she observed agency meetings, toured restoration infrastructure with other FCE investigators, and interviewed some 30 key players, including state and federal government agency officials and scientists, representatives of environmental and sportsmen's groups, and other stakeholders.



Dr. Schwartz, pictured 2nd row left, engaging FCE communications in a SFWMD fieldtrip along with FCE investigators Suzana Mic, Dr. Rene Price, Dr. John Kominoski and Dr. Shimon Wdowinski, and Terrie Bates, Water Resources Division Director at SFWMD, outside the control room at SFWMD HQ in West Palm. Picture by Dr. Tom Dreschel

In our Upcoming Newsletter issues look for these stories and MORE!

Take me to your LTER addresses from Lead P.I. Dr. Evelyn Gaiser
 The Rondeau Factor
 The Biology of Oehm in FCE
 Fuentes and Barr: Transcontinental Broader FCE Impacts
 Dapples Make a Difference: Fuentes, Barr and Engel Research Spotlight
 Student Spotlights
 Stories from the Field

And YOUR CONTRIBUTION HERE

For more Florida Coastal Everglades LTER News- Check out our webpages under **About Us**

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Please send any comments and contributions for the next FCE Newsletter by March 10th, 2014 to drskdailey@gmail.com and or fceslter@fiu.edu

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