



Florida Coastal Everglades Long Term Ecological Research

News from the Sloughs

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

Volume 3, Special Issue
Numbers 1 and 2

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First Ever FCE Photo Contest winners:
Anika Aarons' "Conversation" from our FCE ASM
in March pictured above

Steve Davis' TS/Ph 7a looking up Taylor River,
August 2006, tied in judges' votes and will split the
prize booty! Congratulations to you both!



Remember to submit comments by November 22 for 2 half-day Synthesis Project workshops:
Thursday afternoon, December 12 & Friday morning, December 13, 2013



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

Hi everyone!

And I mean everyone – now that our Federal collaborators are back at work and our Park is once again accessible! We shared the misery within the Network – lots of sites had to shut down operations, with untold damage to scientific progress

<http://www.sciencemag.org/content/342/6156/300.full>

. How will this break in our data streams and productivity compare to that of H. Wilma? We can add a new category to our disturbance regimes!

Science was far from shut down during the second week of October, when the International LTER Network held its annual meeting in Seoul, Korea.



Tiffany Troxler and I were invited to attend this meeting by the U.S. LTER representative, Kristin Vanderbilt (SEV). We presented results of international FCE research and highlighted the importance of intersecting with policy-makers at all levels. We had an incredible time – first we visited the Demilitarized Zone and the nearby Seoraksan mountains. That was an experience steeped in history and emotion for me, as my grandpa served in Korea (1953) and had we have lots of pictures of his time there in the completely denuded and bleak landscape. It was thrilling to see these mountains completely reforested at the will of the Korean people, and LTER research is

Pictured left:

Tiffany and Evelyn attended a pre-meeting field trip to the Seoraksan National Park near the border of North Korea. They went up to the top of the mountain on a scary cable car.

in full force across their National Parks. Their government is now pouring funding into building a beautiful, state-of-the-art National Institute of Ecology – not a building, but a whole campus with modern, green buildings devoted to ecosystem studies and outreach! The ILTER meeting itself was informative and fun. That community faces many challenges, given that many countries do not have a significant funding base for science – and opportunities for funding the coordination of large-scale, global ecological programs are rare. But this community has amazing energy and is highly motivated to meet these challenges head-on. I'll share the report from the U.S. LTER as

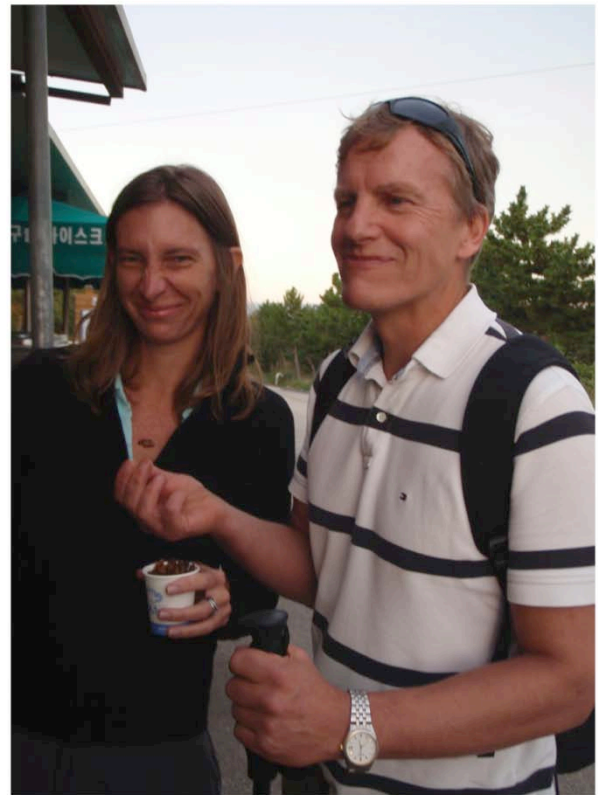
Story continued from page 2:

soon as it is ready.

Speaking of the U.S. Network – hopefully you all responded to the request for feedback from the team collecting information for NSF. As you know, the LTER Network Office will be re-competed in 2014, and we do not yet know the form that this solicitation will take. Your feedback is enormously important, as we have all experienced the ways in which networked science transforms what we do. FCE has been so active in the network – and it's critical that we use that experience to help envision a future for it, so thank you for all of your incredibly dedicated energy to FCE, LTER and the ILTER Network!

Best,

Evelyn



Pictured above: Tiffany Troxler and Martin Forsius (FinSLTER) shared some of their silkworm pupae, purchased from a stand at the border of the DMZ. YUM!

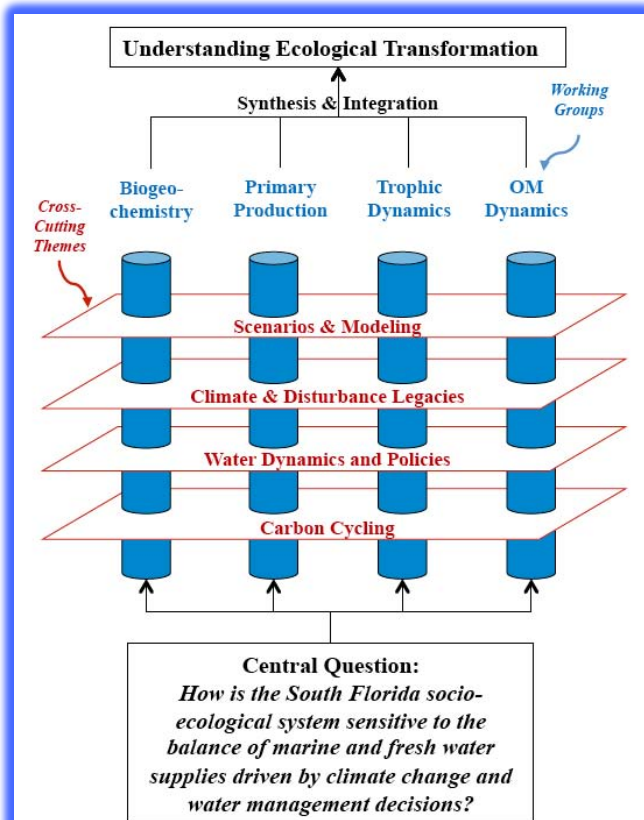
Pictured left: How does the LTER eddy covariance tower at Gwangneung Deciduous Forest in Korea compare to SRS 6? Tiffany suggested we put together a "flux towers of the LTER" coffee table book!

Story and photos contributed by Dr. Evelyn Gaiser

Synergies in LTER Synthesis Workshops:

Or How to Write a Book with over 100 researchers requires the finesse of a

CEO and do not worry- this monumental project synthesizing over 15 years of data and research projects is helmed by three of the best leaders in the business of science; Dan Childers, Evelyn Gaiser, and Laura Ogden. What do these three have in common other than their Ph.D.s and a list that rivals the length of Santa's of major contributions to scientific literature, scientific conference presentations, books, discoveries, courses taught, students mentored, and countless contributions to academia, the scientific community and the whole wide world? You guessed it- they have each been Lead Principal Investigators of the Florida Coastal Everglades Long-Term Ecological Research Program; first Dr. Childers then Dr. Gaiser, then Dr. Ogden during Dr. Gaiser's sabbatical, and then Dr. Gaiser again and now. So we are in good hands for guidance and leadership. This is where the working group gets really big. It includes the entirety of FCE and there are over 100 of us



who each have a unique perspective and skill set to add to this process of synthesis (See Figure at left and note Synthesis and Intergration).

The two workshops thus far in the last week of June and first week of October and contributions of many FCE people have helped shape a sturdy outline for the book that spans the working groups and cross cutting themes that are central to FCE. We'll keep you abreast of developments with our synthesis work in our next newsletter- our next workshop is December 12 and 13 and comments on the outline and chapters are due by November 22.

Figure at left: The Big Question for FCE III and a conceptual diagram for the structural organization of working groups and cross cutting themes.

Kristie Wendelberger's Climate Change Movie

FCE has a student asset in science communication in its midst, Kristie Wendelberger, Ph. D. Candidates in the Department of Biology at F.I.U. Juggling the work for doctoral degree, including research (both field, lab, and library), coursework, and countless student duties for research and teaching assistantships is a fulltime job for all graduate students. Kristie has taken a few extra steps to communicate research- including making a research video and managing video production of FCE's research seminars. I plied Kristie with a few more questions about her efforts for a short interview:

What inspired you to make this movie and your research website?

I did this video, "Climate Change in Everglades National Park: Sea Level Rise", at the request of my funding source, The George Melendez Wright Climate Change Fellowship. They wanted all the fellows to present a three minute video of their work at the 2013 George Wright Society Conference on Parks, Protected Areas, and Cultural Sites. I took this opportunity to create a video overview of my research and its importance to Everglades National Park and the rare plant communities being impacted by sea level rise. My hopes are to get this information out to a broader audience to engender a better understanding of how conservation research can be used to help protect rare plant species.

How do you make time to do these activities and what are your current projects?

I had never done a video before. So I took about two weeks to experiment with filming, figuring out how I

wanted to get my message across, and learning how to use the video software. I really enjoyed the process, so I just found some way to squeeze it in. I am currently the Vice President of the FCE LTER Student Group. As a part of that, I am working on a project, along with my fellow board members, called Everglades Hour. We broadcast live online and, when the presenter permits, record presentations that are of interest to the greater FCE research community.

Everglades Hour pieces are shown on Ustream found at: <http://www.ustream.tv/channel/fce-lter-everglades-hour> and recorded and posted to the FCE LTER Everglades Hour youtube site:

<http://www.youtube.com/user/fcelter?feature=watch>.

I am also in the early stages of a larger video project showcasing the research being done within each working group of the FCE LTER. There will be a series of small videos created and put on the FCE website meant to help anyone interested learn about the bigger picture of FCE research and how all the working groups are connect via a shared interest in Everglades ecosystem functioning.

How has this helped you in your research program?

Shortly after creating the video, I also created my personal research webpage:

<https://sites.google.com/site/kristiewendelberger/>.

Having these two forms of media to communicate my research--past, present, and future--has helped me relay my work to my adviser, committee, and politicians. In April 2013, I went to Washington, DC as a part of the Biological and Ecological Sciences Coalition Congressional Visit Day. There we spoke to our state representatives about the importance of federal funding for scientific research. Prior to going

Story continued from page 5:

to DC, I added the link to my website and a QR code to my video to my business cards. When I spoke to the representatives and exchanged cards, I was also providing them with a resource to connect federal funding to a real live graduate student and their research that could not have been done without federal funding. I have been surprised by all the different circumstances in which the video and website have helped me convey my research.

Thank you for all your efforts Kristie and we look forward to your next video production!





Florida Coastal Everglades Long Term Ecological Research

FCE LTER Student Spotlight:

Research Grant Award Winner Jessica Lee (Major Professor: Dr. Jennifer Rehage)

Congratulations to the 2013 FCE Research Grant award winner Jessica Lee!

Jessica is a Master's degree student working with Dr. Jennifer Rehage in the Earth & Environment department at Florida International University. Jessica was selected through a competitive process from five highly qualified applicants. Through her research, Jessica aims to understand how recreational fish species, snook (*Centropomus undecimalis*) and largemouth bass (*Micropterus salmoides*), in the Shark River Estuary respond to changes in hydrology. Part of her project involves the employment of mark-recapture techniques using Radio Frequency Identification (RFID) technology to detect Passive Integrated Transponder (PIT) tags, microchips with a unique code marker used to identify individuals. The Research Grant will provide \$1000 towards the purchase of PIT tags to improve recapture rates.

Jessica's research applies not only for understanding fish responses to current Everglades hydrological regimes, but to future changes in hydrology driven by restoration efforts and sea level rise, a major theme of FCE III. Additionally, Jessica's research will incorporate anglers, key stakeholders in Everglades restoration and a necessary voice to include in ongoing conservation efforts. Jessica plans to include anglers by incorporating citizen science in her data collection process by collaborating with the Coastal Angler Science Team (CAST). Jessica explains the global implications of this collaboration: "Citizen science provides a unique tool that can be utilized across many ecosystems and incorporated into many



Pictured Above: Jessica Lee, at Rookery Branch, Shark River, holding a largemouth bass

Picture credit: The Rehage Lab

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projects. Citizen science provides an opportunity to engage stakeholders while also providing innovative and cost effective means to expand research and monitoring efforts. What we learn here can teach us how to effectively apply these methods in other areas of research.”

Jessica became interested in her current research while she was working as a field tech in the Rehage lab, particularly when she began meeting the anglers who were so passionate about the area. Jessica says, “I started to understand not only the research we were doing, but the potential our work had to incorporate these anglers.” When asked about what she enjoys most about her research, Jessica says, “The most enjoyable part of my research is getting to spend time in the Everglades. Being in the field teaches me about the system I am studying and it is where I think best about my research. It is an amazing ecosystem that I have grown to love and I look forward to the time I get to spend there.” As an FCE student, Jessica feels she benefits from the platform that the FCE LTER provides to interact and learn from other researchers that give insight about her own research among the diversity of FCE research areas. Jessica says, “I feel [the FCE] enriches my understanding of my own research focus by allowing me to see where it fits in the bigger picture of the FCE.”

After completing her Master’s degree, Jessica plans to continue her research endeavors by pursuing a Ph.D.

Story contributed By: Sylvia Lee and Jessica Lee

"The Coastal Angler Science Team (CAST) is a collaboration between anglers and researchers who are dedicated to recreational fisheries. Together we are learning how changes in the Everglades impact coastal fisheries in order to conserve and maintain fishing quality in the future." Jessica Lee

"Coastal Angler Science Team (CAST) is a collaboration between anglers and researchers who are dedicated to recreational fisheries. Together we are learning how changes in the Everglades impact coastal fisheries in order to conserve and maintain fishing quality in the future." Jessica Lee

Check out more about Jessica’s research and accomplishments with the CAST project:

<http://www.miamiherald.com/2013/07/18/3505486/local-anglers-tag-fish-for-fiu.html>

Tools of Science Communication from FCE Researchers

We had our first ever, and hopefully annual, LTER science communication workshop in Albuquerque, NM this summer. As lead workshop organizer, I found myself in a pickle just two weeks before the workshop when our lead science writer trainer had to cancel. Concurrently, several of the sites that had requested an additional training spot no longer needed those spots and a few cancellations from site communicators who needed to be present at other LTER activities took place.

As a result- several spots opened up for trainers and for advisors. I filled these spots with an LTER science communication A team.

The working group/workshop report, pre and post workshop stories are on the LNO website but here is a bit more that you will not find on the interwebs: The story about the 7 FCE real-life action heroes that made the event outstanding;

Steve Davis was the reason why I wanted to implement the workshop. He provided me with a vision for the structure of the training where all the site communicators would benefit. Last September in the giant YMCA in the Rockies for the LTER ASM Steve caught me for a moment at break after he just attended the first of a two part science communication working group for which I was the lead organizer and said, “Su, I wanted to show you something.” Everything at the conference slipped away and I disappeared into the images, moving components and well-honed video interviews. He showed me a new way of envisioning and combining all of our FCE working group efforts and research. It was mind blowing and when my co-

proposers and I were funded for the training workshop from LNO, I immediately brought this up with my co-organizers and they were equally enchanted. Steve was our lead trainer for the LTER science communication workshop and lead each of the LTER site communicators on a fantastic learning journey for synthesizing long term data and trends in ecology- all with examples from our FCE research collaborations.

Steve and I both went into this project with huge expectations and the time was far too short and our expectations too high for the time. I argue here that each person who see’s Steve’s science communication products is changed in a way that is analogous to Dr. Seuss’s Whos looking out to see they were being carried around by an elephant.

Thus, that the intangible products from Dr. Davis’ efforts are far-reaching and often subtle and often begin as a ripple.

Dan Childers was our invited LTER advisor from the LTER SIP. Dr. Childers is the only person to have been Lead P.I. at two LTER sites and shared a big picture perspective with the workshop participants for LTER science communication activities. Dr. Childers was the only person who knew the way to walk to LNO on the UNM campus from our hotel. With his giant gait, he led us all on a fast paced morning trek to the training facilities. (this generated the best quote of the training workshop after a quickly gobbled ABQ training breakfast- Thank you George Garcia and James Williams! See bottom of page).

Dr. Childers is a an LTERer and long term science communicator (check out Dr. Childers in his

“I cannot believe I just ate a 5 pound burrito after walking up a three-mile hill”- 2013 LTER Site Communicator Workshop participant

(A hearty thank you to LNO’s George Garcia and James Williams!)

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presentation at the NRC in May and check out the minutes viewed so far-almost half a million!)

http://www.livestream.com/naturalsciences/video?clipId=pla_ca198662-fd92-4919-bbc2-703e154c5fbb&utm_source=lslibrary&utm_medium=ui-thumb

Nick Oehm, our invited LTER Co-Executive Education Chair, engaged site participants with broad impact student activities that promote LTER science communication and learning.

Jay Han, invited professional graphics designer, provided support for professional graphics development to site participants and presented our FCE calling card with QR symbol.

Ross Boucek, our invited LTER student representative, presented successful student strategies including



Pictured Left:

LTER Site Communicators in ABQ, NM this past June in the training classroom- super imposed in the glowing desert morning light from 10 stories high.

Do you want to know a non-secret? I see FCE people.

examples from his award winning student presentations from four recent scientific conferences and his invited student blog.

David Lagomasino, invited FCE site communicator representative, set up our new site LTER site communicators Google group which has already hosted over a dozen research topics in LTER science communication. David shared successful blogging strategies, videos from his and fellow FCE students' efforts with the site communicators.

Richard Kern, invited wildlife videographer, lead us in a presentation of his efforts in developing web broadcasted FCE researcher spotlight videos and FCE research findings with thousands of MDPS students each year.

A huge **thank you** for the effort of each of these larger than life FCE folks who made the extra effort for our LTER Network activities and continued adventures in science communication!

P.S. And yes the question did come up from LTER workshop participants

Why are there so many successful communication strategies from the Everglades and FCE?

I think Kermit the Frog sang it best:

Why are there so rainbows...and what's on the other side?

Story and photo contributed by Susan Dailey

FCE Meets Virtual Reality

It sounds like we have turned to Game Pros and although that may be a fun project to think about incorporating in the future, right now the virtual reality is that FCE has made a move to virtual servers.

Here is the news: We have already made that migration!

Thanks to the efforts of both Mike Rugge (FCE Project Manager) and Linda Powell (FCE Information Manager) we were blissfully ignorant of all the steps, precautions, worries and hours of effort that went into this modernization of FCE's crown jewels and booty- our FCE datasets, our webpages and all of the information provided which is mind numbing at this point if you start from scratch on our homepages and follow each line of information on every page.

I asked Mike Rugge what the virtual migration means for FCE and his answer follows:

The FCE LTER website is now running on a virtual server. Linda Powell and Mike Rugge finished migrating three of the physical servers in the FCE LTER office to virtual servers FIU's University Technology Services (UTS) servers on May 20. Virtualization software allows many virtual servers to share the resources of one (or a few) physical servers. Each virtual server resides in a virtual hardware environment and is allocated a certain amount of storage, memory, and CPU cores. We switched to virtual servers, since they use less energy and cost less than maintaining physical servers.

UTS will help Mike and Linda create disaster recovery virtual servers which will reside on physical servers in Tallahassee, FL. The disaster

recovery servers will help keep the FCE website running during tropical storms and hurricanes.

There are a couple more bits Linda Powell added:

1) Leasing the virtual servers from FIU UTS allowed us to have both a 'production' and 'development' server for the FCE Oracle database and the FCE webserver. In the past, we couldn't afford to have 'production' servers so it is really nice to be able to 'test' changes to the FCE website (and Oracle) before we commit them to the production side of things. My Oracle development server can also serve as a backup database if there is a failure and we have trouble with the disaster recovery plan at FSU.

2) The virtual servers come with a suite of tools that allow Mike and I to manage and administer our virtual servers remotely. This is HUGE for me as in the past, if my Oracle server shutdown for any reason (Microsoft updates or power outages) and didn't restart, I'd have to wait for Mike to physically switch on the server. This could be a problem if he was on vacation and I'm in Tallahassee. Now I can start up or shutdown the virtual servers with the VMware Vsphere client tool remotely.

So welcome to the future of FCE III because we are literally already virtually here.

Story contributed by Susan Dailey, Mike Rugge, and Linda Powell

FCE Short Announcements

Check out the three contributions from FCE in a Special Coastal LTER Issue of *Oceanography* by Rosenblatt et al. Wdowinski et al. and Troxler et al.

The Roles of Large Top Predators in Coastal Ecosystems: New Insights from Long Term Ecological Research

A.E. Rosenblatt, M.R. Heithaus, M.E. Mather, P. Matich, J.C. Nifong, W.J. Ripple, and B.R. Silliman. 2013. *Oceanography* 26(3):156–167, <http://dx.doi.org/10.5670/oceanog.2013.59>. - See more at: <http://www.tos.org/oceanography/archive/26-3.html#sthash.W2O4V9Jp.dpuf>

Remote-Sensing Monitoring of Tide Propagation Through Coastal Wetlands

S. Wdowinski, S.-H. Hong, A. Mulcan, and B. Brisco. 2013. *Oceanography* 26(3):64–69, <http://dx.doi.org/10.5670/oceanog.2013.46>.

Integrated Carbon Budget Models for the Everglades Terrestrial-Coastal-Oceanic Gradient: Current Status and Needs for Inter-Site Comparisons

T.G. Troxler, E. Gaiser, J. Barr, J.D. Fuentes, R. Jaffé, D.L. Childers, L. Collado-Vides, V.H. Rivera-Monroy, E. Castañeda-Moya, W. Anderson, R. Chambers, M. Chen, C. Coronado-Molina, S.E. Davis, V. Engel, C. Fitz, J. Fourqurean, T. Frankovich, J. Kominoski, C. Madden, S.L. Malone, S.F. Oberbauer, P. Olivas, J. Richards, C. Saunders, J. Schedlbauer, L.J. Scinto, F. Sklar, T. Smith, J.M. Smoak, G. Starr, R.R. Twilley, and K.R.T. Whelan. 2013. *Oceanography* 26(3):98–107, <http://dx.doi.org/10.5670/oceanog.2013.51>. - See more at: <http://www.tos.org/oceanography/archive/26-3.html#sthash.W2O4V9Jp.dpuf>

See more at: <http://www.tos.org/oceanography/archive/26-3.html#sthash.W2O4V9Jp.dpuf>

From FCE Researcher Jennifer Rehage:

Our research involving recreational anglers, their involvement in recapturing tagged Everglades fish to examine population sizes & distributions (citizen science work by MS student Jessica Lee) and our use of their long-term fishing records to examine the effects of hydrology on recreational fisheries (work by PhD student Ross Boucek in a forthcoming paper) was featured in yesterday's Miami Herald, please see link below

<http://www.miamiherald.com/2013/07/18/3505486/local-anglers-tag-fish-for-fiu.html>

FCE Graduate Student Dave Gandy (MS Env Studies) featured in *City Fisher*, Volume 47, an FWC outreach publication for urban fisherman: (<http://www.myfwc.com/news/resources/columns/city-fisher/>). Dave is doing a fish tagging in Everglades canals & this is a way for us to get the word out to fisherman to increase our probability of recaptures. The research is funded by a fellowship from the Everglades Foundation and the National Park Service (Critical Ecosystem Studies Initiative).

Please contact fcelter@fiu.edu directly if you do not see your announcement here:

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

The Rondeau Factor

The Biology of Oehm in FCE

Fuentes and Barr: Transcontinental Broader FCE Impacts

Student Spotlights

Stories from the Field

And YOUR CONTRIBUTION HERE



Title: *Coming storm* by FCE Researcher Franco Tobias

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

About Us- <http://fcelter.fiu.edu/>

and

News- http://fcelter.fiu.edu/about_us/news/

<http://www.ustream.tv/channel/florida-coastal-evergaldes-lter>

<http://floridacoastaleverglades.blogspot.com/>

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Please note: FCE ALL

Please send any comments and contributions for the next FCE Newsletter by December 10th, 2013 to fceslter@fiu.edu

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