

Cape Fear Arch Conservation Collaborative

Quarterly Meeting Minutes

Tuesday, November 10, 2015

Ocean Isle, NC

Attendees:

Amanda Brennan, CISA

Paul Conrads, USGS South Atlantic Water Science Center

Tony Doster, Resource Management Service, LLC

Amanda Fox, NC Coastal Land Trust

Marilyn Graham, Brunswick Community College

Laila Johnston, American Rivers

Chris Ketchie, NC Coastal Land Trust

John King, NC State University

Sam Marshall, NC State University Extension

Casey Nolan, East Carolina University

Dan Ryan, The Nature Conservancy NC

Laura Sharkey, Coastal Water Watch

Dan Tufford, USC Department of Biological Sciences

Carson Wood, Coastal Plain Conservation Group

Zach West, The Nature Conservancy NC

Attendees Updates:

Tony Doster (Resource Management Service, LLC):

- The [Wilmington Star News recently published an article on the wetlands mitigation bank](#) Resource Management Service, LLC is developing on the northern boundary of the The Nature Conservancy Greenswamp Preserve. The mitigation bank was approved by the Army Corp of Engineers and the conservation easement that will protect the site is being held by the Coastal Land Trust. Unique to this conservation easement is the ability to perform ongoing management of the natural resources on the site following buildout of the bank.
- The North Carolina Natural Heritage Program has undergone significant budget cuts, including loss of funding for the Conservation Incentives Program Director's position held by Scott Pohlman.
- Weyerhaeuser and Plum Creek, two Washington state timber companies have merged, creating one of the largest forest production companies in the world. Plum Creek does not currently own land in NC. Weyerhaeuser has a number of acres in the New Bern area of the state. Tony does not anticipate impacts to the Cape Fear Arch.

Laura Sharkey (Coastal Water Watch)

- Laura is currently working to reengage membership with the group. As part of this effort, the group will host presentations open to the public on a variety of topics to teach about environmental resources in Brunswick County and help to foster an attitude of conservation.

Marilyn Graham (Brunswick County Community College)

- As coordinator for the [Sustainability through Innovation Leadership Center](#) at Brunswick County Community College, Marilyn is working to engage the business community in considering sustainable practices. They are also working to promote the rich natural resources in the Cape Fear Arch through an ecotourism program for which participants can gain a natural and historical guide

certificate. The Center will host free public sustainability talks on both the built and natural environments.

Zack West (The Nature Conservancy, North Carolina)

- TNC hosted the 2nd Fire in the Pines Festival on October 17, 2015, an outreach event to educate the public on the importance of fire in the area. They had a good turn out for a very successful event.

Dan Ryan (The Nature Conservancy, North Carolina)

- TNC recently acquired a 1,337-acre tract of land, which will be donated to the NC Wildlife Resources Commission and managed as an addition to Juniper Creek Game Land.
- They are hoping for a successful burn season, which begins in January, with an expanded 4-person crew and partnership with others to take advantage of the burn season window.

Paul Conrads (USGS South Atlantic Water Science Center)

- USGS offices in Georgia, North Carolina, and South Carolina merged to form the South Atlantic Water Science Center. This merger allows mobility across the three state region and their connected watersheds and leveraging of resources.

Carson Wood (Coastal Plain Conservation Group)

- CPCG closed on 10 acres of significant Longleaf Pine habitat in Pender Co that is utilized by Red-cockaded Woodpecker and Carolina Gopher Frog.
- CPCG successfully planted 4000 milkweed plants and 3000 assorted wetland plants around Landfall Lake to benefit Monarch Butterflies, recruitment of Monarchs from this has been in the hundreds, if not low thousands.
- 2015 breeding of Magnificent Ramshorn and Greenfield Ramshorn Snails has been productive, numbers are slowly increasing at our satellite tanks at the Watha Fish Hatchery.
- CPCG will be conducting surveys in 2016 for a suite of species that are found in the Lower Cape Fear River that may be impacted by sea-level rise.
- Updates for Andy Wood and Associates, LLC
 - AW&A is working on a 1200 acre site in Pender Co. to evaluate the potential suitability for Red-cockaded Woodpeckers.
 - AW&A is fully permitted and insured to offer all monitoring and management services for Red-cockaded Woodpeckers throughout the southeastern U.S.

Dan Tufford (CISA, University of South Carolina Department of Biological Sciences)

- Research continues in the Waccamaw River to understand causes of recent low dissolved oxygen (DO) levels.
- There was an opportunity for a *Vibrio* sampling trip following the October SC floods to understand freshwater dynamics of *Vibrio* populations in Winyah Bay.
- Dan is building on the interviews conducted by Casey Nolan and Dave Chalcraft (ECU) with coastal resource managers to understand needs for a coastal drought index. He is also working with Paul Conrads to assess ecological indicators of drought using the Coastal Drought Index. Slides from both Casey and Paul's presentations are available on the Cape Fear Arch Conservation Collaborative website.

Presentations

Presentations are available on the Cape Fear Arch Conservation Collaborative website.

Introduction to CISA & the NIDIS Carolinas DEWS Program

Amanda Brennan, CISA

The Carolinas Integrated Sciences & Assessments (CISA) is collaborating with the National Integrated Drought Information System (NIDIS) to develop a drought early warning system (DEWS) for the unique coastal ecosystems in the Carolinas. Amanda gave a brief introduction to both of these programs.

Discussion:

- Marilyn asked about how the 1000-yr interval was determined. Amanda explained that the designation of a 1,000 year event is not related to the historical record, rather this represents that there is a 0.1% chance of a precipitation event of this magnitude occurring in any given year. More information can be found in a 4-pager produced by CISA team members about the climatological and hydrological context of the event and how SC can consider these impacts in resilient recovery and rebuilding efforts. [Access the 4-pager here.](#)
- Tony mentioned the 20x25 alliance (<http://www.25x25.org/>) as a possible stakeholder or collaborator.
- Dan Ryan asked about funding for communities who have participated in the [Vulnerability, Consequences, and Adaptation Planning Scenarios \(VCAPS\) process](#). This has largely been done through grant funding from a variety of sources.

Ecological Indicators of Drought in Coastal Ecosystems

Casey Nolan, East Carolina University

Casey Nolan shared findings from a series of interviews conducted with coastal land and resource managers to identify opportunities for drought early warning and monitoring in the Carolinas. Interviewees provided feedback on the use of existing or potential new indicators or indices as well as additional data and research needed to effectively understand and monitor drought in coastal ecosystems.

Discussion:

- Marilyn suggested an app may make the current drought index information more readily available to people.
- Tony suggested the private sector may not have participated in the survey because they are already so connected to on-the-ground conditions they do not need an index.
- Dan Ryan was very interested in the potential for long-lead drought forecasts to help him with personnel and resource management decisions.

Development of a Coastal Drought Index

Paul Conrad, USGS South Atlantic Water Science Center

Salinity is a critical coastal response variable that integrates hydrological and coastal dynamics including streamflow, precipitation, sea level, tidal cycles, winds, and tropical storms. The location of the freshwater-saltwater interface in surface water bodies along the coast is an important factor in determining the freshwater and saltwater aquatic communities, fisheries spawning habitat, and the freshwater availability for municipal and industrial water intakes. Paul gave an overview of the Coastal Drought Index (CDI) which uses salinity data as a measure of wet and dry conditions in coastal surface waters.

Discussion:

- There was a question about the possibility of adapting the CDI to assess groundwater salinity levels from a public water supply perspective.
- A question about the spatial disconnect between upriver and downriver precipitation response led to a discussion about the implications for reservoir management on streamflow and, in turn, influence to the movement of the salinity gradient.

Assessment of Drought Indicators for Coastal Zone Fire Risk

Ryan Boyles, State Climate Office of North Carolina

Fire plays an integral part in terrestrial ecosystem management across the Carolinas. Controlled burns are used to reduce the risk of wildfire and manage species diversity in forest ecosystems. This study, conducted by the State Climate Office of North Carolina, evaluated which, if any, drought indices are most suitable in representing local risk of fire in the organic soils of the coastal Carolinas region.

NOTE: Ryan Boyles was ill and unable to attend the meeting. If you would like further information about this project, please contact Ryan at ryan_boyles@ncsu.edu.

Understanding Rapid Environmental Change at Alligator River National Wildlife Refuge

John King, North Carolina State University

Rising sea levels are impeding draining in the Alligator River National Wildlife Refuge, leading to a cascade of ecosystem transitions, affecting wildlife habitat quality in the Refuge. John King described research his team is conducting to understand the effects of historical ditching and draining on soil water dynamics and salinity.

Discussion:

- Tony was interested in John's observation about how sea level rise may be forcing the water table to rise near the coast, thus drowning trees from underneath. Tony suggested pumping out ditches or closing them off, although this does not address the causative issue.