

APNEP Science & Technology Report: September 2020

The following are highlighted events involving APNEP staff from March 2020 (since the last STAC meeting) with an emphasis on science and technology, followed by planned events for the remainder of 2020.

- March 31: APNEP SAV Economics Steering Committee meeting
- April 17: Staff discussion with STAC member Moorman re: APNEP support of water-quality-monitoring data analytical tool
- May 16: SAV aerial survey: Bogue & Core Sounds
- May 31-June 1: SAV aerial survey: Ocracoke Inlet to Highway 64 bridge
- June 9: Staff attended oyster habitat strategy meeting
- June 15: STAC co-chairs Boutin and Dame elected for a two-year term
- June 19: Staff attended Coastal Habitat Protection Plan (CHPP) SAV Workgroup meeting
- June 26: Staff attended NOAA webinar by STAC member Paerl on acidification/eutrophication/harmful algal blooms
- June 29: STAC executive board non-chair members Moorman, Laney, and Kenworthy elected for a two-year term
- June 30: STAC service ended for members Havens, Montz, Noble, Whitehead
- July 24: STAC member Field shared his evaluation of Bogue & Back Sound photomosaics
- July 27: STAC executive board planning meeting
- August 5: APNEP Leadership Council meeting
- August 13: APNEP SAV Team meeting
- August 19: Staff attended CHPP coastal wetlands mapping workshop
- August 25: Staff attended CHPP coastal wetlands threats and conservation workshop
- August 28: APNEP – NC Sea Grant: 2020 Graduate Fellowship in Estuarine Research - funding decision
- September 1: APNEP diversity, equity, and inclusion statement released (see below)
- September 4: APNEP SAV high-salinity monitoring subcommittee kickoff meeting
- September 11: APNEP SAV monitoring low-salinity subcommittee kickoff meeting

Upcoming

- September 18: APNEP SAV Economics Steering Committee meeting
- September 22: APNEP SAV high-salinity monitoring subcommittee meeting 2
- September 28: APNEP SAV high-salinity monitoring subcommittee meeting 3
- October 1-16: APNEP SAV aerial survey window for two sample areas in Core and eastern Pamlico Sounds, respectively
- October 15: APNEP SAV high-salinity monitoring subcommittee meeting 4
- November 5: APNEP Leadership Council meeting

**Albemarle-Pamlico National Estuary Partnership
Diversity, Equity, and Inclusion Statement**

1 September 2020

The Mission of the Albemarle-Pamlico National Estuary Partnership (APNEP) is to identify, protect, and restore the significant natural resources of the Albemarle-Pamlico estuarine system. As such, the Partnership is committed to addressing environmental inequities by continually reevaluating our partnerships, protection and restoration efforts, and engagement processes through the lens of increasing diversity, equity, and inclusion throughout the Albemarle-Pamlico estuarine system.

Our partnerships with governmental, academic, community, and nonprofit organizations are the foundation of how we work; through our funding processes, representation within citizen advisory groups, strategic planning efforts, and long-term ecosystem priorities, we can foster a Partnership that is inclusive of the diverse perspectives within the region and which works to identify, protect, and restore the region's significant natural resources in ways that increase equity among its communities. By facilitating communication and collaboration among different organizations throughout the region, APNEP seeks to leverage its resources and those of its partners to accomplish more together than any individual organization could alone. This can only be accomplished with a diverse array of perspectives and voices.

Increasing diversity, equity, and inclusion through our work is integral to our ecosystem-based management perspective, which views human communities as a vital component of the overall ecosystem. We are committed to approach this work in a way that is inclusive of diverse connections to the environment, inclusive of perspectives that may otherwise be unheard, and increases equity through ecosystem protection and restoration efforts. We are also dedicated to broad inclusion in our educational and engagement efforts.

Specifically, we commit to:

1. Engage communities and stakeholders that are representative of the broader populations within our programmatic boundaries to implement the 2012-2022 Comprehensive Conservation and Management Plan (CCMP) and the Partnership's Mission.
2. Incorporate diversity, equity, and broad community inclusion as an ecosystem outcome(s) with associated objectives and actions into the 2022-2032 revision of the CCMP.
3. Work to engage diverse communities and populations in the organization's decisions and diversify the perspectives represented within all of Partnership's management and citizen advisory groups.
4. Conduct an internal organizational diversity, equity, and inclusion self-assessment and provide externally facilitated trainings for management and citizen advisory groups and staff as warranted.
5. Report annually on actions taken to enact these commitments in our Annual Work Plan.

STAC Member Reports (listed in order of submission)

Taylor: Since March 2020, the NRCS Coastal Zone Soil Survey has started in earnest within Albemarle and Pamlico Sounds. Working with North Carolina State University, the NRCS-CZSS team has collected 65 soil samples to be described and analyzed. Seven coolers full of soil samples have been sent to the National Soils Lab in Lincoln, Nebraska. Analysis to run include salinity, incubated pH (acid sulfate potential), particle size analysis, heavy metals, and total organic carbon (blue carbon), just to name a few parameters. The results will be shared with the STAC and will be published in conjunction with Matt Ricker's (NC State) findings as we study saltwater intrusion along soil gradients. Also, new soil series and updated soil lines will be incorporated into Web Soil Survey. Only one site remains (Chowan River) to be sampled (six cores) to complete the field portion of this project.

Sites already sampled are:

- Roanoke River
- Bull Neck
- Palmetto Peartree
- Alligator River
- Brier Hall (East Lake)
- Point Peter
- Long Shoal River
- Swanquarter Bay
- Juniper Bay
- Goose Creek
- Tar River

The CZSS team has now taken delivery of five custom pontoon boats, with one being stationed at the Vernon James Center in Plymouth, North Carolina. We have also utilized our refrigerated trailers to transport and store many of our samples. Here's a [link to our boat tour](#).

On September 13 the CZSS team kicked off another major project along the Indian River Lagoon, Florida while projects continue in Galveston Bay, Texas; Chesapeake Bay, Virginia; as well as Isle of Wight and Big Assawoman Bays, Maryland.

Brittle:

- Virginia Department of Game & Inland Fisheries (DGIF) changed its name July 1 to Virginia Department of Wildlife Resources (DWR)
- I just completed some Blackbanded Sunfish sampling in the Blackwater and Nottoway drainages. DWR is also collaborating with VIMS on eDNA sampling for BBS. We will continue to collect eDNA water quality samples and ground truth them with actual field collections.
- Fall electrofishing will begin in the next couple of weeks. This is DWR's annual fish community survey.

- DWR staff are doing more Northern Snakehead sampling in the Appomattox (Swift Creek) and James Rivers. I tell you this because, if it hasn't already happened, then we are one really wet year away from snakeheads entering the intercoastal waterway and down into North Carolina they go. This is most likely an inevitability. APNEP needs to discuss this, Virginia DWR and North Carolina DMF/WRC need to discuss this. It will be an issue at some point.
- Also, DWR staff have found that Alabama bass (another invasive) has made its way into our waters. This could be a concern for North Carolina if it isn't already on their radar. We are working to identify their range in Virginia and how they arrived here

Kalla: Staff of the U.S. EPA Region 4 Lab are participating in an Intensification study of the National Coastal Condition Assessment (NCCA) in Pensacola and Perdido Bays (PPB) for the PPB National Estuary Program (NEP) this week. Though the PPBNEP state and local partners will not be on our vessels due to Covid-19, EPA staff will demonstrate the assessment protocols while PPBNEP staff observe from nearby boats. EPA staff will then assess 10 stations during the week while the partners begin working independently at another 20 stations. The Intensification will be completed by September 30, which is the end of the index period for NCCA. The PPBNEP is a new NEP. They plan to conduct intensifications every fifth year, on the same five-year rotation as the NCCA, as part of their integrated monitoring program. Intensifications allow NEPs to produce unbiased estimates of environmental condition because of their stratified random design, which is also employed in all of the other National Aquatic Resource Surveys (NARS) managed by EPA. The other NARS surveys in the rotation are conducted on rivers and streams, wetlands, and lakes.

Obenour: We forecasted moderately low oxygen levels for the Neuse Estuary this summer (July-August). The forecast was based on moderate estuary flushing over the winter and early spring, followed by moderate streamflow and nutrient loading conditions in May. Forecasted oxygen levels are conducive to fish kills, though meteorological variability make such events difficult to predict in advance. The following post shows the 2020 forecast as well as a retrospective assessment of the 2019 forecast. Forecasts were developed with support from North Carolina Sea Grant, North Carolina State University, and UNC Institute of Marine Sciences.

<https://ncseagrant.ncsu.edu/currents/2020/06/midsummer-neuse-river-forecast-shows-greater-potential-for-fish-kills/>

Corbett: Although this is not directly related to East Carolina University or Integrated Coastal Programs, we are involved...Dr. Laura Moore, UNC-CH, and colleagues from multiple North Carolina institutions, were recently funded by the National Science Foundation through the Coasts and People program to develop a Research Coordination Network. The project, entitled *Collaboratory for Coastal Adaptation over Space and Time (C-CoAST)*, will begin to address grand challenges in coastal resilience. The ultimate goal of this project is to develop a network of interested researchers, stakeholders, and practitioners that can work together, to build capacity for a comprehensive understanding of the human-natural coastal system. This

project isn't meant to do research itself, but begin developing a strong network that can co-develop the research moving forward. See the attached fact sheet and website (<https://c-coast.org/>) for some background information. Note, there is an opportunity to get involved now...

One of the first initiatives is a series of seminars entitled, Discipline 101. The Disciplines 101 seminars are online gatherings in which researchers with a wide range of disciplinary expertise take turns teaching each other about the fundamental concepts, theories, perspectives, tools, and analytical approaches used in their disciplines. The idea is to spend time getting to know each other's disciplinary languages in the deep way necessary to catalyze transdisciplinary collaboration. A flyer is attached! <https://c-coast.org/activities/discipline-101-seminars/>

Moorman: Monitoring the rate of wetland elevation change is a critical step in assessing whether or not priority wetlands on National Wildlife Refuges across the Southeast will have the ability keep up with sea-level rise. 18 Refuges across the Southeast have been actively participating in Coastal Wetland Elevation Monitoring over the past 10 years. The US Fish & Wildlife Service (FWS) Inventory and Monitoring Branch is happy to announce the protocol for the Coastal Wetland Elevation Monitoring network has been officially approved. This protocol framework guides wetland elevation monitoring at 20 sites on 18 Refuges across the southeast. The protocol framework can be accessed at: <https://ecos.fws.gov/ServCat/Reference/Profile/118377>. Additionally, the Branch has worked with the University of Delaware to develop a process to report on the observed trends at each site over the past 10 years. All wetland elevation trends can be found in the trend report found at: <https://ecos.fws.gov/ServCat/Reference/Profile/118378>. For more information on this project, contact I&M ecologist, Michelle Moorman (michelle_moorman@fws.gov).

Goodale: See below. In future would love if some members might be able to serve as guest lecturers, etc.

<https://www.newsbreak.com/north-carolina/elizabeth-city/news/1590609798263/national-science-foundation-awards-12-million-for-science-teacher-training-program>

Elizabeth City State University has received a \$1.2 million grant to train science teachers. The grant is awarded by the National Science Foundation and, according to ECSU professor and the grant's principal investigator, Dr. Timothy Goodale, will fund a program that produces qualified secondary science teachers that are better equipped to teach topics such as climate change and evolution.

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1950232

Fleckenstein: The North Carolina Coastal Federation (NCCF) has initiated work on the next phase of the Lake Mattamuskeet watershed restoration plan. With grant funding secured from North Carolina Clean Water Management Trust Fund (CWMTF) and National Science Foundation (NSF) to Hyde County and East Carolina University respectively, the Federation will help watershed restoration plan partners advance the understanding and plans for water

quality and water volume management within the lake watershed. Additional details can be found here: nccoast.org/lakemattamuskeet

NCCF has partnered with NC Sea Grant to launch the NC oyster trail: ncoystertrail.org

NCCF has worked with steering committee members and stakeholders to advance the planning of the next edition of the oyster blueprint. The 4th edition of the blueprint will be finalized and released by early 2021. Nearly 150 people have been engaged in the development of the blueprint so far through surveys, virtual meetings, workgroup participation and steering committee meetings.

Schwede: Scientists in the EPA Office of Research and Development have been exploring methods to use gridded meteorological model data to develop precipitation intensity-duration-frequency (IDF) curves for stormwater management and resilience planning. IDF curves are typically obtained from observation-based data in the NOAA Atlas 14. However, to allow for changes in observations over time, EPA-ORD is developing methods to derive IDF curves from projections of future climate while remaining faithful to the NOAA Atlas 14 techniques. Initial results were published in late 2019

(<https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2019JD031584>), and two follow-on manuscripts are in preparation. These follow-on manuscripts use Eastern North Carolina and Hurricanes Floyd, Matthew, and Florence to demonstrate the potential utility of these data.

Deck: Sound Rivers completed a GSI-wetland project at Havelock High School and are in progress at one on Beaufort County Community College. We wrapped up our third Swim Guide season, but the final report won't be ready until mid-October. Also installed a cistern with NCSU extension at West Craven High. Next projects include cistern installation at Epiphany School, New Bern and Nash Community College.

Pics attached. Blog links for info:

<https://soundrivers.org/stormwater-improvement-project-underway-at-havelock-high-school/>

<https://soundrivers.org/bccc-and-sound-rivers-start-construction-on-new-wetlands/>

<https://soundrivers.org/campus-stormwater-program-installs-cistern-at-wchs/>