

**Science and Technical Advisory Committee
Winter Meeting (Webinar Only)
Albemarle-Pamlico National Estuary Partnership
March 12, 2020**

STAC Members: Bo Dame (Chowan U), Brian Boutin (TNC), Michelle Moorman (US-FWS), Paul Angermeier (USGS/Virginia Tech U), Lee Bodkin (USGS), Heather Deck (Sound Rivers), Don Field (US-NOAA), David Glenn (US-NWS), Tim Goodale (ECSU), Jacob Hochard (ECU), John liames (US-EPA), Peter Kalla (US-EPA), Jud Kenworthy (US-NOAA ret.), Wilson Laney (NCSU), Rua Mordecai (South Atlantic Conservation Blueprint), Burrell Montz (ECU), Rachel Noble (UNC), Dan Obenour (NCSU), Hans Paerl (UNC), Donna Schwede (US-EPA), Greg Taylor (US-NRCS)

Guests: Kelly Somers (US-EPA), Michael Flynn (NCCF)

APNEP Staff: Dean Carpenter, Tim Ellis, Bill Crowell, Stacey Feken, Heather Jennings, Jimmy Johnson

Call to Order / Welcome and Introductions / Meeting Notes Approval / Meeting Objectives

Bo Dame: Thanks extended to STAC members for participating and appreciation to staff for the prompt conversion of this meeting from in-person to remote-only. Any comments/thoughts on summer (September) meeting notes? No comments. Motion to approve by Burrell Montz, seconded by Rua Mordecai. Meeting notes approved.

The terms of one-third of STAC members will end on June 30. Request that those members consider serving another term. This is the first web-only STAC general meeting. This and future meetings will entail less expert presentations and more member interactions.

APNEP Staff Update and Member Reports

Dean Carpenter: The compilation of STAC member updates, as well as an update on APNEP staff activities, were posted on the STAC web site for committee member access beforehand. A few highlights from the report:

- (1) monitoring at submerged aquatic vegetation (SAV) low-salinity sentinel sites in September.
- (2) meeting with STAC members Kenworthy and Field to assess aerial imagery in September. Imagery proved suboptimal and hence plans are to re-fly this spring.
- (3) APNEP leadership council meeting in mid-January, with STAC-related charges to be discussed later during this meeting.
- (4) An email report from STAC member Eric Brittle this morning (to compliment his member highlight) that alewife numbers are looking good in the Nottaway River, and shad are now present.

Rua Moredcai: Finds these written summaries useful.

Submerged Aquatic Vegetation and Water Quality Workshop (March 4)

Tim Ellis: Over 70 participants at the workshop. The sponsors (APNEP/NC Division of Marine Fisheries/Pew) were pleased with the turnout. The workshop recommendations will feed in the Coastal Habitat Protection Plan (CHPP) processes. Representatives from Tampa Bay and Chesapeake Bay shared their water quality experiences. There are many gaps in North Carolina. CoastWise Partners gave presentations. Brooke Landry presented on Chesapeake Bay SAV work. STAC members Kenworthy and Paerl gave presentations. Breakout sessions were held to discuss needed data and management strategies. Organizers are working on a summary support which will come to the STAC. Questions?

Paul Angermeier: Granted, there were discussions about SAV responses to water quality, but was there any discussion about human community responses to ecological change?

Jud Kenworthy: Workshop only addressed water quality, not community response.

Ellis: There are no plans at this time for other workshops.

Kenworthy: During the post-workshop meeting (March 5), the participants developed additional goals and work groups.

STAC Subcommittee Report on Monitoring Strategy

Michelle Moorman: A portion of the monitoring subcommittee (STAC members Moorman, Boutin, Kalla) met on January 30. Feeling that the entire STAC has participated along the way. The focus, as a pilot, will be on SAV and water quality. The initial strategy will require no new data: APNEP is well suited to do this. They discussed multiple models, consensus was to focus on water quality factors that affect light attenuation. Therefore, focus phytoplankton, turbidity. Michelle reviewed the indicators and metrics [see slide]. Suggest looking at abiotic factors as well: suspended solids, temperature, salinity, dissolved oxygen, pH.

Hans Paerl: Nathan Hall's presentation at the March 4 workshop, mentioned that colored dissolved organic matter (CDOM) is changing rapidly and is an important factor for light attenuation. While it has not been measured in most water quality monitoring programs, it has been measured in the Neuse by ModMon.

Kenworthy: Any CDOM data for Pamlico or Albemarle Sounds?

Paerl: ModMon has western Pamlico Sound and FerryMon has some data. Not aware of any data for the Albemarle.

Dame: Are CDOM data derived via probe or lab-derived?

Paerl: Both: he can provide information on methods. Organic nitrogen is also increasing in concert with CDOM, it may be that both factors contribute to algal blooms.

Moorman: This topic was discussed at the January 30 meeting.

Paerl: Agree that clarity factors should be primary. Net nitrogen effect/change is near zero since inorganic nitrogen is decreasing, but organic nitrogen is increasing.

Moorman: Is a focus on water clarity sufficient initially?

Paerl: Focus on optical components for monitoring water quality and link to SAV is key initially.

Kenworthy: A lot of clarity data are available, mostly Secchi disk data. Endorsed the scoping as proposed.

Carpenter: Staff has moved forward with a monitoring plan outline, and anticipate on distributing to the STAC monitoring subcommittee is a week or so.

Moorman: Suggested Hans and Jud review the monitoring plan outline in addition to the STAC Monitoring Subcommittee.

APNEP Leadership Council Charge to STAC

Kirk Havens: LC has charged the STAC to focus A-P monitoring program on SAV and water quality. Rebuilding the STAC to be a more functional body in the direction of an implementation committee. Asked Wilson Laney and Bill Crowell to weigh in.

Wilson Laney: Reviewed the Leadership Council (LC)/STAC discussion that occurred at the January 14-15 LC meeting.

Havens: Reiterated that the STAC is critical to the program.

Bill Crowell: Charges have been shared with the LC Review Team (Laney team leader), established to keep momentum moving forward with regards to the remaining time frame of the current CCMP. [LC charges displayed]

Committee Discussion: STAC Response to LC Charge

Boutin: Leadership Council discussion that STAC needs to heed, also echoed from EPA – more actionable items/program moving forward (most members on webinar in agreement – this has to happen). Good scientific direction for focal areas, make STAC more functional as a whole.

Burrell Montz and Rua Mordecai: Felt that the LC charges to the STAC were actionable.

Kelly Somers: STACs of other National Estuary Programs are having similar discussions.

Dame (discussion leader): The five questions listed on the meeting agenda are to guide this session's committee discussion.

- **Question 1:** The LC has advised to consider other fish habitat as potential focus areas for APNEP in addition to SAV and water quality. Based on the Coastal Habitat Protection Plan (CHPP), this would leave shell bottom, soft bottom, and wetlands as the remaining applicable fish habitats. Should other fish habitat focus areas be included in the monitoring strategy and if so, why? Would the recommended monitoring strategy (SAV and water quality) sufficiently capture trends that can be linked back to APNEP actions?
- **Question 2:** What are the corresponding geographic areas for the monitoring strategy?
- **Question 3:** Is this doable?

Dame: SAV present in the Chowan River, but not a lot. SAV puts focus more in the estuaries.

Laney: Suggested adding the indicator "access" as an important component of fish habitat, others such as the Atlantic States Marine Fisheries Commission (ASMFC) are looking at this. The CHPP revisions are under way.

Carpenter: The CHPP has looked to APNEP-STAC for advice on monitoring indicators.

Don Field: How about change detection on salt marsh?

Laney: Question for Mordecai or Moorman, the National Wetland Inventory (NWI) most recent estimates for North Carolina?

Moorman: NWI was last done in 2009 and the next one will cover 2009-2019; she provided a link via the webinar chat box (www.fws.gov/wetlands/documents/Wetlands-Status-and-Trends-Reports-fact-sheet.pdf)

Dame: Does NWI cover all wetland classes?

Field: Believed that all wetland classes are covered. NWI gives bare estimates of every state but is just a snapshot. It is easier to remotely sense salt marsh than SAV and to get imagery. Good data are available from remotely-sensed, leaf-off data. Suggestion to investigate change detection for some sub-area.

Carpenter: The APNEP Wetland Monitoring & Assessment Team (MAT) could provide some feedback on this topic.

Field: Agreed.

Peter Kalla: Felt the proposed project is doable (another submerged habitat). What is good for SAV is good for other habitats as well.

Dame: Being on the Wetlands MAT, floodplain forest and marsh would be more easily monitored remotely than the soft bottom or shell habitats.

Field: Agreed that the latter two would be more difficult. NOAA colleague Carolyn Currin said North Carolina's marsh database is fairly outdated. He has seen 6-8 feet of erosion over the last 30 years in SAV imagery.

Dame: Army Corps of Engineers has seen 70% loss in Currituck Sound.

Moorman: Agreed that the question is really interesting. The monitoring pilot is to see how much effort it takes to tackle this one question.

Crowell: The intent is to tackle water quality and SAV, then add others after the two-year initial focus.

Field: It would be easier to track wetland extent, given the ease of tracking.

Laney: Fish access is easy to track also.

Kalla: How about estuarine shoreline mapping?

Field: Believe it is available for most of the state, and piers are included.

Moorman: Hardened shorelines are mapped as well. One side-bar discussion is the value of learning about what other STAC members are doing: a virtual meeting such as today makes it more challenging.

Lee Bodkin: USGS has publication coming out in April on water quality and bed sediment for Currituck Sound. Lee in webinar chat box shared a link to a USGS product that he forgot to include in the member highlight report:

www2.usgs.gov/water/southatlantic/nc/projects/sparrow/

Laney: Can STAC members work with staff on other indicators, metrics independently from SAV and water quality?

Dame and Carpenter: Agreed.

Laney: Repeated his previous question and stated he assumed members all agreed to this because we all felt it was the right direction.

Dame: How about the last sub-question under Question 1?

Laney: Believe the answer is “yes”.

Boutin: Support biting off a smaller chunk initially.

- **Question 4:** What kinds of expertise are we lacking and/or need to grow in order to effectively address APNEP priorities and needs? How do we most effectively recruit that expertise?
- **Question 5:** What emerging issues for the APNEP region does the STAC need to place focus on? How do we effectively engage STAC members to take ownership of those issues and produce white papers and other documents that can help progress our understanding?

Dame: Seeking emerging issues or data availability issues

Laney: Emerging issues include marine fishery management, also emergent and forested wetland migration in response to rising sea level.

Kalla: Is there a coastal geomorphologist on the STAC?

Carpenter: STAC members Rich Whittecar and Reide Corbett have that expertise.

Paerl: [Former STAC member] Tony Rodriguez has that expertise.

Angermeier: How values and expectations of stakeholders are changing is important – what do people expect out of the A-P (social, economic, political landscape)

Carpenter: The Human Dimensions MAT had been wrestling with that question, use of surveys. Burrell Montz is team leader.

Montz: This is a broad area. Jacob Hochard is on that team as well, the MAT are thinking about this and need to understand the scientific needs to capture in the surveys.

Angermeier: Great that discussion was in motion, would like focus in this area increased in priority for APNEP. Socioeconomic issues/changes often out-pace science.

Montz: Agreed

Angermeier: Important to be up front with some of these social issues.

Carpenter: All the committee rosters are on the web site, and STAC members have biographies explaining their expertise.

Dame: How about emerging contaminants? Is Sid Mitra still a STAC member?

Carpenter: Sid is no long serving on STAC and there has not been a champion of this issue for the STAC. The Water Resources MAT (Sid still a member) has had preliminary discussions on emerging contaminants.

Laney: The wood pellet industry is another issue that has been in the news lately.

Dame: Agreed, there is some discussion it could be contributing to water quality issues in the lower Chowan River. Noted contaminants as an issue.

Boutin: Was going to mention wood pellets as well yet was glad someone else had raised the issue.

Laney: How about coastal resiliency in general and Governor's executive order?

Dame: View the socio-economic aspect going along with the ecosystem migration aspect. More and more towns and municipalities getting engaged, they are on the front lines of climate change. Perhaps getting local government representation on the STAC, such as landscape architects and planners.

Boutin: You would have to identify a certain expert to serve on the STAC, as most are policy oriented and may be better suited for the Leadership Council.

Dame: Agreed.

Laney: Living shorelines as an emerging issue? Other states are embracing policy change but not North Carolina.

Boutin: Suggest that there is solid science for living shorelines in North Carolina, it is more on the policy side that impetus is needed.

Hochard: How about the economic aspect of resilience by comparing ecosystem services, coastal resilience, built solutions, and how those compare from a human dimension perspective.

Dame: That would be a great issue paper topic. Other expertise needed on the STAC?

Angermeier: Expertise in comparing natural, versus built, services.

Montz: Jake Hochard has that expertise.

Laney: Paul Angermeier also has that expertise.

Carpenter: New STAC member Jane Harrison of NC Sea Grant also has that expertise.

Dame: Any other thoughts?

Laney: East Carolina University's recent "Hurricon" conference and whether there would be proceedings or presentations posted online?

Hochard: Will check with ECU Center for Natural Hazards Research.

Kenworthy: Bottom line from the conference?

Hochard: Conference's purpose was to share recent research done on hurricane response and centralize hurricane information for the state, had 400+ attendance, will share the program.

Dame: Noting the last part of Question 5, how to incentivize STAC issue paper production?

Laney: Members have discussed STAC engagement and ownership of issues for years – what is the incentive?

Carpenter: Briefed members on history of STAC issue papers, a means for the committee to be proactive.

Laney: STAC issue papers were posted on the APNEP web site.

Carpenter: Will check to confirm their access in light of recent APNEP web updates (editor's note: available by APNEP site search "STAC Issue Paper")

Dame: Desired production level?

Carpenter: Option to create overarching issue papers, then create "daughter" issue papers that delve deeper into a particular aspect.

Moorman: Shared that she is "tapped out" between workload and home responsibilities.

Laney: Meaning that Michelle would be more likely to work on a deliverable that would further her FWS goals?

Moorman: Yes

Somers: Referenced the STAC bylaws, because issue papers are not specifically mentioned, perhaps the bylaws should be revisited/clarified?

Carpenter: Do not see the STAC bylaws are being prohibitive. If an issue emerges for which there is no STAC expertise, then recruiting a candidate with that expertise may be warranted.

Hochard: It resonates that issue papers related to one's work would be more favorable.

Laney: Another incentive could be issue papers that lead to proposals.

Carpenter: Staff and past STAC executive boards have discussed mini-grants for literature surveys, etc., but staff had run into administrative snags. Will check back on the feasibility of this option.

Hochard: ECU would be interested in partnering.

Kenworthy: Many STAC members produce reports and peer-reviewed documents. Perhaps members just need to do a better job of documenting those. Suggest that members review what has been done and compile a bibliography.

Dame: Produce a bibliography or distilling select documents to one-pagers?

Kenworthy: That would be an interesting exercise, but issue papers are not needed.

Angermeier: Support the one-pager idea. Members should identify the audience(s)—there may be audiences where the one-pager would be effective.

Dame: Agree there could be different audiences.

Public Comments and Action Items

No public comments.

Boutin: STAC co-chairs have enough from this discussion to move forward with SAV and water quality. Will work with the LC to generate some issue papers, more action on emerging issues.

Dame: Good summary, suggest to revisit answers to the five questions and provide an update as an agenda item during the September meeting. Any more topics?

Laney: How is the Governor's emergency declaration (regarding the COVID-19 virus) affecting APNEP's programs and future meetings?

Crowell: Hard to say what the short- and long-term impacts will be. Staff appreciated everyone's participation today. Universities (NCSU) have prohibited meetings of 100 or more.

Dame: How about future meetings?

Crowell: Many national meetings have been cancelled. We will just have to wait and see how things develop. Washington DC has declared a state of emergency as well.

Meeting adjourned 12:33 pm.