



**Mobile Bay National Estuary Program
Science Advisory Committee Meeting**

**10 am – 12:00 pm January 24, 2020
Killian Room, International Trade Center
250 N. Water Street Mobile, AL 36602**

Agenda

Welcome - review and approval of minutes from previous meeting

Dr. John Lehrter, Dauphin Island Sea Lab

Updates and Presentations

Stressor Matrix – Linking Pressures to Habitats and Ecosystem Services

Dr. John Lehrter, Dauphin Island Sea Lab and Dr. Missy Partyka, MS-AL Sea Grant

Development of a D'Olive Watershed Condition Framework

Tim Thibaut, Barry A. Vittor & Associates

Habitat Classification Update

Kari Servold, Moffat and Nichol

Other Business

Adjourn



**Mobile Bay National Estuary Program
Science Advisory Committee Meeting
Killian Room, International Trade Center, Mobile AL
January 24, 2020**

The Mobile Bay National Estuary Program Science Advisory Committee was established to bring area experts together to provide advice, guidance, and recommendations to ensure that MBNEP activities will be conducted in a scientifically relevant and rigorous manner.

In attendance:

Alex Beebe, Jacob Blandford, Wade Burcham, Dottie Byron, Kevin Calci, Ashley Campbell, Marlon Cook, Newton Cromer, Patric Harper, Steve Jones, Cade Kistler, John Lehrter, Fred Leslie, John Mareska, Autumn Nitz, Missy Partyka, Scott Phipps, Greg Pierce, Kari Servold, Tim Thibaut, Bret Webb

Phone-in: Becky Allee

MBENP Staff: Jason Kudulis, Roberta Swann, Katie Dylewski, Ben Brenner, Bethany Dickey, and Tom Herder

Dr. John Lehrter called the meeting to order at 10:06 CST. Minutes from the September 2019 meeting were shared via email and in print at the meeting. Dr. Bret Webb made a motion to accept the minutes. Dr. Missy Partyka seconded.

After a quick round of introductions, Dr. John Lehrter and Dr. Missy Partyka presented a draft stressor matrix MBNEP is proposing as a tool to navigate and address complex environmental issues. First, Dr. Lehrter shared a broad overview of how and why the decision support matrix being proposed can be valuable. Developing more traditional quantitative models have substantial time and costs associated with development and at times issues arise that need to be addressed within a shorter timeframe that does not coincide with quantitative model development. Additionally, complex social and ecological issues cannot easily or cost effectively be measured. The method being presented today is to create a matrix that considers the “wisdom of the crowds”. Within the SAC (and the Management Conference) exists a capable and diverse group of subject matter experts that we can tap into to assist decision making or to tackle issues utilizing a meaningful quasi-quantitative method guided by collective input from resource stakeholders ([Aminpour, P., Gray, S.A., Jetter, A.J. et al. Wisdom of stakeholder crowds in complex social-ecological systems. *Nat Sustain* \(2020\)](#)). MBNEP previously used a similar method with success to tease out the “six values” in the CCMP.

Next, Dr. Partyka shared a draft matrix that she, the SAC co-chairs, and MBNEP staff have been structuring that. It is important that we first define how the matrix can be used and that appropriate representation of human and environmental ecosystem services are included. Stressors and potential environmental impacts can be modified depending on the topic of concern, essentially creating a plug-and-play tool for the SAC to evaluate and prioritize. The matrix uses a 0-3 scale to weigh the level of potential impact from an identified stressor to a specific habitat considering related ecosystem services. Additional discussion is likely needed to determine the appropriate habitats and temporal and spatial scales. Part of that determination will be driven by the stressor(s) and environmental impact(s) being evaluated. As before with the CCMP exercise

participants will be asked only to respond to stressors, habitats, and ecosystem services they have expertise in and should be left blank otherwise. SAC use of the matrix will build consensus to not necessarily provide a defined opinion regarding a given topic, but as a committee to drive need prioritization and identification of gaps. Distilling priorities and gaps may then offer additional questions, recommendations, etc. as a body of science.

Two things need additional consideration before the draft matrix can be instituted. 1) Collective buy-in on the conceptual model and the human ecosystems that have been added. The environmental ecosystem services were vetted during the previous CCMP effort but could be reevaluated as well. 2) Narrowing down the appropriate habitats depending on the issue/stressor in question. Do we evaluate all 10 priority habitats (previously vetted) regardless or do we narrow down to a few options that are of greatest concern? The committee committed to pursuing this topic. Attendees agreed a subcommittee is a good first step to flesh out the conceptual model. Fred Leslie, Becky Allee, Bret Webb, Missy Partyka, and Alex Beebe volunteered to serve along with the committee co-chairs.

Additional thoughts from the discussion:

- The coal ash issue is sensitive, and concerns were raised that results of this exercise could create backlash for committee members.
- Because coal ash is complex and controversial should we use it as a pilot to work out the framework?
- Will the document remain internal or is it going to be used by outside organizations to meet their needs?
- We need to more clearly define how the matrix will and could be used.

Next, Mr. Tim Thibaut with Barry A. Vittor & Associates reported progress to develop a D'Olive Watershed Condition Framework (WCF). The WCF presents an evaluation of trends in biological condition and an evaluation of the success of D'Olive Watershed restoration activities, through an analysis of the quality of wetlands, streams, and riparian buffers at the restored sites, and their adjacent areas. The WCF is intended to serve as a template for using biological condition, measures of management effectiveness, and cost-effective monitoring to evaluate delivery of ecosystem services in coastal Alabama watersheds.

For context, Mr. Thibaut provided background on the programmatic stream restoration approach implemented in D'Olive and MBNEP/SAC previous efforts to develop environmental indicators to track management effectiveness and a Biological Condition Gradient (BCG) framework for evaluating and reporting on estuarine status and trends. Using habitat quality indicators, the BCG framework has potential to be applied as a consistent approach for classifying habitat condition and tracking the effectiveness of environmental management. Successful restoration can be considered to have occurred when a biological condition tier is improved or maintained. The BCG may be used in a WCF to determine if management activities in priority watersheds result in demonstrated improvement to stream and aquatic habitat conditions. Conceptually, a WCF may also be informed by measurable improvements in the physical aspects of restoration, such as more effective stormwater management or reductions in sediment loading. Use of physical attributes for condition assessment would require some measurable standard, such as a TMDL for subject streams.

Vittor & Associates was tasked with researching and developing an approach to stream assessment that would allow monitoring personnel to make sound but rapid judgments of general stream condition over time, specifically in relation to the restored areas of streams in the D'Olive Watershed.

A Rapid Stream Assessment (RSA) method was developed to measure D'Olive stream condition, combining elements of established State-specific habitat assessments (HAS), the Riparian Habitat Health Level Evaluation (RipHLE), Wetland Rapid Assessment Procedure (WRAP), and field biological observations. The RSA index includes attributes (metrics) for sediment deposition, habitat smothering, channel alteration, channel sinuosity, bank stability, bank vegetative protection, habitat availability, canopy cover, riparian buffer width, riparian vegetative quality, local watershed erosion, and macroinvertebrate taxa quality. For an assessed stream reach (100-m) each attribute is scored as poor (+0), moderate (+2), or good (+4), depending on its individual criteria. The points are summed and the overall RSA score is reported as a proportion of a 50-point maximum (0.0 to 1.0). Reach scores ranging from 0.0 to 0.50 are defined as poor quality; 0.51 to 0.75 as fair quality; and 0.76 to 1.0 as good quality.

Some conclusions from this effort reveal that In general, stream reaches above the restoration sites scored higher than the restoration sites themselves or their immediate downstream reaches. Upstream areas generally had “moderate” to “good” riparian buffer zone widths, riparian vegetative quality, channel sinuosity, bank stability, and bank vegetative protection. Restored stream reaches overall had relatively poor scores for riparian buffer zone width and canopy cover, and in some for instances for channel alteration and bank vegetative protection. Plant community attributes in restored areas are expected to improve as the sites develop and mature.

Results for downstream reaches were variable, but their overall RSA scores were similar to or higher than the restoration areas. This was generally due to greater riparian buffer zone width and canopy cover downstream. Scores for sediment deposition were generally poor at downstream sites, but most received moderate scores for habitat smothering, suggesting that the active sedimentation occurring pre-restoration has decreased, and new habitat is developing.

Macroinvertebrates in restored reaches reflected generally good water quality and habitat availability. The placement of logs, rocks, and step pools appears to have enhanced bank stability to provide habitat for a range of species. The presence of moderately pollution-tolerant macroinvertebrates at restoration sites suggests habitat improvement compared to pre-restoration conditions.

Information contained in the 2010 D'Olive Watershed Management Plan for site-specific stream conditions was used to establish baseline RSA scores and facilitate a condition trend analysis. The proportion of good, fair, and poor stream conditions, the BCG framework, was evaluated at a sub-watershed (catchment) scale. Overall stream condition improved in the Joe's Branch sub-watershed, to 0.51 (Fair) post-restoration from 0.38 (Poor) pre-restoration, largely due to downstream improvement where habitat quality had been severely degraded by sedimentation. The other restoration sub-watersheds do not yet show a condition class increase; however, the restoration projects at Tiawasee Creek and D'Olive Creek DA Tributary have halted the deterioration of high-quality upstream habitat.

For anyone interested, the full Vittor & Associates report can be found [here](#) on our website.

Another aspect of this project was to evaluate cost-effective and efficient methods for evaluating trends in habitat condition related to MBNEP watershed plan implementation in other coastal Alabama watersheds. MBNEP will continue to work with Vittor and Associates to incorporate D'Olive Bay monitoring data collected over a three-year period and in-stream continuous monitoring data collected by MBNEP and the City of Daphne, where applicable. D'Olive Watershed restoration monitoring activities to date represent the first implementation of restoration monitoring recommendations outlined in the Mobile Bay Subwatershed

Restoration Monitoring Framework developed by the SAC.

The quality discussion and presentations today did not leave any time remaining to have Ms. Kari Servold with Moffat and Nichol present. We will invite her back to a future meeting to provide an update on the Habitat Classification project.

At 12:12 pm, Dr. Lehrter made the motion to adjourn and Mr. Fred Leslie seconded it.