SCIENTIFIC & TECHNICAL ADVISORY COMMITTEE

Date, Time and Location

October 20, 2023 -- 9:00 a.m. to 12:00 p.m. Hybrid Meeting at DNREC Lewes Field Facility 901 Pilottown Rd, Lewes, DE and via Zoom

Call To Order, Welcome, Introductions - Doug Janiec, Vice-Chairperson

Announcements - Meghan Noe Fellows, CIB

1. Decked Out 2023 was well attended (+100 attendees) on September 21, 2023.
2. Volunteer Appreciation Night will be held on November 2, 2023, at Crooked Hammock Brewery, Lewes DE. STAC Members are invited to attend.

Center Staffing Updates – Meghan Noe Fellows

1. Processing applications for Science Technician
2. New Science Coordinator starting Monday - Taylor Hofmann

Old Business

Environmental Monitoring Plan Update, Meghan Noe Fellows, CIB – Work is currently on hold awaiting new CIB staff. A meeting will be held in the next couple of months. New Sub-committee members from STAC would be beneficial.

RFP for Hydrodynamic Model Development, Meghan Noe Fellows, CIB - Work is currently on hold awaiting new CIB staff. New Sub-committee members from STAC would be beneficial.

Nearshore Impacts of Offshore Wind Subcommittee, Meghan Noe Fellows, CIB – EIS Statement finally issued and is being reviewed by subcommittee members. The next meeting will be held on October 31st to prepare comments for CIB submission. All STAC Members are welcome to attend this meeting.

Wastewater Planning Subcommittee, Bryanna Lisiewski, CIB – Working on entering existing monitoring data Coordinating with DNREC on missing DMRs and with the County on missing septic tank data.

2024 Biohabitat Management Plan, Bryanna Lisiewski, CIB – Biohabitats is preparing the 2024 Biohabitat Management Plan. The first meeting was held in August with a second meeting planned for December 7th. If you were unable to attend the first meeting, contact Bryanna for a meeting summary.

New Business

New App for Tracking Volunteer Hours – Nivette Perez Perez **, CIB**
The CIB is transitioning to a more centralized volunteer management software next year. This system was described in the recent CIB Journal. The CIB is hoping to start collecting all volunteer hours into that system as soon as possible. This system will be particularly important in obtaining an accurate number of volunteer hours expended, which can be used as part of

total CIB services provided for federal and state grants. In the past, volunteer hours performed have been greatly under reported. Time spent in support of various meetings can be reported as well.

New Member Presentations - Christian Hauser, Associate Director, Delaware Sea Grant - Chris described his qualifications including having a strong background in coastal ecology and extensive experience working with private organizations, government agencies, and non-government organizations to implement a variety of coastal restoration and stabilization projects. This experience in stakeholder engagement and knowledge of coastal issues and challenges facing our local communities is critical for his position as associate director of Delaware Sea Grant. He works closely with the Marine Advisory Service staff and researchers at University of Delaware and other institutions to assist in providing science-based information to end-users and stakeholders.

State of the Bays Technical Report - Marianne Walch

Since the principal authors of the 2023 State of the Bays Report may not be available to assist in the preparation of the next report (Marianne is retired, Andrew McGowan has taken a position in the Barnegat Bay Program), Marianne is organizing all of the information so that it will be easily retrievable by the authors of the next report. She is performing the following tasks:

1. Collating the individual reports into one document;
2. Ensuring that data sources, methodologies, and analyses are documented and easy to find;
3. Ensuring that the Technical Report is available to the public and researchers; and
4. Ensuring that the data files are well organized.

To date, the status of her efforts is as follows:

1. All reports have been collated and uniformly formatted uniformly formatted (about 350 pages);
2. Some figures may need to be replaced;
3. The remaining work includes proofing assuring that all data is current and checking page numbers for accuracy; and
4. Cleaning up the CIB Drive folder.

Marianne indicated that she probably has a couple more weeks to complete her work. There was one question concerning coordination with a STAC subcommittee to follow up on this work. Marianne indicated that she can get together with the subcommittee for follow-up.

Submerged Aquatic Vegetation in the Inland Bays - History of SAV studies in the Inland Bays Brittany Haywood, Sea Grant

Brittany reviewed the key SAV studies/events that have occurred from the 1920s to present day. This information was compiled during the 2023 Delaware SAV Stakeholder Workshop held in September.

Timeline 1920-1983

1. **Pre-1920** - Anecdotal reports of abundant SAV populations
2. **1921** - Abrupt declines in eelgrass (*Zostera marina*) in Assawoman Bay;
3. **1950** - Delaware's tax ditches and canal systems began to be dug
4. **1954** - Eelgrass planting in Delaware Bay and Indian River

5. **1983** - Inland Bays Habitat Suitability Study

Timeline 1985-2010

1. **1985-1986**
    a. Water Quality Study performed
    b. Inland Bays deemed vacant of rooted estuarine SAV
2. **1997**
    a. DNREC purchased macroalgae harvester
    b. Project to Analyze Critical SAV Habitat Requirements began
3. **1998-1999**
    a. Eelgrass transplant project from Chincoteague Bay to Inland Bays
    b. Delaware's Nutrient Management Law was passed
4. **2004 -** Survey of eelgrass beds in Pasture Point
5. **2010-2024**
    a. SAV sightings during clam survey: Whites Creek, Seashore State Park, James Farm and Great Herring Creek Stomp
    b. Water Quality Study performed
    c. Regulatory update that prevents shellfish harvest in SAV beds
    d. DNREC begins to compile GIS data on SAV beds
    e. U.S. EPA trialed echosounder in the Inland Bays
    f. CIB deployed pearl bags, Trialed use of drones as mapping tool, Mapped acreage of freshwater SAV, Found horned pondweed in Love Creek
    g. DNREC, CIB and DESG piloted seed processing method
    h. DE SAV Practitioner Stakeholder Workgroup meeting held
    i. Development of Delaware SAV Workgroup

During the recent Stakeholder Meeting**,** the participants worked to develop "Statewide Vision" on dealing with SAV that would result in stakeholder support. The following "Five Bold Steps" were identified during that meeting:

1. Identify SAV Locations
2. Establish and Maintain SAV Workgroup
3. Improve SAV Regulation
4. Improve outreach with all stakeholders
5. Long term monitoring of SAV and Water Quality

Freshwater SAV in Eastern Sussex Co Kayla Clauson DNREC

Submerged aquatic vegetation (SAV) by definition must grow underwater and are rooted vascular plants. SAV is not just Eelgrass but includes several other species such as Widgeon Grass. It does not include seaweed or macroalgae.

Historically, there is limited information about SAV in Delaware. The following studies were previously conducted:

1. 1988 Study in the Inland Bays;
2. 2005 DNREC Survey in the Nanticoke River; and
3. 2020 Mapping by the Center for Inland Bays (CIB)
4. There have been some restoration attempts to re-establish SAV with mixed results.

The following information has been compiled as part of our survey/study in order to establish "what we know":

1. DNREC Surveys (2022-) including Quick Capture and Survey123;
2. CIB Mapping (2020-2021)
3. Efforts and studies conducted before 2019; and
4. Anecdotal information.

The survey has found that there 14 species of SAV found statewide with an average of 2-3 per site. The majority of species were found in Brandywine Creek in New Castle County.

Another survey was conducted for eelgrass (Zostera marina) by the Maryland Department of Natural Resources in the Summer of 2018. The survey was conducted in Sinepuxent Bay where approximately 100 quarts of reproductive material was collected. Pearl bags were deployed off of Pasture Point in this survey. A second survey was conducted in the Summer of 2019 with no results. Challenges noted were that there was no prior habitat suitability and that there was a lack of establishment monitoring.

DNREC conducted a survey in the Summer of 2019 in the Shoreline and Waterway Management Section and the Town of South Bethany. A DNREC Harvester was used in the area to clear macroalgae. Detached floating Widgeon Grass (Ruppia maritima) were then collected. Pearl bags were used for deployment of the seed primarily in Pasture Point with the remaining seed broadcast into Herring Creek.

Concerns about continued replanting of the SAV included the use by local farmers of copper-based herbicides and the limitations on the harvester. There was also a lack of public information about the project and a lack of coordination between the DNREC staff and others. Ultimately, internal funding by DNREC was not continued for the project.

During the Summer of 2020, DNREC staff visited Herring Creek and observed Widgeon Grass (Ruppia maritima). However, during the Summer of 2021, they reinspected Herring Creek and did not find any Widgeon Grass. They identified lack of regular monitoring and habitat suitability as challenges.

During the Summer of 2021, WAMS and EPA Region 3 conducted an SAV mapping of the Nanticoke River-Deep Creek. In the Spring of 2022, Deep Creek was again surveyed via kayak. There was also a seed collection in Bethany the Summer of 2022. Unfortunately, the seed collection was a failure when the DNREC algae harvester cleared most of the seed before collection could take place. Challenges identified included organizational capacity and lack of training/established protocols.

Additional recent DNREC surveys conducted include Cow Bridge Branch (September 14, 2022) and the Nanticoke River (August 2023). In the Nanticoke watershed, Old Furnace (by kayak), Rifle Range (by kayak) and Chapel Branch (unofficial survey) were also surveyed. Challenges again noted included lack of organizational capacity, landowner access, and navigational issues.

Future needs included continued agency support (collaboration, funding and capacity), habitat suitability analyses, site access where needed and personnel training.

Question It seems that for any of these restoration efforts, habitat suitability is the most important consideration. If you're just trying to restore something, and you pick the wrong spot, what happens? General discussion followed.

Question Concerning how effective remediation can be, is the issue funding?

Kayla Clauson (DNREC): No, I think this is what led us to having this state-wide meeting that Britney put together. Hopefully, having these group meetings regularly will promote a better understanding of the problem and possible solutions. I'll just add to that during this past year, a collaborative was established on the East Coast which involves state agencies and research entities. There's been a lot more research opportunities and a lot more discussions about SAV, including specific discussions within Delaware. Public education and outreach have also increased which are such important components of this work. We want the public to be aware of what's going on and knowledgeable about SAV restoration, particularly adjacent landowners whose permission we need to access the restoration sites.

I also wanted to mention, that I'm bringing more habitat suitability and monitoring issues up for discussion at these meetings. If there's a failed restoration attempt, the designers may get discouraged about doing more restoration. There has to be a scientific basis to identify why a restoration failed, or why it was successful.

Comment Kelly Somers, EPA (she/her) - I couldn't agree more. Kayla.
More general discussion followed.

Comment Bob Murphy - One of the limitations that you just mentioned was what type of long-term monitoring is implemented. If a decline in the vegetation is noted, is reseeding initiated. And when it comes to habitat suitability, there are a number of habitat suitability models that have been developed. So a thorough literature review would be appropriate. And Kelly Somers, I'd be very interested to hear more about what you're doing, in Delaware, as well with the fresh water having to have suitability development. We are looking at that also in the Chesapeake Bay Region. A general discussion followed.

Comment Claire Simmers CAC – The public needs more education about what SAV is and how important restoration of SAV is to the ecosystem. She also suggested opportunities for additional monitoring by residents. Ka;yla agreed and indicated that they were trying to set up a citizen monitoring program similar to what has been setup in the Chesapeake Bay. A brief discussion on invasive species, grants and public education followed.

Submerged Aquatic Vegetation in Delaware's Inland Bays (Widgeon Grass) - Taylor Hoffman

Based upon DCIB mapping, there is currently 10.69 acres (estimated) of bay grasses in the Inland Bays of which 9.52 acres are Horned Pondweed (Zannichellia palustris) and 1.12 acres of Widgeon Grass (Ruppia cirrhosa).

A seed collection was conducted in 65 Acre Pond in Little Assawoman Bay to collect Widgeon Grass seed. The staff were also able to collect Sago Pondweed (Stuckenia pectinata) as well. Approximately 69,500 Widgeon Grass seed and 25,500 Horned Pondweed seed were collected. The seed was separated using a "turbulator" which separates the seed using mechanical action and allows it to sink to the bottom of the tank for easy removal.

Site suitability for replanting was evaluated at several locations including South Bethany (reference site), Pasture Point (Indian River Bay), the adjacent cove to Sixty-Five Acre Pond (Little Assawoman Bay) and Sassafras Landing (Little Assawoman Bay).

Each of the sites were then reviewed. The **South Bethany Canal** was the reference site and had the following characteristics:

1. Historically supported widgeon grass beds
2. Some low light values attributed to heavy algae, rain events, and large cloud cover

3. While not colored red, days with low PLW preceding a heavy algae day could also be attributed to heavy algae.

Pasture Point in Rehoboth Bay had multiple data points removed due to loss of equipment in storms and instrument malfunction issues. It also had a Low PLW attributed to high algae and Wave action which exceeded the established limits for bay grass success. For the **Adjacent Cove to Sixty Five Acre Pond – Little Assawoman Bay** site and the **Sassafras Landing – Little Assawoman Bay** site, there were some low light values attributed to heavy algae, rain events, large cloud cover. While not colored red, days with low PLW preceding a heavy algae day could also be attributed to heavy algae.

Seed collection viability was reviewed with viability ranging from 80% for the Widgeon Grass to between 90-100% for the Sago Pondweed. Seed germination was also reviewed with again the Sago Pondweed performing much better than the Widgeon Grass in Round 1 experiments. In round 2 of the experiments, the seeds were in freshwater for 2 weeks with a 12 hr light/dark cycle to "jump start" the germination process. The seeds were then Transferred to the following salinity treatments for the remaining 2 weeks to observe continuous growth:

1. Sago Pondweed – 2 ppt, 10 ppt
2. Widgeon – 5 ppt, 10 ppt, 25 pp

A general discussion about germination rates followed. It was noted that germination rates and viability tended to drop off greatly after about 2 to 3 months storage.

Goals and Objectives of Joint PDE Session in 2024

A general discussion on the goals and objectives was held including discussing various metrics.

Adjourn

Next Meeting: February 9, 9:00am to 12:00pm, Hybrid - Dover or Lewes?

CY24 STAC Meeting Schedule (Location TBD):

February 9, 2024

April 26, 2024

August 9, 2024

October 18, 2024

STAC Meeting on October 20, 2023, Attendees

DCIB Staff – Meghan Noes Fellows, Bob Collins, Nivette Perez Perez, Bryanna Lisiewski, Taylor Hoffman

STAC Members – Aaron Givens**,** Claire Simmers, Kelly Somers, Edward Hale, Doug Janiec, Rob Gano, Alison Rogerson, Ram Mohan, Zina Hense, Judy Denver, Ashley Norton, Andrew Wozniak, Richard Watson, Mollie Yacano, Chris Hauser

Other Attendees – Mike Smith, Ben Coverdale, Bob Murphy, Kayla Clausen, Michelle Koenig, Brittany Haywood, A. G. Robbins, Marianne Walch,